

जयपुर विकास प्राधिकरण, जयपुर

कमरा नं. 126, प्रथम तल, नागरिक सेवा केन्द्र, रामकिशोर व्यास भवन, इन्दिरा सर्किल जवाहर लाल नेहरू मार्ग,
जयपुर-302004

दूरभाष : + 91-141-2569696, ई-मेल : eeeproject2jda@gmail.com

क्रमांक: जविप्रा/अधि.अभि.(प्रोजेक्ट- I I)/2021-22/डी-

दिनांक:

निविदा सूचना

निविदा सूचना : जविप्रा/अधि. अभि.(प्रोजेक्ट- I I)/01/2021-22

जयपुर विकास प्राधिकरण द्वारा **Engineering, Procurement & Construction (EPC)** के आधार पर **"Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur"** जिसकी अनुमानित लागत राशि रु 47.00 करोड़ के लिए ऑनलाईन बिड्स दिनांक 13.07.2021 को सायं 6:00 बजे तक आमन्त्रित की जाती है। निविदा बोली का ऑनलाईन आवेदन व भुगतान जविप्रा पोर्टल पर करने की अन्तिम तिथि 13.07.2021 को सायं 6:00 बजे तक है। निविदा बोली के दस्तावेजों का विस्तृत विवरण www.sppp.rajasthan.gov.in, www.eproc.rajasthan.gov.in and www.jda.urban.rajasthan.gov.in पर देखा जा सकता है।

(UBN No.

)

निविदा में भाग लेने वालों को निम्न शर्तों की पूर्ति करनी होगी।

1. निविदादाता जयपुर विकास प्राधिकरण की वेबसाइट www.jda.urban.rajasthan.gov.in पर पंजीकृत हो एवं निविदा में भाग लेने के लिए बोलीदाता को आवेदन करने के लिए दस्तावेज शुल्क, अमानत राशि, आर.आई.एस. एल. प्रोसेसिंग शुल्क ऑनलाईन जमा करनी होगी।
2. ऑनलाईन निविदा प्रस्तुत करने के लिए निविदादाताओं का राजस्थान सरकार के ई-प्रोक्यूरमेंट पोर्टल www.eproc.rajasthan.gov.in पर पंजीकृत हो।

अधिशायी अभियन्ता (प्रोजेक्ट- I I)

JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

Room No. CCC-FF-126, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg, Jaipur – 302004

Telephone: +91-141-2569696 Email:- eeproject2jda@gmail.com

No: - JDA/EE(Project-II)/2021-22/D-

Dated:

NOTICE INVITING BID

NIB No. : JDA/EE (Project-II)/01/2021-22

Online Bids are invited up-to 6.00 PM 13.07.2021 for **“Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur”** on **Engineering, Procurement & Construction (EPC)** basis. Estimated cost is Rs 47.00 Crore. The last date for Applying Bid and making online payment on JDA portal is up-to time 6.00 PM of 13.07.2021. Details may be seen in the Bidding Document at our office or the State Public Procurement Portal website www.sppp.rajasthan.gov.in, www.eproc.rajasthan.gov.in and www.jda.urban.rajasthan.gov.in.

(UBN No.)

To participate in the bid, bidder has to be:

1. Registered on JDA website www.jda.urban.rajasthan.gov.in, for participating in the Bid, the Bidder has to apply for the Bid and pay the Bidding Document Fee, RISL Processing Fee and Bid Security Deposit, online only.
2. Registered on e-Procurement Portal of Government of Rajasthan www.eproc.rajasthan.gov.in for online e-Bid submission.

Executive Engineer (Project-II)

Copy to :-

1. PRO Cell, JDA, Jaipur through TA to DE (I) for publication in News paper.

Job No. JDA/EE Project 07/A & F/2012- 2013/Dec/297

Executive Engineer (Project-II)

JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

Room No. CCC-FF-126, Ram Kishore Vyas Bhavan, Indira Circle, Jawaharlal Nehru Marg, Jaipur – 302 004

Telephone: +91-141-2569696 Email: eeproject2jda@gmail.com

No: JDA/EE(Project-II)/2021-22/D-

Date:

NIB No. : JDA/EE(Project-II)/01/2021-22

Name & Address of the Procuring Entity	➤ Name : Executive Engineer (Project-II), Jaipur Development Authority ➤ Address : Room No. 126, 1st floor, Citizen Care Centre Building, JDA Campus, Indira Circle, Jawahar Lal Nehru Marg, Jaipur- 302004 (Rajasthan) ➤ Email : eeproject2jda@gmail.com
Subject Matter of Procurement	Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur on Engineering, Procurement & Construction (EPC) basis Job No. JDA/EE Project 07/A & F/2012- 2013/Dec/297
Bid Procedure	➤ EPC Mode, Two Envelope System; open competitive bidding as per e-Bid procedure at http://eproc.rajastha.gov.in
Bid evaluation Criteria (Selection Method)	➤ L1 (eg. Least Cost based Selection (LCBS)-L1)
Websites for downloading Bidding Document, Corrigendum's, Addendums, etc.	➤ Websites: www.sppp.rajasthan.gov.in , www.eproc.rajasthan.gov.in , www.jda.urban.rajasthan.gov.in
Website for online Bid application participation and payment *	➤ Website: www.jda.urban.rajasthan.gov.in ➤ For participating in the Bid, the Bidder has to apply for this Bid and pay the Bidding Document Fee, RISL Processing Fee and Bid Security Deposit, online only. - o Bidding document fee: Rs. 1000/- Rupees (One Thousand Only) - o RISL Processing Fee: Rs. 1000/- (Rupees One Thousand Only) - Requisite Bid Security Deposit
Estimated Procurement Cost	INR 47.00 Cr (Forty Seven Crore only)
Bid Declaration	➤ All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by Finance Department (GF&AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid. ➤ Bid Security for all bidders like those contractors registered in AA class category in JDA or equivalent in other departments /PSUs/private entity registered under companies act or as applicable act should submit Bid Declaration in prescribed format Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,
Date/Time/Place of Pre-Bid	➤ 29.06.2021 at 12.00 PM in "Manthan", Second Floor, Main Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawahar Lal Nehru Marg, JDA Campus, Jaipur or through video conferencing (VC) for which the interested bidders may intimate to Executive Engineer (Project-II) Seven days (07) in advance.
Applying Bid and making Online Payment on JDA portal	➤ Start Date: 14.06.2021 at 9.30 AM ➤ End Date: 13.07.2021 at 06.00 PM

(www.jda.urban.rajasthan.gov.in)	➤ In case EMD in form BG Original Bank Guarantee is to be submitted in Room No NB-III, 215 B of DD (E&B) of Bank Building, Jaipur Development Authority by 14.06.2021, 9.30 AM to 13.07.2021 up to 6.00 PM
Bid Submission on e-Procurement Portal of GOR (www.eproc.rajasthan.gov.in)	➤ Start Date: 14.06.2021 at 9.30 AM ➤ End Date: 13.07.2021 at 06.00 PM
Date/Time/Place of Bid Opening	➤ 15.07.2021 at 4.00 PM in Room No. 126, 1st floor, CCC Building, JDA Campus, Indira Circle, Jawahar Lal Nehru Marg, Jaipur- 302004 (Rajasthan)
Bid Validity	➤ 120 days from the bid submission deadline
Completion period of work	➤ 18 Months
A. Payment Options: - All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by Finance Department (GF & AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid. Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,	
Note: - Bidder (authorized signatory) shall submit their offer on-line in Electronic formats both for technical and financial proposal. - In case, any of the bidders fails to pay the Tender Fee, BSD, and RISL Processing Fee, online (subject to confirmation), its Bid shall not be accepted. - To participate in online bidding process, Bidders must procure a Digital Signature Certificate (Type III) as per Information Technology Act-2000 using which they can digitally sign their electronic bids. Bidders can procure the same from any CCA approved certifying agency, i.e. TCS, Safecrypt, Ncode etc. Bidders who already have a valid Digital Signature Certificate (DSC) need not procure a new DSC. Also, bidders must register on http://eproc.rajasthan.gov.in (bidders already registered on http://eproc.rajasthan.gov.in before 30-09-2011 must register again). - JDA will not be responsible for delay in online submission due to any reason. For this, bidders are requested to upload the complete bid well advance in time so as to avoid 11th hour issues like slow speed; choking of web site due to heavy load or any other unforeseen problems. - Bidders are also advised to refer "Bidders Manual Kit" available at eProc website for further details about the e-Tendering process. - Training for the bidders on the usage of e-Tendering System (eProcurement) is also being arranged by DoIT&C, GoR on a regular basis. Bidders interested for training may contact e-Procurement Cell, DoIT&C for booking the training slot. Contact No: 0141-4022688 (Help desk 10 am to 6 pm on all working days) e-mail: eproc@rajasthan.gov.in Address : e-Procurement Cell, JDA, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur - The procuring entity reserves the complete right to cancel the bid process and reject any or all of the Bids. - No contractual obligation whatsoever shall arise from the bidding document/ bidding process unless and until a formal contract is signed and executed between the procuring entity and the successful bidder. - Procurement entity disclaims any factual/ or other errors in the bidding document (the onus is purely on the individual bidders to verify such information) and the information provided therein are intended only to help the bidders to prepare a logical bid-proposal. - The provisions of RTPPA Act 2012 and Rules 2013 thereto shall be applicable for this procurement. Furthermore, in case of any inconsistency in any of the provisions of this bidding document with the RTPPA Act 2012 and Rules thereto, the later shall prevail.	

Executive Engineer (Project-II)

Process for Participation & Depositing Payment Online

JAIPUR DEVELOPMENT AUTHORITY, has decided to receive Bidding document fee, RISL Processing Fee and Bid Security Deposit (BSD) through online mode only for which the bidder has to get registered himself on JDA portal www.jaipurjda.org.

To participate in the bid, bidder has to be:

1. Bidder should be registered in AA class category in JDA or equivalent in other departments /PSUs/private entity registered under companies act or as applicable act.
2. Registered on e-Procurement Portal of Government of Rajasthan www.eproc.rajasthan.gov.in for online e-Bid submission.

Methods for depositing on line amount

- All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by finance Department (GF & AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid.

Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,

JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

SCHEDULE AND SPECIFICATIONS

Name of Work: - Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur

1.	NIB No.	:	EE (Project-II)/01/2021-22
2.	Approximate cost	:	₹ 47.00 Crore
3.	Cost of the Bid document	:	₹ 1000.00, Through Online Payment only.
4.	Bid Processing Fees	:	₹ 1000.00 , Through On Line Payment only.
5.	Bid Security / Bid Declaration (In favors of Secretary, JDA, Jaipur.)	:	➤ All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by Finance Department (GF&AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid. ➤ Bid Security for all bidders like those contractors registered in AA class category or equivalent in JDA/other department/PSU's/ private entity registered under companies act or as applicable act should submit Bid Declaration in prescribed format Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,
6.	Download of Bid document	:	From 14.06.2021, 9.30 AM to 13.07.2021 upto 6:00 PM
7.	Upload the Bid Document	:	From 14.06.2021, 9.30 AM to 13.07.2021 upto 6:00 PM
8.	Date of Pre Bid Meeting	:	29.06.2021 at 12:00 PM
9.	Date/Time/Place of Bid Opening	:	15.07.2021 at 4.00 PM in , Room No 126, First Floor, CCC Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur- 302004 (Rajasthan)
10.	Physically BG submission start date	:	14.06.2021 at 09:30 AM

11.	Physically BG submission end date	:	13.07.2021 at 10:00 AM
12.	Last Date of submission of Bid cost, Bid Process cost & Bid Security.	:	13.07.2021 up to 6.00 PM through online only.
13.	Date of opening of Bid	:	15.07.2021 at 4.00 PM (Room No. 126, First Floor, CCC Building, Ram Kishore Vyas Bhavan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur- 302004 (Rajasthan)
14.	Completion period of work	:	18 Months

SCHEDULE – A: INFORMATION USEFUL FOR THE BIDDERS:

The Bidder should see the site and fully understand the conditions of the site before bidding and include all lead, lift etc. for the materials. The bidder should also go through the detailed drawings, specifications of each item of Schedule G & Schedule H as this work is on EPC mode and quote his rate on lump-sum basis. The work shall be carried out in accordance with the Indian standard specification/ BIS specification and to the entire satisfaction of the Engineer-In-Charge of the work.

SCHEDULE – B: LIST OF THE DRAWING:

1. Detailed Drawings of all interior works.

The other drawings may be seen in office of the undersigned.

SCHEDULE – C: LIST OF THE DRAWING TO BE SUPPLIED BY THE BIDDER:

List of the drawing to be supplied by the bidder -As per requirement of contract

SCHEDULE - D: TEST OF THE MATERIALS:

The testing of the materials and workmanship shall be conducted by the JDA staff as per prescribed norms. The result of such tests should confirm to the standard laid down in the Indian standard/BIS detailed specification. Qualified personnel as required duly approved by JDA shall have to be engaged at site by the contractor at his cost. The JDA reserves the right to engage such staff and recover the expenses from the contractor on such account in case of his failure to do so.

SCHEDULE – E: SAMPLES OF THE MATERIALS:

The sample of the materials to be used by the bidder shall be deposited 15 days in advance with the Engineer In charge and be got approval by him before use.

SCHEDULE - F: TIME OF COMPLETION:

The work should start within 10 days of issue of work order and complete within 18 months

SCHEDULE – G: Attached separately. It is for reference purpose only as tender is on EPC mode.

SCHEDULE – H: SPECIAL CONDITION:

Attached Separately.

SCHEDULE – I: LIST OF MATERIAL TO BE SUPPLIED BY THE DEPARTMENT

NIL

SCHEDULE – J: COST OF BID DOCUMENTS, PROCESSING FEES & BID SECURITY.

The Bid processing fees payable to Managing Director R.I.S.L. & Cost of Bid documents & Bid Security is payable to Secretary, JDA, Jaipur will be accepted on line only Kindly refer "Instructions to Bidders" of the bid documents for process of online payment.

**Signature of the Bidder
With full Address**

**Executive Engineer (Project-II),
JDA, Jaipur**



Jaipur Development Authority, Jaipur

**Engineering Procurement and Construction
(EPC)
Bid Document
For**



**Interior works (Civil, Electrical, HVAC, Light
& Sound, Fire Fighting etc.) in Rajasthan
International Centre, Jhalana Doongri, Jaipur**

Bid Reference No.

Bidding Document

Table of Contents - Summary Description

VOLUME – I

PART I BIDDING PROCEDURES

Section I - Instructions to Bidders (ITB)

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

Section II - Bid Data Sheet (BDS)

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 - Instructions to Bidders.

Section III - Evaluation and Qualification Criteria (EQC)

This Section contains the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

PART II REQUIREMENTS

Section IV – Procuring Entity's Requirement (PER)

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured.

PART III CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section V A - General Conditions of Contract (GCC)

This Section contains the general clauses to be applied in all contracts.

Section V B - Special Conditions of Contract (SCC)

This Section contains provisions which are specific to each contract and which modify or supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Section V C - Contract Forms (COF)

This Section contains forms, which, once completed, will form part of the Contract. The forms for Performance Security, Advance Payment Security, when required, Tripartite Agreement shall only be completed by the successful Bidder after contract award.

Section VI- Drawings

DISCLAIMER

The participating bidders are informed through sale of Bidding Documents and under disclaimer of bid documents, Volume-I as under:-

- (a) The interested bidder should make its own independent assessment and seek its own professional, technical, financial and legal advice.
- (b) The information provided in the bid documents has been prepared in good faith; it is not and does not purport to be comprehensive or to have been independently verified. Neither JDA, nor any of its officers or employees, nor any of their advisers nor consultants accept any liability or responsibility for the accuracy, reasonableness or completeness of, or for any errors, omissions or misstatements, negligent or otherwise, relating of the proposed interior work, or makes any representation or warranty, express or implied, with respect to any written or oral information made or to be made available of any of the recipients or their professional advisers and, so far as permitted by law and except in the case of fraudulent misrepresentation by the party concerned, and liability therefore is hereby expressly disclaimed.
- (c) The information contained in the bid documents is selective and is subject to updating, expansion, revision and amendment that a recipient may require. Neither JDA nor any of its officers, employees, nor any of its advisors nor consultant undertakes to provide any recipient with access to any additional information or to update the information in bid documents or to correct any inaccuracies therein which may become apparent. Each recipient must conduct its own analysis of the information contained in bid documents or to correct any inaccuracies therein which may become apparent. Each recipient must conduct its own analysis of the information contained in bid documents or to correct any inaccuracies therein that may contain in bid documents and is advised to carry its own investigation into the proposed interior work, the legislative and regulatory regime which applies thereto and by and all matters pertinent to the proposed Project and to seek its own professional advice on the legal, financial, regulatory and taxation, consequences of entering into any agreement or arrangement relating to the proposed interior work.
- (d) The bid documents includes certain statements, estimates, targets and forecast with respect to the interior work. Such statements, estimates, projections, targets and forecasts reflect various assumptions made by the management, officers and employees of JDA, which assumptions (and the base formation on which they are made) may or may not prove to be correct. No representation or warranty is given as the reasonableness of forecasts or the assumptions on which they may be based and nothing in bid documents is, or should be relief on as, a promise, representation or warranty. The estimate provided with the bid document is only for reference purpose. Actual assessment of cost for the work shall be carried out by participating bidder before online submission of bid.

SECTION I

INSTRUCTION TO BIDDERS (ITB)

Section-I : Instruction to Bidders (ITB)

Important Instruction: - The Law relating to procurement “The Rajasthan Transparency in Public Procurement Act, 2012” [hereinafter called the Act] and the “Rajasthan Public Procurement Rules, 2013” and modified thereof from time to time [hereinafter called the Rules] under the said Act have come into force which are available on the website of State Public Procurement Portal <http://sppp.raj.nic.in>. Therefore, the Bidders are advised to acquaint themselves with the provisions of the Act and the Rules before participating in the Bidding process. If there is any discrepancy between the provisions of the Act and the Rules and this Bidding Document, the provisions of the Act and the Rules shall prevail.

1.	General		
	1.1 Scope of Bid		In support of the Invitation to Bid indicated in the Bid Data Sheet (BDS), the Procuring Entity issues this Bidding Document for the procurement of works as named in the BDS and as Specified in Section V, Procuring Entity's Requirements.
	1.2 Interpretation		Throughout this Bidding Document: (a) The term “in writing” means communicated in written Form through letter, fax, e-mail etc. with proof of receipt. (b) If the context so requires, singular means plural and Vice versa; and “Day” means calendar day.
	1.3 Code of Integrity	1.3.1	Any person participating in the procurement process shall: - i. Not offer any bribe, reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process; ii. Not misrepresent or omit that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation; iii. Not indulge in any collusion, bid rigging or anti- competitive behaviour to impair the transparency, fairness and progress of the procurement process; iv. Not misuse any information shared between the Procuring Entity and the Bidders with an intent to gain unfair advantage in the procurement process; v. Not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process; vi. Not obstruct any investigation or audit of a procurement process; vii. Disclose conflict of interest, if any; and viii. Disclose any previous transgressions with any Entity in India or any other country during the last three years or any debarment by any other Procuring Entity.
		1.3.2	Conflict of Interest: A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

			A Bidder may be considered to be in conflict of interest with one or more parties in this bidding process if, including but not limited to: have controlling partners/ shareholders in common; or receive or have received any direct or in direct subsidy from any of them; or have the same legal representative for purposes of this Bid; or have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Procuring Entity regarding this bidding process; or The Bidder participates in more than one Bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the Bidder is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one Bid; or the Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Works that are the subject of the Bid; or The Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as Engineer-in-charge/ consultant for the Contract.
		1.3.3	The Bidder shall have to give a declaration regarding compliance of the Code of Integrity prescribed in the Act, the Rules and stated above in this Clause along with its Bid.
		1.3.4	Breach of Code of Integrity by the Bidder: - Without prejudice to the provisions of Chapter IV of the Rajasthan Transparency in Public Procurement Act, in case of any breach of the Code of Integrity by a Bidder or prospective Bidder, as the case may be, the Procuring Entity may take appropriate action in accordance with the provisions of sub-section (3) of section 11 and section 46 of the Act.
	1.4 Eligible Bidders	1.4.1	Bidder should be registered in AA class category in JDA or equivalent in other departments /PSUs/private entity registered under companies act or as applicable act
		1.4.2	JOINT VENTURE: In case the bidder comprises a joint venture or consortium, following requirements shall also be complied with: The JV will have to be formed before submission of the bid and total number of JV partners shall not exceed 2 (Two). They must designate lead partner duly authorized by all the members who will represent the J.V. Of the two partners one with higher stake will be the lead partner. For Evaluation & qualification criteria of 2(b) , 2(c) it should be in one financial year. For The lead partner shall be nominated as being partner-in-charge and this authorization shall be evidenced by submitting power of attorney signed by the legally authorized signatories of all the partners. The partner-in- charge (or, the lead partner) shall be

			authorized to incur liabilities and to receive instructions on the behalf of the partners of the Joint Venture, whether jointly or severely, and entire execution of the contract (including payment) shall be carried out exclusively through the partner- in-charge. The share of one of the two partners shall not be less than 26% and rest of the share shall be held by other partner (For example if share of one partner is 26% then for other partner it will be 74%.) The JDA will only send communication to the lead partner, which will be deemed to have been sent to all the J.V. partners. Similarly, any negotiation and / or agreement with the lead partner shall be deemed to have been concluded with all the J.V. partners. All the members of J.V. shall be bound by the said communication and all acts/ deeds of the lead member. Any one of the two partners, alone or jointly, can fulfill the Technical Criteria laid down in section –III: Evaluation and qualification, clause 2(a) & 2(b) of Special Conditions. Similarly, any one of the two partners, alone or jointly can fulfill the Financial Criteria laid down in Special Conditions. For rest of the eligibility criteria, qualifications of the two partners may be clubbed together. The individual partner of J.V. alone or with other partners cannot participate in the same bid. For calculation of bid capacity, turn over and work liability of all the firms of joint venture shall be considered together. Attested copy of the MoU / Agreement/ Power of attorney entered into by the joint venture / consortium members duly notarized shall be submitted along with the Technical Bid with intended percentage participation nomination of lead member and division of responsibility to clearly define the work of each member etc. All the members of the joint venture/ consortium shall be jointly and severally liable for the execution of the Contract. In the event of default by any member of the joint venture/ consortium in the execution of his part of the contract, the partner-in-charge will have the authority to assign the work to any other party acceptable to the employer to ensure the execution of the part of contract. If initially the bid has purchased and submitted by the any partner or by the JV firm, in case JV bid accepted, the work order will be issued in favour of name of JV and the bidder will submit details of JV bank account to which payment is to be deposited by JDA. The experience certificate will be issued as per percentage of the shareholders defined in JV agreement of the two partners.
		1.4.3	A Bidder/JV constituting the bidder, shall have the nationality of India. A Bidder shall be deemed to have nationality of a country if the Bidder is a citizen

			or constituted or incorporated, and operates in conformity with the provisions of the Laws of that country. This criterion shall also apply to the determination of the nationality of proposed Sub-Contractors or suppliers for any part of the Contract including related services
		1.4.4	A Bidder should not have a conflict of interest in the procurement in question as stated in the RTPP Rule 81 and this Bidding document.
		1.4.5	A Bidder debarred under section 46 of the RTPP Act shall not be eligible to participate in any procurement process undertaken by any Procuring Entity, if debarred by the State Government; and a Procuring Entity, if debarred by such Procuring Entity.
		1.4.6	Bidder should be registered in AA class category in JDA or equivalent in other department/PSU s/private entity registered under companies act or as applicable act.
		1.4.7	(i) Any change in the constitution of the firm, etc., shall be notified forth with by the Bidder in writing to the Procuring Entity and such change shall not relieve any former partner/ member of the firm, etc. from any liability under the Contract. (ii) No new partner/partners shall be accepted in the firm by the Bidder in respect of the contract unless he/they agree to abide by all its terms, conditions and deposit with the Procuring Entity a written agreement to this effect. The Bidder's receipt for acknowledgement or that of any partners subsequently accepted as above shall bind all of them and will be sufficient discharge for any of the purpose of the Contract. (iii) The status of the lead partner/ representative of the Joint Venture, Consortium or Association as a major stake holder shall not change without the consent of the Procuring Entity. New major stake holder must agree to abide by all terms and conditions of the Contract.
		1.4.8	Each Bidder/ JV shall submit only one Bid
		1.4.9	Bidder/JV should be registered under the GST Act and submit the proof of registration before signing the Contract agreement. He is also required to provide proof of Permanent Account Number (PAN) given by Income Tax Department.
2	BID DOCUMENT		
	2.1 Sections of the Bidding Document	2.1.1	The Bidding Document consists of two volumes (volume I & II). Volume I comprises three parts (part I, II, & III) which includes Sections as indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB Clause 2.3 [Amendment of Bidding Document]. (A) Volume-I Part I: Bidding Procedures Section I. Instructions to Bidders (ITB) Section II. Bid Data Sheet (BDS)

			Section III. Evaluation and Qualification Criteria Part II: Requirements Section IV. Procuring Entity's Requirements. Part III: Contract Section V(A) - General Conditions of Contract [GCC] Section V(B). Special Conditions of Contract [SCC] Section V (C). Contract Forms (B) Volume-II : Financial bid
		2.1.2	The Invitation for Bids (NIB) issued by the Procuring Entity is also part of the Bidding Document.
		2.1.3	The Bidding Document shall be uploaded on the e-procurement portal, eproc.raj.nic.in along with the Notice Inviting Bids. The complete Bidding Document shall also be placed on the State Public Procurement Portal, sppp.raj.nic.in. The prospective Bidders may download the bidding document from these portals. The price of the Bidding Document and processing fee of e-bid shall have to be paid to the Procuring Entity in the amount and manner as specified in NIB and e-procurement portal.
		2.1.4	The Procuring Entity is not responsible for the completeness of the Bidding Document and its addenda, if they were not downloaded correctly from the e-procurement portal or the State Public Procurement Portal
		2.1.5	The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Document. Failure to furnish all information or authentic documentation required by the Bidding Document may result in the rejection of the Bid.
	2.2 Clarification of Bidding Document and Pre-Bid Meeting	2.2.1	The Bidder shall be deemed to have carefully examined the conditions, specifications, size, make and drawings, etc. of the Works and Related Services to be provided. If any Bidder has any doubts as to the meaning of any portion of the conditions or of the specifications, drawings etc., it shall, before submitting the Bid, refer the same to the Procuring Entity and get clarifications. A Bidder requiring any clarification of the Bidding Document shall contact the Procuring Entity in writing or e-mail at the Procuring Entity's address indicated in the BDS. The Procuring Entity will respond to all raised queries in pre bid meeting. Minutes of pre bid meeting shall be uploaded on the e-procurement portal, state public procurement portal and shall be sent to all bidders who will participating in pre bid meeting prior to the dead line of submission of bids as specified in ITB Sub-Clause 4.2.1 [Deadline for Submission of Bids]. The pre bid minutes issued by procurement entity shall then become part of the bid document and shall read as addendum to bid document.
		2.2.2	The Bidder or his authorized representative may attend the pre bid meeting on the specified date and time as mentioned in NIB. The purpose of pre bid meeting will be to clarify issues and to answer question on any matter related to this procurement

			that may be raised. If required, site visit may be arranged by the procuring entity.
		2.2.3	The Bidder is requested, to submit questions in writing, to reach the Procuring Entity not later than one week before the date of Pre-Bid Meeting.
		2.2.4	At any time prior to the deadline for submission of the Bids, the Procuring Entity, suo motto, may also amend the Bidding Document, if required, by issuing an addendum which will form part of the Bidding Document
		2.2.5	Non-attendance at the Pre-Bid Conference will not be a cause for disqualification of a Bidder.
	2.3 Amendment of Bidding Document	2.3.1	Any addendum issued shall be part of the Bidding Document and shall be uploaded on the State Public Procurement Portal and the e-procurement portal.
		2.3.2	To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Procuring Entity may, at its discretion, extend the deadline for the submission of the Bids, pursuant to ITB Sub-Clause 4.2 [Deadline for Submission of Bids], under due publication on the State Public Procurement Portal and the e-procurement portal and newspapers.
3	Preparation of Bids		
	3.1 Cost of Bidding	3.1.1	The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
		3.1.2	The Bidder shall furnish the scanned attested copies of following documents with its Bid: - i. Partnership Deed and valid registration certificate with the Registrar of Firms in case of Partnership Firms and private entity are also permitted. Power of Attorney in favour of the partner signing/submitting the Bid, authorizing him to represent all partners of the firm. ii. GST registration certificate and Permanent Account Number (PAN) given by the Income Tax Department. iii. Address of residence and office, telephone numbers, e-mail address iv. Certificate of Registration and Memorandum of Association issued by Registrar of Companies in case of a registered company and in case of any other statutory or registered body, certificate of incorporation or registration issued by concerned authorities. Power of attorney in favour of the person signing the Bid. v. Where permitted to bid as Joint Venture, Consortium or Association, letter of formal intent to enter in to an agreement or an existing agreement in the form of a Joint Venture, Consortium or Association.
	3.2 Language of Bid	3.2.1	The Bid, as well as all correspondence and documents relating to the Bid between Bidder and the Procuring Entity, shall be written in English/Hindi. Supporting documents and printed literature

			that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages duly accepted by the Bidder in English/ Hindi in which case, for purposes of interpretation of the Bid, such translation shall govern
	3.3 Documents Comprising the Bid	3.3.1	The bidders shall submit the bid online with all pages numbered serially and by giving index of submissions. Bid should be submitted as follows : (a) Two-envelope system would be adopted, for POST QUALIFICATION. Envelope-1 being for Technical Bid and Envelope - 2 being for Financial Bid. Each envelope would be sealed separately and super scribed as "Envelope-1 Technical Bid" and "Envelope-2 Financial Bid". Both envelopes would be placed in Third envelope duly sealed, bearing the name of work and the name of the bidding contractor. In this third envelope, envelop of earnest money, GST certificate and copy of registration of contractor in required category should also be kept. (E-Bid procedure at http ://eproc.rajastha.gov.in) (b) The technical bid will be opened only of those bidders whose proper Bid Security (Earnest money), GST certificate, Copy of PAN Card and copy of registration of contractor in required category are found to be in order.
		3.3.2	The Technical Bid shall contain the following: - Technical Bid Submission Sheet and Technical Bid containing the filled-up Bidding Forms and Declarations related to Technical Bid]; - proof of payment of price of Bidding Document, processing fee, Bid Security, in accordance with ITB Clause 3.10; - written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 3.11; - documentary evidence in accordance with ITB Clause 3.7 establishing the Bidder's eligibility to bid; - documentary evidence in accordance with ITB Clause 3.8 establishing the Bidder's qualifications to perform the contract if its Bid is accepted; - the Notice Inviting Bids; - any other document required in the BDS; and - Others considered necessary to strengthen the Bid submitted.
		3.3.3	The Financial Bid/ Price Proposal shall contain the following: Financial Bid/ Price Proposal Submission Sheet and the applicable Price Schedules, in accordance with ITB Clauses 3.4, 3.5; Any other document required in the Bid documents.
	3.4 Bid Submission Sheets and Price	3.4.1	The Bidder shall submit the Technical Bid and Financial Bid using the Bid Submission Sheets

	Schedules		provided. These forms must be completed without any alterations to their format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.
		3.4.2	The Bidder shall submit as part of the Financial Bid, the Price Schedules for Works, using the forms
	3.5 Bid Prices	3.5.1	Total Price which the Bidder wants to charge for the entire Works with all its contingencies in accordance with drawings and specifications shall be quoted (in figures and words) by the Bidder. The quoted amount shall be specified in the financial bid in order to regulate the amount to be added to or deducted from the fixed sum on account of additions and alterations not covered by the Contract. Payments shall be linked to various stages of completion of the Works specified in Activity Schedule given in Section V C Special Condition of Contract.
		3.5.2	Prices quoted by the Bidder shall be fixed during the Execution of the work and not subject to variation on any account, unless otherwise specified in the BDS. A Bid submitted with an adjustable price quotation shall be treated as non-responsive and shall be rejected, pursuant to ITB Clause 5.7 [Responsiveness of Bids]. However, if in accordance with the BDS, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a Bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.
		3.5.3	All duties, taxes and other levies payable by the Bidder under the contract, or for any other cause, shall be included in the rates and prices, and the total Bid Price submitted by the Bidder.
	3.6 Currencies of Bid	3.6.1	The rates quoted by the Bidder shall be in Indian Rupees. All payments shall be made in Indian Rupees only.
	3.7 Documents Establishing the Eligibility of the Bidder	3.7.1	To establish their eligibility in accordance with ITB Clause 1.4 [Eligible Bidders], Bidders shall: complete the eligibility declarations in the Bid Submission Sheet and Declaration Form. If the Bidder is an existing or intended Joint Venture [JV], Consortium or Association in accordance with ITB Sub-Clause 1.4.1, shall submit a copy of the Agreement, or a letter of intent to enter into such Agreement. The respective document shall be signed by all legally authorized signatories of all the parties to the existing or intended JV, Consortium or Association as appropriate; and the existing or intended JV shall authorize an individual/ partner in one of the firms as lead partner of the JV to act and commit all the partners of JV for the Bid.
	3.8 Documents Establishing the Qualifications of the Bidder	3.8	To establish its qualifications to perform the Contract, the Bidder shall submit as part of its Technical Proposal the documentary evidence indicated for each qualification criteria specified in Section III, [Evaluation and Qualification Criteria].
	3.9 Period of	3.9.1	Bids shall remain valid for 120 days after the Bid submission deadline date as specified by the

	Validity of Bids		Procuring Entity. A Bid valid for a shorter period shall be rejected by the Procuring Entity as non-responsive
		3.9.2	In exceptional circumstances, prior to the expiration of the Bid validity period, the Procuring Entity may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. The Bid Security or a Bid Securing Declaration in accordance with ITB Clause 3.10 [Bid Security] shall also be got extended for thirty days beyond the dead line of the extended validity period. A Bidder may refuse the request without forfeiting its Bid Security or a Bid Securing Declaration. A Bidder granting the request shall not be permitted to modify its Bid.
	3.10 Bid Security	3.10.1	➤ The bid security for the work is 1% of the estimate procurement cost of Rs. 47.00 cr. ➤ All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by Finance Department (GF&AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid. ➤ Bid Security by all bidders like those contractors registered in AA class category in JDA/ or equivalent in other department/PSUs/private entity registered under companies act or as applicable act . Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,
		3.10.2	Bid Security of a Bidder lying with the Procuring Entity in respect of other Bids awaiting decision shall not be adjusted towards Bid Security for this Bid. The Bid Security originally deposited may, however be taken into consideration in case Bids are re-invited.
		3.10.3	The issuer of the Bid Security and the confirmer, if any, of the Bid Security, as well as the form and terms of the Bid Security, must be acceptable to the Procuring Entity.
		3.10.4	Prior to submitting its Bid, a Bidder may request the Procuring Entity to confirm the acceptability of a proposed issuer of a Bid Security or of a proposed confirmer, if different than as specified in ITB Clause 3.10.3. The Procuring Entity shall respond promptly to such a request.
		3.10.5	The bank guarantee presented as Bid Security shall be got confirmed from the concerned issuing bank. However, the confirmation of the acceptability of a proposed issuer or of any proposed confirmer does not preclude the Procuring Entity from rejecting the Bid Security on the ground that the issuer or the confirmer, as the case may be, has become insolvent or is under liquidation or has otherwise

			ceased to be creditworthy.
		3.10.6	The Bid Security of unsuccessful Bidders shall be refunded soon after final acceptance of successful Bid and signing of Contract Agreement and submitting Security deposit by successful Bidder pursuant to ITB Clause 6.4 [Security deposit].
		3.10.7	The Bid Security from a Bidder shall be recovered /forfeited in the following cases namely :- (a) When the Bidder withdraws, or modifies his Bid after opening of Bids; or (b) when the Bidder does not execute the agreement in accordance with ITB Clause 6.3 [Signing of Contract] after issue of letter of acceptance/ placement of Work order within the specified time period; or (c) when the Bidder fails to commence the Works as per Work Order within the time specified; or (d) when the Bidder does not deposit the Security deposit in accordance with ITB Clause 6.4 [Security deposit]; in the prescribed time limit after the work order is placed; or (e) if the Bidder breaches any provision of the Code of Integrity prescribed for Bidders in the Act and Chapter VI of the Rules or as specified in ITB Clause 1.3 [Code of Integrity]; or (f) if the Bidder does not accept the correction of its Bid Price pursuant to ITB Sub-Clause 5.5 [Correction of Arithmetical Errors].
		3.10.8	In case of the successful bidder, the amount of Bid Security may be adjusted in arriving at the amount of the Security deposit, or refunded if the successful bidder furnishes the full amount of Security deposit. No interest will be paid by the Procuring Entity on the amount of Bid Security.
		3.10.9	The Procuring Entity shall promptly refund the Bid Security of the Bidders at the earliest of any of the following events, namely: - (a) The expiry of validity of Bid Security; (b) The execution of agreement for procurement and Security deposit is furnished by the successful bidder; (c) The cancellation of the procurement process; Or The withdrawal of Bid prior to the deadline for presenting Bids, unless the Bidding Document stipulates that no such withdrawal is permitted.
		3.10.10	The Bid Security of a Joint Venture, Consortium or Association must be in the name of the Joint Venture, Consortium or Association that submits the Bid. If the Joint Venture, Consortium or Association has not been legally constituted at the time of Bidding, the members of the proposed consortium or JV shall enter in to an Agreement to form a legally constituted JV after the issue of Letter of Acceptance/Letter of Intent to them and also declare a partner as the lead partner in whose name the Bid Security may be submitted.
	3.11 Format and Signing of Bid	3.11.1	All pages of the Technical and Financial Bid shall be digitally signed by the Bidder or authorized signatory on behalf of the Bidder.

			This authorization shall consist of a written confirmation and shall be attached to the Bid. In case of a Joint Venture, Consortium or Association, if the Joint Venture, Consortium or Association has not been legally constituted at the time of Bidding, all the members of the proposed Joint Venture, Consortium or Association shall digitally sign the Bid.
4	Submission and Opening of Bids		
	4.1 Sealing and Marking of Bids	4.1.1	Bidders shall submit their Bids to the Procuring Entity electronically only on the e-procurement portal, www.eproc.rajasthan.gov.in . In submission of their Bids, the Bidders should follow the step by step instructions given on the e-procurement portal
		4.1.2	The Bidder shall enclose the Technical Bid and the Financial Bid in separate covers. The proof of payment of price of Bidding Document, processing fee and Bid Security shall be enclosed in third cover. The price of Bidding Document and Bid Security shall be paid in the name of the Procuring Entity and the processing fee shall be paid in the name of RISL.
	4.2 Deadline for Submission of Bids	4.2.1	Bids shall be submitted electronically only up to the time and date specified in the Notice Inviting Bids and BDS or an extension issued thereof.
	4.3 Withdrawal, Substitution and Modification of Bids	4.3.1	A Bidder may withdraw, substitute or modify its Bid after it has been submitted by submitting electronically on the e-procurement portal. A written Withdrawal/ Substitutions/ Modifications etc. Notice on the e-procurement portal, duly digitally signed by the Bidder or his authorized representative, and shall include a copy of the authorization in accordance with ITB Sub- Clause 3.11.1 [Format and Signing of Bid]. The corresponding Withdrawal, Substitution or Modification of the Bid must accompany the respective written Notice. All Notices must be received by the Procuring Entity on the e-procurement portal prior to the deadline specified for submission of Bids in accordance with ITB Sub-Clause 4.2. [Deadline for Submission of Bids].
		4.3.2	No Bid shall be withdrawn, substituted or modified in the interval between the deadline for submission of the Bid and the expiration of the period of Bid validity specified in ITB Clause 3.9. [Period of Validity of Bids] or any extension thereof.
	4.4 Bid Opening	4.4.1	The electronic Technical Bids shall be opened by the Bid opening committee constituted by the Procuring Entity at the time, date and place specified in the Bid Data Sheet in the presence of the Bidders or their authorized representatives, who choose to be present.
		4.4.2	The Bidders may choose to witness the electronic Bid opening procedure online.
		4.4.3	The Financial Bids shall be kept unopened until the time of opening of the Financial Bids. The date, time and location of electronic opening of the Financial Bids shall be intimated to the bidders who are found qualified by the Procuring Entity in evaluation of

			their Technical Bids.
		4.4.4	The Bid opening committee shall prepare a list of the Bidders or their representatives attending the opening of Bids and obtain their signatures on the same. The list shall also contain the representative's name and telephone number and corresponding Bidders' names and addresses. The authority letters brought by the representatives shall be attached to the list. The list shall be signed by all the members of Bids opening committee with date and time of opening of the Bids.
		4.4.5	First, covers marked as "WITHDRAWAL" shall be opened, read out, and recorded and the covers containing the corresponding Technical Bids and Financial Bids shall not be opened. No Bid shall be permitted to be withdrawn unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is readout and recorded at Bid opening. If the withdrawal notice is not accompanied by the valid authorization, the withdrawal shall not be permitted and the corresponding Technical Bid shall be opened. Next, covers containing Scanned copy of online payments and registration certificate shall be opened, read out, and recorded. Next, covers marked as "SUBSTITUTION Technical Bid" shall be opened, read out, recorded. The covers containing the Substitution Technical Bids and/ or Substitution Financial Bids shall be exchanged for the corresponding covers being substituted. Only the Substitution Technical Bids shall be opened, read out, and recorded. Substitution Financial Bids will remain unopened in accordance with ITB Sub-Clause 4.4.4. No Bid shall be substituted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out and recorded at Bid opening. Covers marked as "MODIFICATION Technical Bid" shall be opened thereafter, read out and recorded with the corresponding Technical Bids. No Technical Bid and/ or Financial Bid shall be modified unless the corresponding modification notice contains a valid authorization to request the modification and is read out and recorded at opening of Technical Bids. Only the Technical Bids, both Original as well as Modification is to be opened, read out, and recorded at the opening. Financial Bids, both Original as well as Modification, will remain unopened in accordance with ITB Sub-Clause 4.4.4.
		4.4.6	All other covers containing the Technical Bids shall be opened one at a time and the following read out the name of the Bidder, whether there is a modification or substitution; whether proof of payment of Bid Security or Bid Securing Declaration, if required, payment of price of the Bidding Document and processing fee have been enclosed Any other details as the Bids opening committee may consider appropriate

		4.4.7	After all the Bids have been opened, their hard copies shall be printed and shall be initialled and dated on the first page and other important papers of each Bid by the members of the Bids opening committee. Only Technical Bids shall be read out and recorded at the bid opening and shall be considered for evaluation. No Bid shall be rejected at the time of opening of Technical Bids except Alternative Bids (if not permitted) and Bids not accompanied with the proof of payment of the required price of Bidding Document, processing fee and Bid Security.
		4.4.8	The Bids opening committee shall prepare a record of opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, modification, or alternative offer (if they were permitted), any conditions put by Bidder and the presence or absence of the price of Bidding Document, processing fee and Bid Security. The Bidders or their representatives, who are present, shall sign the record. The members of the Bids opening committee shall also sign the record with date.
		4.4.9	After completion of the evaluation of the Technical Bids, the Procuring Entity shall invite Bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified to attend the electronic opening of the Financial Bids. The date, time, and location of the opening of Financial Bids will be intimated in writing by the Procuring Entity. Bidders shall be given reasonable notice of the opening of Financial Bids.
		4.4.10	The Procuring Entity shall notify Bidders in writing whose Technical Bids have been rejected on the grounds of being substantially non-responsive and not qualified in accordance with the requirements of the Bidding Document
		4.4.11	The Bids opening committee shall conduct the electronic opening of Financial Bids of all Bidders who submitted substantially responsive Technical Bids and have qualified in evaluation of Technical Bids, in the presence of Bidders or their representatives who choose to be present at the address, date and time specified by the Procuring Entity.
		4.4.12	All covers containing the Financial Bids shall be opened at the time & date and the following read out and recorded- the name of the Bidder; whether there is a modification or substitution; the Bid Prices; any other details as the Bids opening committee may consider appropriate After all the Bids have been opened, their hard copies shall be printed and shall be initial and dated on the first page of each Bid by the members of the Bids opening committee. All the pages of the Price Schedule and letters, Bill of Quantities attached shall be initialed and dated by the members of the committee. Key information shall be encircled and

			unfilled spaces in the Bids shall be marked and signed with date by the members of the Bids opening committee.
		4.1.13	The Bids opening committee shall prepare a record of opening of Financial Bids that shall include as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification, the Bid Price, any conditions, any discounts and alternative offers (if they were permitted). The Bidders or their representatives, who are present, shall sign the record. The members of the Bids opening committee shall also sign the record with date.
5.	Evaluation and Comparison of Bids		
	5.1 Confidentiality	5.1.1	Information relating to the examination, evaluation, comparison, and post-qualification of Bids, and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.
		5.1.2	Any attempt by a Bidder to influence the Procuring Entity in its examination of qualification, evaluation, comparison of the Bids or Contract award decisions may be resulting in the rejection of its Bid, in addition to the legal action which may be taken by the Procuring Entity under the Act and the Rules.
	5.2 Clarification of Technical or Financial Bids	5.2.1	To assist in the examination, evaluation, comparison and qualification of the Technical or Financial Bids, the Bid evaluation committee may, at its discretion, ask any Bidder for a clarification regarding his Bid. The committee's request for clarification and the response of the Bidder shall be in writing.
		5.2.2	Any clarification submitted by a Bidder with regard to His Bid that is not in response to a request by the Bid evaluation committee shall not be considered.
		5.2.3	No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetical errors discovered by the Bid evaluation committee in the evaluation of the financial Bids.
		5.2.4	No substantive change to qualification information or to a submission, including changes aimed at making an unqualified Bidder, qualified or an unresponsive submission, responsive shall be sought, offered or permitted.
	5.3 Deviations, Reservations and Omissions in Technical or Financial Bids	5.3.1	During the evaluation of Technical or Financial Bids, the following definitions apply: i.) "Deviation" is a departure from the requirements specified in the Bidding Document; ii.) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and iii.) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
	5.4 Nonmaterial	5.4.1	Provided that a Technical or Financial Bid is

	Non-conformities in Technical or Financial Bids		substantially responsive, the Procuring Entity may waive any non-conformities (with recorded reasons) in the Bid that do not constitute a material deviation, reservation or omission.
		5.4.2	Provided that a Technical or Financial Bid is substantially responsive, the Procuring Entity may request the Bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Request for information or documentation on such nonconformities shall not be related to any aspect of the Financial Proposal of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
	5.5 Correction of Arithmetical Errors in Financial Bid	5.5.1	Provided that a Financial Bid is substantially responsive, the Bid evaluation committee shall correct arithmetical errors during evaluation of Financial Bid on the following basis: i. if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Procuring Entity there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected; ii. if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and iii. if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.
		5.5.2	If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid Securing Declaration shall be executed.
	5.6 Preliminary Examination of Technical or Financial Bids	5.6.1	The Procuring Entity shall examine the Technical or Financial Bids to confirm that all documents and technical documentation requested in ITB Sub-Clause 3.3 [Documents Comprising the Bid] have been provided, and to determine the completeness of each document submitted.
		5.6.2	The Procuring Entity shall confirm, following the opening of the Technical or Financial Bids, that the following documents and information have been provided: i. Bid is signed, as per the requirements listed in the Bidding documents; ii. Bid has been sealed as per instructions provided in the Bidding documents; iii. Bid is valid for the period, specified in the Bidding documents;

		iv. Bid is accompanied by Bid Security or Bid securing declaration; v. Bid is unconditional and the Bidder has agreed to give the required security deposit; vi. Price Schedules in the Financial Bids are in accordance with ITB Clause 3.4 [Bid Submission Sheets and Price Schedules]; vii. written confirmation of authorization to commit the Bidder; viii. Declaration by the Bidder in compliance of Section 7 and 11 of the Act; and ix. Other conditions, as specified in the Bidding Document are fulfilled.
5.7 Responsiveness of Technical or Financial Bids	5.7.1	The Procuring Entity's determination of the Responsiveness of a Technical or Financial Bid is to be based on the contents of the Bid itself, as defined in ITB Sub-Clause 3.3 [Documents Comprising the Bid].
	5.7.2	A substantially responsive Technical or Financial Bid is one that meets without material deviation, reservation, or omission to all the terms, conditions, and specifications of the Bidding Document. A material deviation, reservation, or omission is one that: if accepted, would- i. affect in any substantial way the scope, quality, or performance of the Goods and Related Services specified in Section V, Schedule of Supply; or limits in any substantial way, inconsistent with the Bidding Document, the Procuring Entity's rights or the Bidder's obligations under the proposed Contract; or (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
	5.7.3	The Procuring Entity shall examine the technical aspects of the Bid in particular, to confirm that requirements of Section IV, Procuring Entity's Requirements have been met without any material Deviation, reservation, or omission.
	5.7.4	If a Technical or Financial Bid is not substantially responsive to the Bidding Document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by the Bidder by Correction of the material deviation, reservation, or omissions.
5.8 Examination of Terms and Conditions of the Technical or Financial Bids	5.8.1	The Procuring Entity shall examine the Bids to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation.
	5.8.3	The Procuring Entity shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clauses 3.3 [Documents Comprising the Bid] and to confirm that all requirements specified in Section IV [Procuring Entity's Requirements] of the Bidding Document and all amendments or changes requested by the Procuring Entity in accordance with ITB clause 2.3 [Amendment of Bidding Document] have been met without any material deviation or reservation.

	5.9 Evaluation of Qualification of Bidders in Technical Bids	5.9.1	The determination of qualification of a Bidder in evaluation of Technical Bids shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 3.8 [Documents Establishing the Qualifications of the Bidder] and in accordance with the qualification criteria indicated in Section III [Evaluation and Qualification Criteria]. Factors not included in Section III, shall not be used in the Evaluation of the Bidder's qualification.
	5.10 Evaluation of Financial Bids	5.10.1	The Procuring Entity shall evaluate each Financial Bid, the corresponding Technical Bid of which has been determined to be substantially responsive
		5.10.2	To evaluate a Financial Bid, the Procuring Entity shall only use all the criteria and methodologies defined in this Clause and in Section III, Evaluation and Qualification Criteria. No other criteria or methodology shall be permitted.
		5.10.3	To evaluate a Financial Bid, the Procuring Entity shall consider the following: i). the Bid Price quoted in the Financial Bid; ii) price adjustment for correction of arithmetical errors in accordance with ITB Clause 5.5[Correction of Arithmetical Errors]; iii) Adjustment of bid prices due to rectification of nonmaterial nonconformities or omissions in accordance with ITB Sub Clause 5.4.3 [Nonmaterial Nonconformities in Bids], if applicable.
		5.10.14	If the Bid, which results in the lowest evaluated Bid Price, is considered to be seriously unbalanced, or front loaded, in the opinion of the Procuring Entity, the Procuring Entity may require the Bidder to produce detailed rate analysis for any or all items to demonstrate the internal consistency of those rates with the construction methods and schedule proposed. If the rate justification is not satisfactory submitted by the bidder, the bid of such bidder may be rejected.
	5.11 Negotiations		
		5.11.1	To the extent possible, no clarifications shall be Conducted after the pre-Bid stage. All clarifications needed to be sought shall be sought in the pre-Bid stage itself.
		5.11.2	Negotiations may be undertaken only with the lowest Bidder when the rates quoted are considered much higher than the prevailing market rates.
		5.11.3	The Competent committee shall have full powers to undertake negotiations. Detailed reasons and results of negotiations shall be recorded in the proceedings.
		5.11.4	The lowest Bidder shall be informed about negotiations in writing either through messenger or by registered letter and e-mail (if available). A minimum time of seven days shall be given for calling negotiations. In case of urgency, the competent committee, after recording reasons, may reduce the time, provided the lowest Bidder has received the intimation and consented to holding of negotiations.

		5.11.5	Negotiations shall not make the original offer made by the Bidder inoperative. The competent committee shall have option to consider the original offer in case the Bidder decides to increase rates originally quoted or imposes any new terms or conditions.
		5.11.6	In case of non-satisfactory achievement of rates from lowest Bidder, the Bid evaluation committee may choose to make a written counter offer to the lowest Bidder and if this is not accepted by him, the committee may decide to reject and re-invite Bids or to make the same counter-offer first to the second lowest Bidder, then to the third lowest Bidder and so on in the order of their initial standing in the bid evaluation and work order be awarded to the Bidder who accepts the counter-offer.
		5.11.7	In case the rates even after the negotiations are considered very high, fresh Bids shall be invited.
	5.12 Procuring Entity's Right to Accept Any Bid, and to Reject Any or All Bids	5.12.1	The Procuring Entity reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract award without assigning any reasons thereof and without there by incurring any liability to the Bidders.
6.	Award of Contract		
	6.1 Procuring Entity's Right to Vary Quantities	6.1.1	If the Procuring Entity does not procure any subject matter of procurement or procures less than the quantity specified in the Bidding Document due to change in circumstances, the Bidder shall not be entitled for any claim or compensation except Otherwise provided in the Bidding Document.
	6.2 Acceptance of the successful Bid and award of contract	6.2.1	The Procuring Entity after considering the recommendations of the Bid Evaluation Committee and the conditions of Bid, if any, financial implications, samples, test reports, etc., shall accept or reject the successful Bid.
		6.2.2	Before award of the Contract, the Procuring Entity shall ensure that the price of successful Bid is reasonable and consistent with the required specifications.
		6.2.3	A Bid shall be treated as successful only after the competent authority has approved the procurement in terms of that Bid.
		6.2.4	The Procuring Entity shall award the contract to the Bidder whose offer is the lowest in accordance with the evaluation criteria.
		6.2.5	Prior to the expiration of the period of validity of Bid, the Procuring Entity shall inform the successful Bidder in writing, by registered post or email, that its Bid has been accepted.
	6.3 Signing of Contract	6.3.1	In the written intimation of acceptance of its Bid sent to the successful Bidder, it shall also be requested to execute an agreement in the format given in the Bidding Document on a non-judicial stamp of requisite value at his cost and deposit the Security deposit or a Security deposit Declaration, if applicable, within a period specified in the BDS. In case the successful bidder is a JV still to be legally constituted, all parties to the JV shall sign the Agreement.

		6.3.2	If the Bidder, whose Bid has been accepted, fails to sign a written procurement contract or fails to furnish the required Security deposit or Security deposit Declaration within the specified time period, the Procuring Entity shall forfeit the Bid Security of the successful bidder / execute the Bid Securing Declaration and take required action against it as per the provisions of the Act and the Rules.
		6.3.3	The Bid Security, if any, of the Bidders whose Bids could not be accepted shall be refunded soon after the contract with the successful Bidder is signed and his Security deposit is obtained. Until a formal contract is executed, LOA shall constitute a binding contract.
	6.4 Security deposit	6.4.1	Security deposit shall be solicited from the successful Bidder except State Govt. Departments and undertakings, corporations, autonomous bodies, registered societies, co-operative societies which are owned or controlled or managed by the State Government and undertakings of Central Government. However, a Security deposit Declaration shall be taken from them.
		6.4.2	(i) The amount of Security deposit shall be three percent (3%) of the amount of the Work Order. The currency of Security deposit shall be Indian Rupees.
		6.4.3	Security deposit shall be furnished in one of the following forms as applicable- a). Deposit through eGRAS; or b). Bank Draft or Banker's Cheque of a Scheduled Bank in India in favour of Secretary, JDA, Jaipur; or c). National Savings Certificates and any other script/ instrument under National Savings Schemes for promotion of small savings issued by a Post Office in Rajasthan, if the same can be pledged under the relevant rules. They shall be accepted at their surrender value at the time of Bid and formally transferred in the name of the Procuring Entity with the approval of Head Post Master; or d). Bank guarantee in favour of Secretary JDA, Jaipur payable at Jaipur. It shall be got verified from the issuing bank. Other conditions regarding bank guarantee shall be same as specified in ITB Sub-Clause 3.10 [Bid Security]; or e). Fixed Deposit Receipt (FDR) of a Scheduled Bank. It shall be in the name of the Procuring Entity on account of Bidder and discharged by the Bidder in advance. The Procuring Entity shall ensure before accepting the Fixed Deposit Receipt that the Bidder furnishes an undertaking from the bank to make payment/ premature payment of the Fixed Deposit Receipt on demand to the Procuring Entity without requirement of consent of the Bidder concerned. In the event of forfeiture of the Security deposit, the Fixed Deposit shall be forfeited along with interest earned on such Fixed Deposit. f). The successful Bidder at the time of signing of the Contract agreement, may submit option for deduction of Security deposit from each running and final bill @ 3% of the amount of the bill.

		6.4.4	Security deposit furnished in the form of a document mentioned at options (a) to (e) of Sub-Clause 6.4.3 above, shall remain valid for a period of sixty days beyond defect liability period.
		6.4.5	Failure of the successful Bidder to submit the Security deposit in accordance to 6.4.3 above and sign the Contract accordingly shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event, the Procuring Entity may either cancel the procurement process or if deemed appropriate, award the Contract at the rates of the lowest Bidder, to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Procuring Entity to be qualified to perform the Contract satisfactorily.
		6.4.6	Forfeiture of Security deposit: Amount of Security deposit in full or part may be forfeited in the following cases: - when the Bidder does not execute the agreement in accordance with ITB Clause 6.3 [Signing of Contract] within the specified time; after issue of letter of acceptance; or when the Bidder fails to commence the Works as per Work order within the time specified; or when the Bidder fails to complete Contracted Works satisfactorily within the time specified; or when any terms and conditions of the contract is breached; or to adjust any established dues against the Bidder from any other contract with the Procuring Entity; or if the Bidder breaches any provision of the Code of Integrity prescribed for the Bidders specified in the Act, Chapter VI of the Rules and this Bidding Document. Notice of reasonable time will be given in case of forfeiture of Security deposit. The decision of the Procuring Entity in this regard shall be final.

SECTION II

BIDDING DATA SHEET

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section I: Instructions to Bidders.

Contents

- A. Introduction
- B. Bidding Documents
- C. Preparation of Bids
- D. Submission and Opening of Bids
- E. Award of Contract

A. Introduction

ITB. 1.1.1	The Number of the Invitation for Bids (NIB) is: 01/2020-21 The Member of the Invitation for Bids is: Jaipur Development Authority. Name of Work: Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur (Detailed Scope of work has been defined in Section IV: Procuring Entity's Requirement)
1.1.2	Period of Completion: Construction work in all respect shall be completed in 18 months from the Start Date, which shall be the stipulated date of commencement mentioned in work order.
1.1.3	Estimated Cost of work is: Rs. 47.00 Crore.
ITB 1.4.1	Joint Ventures / Consortium are permitted comprising not more than 2 (two) firms/companies. The maximum equity under JV/Consortium of lead firm should be 74% and another firm 26%
ITB 1.4.2	"Bidders of Indian Nationality" are permissible.
ITB 1.4.3	Bidder may be Registered with Government Department/Organisation class AA or appropriate equivalent class/PSU/Private Entity registered under company act or as applicable act.
ITB 1.4.4	The bidding process is open to bidders who fulfil the prescribed eligibility criteria.
ITB 1.4.5	Each bidder shall upload on-line / submit only one bid for one work. A bidder who submits or participates in more than one bid for the particular Works will be disqualified.

B. Bidding Documents

ITB 2.1.3	This is an "on-line tender". Therefore, tender documents in physical form shall not be available for sale but can be downloaded from the website and pay cost (Rs 1,000/-) while submitting the filled-up Bidding document to the Procuring Entity along with the processing fee of Rs 1,000/- separately in favor of MD RISL, Jaipur. The bidder should submit, by date & time specified in NIB, in original, hard copies of (i) cost of bid document as Rs. 1,000/-Online (ii) Bid processing fee of Rs. 1,000/- online to Managing Director, RISL, Jaipur payable; (iii) Bid Security as per RTPP; (iv) Letter of Technical Bid; (v) Power of Attorney; and (vi) Joint Venture Agreement, if applicable. The bidder should upload scanned copies of these documents on e-procurement website along with their technical bids.
ITB 2.2.1	For Clarification purposes only, the Procuring Entity's address is: OFFICE OF THE EXECUTIVE ENGINEER PROJECT-II Jaipur Development Authority ROOM NO 126, FF, CCC BUILDING Ram Kishor Vyas Bhawan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur-302004 EPABX +91 -141-2569696 Ext.- 7466 : Fax +91-141- 2574555 email : eeproject2jda@gmail.com

ITB 2.2.2	Pre bid Meeting to be held as below: Date: 29.06.2021 Time: 12:00 AM Venue: Manthan Hall Jaipur Development Authority. No site visit shall be organized by the procuring entity. However, bidder are advised to visit the sites at their own expenses and if any support is required, shall be provided by the JDA.
ITB 2.2.3	The Bidders are requested, to submit questions in writing, to reach the Procuring Entity.
ITB 2.3.1	Any addendum issued shall be part of the Bidding Document and shall be uploaded on the State Public Procurement Portals http://sppp.rajasthan.gov.in/ and http://eproc.rajasthan.gov.in or www.jda.urban.rajasthan.gov.in
ITB 2.3.2	To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Procuring Entity may, at its discretion, extend the deadline for the submission of the Bids, pursuant to ITB Sub-Clause 4.2 [Deadline for Submission of Bids], under due intimation to the Bidders by uploading it on the State Public Procurement Portal and its e-procurement portal.

C. Preparation of Bids

ITB 3.2.1	The language of the bid shall be English
ITB 3.3.1	The online Bid shall comprise of two parts submitted simultaneously, one containing the Technical Bid/ Proposal and the other the Financial or Price Bid/ Proposal.
ITB 3.3.2	The Bidder shall submit the forms, declarations and documents, as specified in Section IV of Bid Document, with the Technical Bid:
ITB 3.3.3	The Bidder shall submit the following additional documents with its Technical Bid: - Technical Bid/Proposal Submission Sheet and Technical Bid containing the filled-up Bidding Forms and Declarations related to Technical Bid, possession of required qualifications and Code of Integrity given in Section IV [Bidding Forms]; - Proof of payment of price of Bidding Document, processing fee and Bid Security in accordance with ITB Clause 3.10; - Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 3.11; - Documentary evidence in accordance with ITB Clause 3.7 establishing the Bidder's eligibility to bid; - Documentary evidence in accordance with ITB Clause 3.8 establishing the Bidder's qualifications to perform the contract if its Bid is accepted; - The Notice Inviting Bids; - The PAN No. (Permanent Account Number) of Income tax with the Xerox copy of the PAN card. - Alternative bids shall not be permitted.

	ix. Alternative times for completion shall not be permitted. (However, this does not prohibit the successful bidder from completing the work as per specifications before schedule) x. Any other document required in the BDS; and xi. Others considered necessary to strengthen the Bid submitted.
ITB 3.5.1	Add following: The form of contract for the work “Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur” will be a Lump Sum contract on EPC basis.
ITB 3.5.2	The Prices quoted by the Bidder shall be fixed.
ITB 3.5.3	All variations in taxes and duties shall be borne as per relevant clause of the Section VI B: SCC
ITB 3.9.1	The Bid validity period shall be 120 (One Twenty days) days from deadline for submission of bids.
ITB 3.10.2	➤ The bid security for the work is 1% of the estimate procurement cost of Rs. 47.00 cr. ➤ All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by Finance Department (GF&AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid security declaration in prescribed format along with the bid. ➤ Bid Security by all bidders like those contractors registered in AA class category or equivalent in JDA/other department/PSU's/private entity registered under companies act or as applicable act . Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,
ITB 3.10.3	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of Attorney.

D. Submission and Opening of Bids

ITB 4.1.1	For bid submission purposes only, the Procuring Entity's address is: OFFICE OF THE EXECUTIVE ENGINEER PROJECT-II Jaipur Development Authority, Room No 126, FF, CCC Building, Ram Kishor Vyas Bhawan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur-302004 Bidders shall submit their Bids electronically only. The Bidders shall submit the Bid online with all pages numbered serially and by giving an index of submissions. Each page of the submission shall be initialled by the Authorised Representative of the Bidder as per the terms of the tender. The Bidder shall be responsible for documents accuracy and correctness as per the version uploaded by the Procuring Entity and shall ensure that there are no changes caused in the content of the downloaded document. The bidder shall follow the following instructions for online submission: • Bidder who wants to participate in bidding will have to procure digital certificate as per IT Act to sign their electronic bids. Offers which are not digitally signed will not be accepted. Bidder shall submit their offer in electronic format on above mentioned website after digitally signing the same. • Cost of bid document is Rs. 1,000/- should be deposited by online,

	whereas the Processing fee Rs. 1,000/- should be deposited online to MD, RISL, Jaipur payable at Jaipur. Scanned copy of proof of payments shall be submitted with the technical bid. • The Procuring Entity will not be responsible for any mistake occurred at the time of uploading of bid or thereafter. • If holiday is declared on submission & opening date of tender the scheduled activity will take place on next working day.
ITB 4.1.2	Bids are required to be submitted in Electronic Format, it shall be submitted on the e-procurement portal: http://eproc.rajasthan.gov.in
ITB 4.2.1	The Deadline for electronic Bid submission is Date: 13.07.2021 Time: 06:00 PM
ITB 4.4.1,4.4.5	The online Bid opening shall take place at: OFFICE OF THE EXECUTIVE ENGINEER PROJECT-II Jaipur Development Authority, Room No 126, FF, CCC Building, Ram Kishor Vyas Bhawan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur-302004 The tendering process shall be conducted online only; DD/BG of Bid Security shall be submitted physically up to deadline described in tender document.
ITB 4.4.13,4.4.15	The Procuring Entity will open the Financial proposal as per e-tendering procedure.

E. Award of Contract

ITB 6.3.1	The period within which the Performance Security is to be submitted by the successful Bidder and the Contract Agreement is to be signed by him from the date of issue of Letter of Acceptance is 15 Days.
ITB 6.3.3	The procuring entity shall promptly return the bid security after the earliest of the following events, namely: 1. The expiry of validity of bid security 2. The execution of agreement for procurement and performance security is furnished by the successful bidder; 3. The cancellation of the procurement process; or 4. The withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.
ITB 6.4.1	Security Deposit shall be solicited from the successful Bidder in accordance to 6.4 of ITB.
ITB 6.4.3	(i) Security Deposit amounting to total 3% of contract value (Ref Clause 6.4.2 of ITB) shall be submitted in advance at the time of signing of agreement as per latest rules under RTPP act. Bank Guarantee encashable at Jaipur submitted against the performance guarantee, shall be unconditional and en-cashable/ invokable at Town for which tenders are invited or submitted at Jaipur. (ii) The successful Bidder at the time of signing of the Contract agreement, may submit option for deduction of Security Deposit from each running and final bill @ 3% of the amount of the bill.
7.1	First Appellate Authority shall be: Executive Committee JDA, Jaipur Second Appellate Authority shall be: A.C.S./P.S. UDH Jaipur

Name of Project: - Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur

Section –III Evaluation and Qualification



JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

SCHEDULE AND SPECIFICATIONS

SCHEDULE – A: INFORMATION USEFUL FOR THE CONTRACTORS:

The bidder should see the site and fully understand the conditions of the site before tendering and include all leads, lift etc. The work shall be carried out in accordance with the MORTH/relevant I.S. code specification and relevant Manual and drawings given by consultant and to the entire satisfaction of the Engineer–In–Charge of the work.

Qualified personnel as required under the contractor enlistment rules duly approved by the Deptt. shall have to be engaged at site by the Contractor. The deptt. Reserves the right to engage such staff and recover the expenses from the contractor on such account in case of his failure to do so.

SCHEDULE – B: LIST OF THE DRAWING

The JDA has engaged a consultant M/s Pramod Jain for consultancy for proposed interior works. The bidder has to work as per the drawing & designs provided by the JDA's consultant. The bidder may submit any drawings required for ease of construction without violating the basic themes. The same will need approval by JDA before execution.

SCHEDULE - C: TEST OF THE MATERIALS:

The test of the materials and workmanship shall be conducted by the JDA staff as necessary. The bidder should also provide third party test result. The result of such tests should confirm to the standard laid down in the Indian standard MORTH/relevant I.S. code specification and relevant Manual.

SCHEDULE – D: SAMPLES OF THE MATERIALS:

The sample of the materials to be used by the contractor shall be deposited 15 days In advance with the Engineer In charge and be got approval by him before use.

SCHEDULE - E: TIME OF COMPLETION:

The work should start within 15 days of issue of work order and complete within 18 Months.

Signature of the Contractor

With full Address, Mob No, Landline No & E-mail address

JAIPUR DEVELOPMENT AUTHORITY JAIPUR

SPECIAL CONDITION OF THE CONTRACT FOR CONTRACTORS

Name of work: -Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur.

Special conditions of contract for the project as detailed here under, shall be applicable in addition to all other terms and condition already prescribed under standard agreement forms/rules and regulations to contract.

1. Procedure:

Procedure for qualification would be as follow:

- a. Two-envelope system would be adopted. Envelope-1 being for Technical Bid and Envelope - 2 being for Financial Bid. Each envelope would be sealed separately and super scribed as "Envelope-1 Technical Bid" and "Envelope-2 Financial Bid". Both envelopes would be placed in Third envelope duly sealed, bearing the name of work and the name of the bidding contractor. In this third envelope, envelop of earnest money, GST certificate and copy of registration of contractor in required category should also be kept. (E-Bid procedure at <http://eproc.rajasthan.gov.in>)
- b. The technical bid will be opened only of those bidders whose proper Earnest money, GST certificate and copy of registration of contractor in required category are found to be in order.
- c. The Technical Bid envelope would be opened on the date 15.07.2021 at 4:00 PM in the chamber of CCC-FF-126, Ram Kishore Vyas Bhavan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur – 302004 (Rajasthan).
- d. The Financial Bid envelope would be opened only of those bidders who fulfill all the technical bid criteria.

2. Criteria:

Criteria would be as follows:-

- (a) The bidder should have completed/executed similar nature ***Interior works including False Ceiling, wall panelling, Acoustic Work, Flooring Work, Mural Work, Electrical work (Fire Fighting, HVAC, forced ventilation, Audio/ video system etc.*** in last ten (10) financial years (including current year, if opted by the bidder, as under :

One similar work costing not less than Rs. 23.00 crore

or

Two similar works each costing not less than Rs. 13.00 crore

or

Three similar works each costing not less than Rs. 10.00 crore

or

Four similar works each costing not less than Rs. 8.00 crore

the previous year's value shall be given weight age of 10% per year as follows :-

(a)	2021-2022 (Current Year)	1.00
(b)	2020-2021	1.00
(c)	2019-2020	1.10
(d)	2018-2019	1.21
(e)	2017-2018	1.33
(f)	2016-2017	1.46
(g)	2015-2016	1.60
(h)	2014-2015	1.76
(i)	2013-2014	1.94
(j)	2012-2013	2.13
(k)	2011-2012	2.34

Note:-

- (i) The bidder should enclosed supporting documents like photographs, copies of G-Schedule, Work Order etc. in support of the work qualifying as similar nature work.
- (ii) In case the bidder has executed/completed similar nature interior works as per closed 2A alongwith Civil work/Building work he must submit certificate having completed similar nature interior work as per clause 2A as per the qualifying amount and the component of similar nature interior work should not be less than 35% of total project cost.
- (ii) The starting & completion date of the work is to be in between above said financial year. If no then maximum work (70%) is to be completed in above said financial year.
- (iii) If bidder is submitted certificate having different components/nature of work then proper completion certificate of required similar nature building work (**Hotel 3 star and above, Airport Project, Institution Building, Shopping Mall, Office complex, Auditorium, Theatre, Sport Complex etc.**) experience is to be enclosed.
- (iv) Certificate issued by Govt. of India, State Govts., Union Territory, Govt. Undertakings, Autonomous Bodies, Private Hotel Groups 3 stars and above or private entity registered under companies act or relevant act shall only be considered.

2(b) The bidder should have achieved an annual financial turnover of at least 60% of the Estimated Cost of the work (bid cost) i.e 28.20 crore in any one of last five years (including current year, if opted by the bidder) In case of JV, turn over of both the partners can be clubbed but of same financial year.

- (i) The bidder should enclose certificate of Turn over from Chartered Accountant for last Five financial years & audited balance sheet of the year which is considered by the bidder in criteria.
- (ii) If current year or last year has been opted by bidder whose balance sheet is not submitted till the submission of bid then certificate from Chartered Accountant should be enclosed.

2(c) The bidder should have at least 25% of estimated cost i.e. Rs. 11.75 Crore as a working capital based on current assets and current liabilities (including the short term loan re-payment due in current years)

- 2(d) The bidder should submit certificate of Net Worth for the Financial Year 2020-21 (from latest audited balance sheet) and should be positive. (Certificate of Chartered Accountant showing calculation of Net Worth must be enclosed).

Note:-

- (i) The bidder should enclose certificate of Chartered Accountant clearly mentioning that the working capital is as per formula given in tender document and clearly stating the individual components CA must also clearly mention that he has gone through the Revolving line of credit which is issued by scheduled Bank and Bank's commitment is project specific, assured and without any ambiguity and shall be available till final completion of project, otherwise bid shall not be considered For revolving line of credit bank's letter should be attached. The bank issuing revolving line of credit has to be scheduled Bank as per format, otherwise it shall not be considered.
- (e) Bid Capacity: Bidders who meet the minimum qualification criteria will be qualified only if available bid capacity is equal to or more than the total Bid value.

The available bid capacity will be calculated as under:

$$\text{Bid Capacity} = (A \times N \times 3 - B)$$

Where

A = Maximum value (at present price level) of Civil Engineering works.

N = Number of year prescribed for completion of the work for which bids are invited. In present case value of **N shall be 1.50**

B = Value at present price level of existing commitments and ongoing works to be executed during "N" period.

Note:-

- (a) Certificate from Chartered Accountant should be enclosed by bidder clearly indicating maximum value of Civil Engineering works in one Financial Year.
- (f) Litigation History: - Bidder should provide accurate information on any litigation or arbitration resulting from contracts completed or under execution by him over the last Ten years. The maximum value (updated at the present price level) of disputed amount claimed in the litigation / arbitration resulting from contracts executed in last Ten years shall be deducted from the calculated Bid Capacity of the bidder. The details shall be furnished in Schedule VI.

Note :-

- (i) The present price level for turnover, cost of completed work & disputed amount of similar nature (**Interior works with Electrical works**), the previous year's value shall be given weight age of 10% per year as follows :-

(a)	2021-2022 (Current Year)	1.00
(b)	2020-2021	1.00
(c)	2019-2020	1.10
(d)	2018-2019	1.21
(e)	2017-2018	1.33
(f)	2016-2017	1.46

3. Documentation :

The bidder should furnish the following documents along with the technical bid:

- Information regarding financial resources and capability in Schedule –I.
- Information regarding works executed in the last ten years in Schedule–IV
- Certificates from the concerned Engineer–In–Charge or Project head of PSU or private company in support and verification of the information furnished in Schedule–IV .
- Information regarding details of maximum value of Interior works executed during the last Ten years taking into account the completed as well as works in progress in schedule – IV.
- Information regarding existing commitments and ongoing works to be completed in schedule – V.
- Information regarding details of litigation or arbitration contracts to be furnished in schedule – VI.
- Calculation of Bid capacity in schedule – VII.
- Certificate required for net worth & working capital from chartered accountant in describe format in bid.
- Affidavit of self-declaration as per Annexure I.

4. Important:

- The bidder must ensure that all the information required in the Documents is furnished by him complete in all respects. He would not be allowed to withdraw any document, or to rectify any information furnished therein, after submitting the bid.
- The bidder should give an affidavit that the information furnished in schedule I, to VII is correct. If any information is found incorrect, the offer of the bidder shall be rejected and action be taken as per rules.
- Bidders must do paging of all enclosure of bid documents.

5. REJECTION OF BIDS:

THE DEPARTMENT RESERVES THE RIGHTS TO REJECT ANY BID OR TO DISQUALIFY ANY OR ALL THE BIDDERS, WITHOUT ASSIGNING ANY REASONS AT ANY STAGE.

- i. If Bid is not accompanied with the requisite documents mentioned in Clauses 3 (a) to 3 (j) or is not in accordance with procedure specified in Para 1, or is not accompanied with earnest money & GST Certificate and registration of contractor, as per bid eligibility criteria, in required category it would be liable for rejection.
- ii. Furnishing of incorrect or incomplete or concealment of any information required in the bid documents would render the bid liable for rejection.
- iii. If all the copies enclosed in support and affidavit are not duly self attested by Bidder himself then bid of the bidder is to be rejected.

6. IN CASE OF JOINT VENTURE:

In case the bidder comprises a joint venture or consortium, following requirements shall also be complied with:

- a. In case the bidder comprises a joint venture or consortium, following requirements shall also be complied with: The JV will have to be formed before submission of the bid and total number of JV partners shall not exceed 2 (Two). They must designate lead partner duly authorized by all the members who will represent the J.V. Of the two partners one with higher stake will be the lead partner. For Evaluation & qualification criteria of 2(b) , 2(c) it should be in one financial year. For The lead partner shall be nominated as being partner-in-charge and this authorization shall be evidenced by submitting power of attorney signed by the legally authorized signatories of all the partners.
- b. The partner-in- charge (or, the lead partner) shall be authorized to incur liabilities and to receive instructions on the behalf of the partners of the Joint Venture, whether jointly or severally, and entire execution of the contract (including payment) shall be carried out exclusively through the partner- in- charge.
- c. The share of one of the two partners shall not be less than 26% and rest of the share shall be held by other partner (For example if share of one partner is 26% then for other partner it will be 74%.) The JDA will only send communication to the lead partner, which will be deemed to have been sent to all the J.V. partners. Similarly, any negotiation and / or agreement with the lead partner shall be deemed to have been concluded with all the J.V. partners. All the members of J.V. shall be bound by the said communication and all acts/ deeds of the lead member.
- d. Any one of the two partners, alone or jointly, can fulfill the Technical Criteria laid down in section –III: Evaluation and qualification, clause 2(a) & 2(b) of Special Conditions. Similarly, any one of the two partners, alone or jointly can fulfill the Financial Criteria laid down in Special Conditions. For rest of the eligibility criteria, qualifications of the two partners may be clubbed together.
- e. The individual partner of J.V. alone or with other partners cannot participate in the same bid.
- f. Bid capacity is to be calculated by clubbing turn over and work in hand of all the firms of joint venture.
- g. Attested copy of the MoU / Agreement/ Power of attorney entered into by the joint venture / consortium members duly notarized shall be submitted along with the Technical Bid with intended percentage participation nomination of lead member and division of responsibility to clearly define the work of each member etc.

- h. All the members of the joint venture/ consortium shall be jointly and severally liable for the execution of the Contract.
- i. EMD shall be 1% of the estimated procurement cost of Rs. 47.00 Crore i.e. Rs. 47.00 Lakhs. It can be deposited in declaration format enclosed at Annexure In the event of default by any member of the joint venture/ consortium in the execution of his part of the contract, the partner-in-charge will have the authority to assign the work to any other party acceptable to the employer to ensure the execution of the part of contract.
- j. In the event of default by any member of the joint venture/ consortium in the execution of his part of the contract, the partner-in-charge will have the authority to assign the work to any other party acceptable to the employer to ensure the execution of the part of contract.
- k. If initially the bid has purchased and submitted by the any partner or by the JV firm, in case JV bid accepted, the work order will be issued in favour of name of JV and the bidder will submit details of JV bank account to which payment is to be deposited by JDA.
- l. The experience certificate will be issued as per percentage of the shareholders defined in JV agreement of the two partners.

EXECUTIVE ENGINEER (PROJECT-II)
JDA, JAIPUR

Bid Evaluation Sheet

Name of Work: - Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur.

S. No.	Criteria	Required Qualification	Bidders qualification	Bidders uploaded document Page No. in support of qualification.	Remark
1	2	3	4	5	6
1	Registration Certificate - As per Clause 1e of Special Conditions of Contract.	Bidder should be registered in AA class category in JDA or equivalent in other departments /PSUs/private entity registered under companies act or as applicable act			
2	GST Certificate - As per Special Conditions of document	-			
3	Fee Payment Details (Please enclose copy of electronic receipt)	-			
(i)	Cost of Bid	Rs. 1,000/-			
(ii)	Bid Processing Fee	Rs. 1,000/-			
(iii)	Bid Declaration	All the eligible bidders should submit Bid Security Declaration on Non-Judicial stamp of Rs. 50/- as per order issued by finance Department (GF & AR) GoR dated 23.12.2020. (Declaration form attached with tender document). It is mandatory to submit bid			

		security declaration in prescribed format along with the bid. Note : In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,			
4	The bidder should have completed/executed at least similar nature of work (i.e. Construction of Interior works including False Ceiling, Acoustic Work, Flooring Work, Mural Work, Electrical work (Fire Frightening, HVAC) etc.) in last 10 financial year (including current year, if opted by the bidder) of value I. One similar work costing not less than Rs. 23.00 crore or II. Two similar works each costing not less than Rs. 13.00 crore or III. Three similar works each costing not less than Rs. 10.00 crore or IV. Four similar works each costing not less than Rs. 8.00 crore (bid cost) updated to present price level). 2(a)				
A	Value of work executed	-			
B	Financial year	-			

5	The bidder should have achieved an annual financial turnover of at least 60% of the Estimated Cost of the work (bid cost) i.e 28.20 crore in any one of last five years (including current year, if opted by the bidder) 2(b)				
A	Annual Turn over	-			
B	Financial Year	-			
6	The bidder should have at least 25% of estimated cost as a working capital based on current assets and current liabilities (including the short term loan re-payment due in current years) 2(c)				
7	The bidder should have submit certificate of Net Worth for the Financial Year 2020-21 (from latest audited balance sheet) and should be positive. (Certificate of Chartered Accountant showing calculation of Net Worth must be enclosed). 2(d)				
8	Bid Capacity = $(A \times N \times 3 - B)$ As per Clause 2e of Special Conditions.	-			
(i)	A= Maximum value (at present price level) of Civil Engineering work.	-			
(ii)	N = Year of Construction	For 18 months N=1.50			
(iii)	B = Value at present price level of existing commitments and ongoing works to be executed during "N" period.	-			
(iv)	Litigation History- As per Clause 2f of Special Conditions.	-			
9	Affidavit to deploy machinery and equipment				

	as specify schedule III				
10	Affidavit for Correctness of documents Clause 3(i)	-			
11	Declaration by bidder under RTTP Act. (Annexure A, B, C, D)	-			
12	Undertaking for not Blacklisted				

Signature of Bidder with Seal

Form of Bid-Securing Declaration

Date :
Bid No. :
Alternative No. :

To :

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we are required to pay the bid security amount specified in the Term and Condition of Bid, in the following cases, namely :-

- (a) when we withdraw or modify our bid after opening of bids;
- (b) when we do not execute the agreement, if any, after placement of supply/work order within the specified period;
- (c) when we fail to commence the supply of the goods or service or execute work as per supply/work order within the time specified;
- (d) when we do not deposit the performance security within specified period after the supply/work order is placed; and
- (e) if we breach any provision of code of integrity prescribed for bidding specified in the Act and Chapter VI of these rules.

In addition to above, the State Government shall debar us from participating in any procurement process undertaken for a period not exceeding three years in case where the entire bid security or any part thereof is required to be forfeited by procuring entity.

We understand this Bid Securing Declaration shall expire if :-

- (i) we are not the successful Bidder;
- (ii) the execution of agreement for procurement and performance security is furnished by us in case we are successful bidder;
- (iii) thirty days after the expiration of our Bid;
- (iv) the cancellation of the procurement process; or
- (v) the withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.

Signed : _____

Name : _____

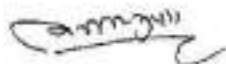
In the capacity of : _____

Duly authorized to sign the bid for and on behalf of :

Dated on day of

Corporate Seal _____

[Note: In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid.]



Schedule – I
FINANCIAL RESOURCES AND CAPABILITY
[Reference clause 3 (a)]

1. Name of Bidder: - M/s.....

2. Total financial turnover achieved by the bidder in the last Five financial years:

S.N.	Year	Turnover
(a)	2021-2022 (Current Year)	
(b)	2020-2021	
(c)	2019-2020	
(d)	2018-2019	
(e)	2017-2018	
(f)	2016-2017	

Note: Balance Sheets and Profit & Loss Accounts is to be enclosed by the bidder which is considered by him as per criteria 2 (a).

3. Total financial Turnover projected in the current financial year
4. Has the bidder ever been debarred from bidding for Central Government / State Government / any Government undertaking?
Yes / No, if yes give details.
5. Has bidder ever been declared insolvent?
Yes/No, if yes give details.
6. Name(s) and Address of Branch/(s) for bidder's Bankers.

I/We hereby certify that the above information is correct to the best of my/our knowledge and belief.

Date :

Signature of Bidder
(With Seal wherever applicable)

SCHEDULE – IV

Reference Clause 3 (e)

DETAILS OF MAXIMUM VALUE OF CIVIL ENGINEERING WORKS EXECUTED IN ANY ONE YEAR DURING THE LAST FIVE FINANCIAL YEARS TAKING INTO ACCOUNT THE COMPLETED AS WELL AS WORKS IN PROGRESS

S. N.	Name of Works (with agreement No. & Date)	Client	Place (district / state)	Financial Year	Cost of Work as per Work Order	Stipulated date of commencement	Stipulated date of completion	Value of work done during the year	Page No.

Date:

Signature of Bidder
(With seal)

SCHEDULE - V

[Reference Clause 3(f)]

DETAILS OF EXISTING COMMITMENTS & ON GOING WORKS TO BE COMPLETED

S. N o	Name of Works (with agreement No. & Date)	Client	Cost of Work as per Work Order	Stipulated date of commencement	Stipulated date of completion	Value of balance work on date of bid	Likely date of completion of balance work	Page No.

Date:

Signature of Bidder
(With seal)

SCHEDULE - VI

[Reference Clause 3(g)] DETAILS OF LITIGATION OR ARBITRATION CONTRACTS

S. No.	Name of Works (with agreement No. & Date)	Client	Work Order Amount	Disputed Amount Claimed in Litigation / Arbitration	Date of Raising Disputed Amount	Actual Award Amount, if the case is Decided	Cause of Litigation & matter in Dispute

Date:

Signature of Bidder
(With seal)

SCHEDULE – VII
[Reference clause 3(h)]

BID CAPACITY

Name of Bidder : -----

1	A = Maximum value of Civil engineering works executed in any one year during the last Ten year (updated to present price level)	Lacs.	Certified details enclosed at Page No.
2	N = Number of years prescribed for completion of the work for which bids area invited	1.50	
3	B = Value at present price level of existing commitments and ongoing works to be completed during next N period	Lacs.	Certified details enclosed at Page No.

BID CAPACITY = A X N X 3-B
 = ...Lacs.

Signature of Bidder

ANNEXURE- I

(Reference Clause 3 (i))

To be given on Non-Judicial stamp Paper of Rs. 50/- only, duly Self Attested

SELF DECLARATION

Signed
Photograph
of Applicant

I/We..... Proprietor/ Partner/ Authorized signatory of
M/s under take the oath that the information furnished by
me/us in schedule I to VI of the Technical Bid for : **“Interior works (Civil, Electrical, HVAC,
Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri,
Jaipur.”** is correct to the best of my/our knowledge. If any information is found to be incorrect
JDA has right to reject the Bid and to take action against me/us as per rules.

Date:

Proprietor/ Partner/ Authorized signatory

M/s

(With seal)

Note:- The applicant has to enclosed a self-attested photo identity card with above affidavit.

UNDERTAKING FOR NOT BLACKLISTED

(On a Non Judicial Stamp of Rs 50/-)

I/We.....S/O Shri.....Age.....Year..... Resident
of.....
District.....State.....Proprietor/ Partner/ Authorized signatory of M/s
..... hereby declare and undertake as under.

1. I/We declare that _____ in capacity as _____ of _____ has not been charged with any prohibitory and /or penal action such as banning(for specific time or permanent)/de-registration or any other action under the law by any Government and/or Semi Government and/or Government undertaking.
2. I/We declare that I/We have perused and examined the tender document including addendum, condition of contract, specifications, drawings, bill of quantity etc. forming part of tender and accordingly, I/We submit my/our offer to execute the work as per tender documents at the rates quoted by me in capacity as _____ of _____
3. I/We declare that my/our firm have not been Black listed/debarred by any institution of Govt./Semi Govt. /Municipalities etc. for failure to pay any dues or for unsatisfactory performance.
4. I/We declare that my/our Firm has not been adjudged by any Court as insolvent, not Convicted under any law for any offence involving moral turpitude or any criminal activity.
5. I/We declare that the information provided by me/us is true and if any given time it is observed that any of the statement made above is in violation of said declaration, I/We are fully aware that contract will be terminated with immediate effect and Security Deposit/EMD shall be forfeited my/our firm shall be Black Listed or debarred from future tender of Jaipur Development Authority.
6. I/We declare that the information furnished by me/us in Technical Bid for “Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur” is correct to the best of my/our knowledge and belief and nothing has been concealed therein. I/We are well aware of the fact that if the information given by me is proved false/not true, I/We shall have to face the punishment as per the law. Also all the benefits availed by me shall be summarily withdrawn and JDA has right to reject the Bid and to take action against me/us as per rules.

Enclose I.D. Proof with self-declaration/undertaking.

.....
Proprietor/ Partner/ Authorized signatory
M/s
Stamp and Signature of Authorized Signatory

Note:

1. The undertaking shall be signed by authorized signatory of the bidder.

GENERAL INFORMATION OF TENDERER

ANNEXURE 3

A. BIDDER INFORMATION SHEET		
BIDDER s Legal Name	Sole Proprietorship Firm/Partnership Firm /Private Limited Company/Public Limited Company/ Joint Venture/Consortium	
In case of single entity, ownership & control of the Tenderer		
In case of JV/Consortium, Legal name of each partner with percentage participation (also Provide information of each member in separate sheet (page 2 of 2)	Legal Name of JV/Consortium member	% participation
Lead member of JV/Consortium,		
Bidder's actual or intended country of constitution		
Bidder's legal address, telephone numbers, fax numbers, e-mail address.		
Bidder's authorized representative or person-in-charge in case of JV/Consortium, (name, designation address)		

SIGNATURE OF
AUTHORIZED SIGNATORY
ON BEHALF OF BIDDER

B. JV/CONSORTIUM MEMBER INFORMATION	
JV/Consortium Member of Legal Name	
Legal status of the JV/Consortium Member	Sole Proprietorship Firm/Partnership Firm /Private Limited Company/Public Limited Company
Ownership & control of the JV/Consortium Member	
JV/Consortium Member country of constitution	
JV/Consortium Member of legal address, telephone numbers, fax numbers, e-mail address)	
JV/Consortium Member's authorized representative (name, designation address)	

ATTACH ATTESTED COPIES OF FOLLOWING ORIGINAL DOCUMENTS

- Document in support of legal status and ownership & control of the bidder or each member in case of JV/Consortium (undertaking for sole proprietorship/ partnership deed/ Memorandum & Articles of Association
- In case JV/Consortium, submit MoU/Agreement (duly notarized) entered into by the joint venture/consortium members, containing intended percentage participation, nomination of Lead Member and division of responsibility to clearly define the work of each member etc.
- Authorization/POA in favour of authorized representative of tenderer to represent the bidder and also in favour of authorized representative of each member in case of JV/Consortium

SIGNATURE OF AUTHORIZED
SIGNATORY

ON BEHALF OF BIDDER

SECTION-IV

PROCURING ENTITY'S REQUIREMENTS

5.1 General

5.1.1 Name of Project – Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur

5.1.2 Project Background

To develop an Intellectual hub on the pattern of India International Centre, New Delhi, Rajasthan Government decided to construct Rajasthan International Centre (RIC) near OTS on Jhalana road in an area of 2.98 Hect.

The structural work of the building with all brick work along with major internal plaster has been completed. The base concrete of flooring is also completed. The toilet blocks are complete with sanitary accessories etc The outer cladding work and development of outer premises has been completed. Photographs of executed structure work are enclosed for reference.

JDA has engaged a consultant M/s Pramod Jain for consultancy for proposed interior works. The bidder has to work as per the drawing & designs provided by the JDA's consultant. The bidder may submit any drawings required for ease of construction without violating the basic themes. The same will need approval by JDA as per advise of consultant before execution.

5.2 In the building following major facilities are provided

Area Details: (Only for Reference purpose)

FLOOR	FACILITIES	AREA (in SQM)	CAPACITY
LOWER GROUND FLOOR			
Block A	Exhibition Area	762	500
Block B	Entrance Lobby	978	-
Block C	Exhibition Area	300	-
	Kitchen	250	-
	Restaurant	515	125
GROUND FLOOR			
Block A	Kitchen	158	-
	Banquet Hall/ Convention Centre	886	500
	Pre-Function Area	218	242
Block B	Entrance Lobby With Prefunction Area	622	-
Block C	Auditorium	565	500
	Green Rooms (2)	67	-
FIRST FLOOR			
Block A	Mini-Auditorium-I	395	185
	Mini-Auditorium-II	223	185
Block B	Pre-Function Area	470	200
	Conference Room-I	215	110
	Conference Room-II	200	90

	Administration Section	188	-
Block C	Auditorium Balcony	236	250
SECOND FLOOR			
Block B	Lobby	250	-
	Library Area	344	100
	Conference Room	150	60
	Lecture Room - I	74	55
	Lecture Room – II	50	55
	Lecture Room – III	43	55
	Faculty Rooms (3)	36	-
	Restaurant	252	156
	Cultural Resource Center /Exhibition Area	252	-
BASEMENT FLOOR – I	Squash Courts	230	2 Nos.
	Parking	3700	-
	Lobby	250	-
BASEMENT FLOOR – II	Drivers Lounge	148	-
	Parking	3630	-
	Lobby	250	-

5.3 Brief about the various theme adopted in different facilities are as below :

<u>Facilities/Areas</u>	<u>Block</u>	<u>Pattern/Theme</u>
Auditorium	C	Wall theme based on Jaisalmeri Style
Mini Auditoriums	A	Traditional Arches of Marwar Style
Convention Hall & Pre functional Area	A	Hall Theme is based on City Palace of Jaipur and Walls cladding based on Jaipur Style of Architecture & Hawamahal Architectural
Conference Hall		Combination of Traditional Arches & Cenotaph taken from Mandore Garden, Jodhpur
<i>First Floor</i>	B	
Lecture Hall		
<i>Second Floor</i>	B	In all three lecture Rooms Modern Interior will be taken
Library		
<i>Second Floor</i>	B	Library based on e-library pattern
Restaurant		
<i>Lower Ground Floor</i>	C	In both Restaurants Modern Interior style will be taken
<i>Second Floor</i>	B	

5.4 Scope of work

- The bidder should complete all missing civil works in premises in order to make the building fully functional in all respect.
- The bidder should complete the Interior works with Design & Execution of Electric Installation work as per the attached drawings, design & conceptual drawing (conceptual drawing may also be seen by the bidder in Executive Engineer (Project-II) Office at JDA)
- Major Interior works :-

1. Civil Works like :
 - a) Anti termite treatment.in entire building and wood work
 - b) Flooring (Granite, Marble, Vitrified Tiles, Bassard, IPC Flooring etc.)
 - c) Acoustic Wall Panelling (Optra Wall Panel, Channel Perforated wall panels etc.)
 - d) Stone Wall Cladding (Inside building) (Granite, Jaisalmer Stone, D-Stona etc.)
 - e) Mural works (Stone Ornamental) to be done in their originality style/Theme
 - f) False Ceilings (Mineral Fibre Ultima Plus, Optra White Ceiling, Optra Black Ceiling, Metal Standard, Perforated, Metal Clean Ceiling, MW Alu Baffles Ceiling, Gypsum False Ceiling etc.)
 - g) Carpeting work in Auditoriums & Convention Hall
 - h) Glass Doors
 - i) Staircase Glass Railing
 - j) Textile Plank Flooring
 - k) Heat Resistance Tiles complete roof including porch
 - l) Plaster of Paris work
 - m) Painting work (Duco, PU, Melamine Polish etc.)
 - n) Aluminium/UPVC work
 - o) Computerized Numerical Control (CNC) work
 - p) Furniture of approved makes (Chairs for Auditoriums, office Table, reception counters, conference table, and othe facilites as per plan etc.)
 - q) Toilets to be finished and made operational
 - r) Steel Supporting System(For all services)
 - s) Stone cladding work on Faced of Prestressed beams (Karauli stone/Banshi pahadpur stone)
2. Complete design & implementation of Electric & Mechanical works like :
 - a) Heat Ventilation and Air Conditioning System (HVAC System)
 - b) Internal Electric wiring work
 - c) Internal & Outer Lighting work
 - d) Force Ventilation System
 - e) Sound And PA System
 - f) Audio System With Wireless Mics
 - g) Digital Flush Mount Conference & Board Room System
 - h) Fire Fighting Work
- iv) Parking signage/markings – Adequate traffic / parking signage / marking shall be provided for smooth traffic movement and retro- reflectorized cautionary, mandatory and informatory signage as per IRC:67 for parking area and surrounding areas as per the direction of Engineer-in-charge.
- v) In and around the building campus showing proper designation and direction of each component which shall be visible properly and fixing of indicatory index with block & Floor wise. Details of such sign/direction boards shall be worked out in consultation with the Authority.
- vi) Tube well – 1 nos 200 mm dia tube shall be provided for water requirement. Getting permission from concern department shall be on the contractor's part. Proper connection from the tube well to water tank shall be provided.
- vii) Restoration of site – Site shall be restored at its original position like restoration of kerb stone, footpaths, B.T. roads, C.C. Roads, boundary walls, grills / gratings, window glass work, structural glazing work, toe walls etc as per the direction of Engineer-in-charge.

- viii) Site office & Laboratory – Well-furnished site office space with computers / printers shall be provided also shall establish the testing laboratory with desired number of testing equipment's for carrying out various test on site as per relevant codes.
- ix) Safety measures – shall adhere all safety measures and safety codes to achieve zero fatal injury. If contractor fail to adhere safety norms, Engineer-in-charge shall impose a penalty of maximum 10% amount of contract value which shall never be refunded in any case.
- x) The contractor shall submit original equipment manufacturer's certificate for all major items with five years warranty.
- xi) All Civil works (masonry, wall & ceiling plaster,putty, POP, paint, matka filling etc) shall be done by bidder as per site requirement. No additional payment shall be made for the same.
- xii) All expansion joints (vertical & horizontal) shall be treated with wall paneling and flooring work.No additional payment shall be made for the same.
- xiii) Open to sky area in central lobby shall be covered as per the direction of Engineer In-Charge.
- xiv) After completion of interior works all sanitary and water supply lines should be in working condition. All liabilities regarding the same shall be bear by bidder at no cost.
- xv) All the equipment should have factory inspection by JDA's engineer in charge as per prevailing IS code, prior to dispatch the material. All the expenses occurred during the inspection will be borne by the contractor.
- xvi) The successful bidder shall submit the report to Executive Engineer (Project-II), JDA every fortnightly regarding progress of work.
- xvii) Drawing out of water accumulation from basement or any area of site will be in bidder's scope of work.
- xviii) In case of failure of successful bidder to perform his obligation as specified in the scope of work, JDA shall be free to carry out the work and shall recover two times of actual expenditure occurred on the work from his performance security/security deposit.
- xix) Bidder should complete all required missing civil/electrical work to complete the building in all respect.
- xx) All the decorative plants, which will be planted inside the building shall be in the bidders scope. No additional payment shall be made for the same.
- xxi) Any opening/cut outs in the building need to be packed with RCC/Masonry work if required as per the Architectural requirement shall be in the bidders scope. No additional payment shall be made for the same.

Special Conditions for Electrical Work :

1. Bidder should have Local OEM center should in working since five year
2. All electrical works is under five year warrantee period.
3. Tri party agreement should be executed by bidder for warrantee period of electrical items
4. It is liability of contractor to maintain all electrical equipment for five year after completion of the work.
5. All electrical material should be atleast of group first item of JDA BSR 2016 /PWD BSR 2013.
6. Electrical work is SITC work i.e. supply, installation, testing and commissioning as per specifications and latest ISI standards.
7. The make of all electrical items will be decided by Engineer-In-Charge.

8. During the execution of the work, if any drawing/specifications required same will be provided by the appointed consultant/OIC of work.

The scope of work also includes the following:

- The contractor should deploy staff for working hours between 6:00 AM to 10:00 PM (in two shift) as per below-
 1. At-least one electrician per shift of max. 8 hrs. with one supervisor. Electrician shall have electrical wireman license with min. 2 years experience and supervisor shall have electrical supervisor license with min. 3 years experience.
 2. At-least one electrician having experience of stage lighting, Sound & audio system having experience two years (first shift 6:00 AM to 2:00 PM and second shift 2:00 PM to 10:00 PM). One supervisor with min. 3 years stage lighting, Sound & audio system work experience alongwith ITI certificate (Experience certificate is required).
 3. One experienced operator of force ventilation/HVAC for each shift with 2 year experience. One supervisor with min. 3 years for ventilation work experience alongwith ITI certificate (Experience certificate is required).
 4. One experienced operator for fire detection and firefighting system for each shift shall have 2 years experience with one supervisor having min. 3 year experience of fire system work alongwith ITI certificate (Experience certificate is required).
 5. One operator for parking Management and CCTV security system for each shift The operator shall have CCNA certificate with at-least 2 years experience. One supervisor having IT Diploma with Min. 3 years experience.
- For complete supervision of all services one engineer should be deployed by the contractor. The engineer shall have Degree or Diploma with Min. 5 year experience in electrical field.
- The staff deployed in the RIC building should be in proper uniform with safety apparels, photo identity cards.
- The contractor shall be responsible to maintain all record that are required for the purpose of operation and maintenance including logbook, complaint register, inventory register, attendance register and all other records as is considered necessary.
- The contractor shall be responsible for any act of negligence on his part or on the part of employee due to mishap or accident occurred in the system and injuries thereon.
- The contractor or sub-contractor engaged in the work shall possess valid electrical contractor licenses.
- The contractor shall submit original equipment manufacturer's certificate for all major items with five years warranty.
- All the equipment should have factory inspection by JDA's engineer in charge as per prevailing IS code, prior to dispatch the material. All the expenses occurred during the inspection will be borne by the contractor.
- The successful bidder maintenance shall submit the report to Executive Engineer, Electrical JDA every fortnightly. Drawing out of water accumulation from basement will be in bidder's scope of work.
- In case of failure of successful bidder to perform his obligation as specified in the scope of work, JDA shall be free to carry out the work and shall recover two

times of actual expenditure occurred on the work from his performance security/security deposit.

Contractor Obligation

- A. While undertaking development of the Project, the Successful Bidder shall adhere to the latest amended National Building Code of India, other relevant IS Codes and practices, Development Control Rules, FSI Limits, statutory requirements, laws of land, the principles of good industry practices and any other norms as applicable from time to time.
- B. The concrete grade as well as flooring will be as per the relevant Bureau of Indian Standard and IRC standards. All the drawings will be submitted to the Authority and after their approval only the construction activity will start.
- C. On completion of the work, the place will be handed over to JDA. However, the contractor will be responsible for maintaining the asset for 5 years of Defect Liability Period, during which period, the contractor will be liable to rectify/amend any defect, including those for civil works, mechanical/electrical and instrumentation works, sensors and will change all the equipment or parts there of promptly and without any additional cost.
- D. Water and Electricity charges from start date to final handing-over of site are in bidder's scope.

5.5 DETAILED TECHNICAL SPECIFICATIONS FOR REFERENCE PURPOSE :

(CIVIL & ELECTRICAL INTERIOR WORKS)

	<u>FALSECEILING</u>
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting. Including
	40mm Wide Beading
	Cornice
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	ACOUSTICAL FALSE CEILING
	Providing & Fixing of Fibre Glass Acoustical (Color Black or white as / drawing) Suspended Ceiling System with 15mm thick Microlook 90 Edge Tiles with 15mm Black Color Bolt Slot exposed grid. The tiles shall have smooth laminated visual with Humidity Resistance (RH) of 95%, NRC 0.85 –0.95 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, , Light Reflectance ≥85% as per ASTM E-1477, Colour Black, Fire Performance of Class 0/1 as per BS 476 Part 6/7 with 15mm Microlook 90° edge and 8mm drop in module size of 600 x 600mm. It shall be suitable for Green Building Application, with Recycled content of 66% (GW)/ 74% (RW). SUSPENSION: The tile shall be laid on grid system with 15mm black flanges incorporating a 6mm central reveal in black colour with mitred ends & “bird’s mouth” notches to provide mitred cruciform junctions colour

	black. Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between “cross tee to cross tee” and “cross tee to main beam”. All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 10 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).including
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m³ OEKOTEX Certified /Fire Retardant / White Colors
	GRANITE STONE FLOORING
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls,pillars,steps,shelves,sills counters,floors etc laid on 12mm (avg)thick base of cement mortar 1:3(1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.
	Design Strip
	Motifs
	Staircase Moldings
	Sand Blasting in Tread
	CARPET FOR AUDITORIUM
	Providing & Fixing of Flocked textile floor covering of Nylon 6.6 face fiber or equivalent of approved make with 100% Nylon and completely water proof resilient backing. The flooring should be Anti static with thickness of 4.3 mm and approximate weight of 1.8 k.g./sqm of roll form. The carpet should be completely stain resistant and of a density approx. 80 million fibers/sq.mtr (70 million fiber/sq.yd) in the width of 2 mtr .The floor covering should have Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8, Friction Slip Resistance Test EN 14041 Class DS, SANITISED anti-microbial treatment, with resilient waterproof backing, anti allergic which is certified by British allergy foundation, with ten year replacement guarantee. The carpet should have permanent static control & should be fixed with powder coated aluminum angles as per detail. The work should be carried out by the authorized installer of the Company.
	IPS FLOORING FOR AUDITORIUM (BELOW CARPET)
	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggregates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion : 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg

	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing. Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w.(Berma Teak) leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by Engineer-In-Charge) including
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk.water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	ACOUSTICAL WALL PANELLING
	Providing and Fixing of Acoustical Wall Panel with square edges made of fibre glass substrate 25mm thick, wrapped on the front side with an acoustically transparent fabric as per the approved shade (Husk, Copper, Sangria, Sesame, Coffee, Charcoal, Titanium, Flame, Peanut and Shell). The panel shall be classified for Fire Class A, as per ASTM E-84 . The Acoustical Wall Panel shall be of sizes 600x300mm (Nominal), 600x600mm (Nominal), 600x1200mm (Nominal) and 600x1800mm (Nominal) and shall achieve an NRC of 0.85 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) with 50mm airgap as per ASTM C423 to be fixed to wall on a framework of aluminium and using Wall panel Impalers (supplied by the manufacturer) or by using construction adhesives (as per the instructions laid down by the manufacturer). The fibre glass substrate shall have a recycle content of 85% . An appropriate vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install aluminium grid (provided by others) of section 100x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface. The Impalers shall be fixed to the battens using self-tapping screws, 3 nos. in case of 600x300, 600x600mm, and 4 nos. in case of 600x1200mm and 600 x 1800mm Silica based construction adhesive (by others) to be dabbed on to the projecting elements (spikes) of the Impalers. Wall Panels shall be pierced through the spikes of the Impalers ensuring the line and level of the panels are maintained including.
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603HL-1000 Polyester Soundsynth Material.Thickness 50MM / Density 20kg/m3OEKOTEX Certified /Fire Retardant / WhiteColors
	ACOUSTICAL LAMINATED WALL PANELLING
	Providing and Fixing Channelled perforated panels of width 192mm, thickness of 15mm and length 2400 mm, made of a Moisture resistant fibre board substrate with a laminated facing as per the approved shade (Portland Maple, Sea Beech, Siam Wood & Mystique Walnut, Interior White, Alumina Pearl) and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the reverse surface has a "Helmholtz" fluted perforation with consecutive 3mm wide groove followed by 13mm of visible pane. The edges of the panel shall be "tongue-and-grooved" to fix special clips for installation and seamless visual. The back of the perforated panel shall have sound absorbing non-woven Soundtex acoustical fleece hot pressed to achieve NRC of 0.6. (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 and Humidity Resistance (RH) of 70% with camber limit less than 1mm/1000mm and bow less than 1mm/300mm. The panels shall be mounted on special aluminium splines (keel) using inside clips provided by Manufacturer and approved by the Architect/ Engineer-in-Charge. The panel shall be mounted by tongue and groove mechanism using inside clip on aluminium extruded keel made of Grade 6063-T5 having dimensions 3000(L) x 24(H) x 15.5(W). The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. The Panel, Keel system used together shall carry a 1 year warranty against manufacturing defect and Manufacturer shall provide a warranty certificate. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: An appropriate vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install wooden batten grid (provided by others) of section 50x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface for fixing Keel. Install Keel vertically using screws and plugs at spacing of not more than 600mm centre-to-centre. The first and last keel should not be more than 150mm from the ends. Trim the tongue of the first bottom panel and install using headless nail with groove side upward. Subsequent panels are installed with tongue side downward by engaging with each other using tongue and groove mechanism and secured by inside clip. Continue this process until required height is achieved. Shorter butt edges need to be joined using industrial/wood glue. The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. Install the Skirting (provided by others) of width 50mm or more as required by the Architect/ Engineer-in-Charge. Finish off the edges using wooden moulding of matching colour (by others). Installation should be carried out as per Manufacturer recommended procedure including
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3

	OEKOTEX Certified /Fire Retardant / White Colors
	AUDITORIUM DOORS
	Providing and fixing fully panelled ornamental double leaf shutter for Auditorium doors. Having a overall opening size of 2.0 x 2.40mt. as per approved design and drawings with approved ornamental brass fittings such as brass flat 40mm wide, nobbs and rings etc. and hardware such as aldrops -18", towerbolt -18" and hinges etc. The paneled door would be made of 75 x 40mm and intermediates frame of 200 x 40mm in seasoned and treated beram teak wood. The panels are made of 12mm thk. ply covered with 4mm thk. veneer od appd., shade & Make including teak wood beading of size 19mm x 12mm on front face. The inner face of the door to be acoustically covered with perforated laminated wooden panel od appd. make & Shade. Acoustical Drop seal to be provided as per appd make.including
	BRASS ITEMS AND HARDWARES(Dorma)
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	SAL WOOD FRAME
	Providing and fixing of wooden battens of section 37.5mmx75mm or as approved by the Architect on the floor using screws and plugs at spacing of 600mm centre-to-centre.12mm thick ply should be fixed with screws and plugs at spacing of 600mm centre to centre on the wooden battens.12mm thick ply should be fixed in a staggered layers with screws and plugs at spacing of 600mm centre to centre on the wooden battens.
	Providing & Fixing Of Laminated Wooden Floor,Abrasion Class AC4, Test Method EN 13329,AC4_>4000, Thickness 8.3mm,Lenght Of Plank 1215mm,Width 195mm,Impact Resistance/Class>_IC1,Locking System : Arc Click, Resistance to Stain : EN 438-2,18 & Resistance to Cigarette Burn : EN 438-2,18 Installation with 2mm thick PE Sheet, in machining shade of Transition profile,Skirting & Adaption profile, Make : Vista,Pergo,Square foot,Mikasa
	16MM THICK WATER PROOF HDF BOARD VENEER PANELLING
	Providing & Fixing 4MM THK. VENEER panelling placed on 16 mm thk. water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects including
	BOARD-GREEN/CENTURY
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	New Surface
	50 x 20mm TEAK WOOD BEADING For Picture Frames
	Providing and fixing Nigeria / Ghana /Ivory Coast Teak wood grade-I mouldings and beadings in droos and windows size :-
	50mm Thk. Arches in GRC Material
	D- Stona PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thk water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects including
	75mm Wide Cornice/ Beading
	GRANITE STONE CLADDING
	Stone work (machine cut edges) for Wall cladding/ Veneering work with 15 to 20 mm thick Granite Stone and backing filled with a grout of 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing by means of cramps which shall be paid separately) including
	150mm Wide Cornice/ Beading
	1MM thk. LAMINATE PANEELING
	Providing & Fixing 1mm thk. Laminate panelling placed on 9 mm thk water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacture to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect (Asian/Burger)
	Stair Case Railing
	Berma Teak wood grade I railing with toughened glass : Supply and fixing of railing of height 900 mm. Balusters : 75X50mm in Ivory coast wood grade I . Handrail : 75X62.5mm in polished Berma Teak wood grade I. Glass: 12mm thick toughened glass panel with frosted design as / drawing

	Complete finish with Melamine polish on teak wood work, necessary fittings, etc all complete as per direction of EIC.
	HDF JAALI
	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade including .
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	9MM THK. PET PANELS
	SOUND & HEAT INSULATION_ECOPEACE / IB-2000_Acoustics/Sound Proofing_ HSN Number : 3925 IB-2000 Acoustic Board in 9MM thickness. Size 8 x 4 per sheet. Density: 180-200kg /m3 OEKOTEX Certified / Fire Retardant /
	FLUSH DOOR
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete.Duly Finished with 4mm Thk. Veneer with melamine polish both side (Century) including
	External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)
	MURAL AUDITORIUM
	Providing and installing at site a Mural of 4.80mtr x 3.50mtr. with traditional architecture made of arches,chajjas, jali's , jharokha's etc as per drawing. The mural to be smooth finished in cement concrete andother local materials. The cost to include molds wherever required.
	MURAL PREFUNCTION
	Providing and installing at site a Mural of 13.50mtr x 4.50mtr. with traditional architecture made of arches, chajjas, jali's , jharokha's etc as per drawing. The mural to be smooth finished in cement concrete and other local materials. The cost to include molds wherever required.
	AUDITORIUM CHAIRS
	Slider High Back W/o Desklet with Wooden Armtop Azure Blue Main
	ICFS CHEMICAL ANCHOR STUD M10X195
	ICFS CHEMICAL 345 VESF - Chemical tube
	APPD. MAKE - MARS HB Auditorium Chair - SEAT ASSEMBLY: The seat assembly is made of polyurethane foam moulded with M.S. tubular frame insert which is upholstered with fabric. The insert is tubular frame made of 01.9 ±0.02cm x 0.16 ±0.013cm thk MS. E.R.W round tube with flexible support straps running across the length and width of the frame.The Seat has an auto-tipup feature making it stay in upright position when not in use * use

	WIDTH (W1) : 67.5 cm. DEPTH (D2) : 63.0 cm. WIDTH (W2) : 50.7 cm. DEPTH (D3) : 77.0 cm. SEAT HEIGHT (SH): 45.5 cm. HEIGHT (H) 107.3
	Providing,Supplying Fiber Glass planters, 900mm high with 375 dia base in a Jar Sahpe as / appd. Design and shape(as per item approved by Engineer-In-Charge)
	Providing,Supplying Fiber Glass planters,600mm high with 375 dia base in a Jar Sahpe as / appd. Design and shape (as per item approved by Engineer-In-Charge)
	GREEN ROOM COUNTER
	Providing and fixing 600mm wide and 850mm length counters of 18mm thk. Commercial board covered with 1.00mm thk. Laminate of appd. Shade and make. 75mm high two drawer units to be provided with 12mm thk. Ply base and front cover with finger grip detail fixed on telescopic channel. Counter side to be made of 18mm thk. commercial board covered with 1.00mm thk. laminates of both sides with 35mm x 15mm steam beach lipping. Necessary foot rest to be provided as / design. 675mm wide and 1050mm high mirror with bevelled edge to be provided fixed on 9mm thk. ply. (as per item approved by Engineer-In-Charge)
	CONTROL ROOM COUNTER
	Providing and fixing 600mm wide AND 6000MM LONG counters of 18mm thk. Commercial board covered with 1.00mm thk. Laminate of appd. Shade and make. 100mm high two drawer units to be provided with 12mm thk. Ply base and front cover with finger grip detail fixed on telescopic channel. Counter side to be made of 18mm thk. commercial board covered with 1.00mm thk. laminates of both sides with 35mm x 15mm steam beach lipping. Necessary foot rest to be provided as / design. (as per item approved by Engineer-In-Charge)
	LOWER GROUND, GROUND, FIRST AND SECOND FLOOR CENTRAL LOBBY ESTIMATE
	POP FALSE CEILING
	The thickness of POP ceiling shall be maximum 12mm & will include all the curves, coves, etc as per architectural design. The frame work shall be treated with one coat of primer of zinc coating of grade 350 as per IS 277 and shall be true to planers or slopes as specified. The joints in the expanded metal shall be provided only under the main steel frame work. The plaster of Paris shall be of calcium sulphate semi-hydrate variety, its fineness shall be such that when sieved through a sieve of IS sieve designations 0.05mm for 5 min after drying the residue left on it shall not be more than 1% by weight. It shall not be too quick setting. Initial setting time shall not be less than 13 min. The average compressive strength of material determined by testing 5 cm cubes after removal from mould. After 24 hours and drying in an oven at 40 c till weight of the cubes is constant, Shall not be less than 84 Kg/sq.m. The material will be mixed with water to a workable consistency; plaster of Paris shall be applied to the underside of expanded metal in suitably sized panels and finished to a smooth surface by steel trowels. The finished surface shall be smooth and true to planed slopes or curved as required.
	Providing & Laying POP moulding & beading in ceiling including nailing & scaffolding etc. complete of size : 25mm x 12mm
	Providing & Laying POP Cornice of required design & pattern in ceiling including nailing & scaffolding etc. complete with fine finishing of size: 75mm x 75mm
	GRANITE STONE FLOORING
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls, pillars, steps, shelves, sills counters, floors etc laid on 12mm (avg) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.
	Design Strip
	Motifs
	GRANITE STONE CLADDING
	Stone work (machine cut edges) for Wall cladding/ Veneering work with 15 to 20 mm thick Granite Stone and backing filled with a grout of 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing by means of cramps which shall be paid separately) (sample to be approved by Engineer-In-Charge) including beading
	Providing and fixing stainless steel cramps of required size and shape for anchoring stone wall lining to the backing or securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making the necessary chases in stone and holes in walls wherever required
	JAISALMER STONE CLADDING

	ANIMAR FINISH STONE CLADDING: Supply & fixing of 18mm thick animar finished jaislmer stone with Cement mortar 1:3 (20 to 50mm) on existing brick wall, joints to be filled up with white cement & pigment to match the colour of stone. Sample to be got approved from the Architect. (To be secured to the backing by means of cramps which shall be paid separately) (sample to be approved by Engineer-In-Charge)
	SAND STONE CLADDING IN MAIN STAIRCASE
	SAND STONE CLADDING: Supply & fixing of 18mm thick SAND stone with Cement mortar 1:3 (20 to 50mm) on existing brick wall, joints to be filled up with white cement & pigment to match the colour of stone. Sample to be got approved from the Architect. (To be secured to the backing by means of cramps which shall be paid separately) (sample to be approved by Engineer-In-Charge)
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w. leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by Engineer-In-Charge) (Board-Green/Century or equivalent) including Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	D- Stona PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thk water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects including 75mm Wide Cornice/ Beading 150mm Wide Cornice/ Beading
	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete
	Providing & Laying POP moulding & beading in ceiling and wall including nailing & scafollding etc. complete of size : 25mm x 25 mm
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufactuer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	Stair case and cut out railing
	Berma Teak wood grade I railing with toughened glass : Supply and fixing of railing of height 1100 mm. Balusters : 75X50mm in Ivory coast wood grade I . Handrail : 75X62.5mm in polished Berma Teak wood grade I. Glass: 12mm thick toughned glass panel. Complete finish with Melamine polish on teak wood work, necessary fittings, etc all complete as per direction of EIC.
	Main Stair case Tread & Riser Stone
	Basalt Bushed Hammered with River Washed Stone 40mm Thk.
	Basalt Bushed Hammered with River Washed Stone 20mm Thk.
	Providing,Supplying Fiber Glass planters, 900mm high with 375 dia base in a Jar Sahpe as / appd. Design and shape

	Providing,Supplying Fiber Glass planters,600mm hight with 375 dia base in a Jar Sahpe as / appd. Design and shape
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	IPS FLOORING FOR BELOW WOODEN FLOORING
	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggigrates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.
	Providing & Fixing Of Laminated Wooden Floor,Abrasion Class AC4, Test Method EN 13329,AC4_>4000, Thickness 8.3mm,Lenght Of Plank 1215mm,Width 195mm,Impact Resistance/Class>_IC1,Locking System : Arc Click, Resistance to Stain : EN 438-2,18 & Resistance to Cigarette Burn : EN 438-2,18 Installation with 2mm thick PE Sheet, in maching shade of Transition profile,Skirting & Adaption profile, Make : Vista,Pergo,Square foot,Mikasa
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w. leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by architects) including Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	BOTH SIDE VENEER FLUSH DOORS
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete .Duly Finished with 4mm Thk. Veneer with melamine polish both side including External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 8.13.
	Full Height Both side Veneer Partition
	Providing and fixing both side veneer partition with 6mm wide groove using 50x40 mm aluminium frame 600 mm c/c on both directions,door opening as per drawing with steel fittings antitermite treatment complete as per specifications using :including Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	ACOUSTICAL WALL PANELLING

	Providing and Fixing of Acoustical Wall Panel with square edges made of fibre glass substrate 25mm thick, wrapped on the front side with an acoustically transparent fabric as per the approved shade (Husk, Copper, Sangria, Sesame, Coffee, Charcoal, Titanium, Flame, Peanut and Shell). The panel shall be classified for Fire Class A, as per ASTM E-84. The Acoustical Wall Panel shall be of sizes 600x300mm (Nominal), 600x600mm (Nominal), 600x1200mm (Nominal) and 600x1800mm (Nominal) and shall achieve an NRC of 0.85 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) with 50mm airgap as per ASTM C423 to be fixed to wall on a framework of aluminium and using Wall panel Impalers (supplied by the manufacturer) or by using construction adhesives (as per the instructions laid down by the manufacturer). The fibre glass substrate shall have a recycle content of 85%. An appropriate vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install aluminium grid (provided by others) of section 100x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface. The Impalers shall be fixed to the battens using self-tapping screws, 3 nos. in case of 600x300, 600x600mm, and 4 nos. in case of 600x1200mm and 600 x 1800mm Silica based construction adhesive (by others) to be dabbed on to the projecting elements (spikes) of the Impalers. Wall Panels shall be pierced through the spikes of the Impalers ensuring the line and level of the panels are maintained. including
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	16MM THICK WATER PROOF HDF BOARD VENNER CEILING
	Providing and fixing water proof board CEILING of 16mm thk with as shown in drawing. Board to be fixed to the Ceiling as per site instructions / sample approval by architect and engineer incharge . including
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	GRANITE STONE FLOORING
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls,pillars,steps,shelves,sills counters,floors etc laid on 12mm (avg)thick base of cement mortar 1:3(1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.
	Design Strip
	16MM THICK WATER PROOF BOARD PANELLING AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w. leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by architects) including

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	MURAL																								
	Providing and installing at site a Mural of 4.70mtr x 3.50mtr. with traditional architecture made of arches,chajjas, jali's , jharokha's etc as per drawing. The mural to be smooth finished in cement concrete andother local materials. The cost to include molds wherever required.																								
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	HDF JAALI																								
	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade .																								
	<table><tr><td>INSULATION_Polyester</td><td></td><td>Wadding__HL</td><td>Series</td></tr><tr><td>HSN</td><td>Number</td><td>:</td><td>5603</td></tr><tr><td>HL-1000</td><td>Polyester</td><td>Soundsynth</td><td>Material.</td></tr><tr><td>Thickness</td><td>50MM</td><td>/ Density</td><td>20kg/m3</td></tr><tr><td>OEKOTEX</td><td>Certified</td><td>/Fire Retardant</td><td>White</td></tr><tr><td>Colors</td><td></td><td></td><td></td></tr></table>	INSULATION_Polyester		Wadding__HL	Series	HSN	Number	:	5603	HL-1000	Polyester	Soundsynth	Material.	Thickness	50MM	/ Density	20kg/m3	OEKOTEX	Certified	/Fire Retardant	White	Colors			
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	GRANITE STONE FLOORING
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls, pillars, steps, shelves, sills counters, floors etc laid on 12mm (avg) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.
	Design Strip
	Providing and fixing aluminum work for doors, windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS : 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gap. at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth, rust free, straight, mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing / paneling, C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc., all complete as per architectural drawings and the directions of Engineer-in-charge (Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING
	Providing and fixing water proof board boxes of 16mm thk HDF board with cove as shown in drawing. Arches would be made with these boxes and to be fixed to the wall. as per site instructions / sample approval by architect and engineer incharge.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	DUCO PAINT ON EXPOSED SURFACE :- Providing and fixing 4mm thk. MDF of approved make on 18mm thk. water proof board (duly treated with antitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	D- Stona PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	230mm Wide Cornice
	16MM THICK WATER PROOF BOARD VANNER CEILING
	Providing and fixing water proof board CEILING of 16mm thk HDF Board with as shown in drawing. Board to be fixed to the Ceiling as per site instructions / sample approval by architect and engineer incharge.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	ACOUSTICAL LAMINATED WALL PANELLING
	Providing and Fixing Channelled perforated panels of width 192mm, thickness of 15mm and length 2400 mm, made of a Moisture resistant fibre board substrate with a laminated facing as per the approved shade (Portland Maple, Sea Beech, Siam Wood & Mystique Walnut, Interior White, Alumina Pearl) and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the reverse surface has a "Helmholtz" fluted perforation with consecutive 3mm wide groove followed by 13mm of visible pane. The edges of the panel shall be "tongue-and-grooved" to fix special clips for installation and seamless visual. The back of the perforated panel shall have sound absorbing non-woven Soundtex acoustical fleece hot pressed to achieve NRC of 0.6. (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 and Humidity Resistance (RH) of 70% with camber limit less than 1mm/1000mm and bow less than 1mm/300mm. The panels shall be mounted on special aluminium splines (keel) using inside clips provided by Manufacturer and approved by the Architect/ Engineer-in-Charge. The panel shall be mounted by tongue and groove mechanism using inside clip on aluminium extruded keel made of Grade 6063-T5 having dimensions 3000(L) x 24(H) x 15.5(W). The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. The Panel, Keel system used together shall carry a 1 year warranty against manufacturing defect and Manufacturer shall provide a warranty certificate. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: An appropriate vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install wooden batten grid (provided by others) of section 50x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface for fixing Keel. Install Keel vertically using screws and plugs at spacing of not more than 600mm centre-to-centre. The first and last

	keel should not be more than 150mm from the ends. Trim the tongue of the first bottom panel and install using headless nail with groove side upward. Subsequent panels are installed with tongue side downward by engaging with each other using tongue and groove mechanism and secured by inside clip. Continue this process until required height is achieved. Shorter butt edges need to be joined using industrial/wood glue. The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. Install the Skirting (provided by others) of width 50mm or more as required by the Architect/ Engineer-in-Charge. Finish off the edges using wooden moulding of matching colour (by others). Installation should be carried out as per Manufacturer recommended procedure.			
	INSULATION_Polyester	Wadding__HL	Series	
	HSN	Number	:	5603
	HL-1000	Polyester	Soundsynth	Material.
	Thickness	50MM	Density	20kg/m3
	OEKOTEX	Certified	/Fire	Retardant
	Colors		/	White
	Internal Paint			
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufactuer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect Asian or burger			
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.			
	GRANITE STONE FLOORING			
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls,pillars,steps,shelves,sills counters,floors etc laid on 12mm (avg)thick base of cement mortar 1:3(1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.			
	Design Strip			
	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING			
	Providing and fixing water proof board boxes of 16mm thk HDF board with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall. as per site instructions / sample approval by architect and engineer incharge .			
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:			
	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk.water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint			
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately).			
	For fixed portion			
	1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg			
	D- Stona PVC Sheet			

	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thick Aluminium frame. sample to be got approved by Architects
	230mm Wide Cornice
	Texture Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint in Trowel finish of approved brand and manufacturer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	MURAL
	Providing and installing at site a Mural of 12.50mtr x 1.80mtr. with traditional architecture made of arches, chajjas, jali's, jharokha's etc as per drawing. The mural to be smooth finished in cement concrete and other local materials. The cost to include molds wherever required.
	9MM THK. PET PANELS
	SOUND & HEAT INSULATION_ECOPEACE / IB-2000_Acoustics/Sound Proofing_ HSN Number : 3925 IB-2000 Acoustic Board in 9MM thickness. Size 8 x 4 per sheet. Density: 180-200kg /m3 OEKOTEX Certified / Fire Retardant /
	HDF JAALI
	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade .
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified / Fire Retardant / White Colors
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90 Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part 6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment

	friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color). Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m³ OEKOTEX Certified /Fire Retardant / White Colors
	IPS FLOORING FOR BELOW WOODEN FLOORING
	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggregates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.
	Providing & Fixing Of Laminated Wooden Floor,Abrasion Class AC4, Test Method EN 13329,AC4 >4000, Thickness 8.3mm,Lenght Of Plank 1215mm,Width 195mm,Impact Resistance/Class>_IC1,Locking System : Arc Click, Resistance to Stain : EN 438-2,18 & Resistance to Cigarette Burn : EN 438-2,18 Installation with 2mm thick PE Sheet, in maching shade of Transition profile,Skirting & Adaption profile, Make : Vista,Pergo,Square foot,Mikasa
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	Both side Veneer Partition
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on either side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:

	Full Height Veneer Panelling
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing. Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	One side Veneer and One Side Corian Partition
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on either side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing and 6mm thk. Corian on other side as / drawing. Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	BOTH SIDE VENEER FLUSH DOORS
	FLUSH DOOR
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly finish with 4mm Thk. Veneer in Melamine Polish both side.
	external lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	ACOUSTICAL FALSE CEILING
	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90 Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part 6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color). Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m ² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T

	Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	GRANITE STONE FLOORING
	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls,pillars,steps,shelves,sills counters,floors etc laid on 12mm (avg)thick base of cement mortar 1:3(1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.
	Design Strip
	CARPET FOR AUDITORIUM
	Providing & Fixing of Flocked textile floor covering of Nylon 6.6 face fiber or equivalent of approved make with 100% Nylon and completely water proof resilient backing. The flooring should be Anti static with thickness of 4.3 mm and approximate weight of 1.8 k.g./sqm of roll form. The carpet should be completely stain resistant and of a density approx. 80 million fibers/sq.mtr (70 million fiber/sq.yd) in the width of 2 mtr .The floor covering should have Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8, Friction Slip Resistance Test EN 14041 Class DS, SANITISED anti-microbial treatment, with resilient waterproof backing, anti allergic which is certified by British allergy foundation, with ten year replacement guarantee. The carpet should have permanent static control & should be fixed with powder coated aluminum angles as per detail. The work should be carried out by the authorized installer of the Company.
	IPS FLOORING FOR AUDITORIUM (BELOW CARPET)
	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggregates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	AAC BLOCK WALL
	Providing & Laying autoclave aerated blocks masonry with 100mm thick AAC Blocks of Grade-I Conforming to IS:2185 Part:III in superstructure above plinth level with cement mortar 1:4 (1 cement: 4 coarse sand) .The rates includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at evry third course of masonry.
	ACOUSTICAL WALL PANELLING
	Providing and fixing Armstrong 'Optra Acoustical Wall Panelling' with square edges made of fibre glass substrate 25mm thick and wrapped on the front side with an acoustically transparent and classified for Fire

	reaction ASTM E-84 : Class A fabric with an option of colors – Husk JT-06, Copper JT-13, Sangria JT-17, Sesame VL-27B, Coffee VL-08N, Charcoal JT-14, Titanium JT-07, Flame JT-16, Peanut JT-12, Shell VL-22 as per the choice of the Architect of size 600X600/1200/1800 mm providing a minimum sound absorption level of 0.9 NRC to be affixed to wall using Wall panel impalers supplied by M/s Armstrong Industries India Pvt Ltd and construction adhesives as per the instructions laid down by the manufacturer. INSTALLATION: 3/4/5 nos. Armstrong wall panel Impalers of shall be fixed to the wall surface using self-tapping screws. Silica based construction adhesive to be dabbed on to the projecting elements (spikes) of the impalers. Armstrong Optra wall panels shall be pierced through the spikes of the impalers ensuring the line and level of the panels are maintained. Installation to be carried out by Armstrong Trained Installation team & Installation should be carried out as per Armstrong recommended procedure.
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	ACOUSTICAL LAMINATED WALL PANELLING
	Providing and Fixing Armstrong Channelled Woodworks perforated panels of width 128mm, thickness of 15mm and length 2440 mm or as required by the Architect/ approving engineer, made of a high density fibre board with minimum 830 Kg/M3 density substrate with a laminated facing / wood veneer as per the approved shade/ species & finish and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the visible surface has a "Helmholtz" fluted perforation of 2mm width and 14mm of visible panel each. The panels shall provide a fire reaction of Class of 1 as per Part 7 of BS 476. The edges of the panels shall be "tongue-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece having NRC of 0.55. The panels shall be mounted on special aluminium splines using clips provided by Armstrong and approved by the Architect/ Engineer-in-Charge.
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	AUDITORIUM DOORS
	Providing and fixing fully panelled ornamental double leaf shutter for Auditorium doors. Having a overall opening size of 2.0 x 2.40mt. as per approved design and drawings with approved ornamental brass fittings such as brass flat 40mm wide, nobs and rings etc. and hardware such as aldrops -18", towerbolt -18" and hinges etc. The paneled door would be made of 75 x 40mm and intermediates frame of 200 x 40mm in seasoned and treated beram teak wood. The panels are made of 12mm thk. ply covered with 4mm thk. veneer of appd. shade & Make including teak wood beading of size 19mm x 12mm on front face. The inner face of the door to be acoustically covered with perforated laminated wooden panel of appd. make & Shade. Acoustical Drop seal to be provided as per appd make.
	BRASS ITEMS AND HARDWARES
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	SAL WOOD FRAME
	Providing and fixing of wooden battens of section 37.5mmx75mm or as approved by the Architect on the floor using screws and plugs at spacing of 600mm centre-to-centre. 12mm thick ply should be fixed with screws and plugs at spacing of 600mm centre to centre on the wooden battens. 12mm thick ply should be fixed in a staggered layers with screws and plugs at spacing of 600mm centre to centre on the wooden battens.
	Providing & Fixing Of Laminated Wooden Floor, Abrasion Class AC4, Test Method EN 13329, AC4 >4000, Thickness 8.3mm, Length Of Plank 1215mm, Width 195mm, Impact Resistance/Class > IC1, Locking System : Arc Click, Resistance to Stain : EN 438-2, 18 & Resistance to Cigarette Burn : EN 438-2, 18 Installation with 2mm thick PE Sheet, in matching shade of Transition profile, Skirting & Adaption profile, Make : Vista, Pergo, Square foot, Mikasa
	16MM THICK WATER PROOF BOARD PANELLING AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing. Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment. All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in melamine polish. Thickness of the arch to be made with t.w. (Berma Teak) leaping of 75 x 15mm finished in melamine polish matching to veneer polish. (Sample to be got approved by architects)
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:

	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk.water proof board (duly treated with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	Full Height Veneer Panelling
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	D- Stona PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thik water proof board with the help of 40mm x 50mm thk Aluminium frame. sample approval by architect
	230mm Wide Cornice
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufactuer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	BOTH SIDE VENEER FLUSH DOORS
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly finish with 4mm Thk. Venner in Melamine Polish both side.
	External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 8.13.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	AUDITORIUM CHAIRS
	Slider High Back W/o Desklet with Wooden Armtop Azure Blue Main
	ICFS CHEMICAL ANCHOR STUD M10X195
	ICFS CHEMICAL 345 VESF - Chemical tube
	Appd. Make Mars HB Chair - SEAT ASSEMBLY: The seat assembly is made of polyurethane foam moulded with M.S. tubular frame insert which is upholstered with fabric. The insert is tubular frame made of $01.9 \pm 0.02\text{cm} \times 0.16 \pm 0.013\text{cm}$ thk MS. E.R.W round tube with flexible support straps running across the length and width of the frame.The Seat has an auto-tipup feature making it stay in upright position when not in use enabling clear row passage. * Approx. Seat Size : 45.5cm (W) x 46.5cm (D). BACKREST ASSEMBLY: The back assembly has a flexi back mechanism. It is made of polyurethane foam moulded with M.S. tubular frame insert, upholstered with fabric and has a plastic back cover. The insert is a tubular frame made of $01.9 \pm 0.02\text{cm} \times 0.16 \pm 0.013\text{cm}$ thk M.S.E.R.VV round tube with flexible support straps running across the length and width of the frame. *Approx. Back Size : High Back- 45.5cm (W) x 82.4cm (H). Mid Back- 45.5cm (W) x 70.4cm (H). HIGH RESILIENCE (HR) POLYURETHANE FOAM: The HR polyurethane foam is moulded with density = 45 +/-3 kg/m3. Synchro Slide Mechanism : The Synchro Slide Mechanism is Designed Using Heavy Duty Slides Aiding in relaxed Posture. The Slider is connected to ABck Using linkages to achieve synchronous motion between seat & back.the Synchro silde has an Stroke of 60+-5mm and is mounted on the side panel SIDE PANEL / AISLE PANEL:The chair rests on the ground on two side panel frames fabricated from $0.12 \pm 0.020\text{cm}$ thk CR steel sheet which is claddded with fabric upholstery. The side panel frame is grouted to the floor using 2 nos. of anchors for each panel through $0.3 \pm 0.05\text{cm}$ thk HR steel base plate. WOODEN ARMREST (FOR MARSHB/MB069XXWT FIXED ARM) :The armrest is made up of solid beech wood with clear lacquer coat. POWDER COATING: Steel components are epoxy polyester powder coated (DFT 40-60 microns). FLOORING PRE - REQUISITE : The auditorium chair is designed to get mounted/grouted on floors with flooring specification as mentioned in flooring pre-requisite Appd. Make doc-no: STG 129368. High Back CENTRE TO CENTRE (C): 58.7 cm. DEPTH (Di): 50.5 cm. WIDTH (W1) : 67.5 cm. DEPTH (D2) : 63.0 cm. WIDTH (W2) : 50.7 cm. DEPTH (D3) : 77.0 cm. SEAT HEIGHT (SH): 45.5 cm. HEIGHT (H) 107.3
	GREEN ROOM COUNTER
	Providing and fixing 600mm wide and 1000mm length counters of 18mm thk. Commercial board cvered with 1.00mm thk. Laminate of appd. Shade and make. 75mm high two drawer units to be provided with 12mm thk. Ply base and front cover with finger grip detail fixed on telscopic chanel. Counter side to be made of 18mm thk. commercial board coered with 1.00mm thk. laminates of both sides with 35mm x 15mm steam beach

	ipping. Neccessary foot rest to be provided as / design. 675mm wide and 1050mm high mirror with beved edge to be provided fixed on 9mm thk. ply.
	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90 Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color).Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m³ OEKOTEX Certified /Fire Retardant / White Colors
	Vitrified Tile
	P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufactuer) with water absortion less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete.
	size 600 mm X 600 mm
	KOTA STONE FLOOR
	Kota stone slab flooring 25 mm thick over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand)
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc.

	Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	16MM THICK WATER PROOF HDF BOARD VENER CEILING
	Providing & Fixing 4MM THK. VENEER CEILING placed on 16 mm thk. water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	AAC BLOCK WALL
	Providing & Laying autoclave aerated blocks masonry with 100mm thick AAC Blocks of Grade-I Conforming to IS:2185 Part:III in superstructure above plinth level with cement mortar 1:4 (1 cement: 4 coarse sand) .The rates includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at evry third course of masonry.
	ACOUSTICAL LAMINATED WALL PANELLING
	Providing and Fixing Armstrong Channelled Woodworks perforated panels of width 128mm, thickness of 15mm and length 2440 mm or as required by the Architect/ approving engineer, made of a high density fibre board with minimum 830 Kg/M3 density substrate with a laminated facing / wood veneer as per the approved shade/ species & finish and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the visible surface has a "Helmholtz" fluted perforation of 2mm width and 14mm of visible panel each. The panels shall provide a fire reaction of Class of 1 as per Part 7 of BS 476. The edges of the panels shall be "tongue-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece having NRC of 0.55. The panels shall be mounted on special aluminium splines using clips provided by Armstrong and approved by the Architect/ Engineer-in-Charge.
	INSULATION Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	Full Height Veneer Panelling
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Providing and applying Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	Both side Veneer Partition
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on either side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Providing and applying Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	One side Veneer and One Side Corian Partition
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on either side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing and 6mm thk. Corian on other side as / drawing. Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	BOTH SIDE VENEER FLUSH DOORS
	FLUSH DOOR
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly finish with 4mm Thk. Vener in Melamine Polish both side.
	External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)
	Internal Paint

	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	ACOUSTICAL FALSE CEILING
	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90° Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color).Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m³ OEKOTEX Certified /Fire Retardant / White Colors
	Vitrified Tile
	P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufacturer) with water absorption less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete.
	size 600 mm X 600 mm
	AAC BLOCK WALL
	Providing & Laying autoclave aerated blocks masonry with 100mm thick AAC Blocks of Grade-I Conforming to IS:2185 Part:III in superstructure above plinth level with cement mortar 1:4 (1 cement: 4 coarse sand) .The rates includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at evry third course of masonry.
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall besmooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of

	Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	ACOUSTICAL LAMINATED WALL PANNELLING
	Providing and Fixing Armstrong Channelled Woodworks perforated panels of width 128mm, thickness of 15mm and length 2440 mm or as required by the Architect/ approving engineer, made of a high density fibre board with minimum 830 Kg/M3 density substrate with a laminated facing / wood veneer as per the approved shade/ species & finish and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the visible surface has a "Helmholtz" fluted perforation of 2mm width and 14mm of visible panel each. The panels shall provide a fire reaction of Class of 1 as per Part 7 of BS 476. The edges of the panels shall be "tongue-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece having NRC of 0.55. The panels shall be mounted on special aluminium splines using clips provided by Armstrong and approved by the Architect/ Engineer-in-Charge.
	INSULATION Polyester Wadding __HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	9MM THK. PET PANELS
	SOUND & HEAT INSULATION ECOPEACE /IB-2000 Acoustics/Sound Proofing_HSN Number : 3925IB-2000 Acoustic Board in 9MM thickness. Size 8 x 4 per sheet. Density: 180-200kg/m3 OEKOTEX Certified / Fire Retardant /
	INSULATION Polyester Wadding __HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	FLUSH DOORS
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete.
	External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 8.13.
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	ACOUSTICAL FALSE CEILING
	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90 Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part 6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color). Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m2 (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and

	manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).
	INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	Vitrified Tile
	P & F 1st quality Vitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufacturer) with water absorption less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete.
	size 600 mm X 600 mm
	AAC BLOCK WALL
	Providing & Laying autoclave aerated blocks masonry with 100mm thick AAC Blocks of Grade-I Conforming to IS:2185 Part:III in superstructure above plinth level with cement mortar 1:4 (1 cement: 4 coarse sand) .The rates includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at every third course of masonry.
	Full Height Veneer Panelling
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	1MM thk. LAMINATE PANEEING
	Providing & Fixing 1mm thk. Laminate panelling placed on 9 mm thk water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	FLUSH DOORS
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete.

	Extra for providing external lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 8.13.
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	BAFFLE CEILING
	Providing & fixing horizontal level suspended ceiling comprising of Vertical Linear Baffle Ceiling made out of Aluminum Extrusion in Aluminum alloy grade 6063 T5 On Centre Spacing 100mm. The baffle blade shall be in size of 100x25x3600mm in powder coated to Woodgrain/Plain finish (Red Oak, Cherry, White RAL 9010). The baffle shall be electrostatically polyester powder coated to a coating thickness of 60-80 micron. The powder coating shall pass Salt Spray Test for 750 Hours as per ASTM B117, QUV –A Test for 1000 hours as per ASTM G-154 – (Cycle – 1) and Humidity test for 1000 hours as per DIN 50017. The powder coating shall have an adhesion of GT0 as per EN ISO 2409. The shade variation within a manufacturing batch shall be delta E<1 using Excite/BYK Gardner instrument and gloss level 25±5 at 60° as per ASTM D523 (Not applicable of Wood Grain Shade). The baffle blade shall be suspended using Slotted U-profile of 20 x 30 x 3700mm (Thk-1.5mm) having slots in module of 25mm to keep baffles at an on-center spacing in multiples of 25mm. Longer lengths of Baffle to be connected by Baffle Joiner and the ends to be fixed with End caps. SUSPENSION: Shall be hanged using baffle hanger from U-profile made of mild steel with powder coating thickness of 60-80 micron. The U – profile to comprise of alternate square & rectangular slots of 6.5x6.5mm & 28x6.5mm respectively on the web for locking the baffle hanger using plugin clip to secure the hanger in perfect position and achieve uniform spacing between baffles. The overall dimension of the U – profile is 20(W) x 30(H) x 3750(L) mm and is rolled form from 1.5mm thick mild steel with a powder coating thickness of 60-80micron. U- Profile to be connected to each other using U –Profile Splice. The U- profile shall be hanged from the true ceiling using threaded rod using a U- Profile hanger. The Baffle along with suspension system used together shall carry a 10 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The supply shall be backed by a Manufacturing Test Certificate. Suspension System Details Base Material : Mild Steel with powder coating thickness of 60-80micron Construction Method : Roll formed U- Profile Dimensions : 3700(L) x 30(H) x 20(W) mm- Thickness 1.5mm Hanger-Rod : Galvanized M6 Threaded rod (By Other) Accessories : U-Profile Hanger, U- Profile Splice, Baffle Hanger INSTALLATION: Installation of U-Grid: The U profile to be suspended at every 1200mm center to center using 6mm threaded rod from the structural soffit using U-profile hanger. U-profile splice to be used to join more than one U profiles of length 3.7M. 1st U-Grid Channel must be no more than 400mm from the perimeter. Installation of Baffles: Locate the slot for Baffle Hangers in U Profile section at 1200mm centers. Hangers are inserted into the slot, then rotated 90° and fixed into position by tightening the grub screw. Baffle to be lifted into position and hangers engage over lip of U-Grid Channel. Each Hanger to be secured into position by inserting the Locking Clip. When doing continuous installation, Baffles blades are to be connected at ends with Baffle Joiner, which are inserted into the top and bottom slots of the Baffle closed profile for alignment only. The bottom Joiner to be located first and fastened on one side only. The top Joiner to be fitted then and secured with grub screws on one side. Then the two Baffle sections shall be joined and the top Joiner is screw fastened on the 2nd Baffle profile. End Caps to be located by pushing the End Cap tongues into open Baffle slots. Installation should be carried out as per Manufacturer recommended procedure.
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.

	Acrylic or PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	Full Height Veneer Panelling
	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing.Care may be taken to match the grains of the veneer ply's to be used.
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	SAND STONE CLADDING
	SAND STONE CLADDING: Supply & fixing of 18mm thick SAND stone with Cement mortar 1:3 (20 to 50mm) on existing brick wall, joints to be filled up with white cement & pigment to match the colour of stone. Sample to be got approved from the Architect. (To be secured to the backing by means of cramps which shall be paid separately)
	Vitrified Tile
	P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufactuer) with water absortion less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete.
	size 600 mm X 600 mm
	Providing & Fixing Of Laminated Wooden Floor,Abrasion Class AC4, Test Method EN 13329,AC4 >4000, Thickness 8.3mm,Lenght Of Plank 1215mm,Width 195mm,Impact Resistance/Class>_IC1,Locking System : Arc Click, Resistance to Stain : EN 438-2,18 & Resistance to Cigarette Burn : EN 438-2,18 Installation with 2mm thick PE Sheet, in maching shade of Transition profile,Skirting & Adaption profile, Make : Vista,Pergo,Square foot,Mikasa
	KOTA STONE FLOOR
	Kota stone slab flooring 25 mm thick over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand)
	Tile Cladding
	P & F 1st qualityVitrified Porcelain Polished tiles on wall.in different sizes (thickness to be specified by manufactuer) with water absortion less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete.
	size 600 mm X 600 mm
	FLUSH DOOR
	Providing and fixing external grade board solid core single leaf flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly finish with 4mm Thk. Venner in Melamine Polish both side.
	External lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufactuer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm

	interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	40mm Wide Beading
	Cornice
	Add Extra For INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors
	CARPET FOR AUDITORIUM
	Providing & Fixing of Flocked textile floor covering of Nylon 6.6 face fiber or equivalent of approved make with 100% Nylon and completely water proof resilient backing. The flooring should be Anti static with thickness of 4.3 mm and approximate weight of 1.8 k.g./sqm. of roll form. The carpet should be completely stain resistant and of a density approx. 80 million fibers/sq.mtr (70 million fiber/sq.yd) in the width of 2 mtr .The floor covering should have Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8, Friction Slip Resistance Test EN 14041 Class DS, SANITISED anti-microbial treatment, with resilient waterproof backing, anti allergic which is certified by British allergy foundation, with ten year replacement guarantee. The carpet should have permanent static control & should be fixed with powder coated aluminum angles as per detail. The work should be carried out by the authorized installer of the Company.
	IPS FLOORING FOR AUDITORIUM (BELOW CARPET)
	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggregates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.
	Providing and fixing aluminum work for doors ,windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	16MM THICK WATER PROOF BOARD PANELLING IN ARCH SHAPE AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w.(Berma Teak) leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by architects)
	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk.water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.
	GRANITE STONE FLOORING

	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls, pillars, steps, shelves, sills, counters, floors etc laid on 12mm (avg) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete..
	Design Strip
	16MM THICK WATER PROOF BOARD PANELLING AS / DRAWING
	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing. Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w. leeping of 75 x 15mm finished in melamine polish matching to veneer polish. (Sample to be got approved by architects)
	Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:
	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk. water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	50 x 20mm TEAK WOOD BEADING
	Providing and fixing Nigeria / Ghana /Ivory Coast Teak wood grade-I mouldings and beadings in droos and windows size :-
	Providing and fixing aluminum work for doors , windows, ventilators and partition with extruded built up standard tubular / appropriate Z sections and other sections of approved make conforming to IS :733 and IS :1285, fixed with rawl plugs and screws or with fixing clips ,or with expansion hold fasteners including necessary filling up of gap. at junctions , at top ,bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth ,rust free, straight ,mitered and jointed mechanically wherever required including cleat angle Aluminium snap beading for glazing /paneling , C.P. brass/ stainless steel screws Al. Tower bolt & Al. handle & Al. Aldrop etc.,all complete as per architectural drawings and the directions of Engineer- in – charge .(Glazing and paneling to be paid for separately). For fixed portion 1 Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer) Kg
	D- Stona PVC Sheet
	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects
	230mm Wide Cornice
	Internal Paint
	Wall painting with Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufactuer to give an even shade Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect
	MURAL
	Providing and installing at site a Mural of 13.50mtr x 4.50mtr. with traditional architecture made of arches, chajjas, jali's , jharokha's etc as per drawing. The mural to be smooth finished in cement concrete and other local materials. The cost to include molds wherever required.
	9MM THK. PET PANELS
	SOUND & HEATINSULATION_ECOPEACE /IB-2000_Acoustics/Sound Proofing_HSN Number : 3925IB-2000 Acoustic board in 9MM thickness. Size 8 x 4 per sheet. Density: 180-200kg/m3OEKOTEX Certified / Fire Retardant /
	KANGORA WORK IN HDF
	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade .
	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk. water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint
	HDF JAALI
	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade .
	INSULATION_Polyester Wadding__HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3

	OEKOTEX Colors	Certified	/Fire	Retardant	/	White
	HDF JAALI					
	POINT WIRING					
	Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles, Hot Dipped Galvanized Modular Box with earth terminal, 6 A Modular switch, Modular plate with grid plate, screws, making connections, testing etc. as required.					
	Short point (up to 3 mtr.)					
	Medium point (up to 6 mtr.)					
	Long point (up to 10 mtr..)					
	Wiring of twin control light point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles, Hot Dipped Galvanized M.S Modular box of 20 SWG with earth terminal, 6 A two way Modular switch, Modular plate with grid plate, screws, making connections, testing etc. as required.					
	Long point (up to 10 mtr..)					
	Wiring of 3 pin 5 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, Hot Dipped Galvanized M.S Modular box of 20 SWG with earth terminal, 6 A modular switch, 6 A modular socket, Modular plate with grid plate, screws, making connections, testing etc. as required.					
	On board					
	Medium point (up to 6 mtr.)					
	Long point (up to 10 mtr..)					
	Supplying and fixing of power plug point Modular accessories on hot dipped galvanized modular on surface or in recessed with suitable size of grid plate with cover plate including cost of modular 16 amp. Switch and socket outlet, making connection, testing, etc. as required.					
	S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall, covering conduit with Wire mesh and making good the same as required.					
	20 mm					
	25 mm					
	32 mm					
	Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS:694) of 1.1 kV grade and approved make in existing surface or recessed conduit/casing capping including making connections etc. as required.					
	3x1.5sqmm					
	2 x 2.5 sq. mm. + 1x1.5sqmm					
	2 x 4.0 sq. mm. + 1 x 2.5 sq. mm.					
	2 x 6.0 sq. mm. + 1 x 2.5 sq. mm.					
	4 x 16.0 sq.mm					
	1 x 4.0 sq.mm					
	P & F following modular accessories made out of unbreakable and fire retardant poly carbonate with silver contacts including making connections testing etc. as required					
	5 step fan regulator 2 Module					
	DB & MCB					
	P&F Recessed/ Surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/ powder painted complete with suitable rating insulated copper bus bar, shorting link, neutral link, earth link and din bar, masking sheet, conforming to IS13032 & IS8623 including making internal DB terminations with copper lugs, testing etc. as required.					
	Double door (Three phase)					
	8 Way					
	6Way					
	Double door (single phase)					
	12 Way					
	P&F recessed/ surface mounting heavy duty Vertical type 16 SWG sheet steel Distribution board with provision of incomer suitable for MCCB and SP / TP MCB as outgoing, phophatised, powder painted complete with insulated suitable rating copper bus bar, neutral link, earth link and din bar, masking sheet & conforming to IS13032 & IS8623 including making internal DB terminations with copper lugs, testing etc. as required.					
	Double door with Provision of Incomer MCCB 100 / 125 A Rating					
	8 Way					
	P&F 240/415 V AC MCB with positive isolation of breaking capacity not less than 10 KA (B/ C/ D tripping characteristic) ISI marked IS 8828(1996)]/ conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc. as required.					
	Single pole MCB					

	6 A to 32 A rating
	Double pole MCB
	6 A to 32 A rating
	Triple pole MCB
	6 A to 32 A rating
	Four pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	P&F 240/415 V Residual current circuit breaker conforming to IS:12640:1988/ IEC 61008 on existing board/sheet including making connections with lugs, testing etc. as required
	Two pole 100/300mA sensitivity
	25 A rating
	40 A rating
	63 A rating
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR, shunt trip, earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 125 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	TELEPHONE, DATA WIRING AND ACCESSORIES
	RJ-11 telephone jack single two line
	P & F following size mounting grid plates with cover plates
	1/2 Module
	P & F following size hot dip galvanized M.S. box of 20 SWG with earthing terminal in recess/ surface suitable for modular accessories as required.
	1-2 Module
	Supplying and drawing PVC/ Polythene insulated and PVC sheathed unarmoured/ armoured telephone cable with 0.5 mm dia. Tinned / annealed copper conductor taped & conforming to ITD specification S/WS -113C of approved make in existing surface or recessed conduit/casing capping.
	Unarmoured Telephone cable in existing surface or recessed conduit/casing capping.
	4 pair
	Jelly filled armoured (PIJF) Armoured telephone cable including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, 11nd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.
	100 pair
	P & F Krone module with base frame in the recess / surface made out of 16 SWG sheet steel box, front openable, having locking arrangements duly powder painted, including dressing, ferruling and punching of telephone cable with krone tool etc. as required.
	20 Pairs
	100 Pairs
	S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required.
	20 mm
	25 mm
	Supply, Drawing and Testing of 4 pair, 24 AWG UTP Cat 6 Cable as per latest ammendments of TIA /EIA 568 B.2-1 Specifications in existing MS/PVC Conduits including making connections to Information outlets and Patch Panels with ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing required.
	Supply and Installation of Information outlets made of high impact plastic body ABS FR Grade with spring loaded collapsible shutters in jack Recess, suitable for Cat 6 application complying to latest ammendments EIA/ TIA 568 B.2-1 Specifications in existing modular /MS Boxes along with necessary connections as required.
	Supply & fixing of Faceplate for Flush / Surface Mount Information Outlets Single Aperture with screw hole covers & Icon Tree Size 86mmX86mm
	Single Aperture
	Supply, Installation, Testing and Comissioning of Rack mounted 19", Cat 6 UTP, 1.5-1.6 MM CRS chasis, powder coated Modular Patch Panels with collapsible shutters on jacks to support latest ammendments of TIA / EIA Cat 6 Specifications in Existing Communication Rack along with necessary connections of Cat 6 UTP Cables, With Rear Cable management trays and clamps.
	24 Ports
	Supply, Installation and Testing of 4 pair, 100 Ohm, 24 AWG, Cat 6 UTP, flexible, Double ended Patch Cords along with 2 No of RJ 45 connectors with strain relief boots as per TIA /EIA 568 B.2-1 Specifications.
	1 Mtr/3 ft
	Supply, Installation, Testing and Comissioning of Floor Standing Server / Communication rack with width 800 MM, Depth 1000 MM, front glass door, rear MS door, side openable panels, min 10 socket Vertical Cable manager -02 no, two nos Vertical Cable managers, 05 nos Horizontal Cable managers, Keyboard tray-01, 720 mm heavy duty shelf-03 (for mounting servers & components), swing handles, lock on both doors, Top and

	Bottom Cable entries with gland plates, Coastor with brakes, 1 no Fan tray with 2 x 230 Volt fans, Equipment mounting hardware.
	42 U Floor Standing Rack
	SITC of 10/100 MBPS Unmanaged Switch
	24 Port
	LIGHT FIXTURES & FAN
	P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required.
	1200 mm Sweep 5 Star rated
	P & F 18 swg M.S. Recessed fan box, hexagonal/ round of size 130 mm dia, depth 75mm, 12 mm dia rod fan hook with 100 mm length extended on each side .
	P&F of Double ball bearing, capacitor start single phase metallic blade fresh air fan, in existing opening including cost of hardware , flexible copper conductor ,making connections, testing etc. as required.
	225 mm sweep
	P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,IS:2312 marked in existing opening including making connections testing etc. as required.
	300 mm sweep(900/1400 RPM)
	P & F IS:371 marked 6 amp surface type ceiling rose including making connection testing etc. as required.
	Fixing of fresh air fan/exhaust fan up to size of 300 mm on ply/ poly board of 6.0 mm in existing window frame including cutting of hole in ply. Nut bolts etc. as required.
	P & F of IP 65 protected LED cabinet luminaire with 600mm length housing made of aluminium with unit boards of 6X 2W/ 12X1.1W LEDs, supply accessories(220 V, 50 HZ/ 24 V DC) complete in all respect. Available with 2 color options – white, warm white.
	P & F of IP20 LED Recessed / Surface Mounted, Round / Square Non-Dimmable Downlight with die-cast aluminum housing & Heat Sink for heat dissipation, high purity reflector with external driver having efficiency > 85% and in compliance to IEC standards. Power Consumption of ≤ 7W/ 10W / 15W / 18W with ~ 500 / 750 / 1100 / 1250 lumens, System Lumen efficacy of 70 lm / watt output suitable to replace 1x18W / 2x18W / 2x 26W CFL Downlights, life time of 50000 Burning Hours with 70% of initial Lumen maintained. CCT 3000°K , 4000°K & 6000°K. Fixture shall be CE compliance.
	Recessed Mounting
	LED Downlight 6/7W
	LED Downlight 9/10W
	LED Downlight 14/15W
	LED Downlight 18/20W
	P & F of IP20 LED Recessed / Surface Mounted Round / Square Dimmable Downlight with die-cast aluminum housing & Heat Sink for heat dissipation, high purity reflector with external driver having efficiency > 85% and in compliance to IEC standards. Power Consumption of ≤ 15W / 20Wwith ~1100 / 1400 lumens, System Lumen efficacy of 70 lm/Watt output Downlights, life time of 50000 Burning Hours with 70% of initial Lumen maintained. CCT 3000°K , 4000°K & 6000°K. Fixture shall be CE compliance.
	Recessed Mounting
	LED Downlight 14/15W
	LED Downlight 18/20W
	P & F of IP20 LED ceiling / recessed / suspended mounting light fixture made from CRCA sheet steel housing, high purity / transmissivity diffuser for uniform light distribution. High efficiency driver electronics having efficiency > 85% and in compliance to IEC standards (Integral with light fixture). Power Consumption of 40W / 50W / 60W ~ 3000/3300/4200 lumens, System lumen efficacy of 70 - 80 lm/Watt output suitable for 2x36WFTL / 2x36W CFL / 3x36W CFL light fixtures, life time of 50,000 burning hours with 70% initial lumens maintained. CCT 3000°K, 4000°K & 6000°K. Fixtures shall be CE compliance.
	Recessed Mounting
	36W LED light fixture 2'x2' with acrylic / prismatic front cover.
	Surface Mounting
	36W LED light fixture 2'x2' with acrylic / prismatic front cover.
	P & F of IP20 LED batten type light fixture made from CRCA sheet steel housing suitable for mounting LED tube system (integral driver), Power Consumption of 18W / 36W 1500-3000 lumens, system lumen efficiency 80 lm/Watt output, life time of 50,000 burning hours with 70% initial lumen maintained. CCT 3000°K, 4000°K & 6000°K.
	4' LED Tube shape fixture 18W
	4' LED Tube shape fixture 2x18W
	ELECTRICAL PANELS
	MAIN LT PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet, required hardware, duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm p to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)

	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1.0 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	1600 A Rating ,50 / 65kA
	1250 A Rating ,50kA
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	BUS CUPPLER
	Draw out type (Motorised charging type)
	3200 A Rating ,65 kA
	1600 A Rating ,50 / 65kA
	Outgoings
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	3200 A Rating ,65 kA
	1000 A Rating , 50kA
	Supply and fixing of following accessories for Air circuit breakers.
	Mechanical Interlocking kit
	APFC PANEL (2 NOS. 350 KVAR)
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having

	bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1.0 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	P & F Cam operated rotary switches on existing panel with 2 way and off position
	Three pole
	63 A
	INCOMING
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	1000 A Rating , 50kA
	OUTGOINGS
	SITC of quick make and quick break 3 pole current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip , earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	P&F 240/415 V AC MCB with positive isolation of breaking capacity not less than 10 KA (B/ C/ D tripping characteristic) ISI marked IS 8828(1996)]/ conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc. as required.
	Triple pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	P & F of 440 Volt 3 pole capacitor (AC 6 B) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping resistors/ reactors to limit the inrush current , conforming to IS:13947-4-1/IEC:947-4-1, Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank.
	7 to 10 KVAR
	11 to 20 KVAR
	50 KVAR
	SITC of microprocessor based three phase sensing power factor correction relay having following sensing capacity secondary current , self analysing auto c/k setting according to targeted power factor setting, the relay shall have digit display unit for display of real power factor, targeted power factor, lag/lead capacitor switching status, alarm output for under current, over current, insufficient compensation, indication of switching on units, auto/manual status, and shall have over load protection, no volt release , having multi parameter like KW, KVA, KVAR, metering facility as required.
	12 to 14 stage
	sensitivity up to 50 milli Amp

	P & F of ac operated heavy duty 230 /440 Volt power contactor conforming to IS:13947-4-1/IEC:947-4-1 having provision of mechanical interlocking, auxiliary contacts, Din rail mounting type including making connections, testing etc. as required.
	3 pole Power contactors with following AC 3 Rating
	32 Amp.
	70 Amp
	140 Amp
	P & F push button actuators and integral contact block of dia. 22.5 mm including making connection etc. as required.
	Luminous type Red , Yellow, Green, Amber
	MAIN DISTRIBUTION PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 2000 / 5 to 3200/5 Ratio , 15 VA , class 1.0 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	3200 A Rating ,65 kA
	Supply and fixing of following accessories for Air circuit breakers.
	Mechanical Interlocking kit
	Outgoings
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	1600 A Rating ,50 / 65kA
	1250 A Rating ,50kA

	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR, shunt trip, earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	630 Amp, 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	400 Amp, 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Supply and fixing of following accessories for MCCB
	Shunt Trip Release
	Under Voltage Release
	Earth Fault Release
	Extended Rotary Handle
	Motor mechanism for 400A MCCB (240V, 50Hz)
	Motor mechanism for 630A MCCB (240V, 50Hz)
	LIFT PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet, required hardware, duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade. The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness, separate detachable gland plate M.S. base channel, hinged door with locking arrangement for equipment/switchgear. Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending, cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer, with all necessary support in existing panel including connection etc. as required.
	from 200 / 5 to 400/5 Ratio, 10 VA, class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required.
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required.
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR, shunt trip, earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp, 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	Four pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	PUMP ROOM PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet, required hardware, duly treated for derusting in 7 tank process with dephosphating and with

	powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp ,35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	Four pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	STP PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.

	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	HVAC PANEL - 2 Nos.
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A

	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.
	Draw out type (Motorised charging type)
	1250 A Rating ,50kA
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	6 A to 32 A rating
	40 A 63 A rating
	Lower Basement Floor Panel
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability,

	provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	Upper Basement Floor Panel
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu

	160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	LOWER GROUND FLOOR PANEL -1
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	LOWER GROUND FLOOR PANEL -2
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)

	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	UPPER GROUND + FIRST FLOOR PANEL-1 AT MEZZ. FLOOR
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.

	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	UPPER GROUND + FIRST FLOOR PANEL-2 AT MEZZ. FLOOR
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Above 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .

	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	SECOND FLOOR PANEL -1
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-

	2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	SECOND FLOOR PANEL -2
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .
	from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu
	OUTGOINGS
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	Four pole MCB
	40 A 63 A rating
	EMERGENCY PANEL
	SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm

	length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)
	Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending, cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.
	Electrolytic grade Aluminium bus bar
	SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.
	Red/yellow/Green colour
	Blue colour
	P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.
	S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.
	11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV
	SF of Current Transformer, with all necessary support in existing panel including connection etc. as required.
	from 200 / 5 to 400/5 Ratio, 10 VA, class 1 accuracy
	0.5 A to 4 A rating (Protection MCB)
	SF of CT operated direct reading type Ampere meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	Below 500 A
	SF of (0-500) V range Volt meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.
	Digital type
	SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required.
	SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required.
	INCOMING
	SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR, shunt trip, earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.
	With Thermal Magnetic release
	160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu
	OUTGOINGS
	Four pole MCB
	6 A to 32 A rating
	LT CABLES, TERMINATIONS & CABLE TRAYS
	P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, 11nd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size. Armoured
	6.0 Sq.mm
	4 core
	10.0 Sq.mm
	4 core
	16.0 Sq.mm
	4 core
	25.0 Sq.mm
	3.5 core
	4 core
	35.0 Sq.mm
	3.5 core
	50.0 Sq.mm
	3.5 core
	70.0 Sq.mm
	3.5 core
	185.0 Sq.mm
	3.5 core
	240.0 Sq.mm
	3.5 core
	300.0 Sq.mm
	3.5 core

	400.0 Sq.mm
	3.5 core
	P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Copper conductor of IS:1554 P-I / IS : 7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, 11nd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.
	6.0 Sq.mm
	4 core
	10.0 Sq.mm
	4 core
	Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.
	4 x 6.0 sq.mm
	4 x 10.0 sq.mm
	4 x 16.0 sq.mm
	4 x 25.0 sq.mm
	3.5 x 25.0 sq.mm
	3.5 x 35.0 sq.mm
	3.5 x 50.0 sq.mm
	3.5 x 70.0 sq.mm
	3.5 x 185.0 sq.mm
	3.5 x 240.0 sq.mm
	3.5 x 300.0 sq.mm
	3.5 x 400.0 sq.mm
	Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty Copper lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.
	4 x 6.0 sq.mm
	4 x 10.0 sq.mm
	Supply, Fabricating & installing following sizes of powder coated perforated M.S. cable trays including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders, fastners, supports etc. as required.
	150mm x 50mm x 1.6mm
	300mm x 50mm x 1.6mm
	450mm x 62.5mm x 2.0mm
	600mm x 62.5mm x 2.0mm
	Supply, Fabricating & installing following sizes of powder coated ladder type M.S. cable trays with rungs at span of 250mm including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling/wall with M.S. suspenders etc. as required.
	450mm x 62.5mm x 2.0mm
	600mm x 62.5mm x 2.0mm
	EARTHING
	Maintenance free Gel Earthing with Pipe in pipe / Pipe in strip technology filled with anti corrosive conductive compound (CPRI Tested) below the ground in 150 - 200 mm dia. earth pit & surrounding filled with required mineral filling compound (MFC should have hygroscopic property to retain the moisture for long time to create low resistance zone) and C.C. finished chamber covered with hinged type with locking arrangement C.I. Cover, C.I. Frame of size 300mm x 300mm complete testing of earth resistance as required. of following sizes.
	With Pipe in Pipe Technology (Inner pipe dia. / Outer pipe dia.) 80 - 100 micron GI Coating
	GI pipe 2000 mm long, 50 / 25mm, Terminal 12 mm GI Strip
	GI pipe 3000 mm long, 80 / 40 mm, Terminal 14 mm GI Strip
	With Strip in Pipe Technology with 80 - 100 micron GI Coating
	GI pipe 3000 mm long, 63 / 80mm, Inner strip 50 mm x 3 mm copper
	S & Laying following size earth wire/strip in horizontal or vertical run in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.
	8 SWG G.I. (Hot Dipped) Wire
	32mm x 6mm copper strip
	32mm x 6mm G.I. (Hot Dipped) Strip
	50mm x 6mm G.I. (Hot Dipped) Strip
	CCTV SYSTEM
	S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required.
	25 mm
	Supply, Drawing and Testing of 4 pair, 24 AWG UTP Cat 6 Cable as per latest ammendments of TIA /EIA 568 B.2-1 Specifications in existing MS/PVC Conduits including making connections to Information outlets and Patch Panels with ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing required.

	Supply and Installation of Information outlets made of high impact plastic body ABS FR Grade with spring loaded collapsible shutters in jack Recess, suitable for Cat 6 application complying to latest amendments EIA/ TIA 568 B.2-1 Specifications in existing modular /MS Boxes along with necessary connections as required.
	Supply & fixing of Faceplate for Flush / Surface Mount Information Outlets Single Aperture with screw hole covers & Icon Tree Size 86mmX86mm
	Single Aperture
	Supply , Installation, Testing and Commissioning of Rack mounted 19", Cat 6 UTP,1.5-1.6 MM CRS chasis , powder coated Modular Patch Panels with collapsible shutters on jacks to support latest amendments of TIA / EIA Cat 6 Specifications in Existing Communication Rack along with necessary connections of Cat 6 UTP Cables, With Rear Cable management trays and clamps.
	24 Ports
	Supply , Installation and Testing of 4 pair , 100 Ohm, 24 AWG , Cat 6 UTP, flexible , Double ended Patch Cords along with 2 No of RJ 45 connectors with strain relief boots as per TIA /EIA 568 B.2-1 Specifications.
	1 Mtr/3 ft
	Supply , Installation, Testing and Commissioning of Wall mounted Communication rack with glass doors, handles ,lock , Top and Bottom Cable entries, Supports for mounting rack on wall , Cable managers, one Fan, Equipment mounting hardware, power supply box for supplying power to switches, fans etc along with earth continuity kit, Mcb, indicator, moulded power supply cable
	12 U(44 mm) wall mounted
	SITC of 10/100 MBPS Unmanaged Switch
	24 Port
	POINT WIRING
	WIRING FOR Three nos. 6A Universal UPS power socket outlet Shuttered controlled with one no. 16A switch mounted side by side with 2 x 2.5 sq.mm. PVC insulated single core FR flexible copper conductor in concealed/exposed RIGID PVC conduits 2mm thick and EARTHING WITH one no. 1.5 sq.mm. insulated green color earth wire.(Max. 3 Points to be looped from one circuit) (Upto 10 Mtrs)
	SITC of Digital EPBAX of 50 Ports of Matrix make of Approved Equal.
	LIGHT FIXTURES & FAN
	P & F of IP20 LED Trunk mounted light fixture including trunk & accessories with integral driver, life time of 50,000 burning hours with 70% initial lumen maintained. CCT 3000°K, 4000°K & 6000°K.
	2 x 20W LED Trunk Light
	3 x 20W LED Trunk Light
	P & F of decorative round/square shape wall/ceiling mounted LED Spot Light in furniture or interior work as per Architectural interior plan with powder coated finish and toughened glass diffuser, supply accessories(220 V, 50 HZ/ 12 V DC) complete in all respect. Available with 5 color option
	P & F of LED based Recessed mounted step light having power consumption not more than 2W. Fixture made up of aluminum having white finish body. Similar to Philips Step Recessed or equivalent in regent & Legrand.
	P & F of Auditorium Pre Function Chandelier (Pollux, Spectra:- JCN-ABR-CHL00954002) Jaquar complete in all respect.
	P & F of Convention hall Pre Function Chandelier (VELA, Spectra:- JCN-SKG-CHL00954006) Jaquar complete in all respect.
	P & F of Auditorium Ground Floor Lobby Chandelier (PICTOR, Spectra:- JCN-SKG-CHL00954009) Jaquar complete in all respect.
	P & F of First Floor Both Prefunctions Chandelier (CELOSIA, Spectra:- JCN-SLV-CHLSYA7165D) Jaquar complete in all respect.
	P & F of First Floor Admin Lobby Chandelier (MONSOON, Stars Gold: 11083) Jaquar complete in all respect.
	P & F of First Floor Multipurpose Hall (VELA, Spectra:- JCN-SKG-CHL00954006) Jaquar complete in all respect.
	P & F of Convention Hall Chandelier (APUS, Spectra:- JCN-ABR-CHL00954004) Jaquar complete in all respect.
	P & F of Mini Auditorium Lobby Chandelier (NORMA:- MD177218009) Jaquar complete in all respect.
	Supply, Installation, testing & commissioning of 3 Channel DALI high frequency DALI ballasts controller. Each DALI outputs allowing it to control up to 192 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. Makes- Dyalite/Creston/Schneider
	Supply, Installation, testing & commissioning of 1 Channel DALI high frequency DALI Ballast controller. Each DALI outputs allowing it to control up to 64 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. Device works on 209 protocol for Tuneable lights. Makes- Dyalite/Creston/Schneider
	Supply, installation, testing and commissioning of Antumbra 6 Button keypad with Proximate Feautre with IP 22 degree protection. Makes- Dyalite/Creston/Schneider
	Supply, installation, testing and commissioning of Antumbra 6 Button Display keypad with Proximate Feautre, 8 Pages, with IP 22 degree protection . Makes- Dyalite/Creston/Schneider
	Supply, installation, testing and commissioning of Ceiling Mount 360 degree Multi Sensor with PIR, LUX and IR Function inbuilt, having range of 7.5 x 5.4 meter at a height of 2.5-3 meter.
	Supply, Testing & Commissioning of Power Supply 15V - 1.5A Din Rail
	Supply, Testing & Commissioning of IP Gateway with Time Clock

	Supply of Automation Panel with Incoming protection Devices like MCB, DP ELCB, Surge Arrestor with Cable Alley, Neutral/Earth Link
	Supply of Cat 6 Cable to connect LMS Components like Sensor, Keypad, Controller
	Supply of 2 x 1.5 sq mm wire for DALI Connection
	CCTV SYSTEM
	SITC of Double CCD coloured cameras, 1/3 inch 530 TV lines, 0.3 lux with 3.6 mm Fixed Board lens or equivalent complete as required in mini dome shape fixed type for Recess Mounting in False Ceiling or Side mounting on wall complete as required.
	SITC of Double CCD coloured cameras, 1/3 inch 530 TV lines, 0.1 lux with Varifocal Lens 4-9mm or equivalent complete as required in mini dome shape fixed type for Recess Mounting in False Ceiling or Side mounting on wall complete as required.
	SITC of Infra Red IR Bullet Color Camera, 1/3" SONY CCD, 420TVL, 0Lux/F1.2 (IR ON), 36 IR LED 12VDC, Fixed Board lens F=8mm or equivalent complete as required in fixed type for Side mounting on wall complete as required.
	SITC of Water & Dust Resistant IP66 CCD coloured cameras, 1/3 inch or 1/4 inch 540 TV lines, auto iris lens. High speed dome, with Video pan view of 360 degree continuous & Video tilt view of 0 degree to 90 degree and zoom function (16x) & built in telemetry receiver, complete as required with housing brackets etc. for Side mounting on wall complete
	SITC of PTZ controller with joystick. LED display, for set individually or collectively controlling the cameras mentioned in item above complete as required.
	SITC of 64 channel colour Digital Video Mgmt system with built in multiplexer digital video recorder. Video motion detection system, with external alarm inputs & outputs TCPIP network feature & server software monitor output 2 x HDD slots with 1 TB Seagate Hard Disk Drive to be able to achieve recording in SVHS quality @ 24 hour time lapse mode complete as per required and as per specification.
	P&F of 43" Smart LED monitor with HDMI cable, remote complete.
	UPS
	Supply, erection, testing and commissioning of: i) Micro processor based 30 KVA Online Double Conversion modular UPS System using 25 KVA / 30 KVA module with surge protection suitable for unbalanced, 3 Phase input and 3 phase 415 V output, suitable for operating in parallel and each comprising SNMP / MODBUS for monitoring as per technical specification complete as required. ii) Lead Acid sealed maintenance free batteries for 30 KVA UPS system, for providing 15 minutes back up to 30 KVA UPS. Each bank of batteries shall comprise required Nos. of SMF batteries etc as per specifications complete as required. Minimum VAh with each UPS System shall be 19152. iii) Rack to house SMF batteries for 30 KVA UPS system along with interconnecting links and I/c S/F MCCB, all accessories complete as required.
	PA System
	Supply, installation, testing & commissioning of UL Listed Integrated 8 channel Digital Voice Evacuation and 2 way Communication Fire Fighters System capable to supervision of all the speaker circuits complete the system with console panel complete with 2 Nos of mike and necessary network cards. The system is integrated with main fire alarm panel and is of same make as of main fire alarm panel complete as per technical specification. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	Addressable 50 watt digital amplifier with in-built 4 addressable audio zone & 1 addressable fire fighter telephone zone. Required for below given speakers. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	Fire panel supervised 70db-84db wall Mounted Speakers with back box. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	2 way communication Fire Fighter's Telephone Jack with back box. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	2 way communication Fire Fighter's Handset with mounting arrangement. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI.
	Addressable control modules with back box for Fire Fighters Telephone circuit. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	Providing and fixing of MS conduit including all necessary supports, clamps, jointing pieces etc. for cable from roof slab to detector as required. The item to be ISI mark. Make: BEC / AKG
	25 mm Ø
	SITC OF HIGH FIDELITY FALSE CEILING SPEAKER WITH CONTEMPORARY GRILL. FREQ RANGE: 60Hz-18KHz DRIVER ,CAPACITY: 6-20WATTS,IMPEDENCE:8of High-,FREQ RANGE : 60Hz – 18 KHz,DRIVER CAPACITY :6 – 20 Watts IMPEDANCE : 8 Ohms TRANSFORMER TAPS: 100&70 V DIMENSIONS : Dia 206 mm, DEPTH:89mm,CUT OUT :175mm NET WEIGHT:1.2 Kg MAKE :‘JBL’ CONTROL 8124
	SITC OF 70/100V 240 WATTS INSTALLATION AMPLIFIER FREQ RANGE: 50 Hz – 20 KHz POWER OUTPUT : 240 Watts IMPEDANCE : 4, 8 Ohms TRANSFORMER TAPS: 100&70 V

	DIMENSIONS: STANDARD 19" RACK MOUNT (100, 430, 270 mm H, L, B WEIGHT : 10.5 Kg 'BOSCH' LBD 1916
	SITC OF BACK END VOLUME CONTROLS PROGRAMMABLE Make : 'DBX' ZC 8
	SITC of MP3, MP4 PLAYERS FOR PLAYING CONTINUOUS MUSIC
	SITC OF CHAIRMAN UNIT: RATED POWER SUPPLY:12-24 VDC/CURRENT CONSUMPTION:< 60 Ma/ FREQUENCY RESPONSE: 200-12500Hz/ RATED POWER OUTPUT: 300Mw MAKE: 'BOSCH' OR EQUALENT
	SITC OF STEEL RACK TO HOUSE THE EQUIPMENT
	Wiring to speakers in existing conduit. 24 / 0.20 mm PVC insulated twin twisted flexible annealed tinned copper wire.
	SAFETY SIGNAGE
	Supply of Safety signs Auto-Glo, (list of design attached), based on acrylic, single sided wall pasted size 12" x 6"
	Ground Floor - Main Auditorium
	SITC of permanent install ,flying mount , wooden enclosure biamp 15" two way loudspeaker with following specifications or better : Freq.range: 40 Hz to 19 kHz , LF driver : 15 " or better , HF driver : compression driver 1.4" or higher ,Power handling : LF - 1000W at 8 ohm , HF : 150W at 8 ohm (prog),Sensitivity : 104dB , Max SPL (peak) : 130dB,coverage angle (rotatable) : 90 deg x 60 deg, integrated 10 or more M10 flying points. Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of OE manufactured mounting bracket/ flying mount for Above speakers with M10 bolts, Eye hook etc Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of wooden enclosure ,flying mount ,permanent install dual 15" subwoofer speaker with following specifications or better: ,freq range: 35 Hz – 140Hz , coverage : omnidirectional , Max Output: 137 dB Peak, Drivers: LF - 2 x 18" , Sensitivity (1W/1m): 103 dB ,Power Handling: 2500W program @ 4 ohms Finish: Black painted , dual-layer powder-coated steel grille ,mounting .10 x M10 threaded rigging fittings Approved makes : Community,d&b audio,Renkus Heinz or equivalent make.
	SITC of OE manufactured mounting bracket/ flying mount for Above Sub woofer with M10 bolts, Eye hook etc Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of permanent install ,flying mount , wooden enclosure 8" two way loudspeaker for Front Fill/Bacony with following specifications or better : Freq.range: 55 Hz to 19 kHz , LF driver : 8 " or better , HF driver : compression driver 1" or higher ,Power handling : 500W at 8 ohm prog),Sensitivity : 93dB , Max SPL (peak) : 124dB,coverage angle (rotatable) : 100 deg x 50 deg, integrated M10 flying points ,complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of 10" compact coaxial Two-Way stage monitor speaker with following specifications or better : Freq.range: 75 Hz to 18 kHz , LF driver : 10 " or better , HF driver : 1.25" or higher ,Power handling : 400W at 8 ohm prog),Sensitivity : 98dB , Max SPL (peak) : 127dB,coverage angle : 90 deg x 90 deg, flying points ,complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 2 , number of output channels : 2 , power output per channel : 2200 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 6000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 1400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 3000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.
	SITC of OE manufactured mounting bracket (Mounting Bracket for Front Fill)with accessories, Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make.
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power

	sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make.
	SITC of digital mixer 48 channels with following specifications or better :number of input :32 mic/line (XLR/TRS combo) + 2 stereo line (RCA pin),number of output channels : 16 or more xlr ,8 Effects , 10 GEQ,sample frequency rate: 48kHz,dynamic range : 110 dB typ., DA Converter, 107 dB typ., INPUT to OMNI OUT, Input Gain=Min,Recording 34 tracks, Playback 34 tracks Approved makes : Yamaha , Digico, Allen & Heath, Sound Craft or equivalent make.
	Supplying, installation, testing and commissioning of shielded CAT 5 cable in 25mm PVC conduit (Not More than 3 wires in each conduit) etc as required Approved make: Beldon,Diink,Kramer or equivalent make.
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor shielded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make.
	SITC of 18" podium mic with flexible gooseneck at both base and top of shaft. Requires 9-52V phantom power. shall have RFI Immunity, Pre-Polarized Condenser Frequency Response 40 Hz - 18 kHz, Polar Pattern Cardioid, Output Impedance 150 ohms, shall include Heavy duty shock absorbent table stand with latching on/off LED switch and XLR connector Approved makes : Shure, DPA, Audix or equivalent make.
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.
	SITC of Wireless UHF microphone set: (Set shall include 1x Receiver, 1 x Headworn mic with transmitter)Headworn Microphone: Pre-Polarized Condenser, Frequency Response 50 Hz - 15 kHz, Polar Pattern superCardioid, Sensitivity 4 mV / Pa @ 1k, Equivalent Noise Level <26 dB (A- weighted), Signal to Noise Ratio >68 dB, Maximum SPL ≥140 dBBodypack Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours Minimum, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories or equivalent make.
	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make.
	SITC of connectors UL Listed for connectivity with accessories or equivalent make.
	Supply,Installation,testing and commissioning of Microphone stand(Long): Light weight tripod alluminium Microphone stand with LongArm,boom type& chrome plating complete with standard accessories or equivalent make..
	SITC of Front lockable door, ventialed, 16U Equipment Rack or equivalent make.
	SITC of FOH SPEAKERS, wooden enclosure , permanent install , flying mount , 15" LF three way loudspeaker system with following specifications or better : frequency range : 60 Hz to 18 kHz ,Sensitivity : 99dB or more ,Max SPL : 127dB (peak),coverage angle : 60-90 deg(H) x40-90 deg (V) with rotatable horn,drivers : LF -15", MF- 4" ,HF- 1" ,power handling:500W or more ,mounting suspension points on enclosuer Approved makes : Community,d&b audio,Renkus Heinz or equivalent make.
	SITC of FOH SUB WOOFER, wooden enclosure, flying mount, permanent install dual 15" subwoofer speaker with following specifications or better: , freq range: 38 Hz – 140Hz, coverage : omnidirectional, Max Output: 128 dB Peak, Drivers: LF - 2 x 15", Sensitivity (1W/1m): 97 dB, Power Handling: 900W program @ 4 ohms Finish: Black painted , dual-layer powder-coated steel grille, mounting 6 x M10 threaded rigging fittings Approved makes : Community, d&b audio, Renkus Heinz or equivalent make.
	SITC of Front Fill, wooden enclosure , permanent install , flying mount , 8" LF two way loudspeaker system with following specifications or better : frequency range : 75 Hz to 18 kHz ,Sensitivity : 91dB or more ,Max SPL : 119dB (peak),coverage angle : 60-90 deg(H)x60-90(V) rotatable ,power handling : 350W (prog) or more ,drivers: LF 8" , HF 1" ,mounting suspension points , complete with OE mounting bracket Approved makes : Community,d&b audio,Renkus Heinz or equivalent make.
	SITC of 10" compact coaxial Two-Way stage monitor speaker with following specifications or better : Freq.range: 75 Hz to 18 kHz , LF driver : 10 " or better , HF driver : 1.25" or higher ,Power handling : 400W at

	8 ohm prog),Sensitivity : 98dB , Max SPL (peak) : 127dB,coverage angle : 90 deg x 90 deg, flying points complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 1400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 3000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make.
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make.
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make.
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make.
	SITC of 18" podium mic with flexible gooseneck at both base and top of shaft. Requires 9-52V phantom power. shall have RFI Immunity, Pre- Polarized Condenser Frequency Response 40 Hz - 18 kHz, Polar Pattern Cardioid, Output Impedance 150 ohms, shall include Heavy duty shock absorbent table stand with latching on/off LED switch and XLR connector Approved makes : Shure, DPA, Audix or equivalent make.
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.
	SITC of Wireless UHF microphone set: (Set shall include 1x Receiver, 1 x Headworn mic with transmitter)Headworn Microphone: Pre-Polarized Condenser, Frequency Response 50 Hz - 15 kHz, Polar Pattern superCardioid, Sensitivity 4 mV / Pa @ 1k, Equivalent Noise Level <26 dB (A- weighted), Signal to Noise Ratio >68 dB, Maximum SPL ≥140 dBBodypack Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours Minimum, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity) with 2 Point XLR Inputs Connector complete with standard accessories or equivalent make or equivalent make.
	SITC of connectors UL Listed for connectivity with accessories or equivalent make.
	Supply,Installation,testing and commissioning of Microphone stand(Long): Light weight tripod alluminium Microphone stand with LongArm,boom type& chrome plating complete with standard accessories or equivalent make.
	SITC of Front lockable door , ventialed ,16U Equipment Rack or equivalent make.
	Lower Ground Floor - Restaurant
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL

	94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable in 25mmPVC conduit (Not More than 3 wire in 1 conduit) etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make
	Lower Ground Floor - Event Hall / EXHIBITION HALL
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of multichannel Class D amplifier ,number of line level inputs : 4 , number of output channels : 4 , power output per channel : 240 Watts at 70V/100 V/ 4 Ohms) , bridge mode: 2 x 480 Watts : 70V/100 /8 Ohms, combined convection and fan cooling, 2 U, 19" rackmount, channel separation > 68 dB @ 1 kHz, frequency response (in Hz) :50 - 20 kHz Approved makes : Biamp ,Cloud Audio ,Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetri or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable.Approved make: Samsung ,Sony ,Apart or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make

	Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories .(Wall Plate for Mic Connectivity) or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make
	Lower Ground Floor - Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2
	SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better- frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio, CSC or equivalent make
	SITC of Dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make
	BACKEND EQUIPMENT in EQUIPMENT ROOM AT LOWER GROUND FLOOR
	SITC of networked audio output expansion device with 4 line-level output channels.The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol . It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for linelevel audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover,local non-volatile storage of Emergency Messages,dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control OutputsThe audio output device shall provide local digital audio signal processing and local storage of configuration data,signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panel Approved makes : Biamp, ASL,Mediamatrix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make or equivalent make
	Ground Floor - Convention Centre
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz,

	Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBuV (S/N 60 dB at 25 kHz deviation, A-weighted), Approved makes : Shure, DPA, Audix or equivalent make
	Supply, Installation, testing and commissioning of Junction Box (Junction Box For Mic Connectivity) with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make
	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	Ground Floor - Prefunction Area 1 & 2/Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2
	SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better- frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at 100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz, cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2 core 2.5 sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon, Krystal, Kramer or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	BACKEND EQUIPMENT in EQUIPMENT ROOM AT GROUND FLOOR
	SITC of networked audio output expansion device with 4 line-level output channels. The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol . It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for line level audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover, local non-volatile storage of Emergency Messages, dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control Outputs. The audio output device shall provide local digital audio signal processing and local storage of configuration data, signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panel Approved makes : Biamp, ASL, Mediamatrix or equivalent make
	SITC of desktop networked paging station. The desktop paging station shall provide paging audio and control data via networked based Layer-2 or above protocol and receive Power over Ethernet (PoE), utilizing a single (CAT5) network cable to a rear panel RJ-45 connector. Minimum Ten buttons shall be provided on the front panel for recalling page codes with optional preambles. Up to 999 user-configurable page codes. Four software configurable priority paging levels shall be available. The desktop paging station shall include override, store and forward, and lock-out capabilities. Each desktop paging station shall provide local digital audio signal processing, local storage of configuration data and preambles. Desktop paging stations shall have a backlit LCD screen, PIN code accessibility and a gooseneck cardioid microphone. The desktop paging station shall be CE marked and shall be compliant with the RoHS directive. Frequency Response (100Hz ~ 20kHz): +0, -1dB, THD+N (100Hz ~ 8kHz): <0.05% , Effective Input Headroom: 30dB , System Headroom: 18dB, Input Impedance: 3kΩ, Maximum Input: 125dB SPL , Balanced Line In: -10dB , Nominal Mic Type: Dynamic microphone with dual transducer (monitored), Mic Pattern: Cardioid , Mic Frequency Response: 100Hz-10kHz , Mic Gooseneck Length: 12.5 inches (317.5mm) Approved makes: Biamp ,ASL or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco, Netgear or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon, Dlink, Kramer or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	First Floor - Multipurpose Hall
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker , 1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl : 114 dB SPL (peak) , Power handling : 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL

	94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at 100V/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz, cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio , Cloud Audio , Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs, configurable USB audio, VoIP interface, POTS interface , Gigabit Ethernet port, RS-232 serial port, GPIO, OLED display , ethernet based control and monitoring , Signal processing e.g. I routing, mixing, equalization, filtering, and delay Approved makes : Biamp, Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control , flush-mount , network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources. Multiple functions source control , volume control , mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Belden, Dlink, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2 core 2.5 sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Belden, Krystal, Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter) Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥ 140 dB. Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion $\leq 0.7\%$ (33 kHz deviation at 1 kHz), Sensitivity 5 dB μ V (S/N 60 dB at 25 kHz deviation, A-weighted), Approved makes : Shure, DPA, Audix or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventiated , 16U Equipment Rack. or equivalent make
	Second Floor - Lecture Hall 1
	SITC of Two-Way Compact Column Loudspeaker with directivity controlled vertical dispersion with following specification or better , frequency Range: 110 Hz - 20 kHz , Max Output: 127 dB Peak , Transducers: LF - 10 x3" , HF - 12 Power Handling: 650W prog. @ 8 ohms, coverage angle (H x V): 130° x 15-20° , Sensitivity (1W/1m): 95 dB , complete with pan-tilt mounting bracket include. Approved makes : Community, d&b audio, Renkus heinz or equivalent make
	Universal mounting kit for above loudspeaker or equivalent make
	SITC of multichannel digital amplifier with inbuilt DSP and Dante , having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz, Dynamic Range - 0.0001 % THD+N, Memory/Presets Delay , Equalizer , Raised-cosine, custom FIR, parametric IIR, Crossover, Limiters: RMS voltage, RMS current, Peak limiter , Damping Control , Impedance measurement Approved makes : Community, d&b audio, Renkus heinz or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs, configurable USB audio, VoIP interface, POTS interface , Gigabit Ethernet port, RS-232 serial port, GPIO, OLED display , ethernet based control and monitoring , Signal processing e.g. I routing, mixing, equalization, filtering, and delay Approved makes : Biamp, Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control , flush-mount , network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources. Multiple functions source control , volume control , mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Belden, Dlink, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Microphone Cable: 2 core PVC insulated Cu conductor shielded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Belden, Krystal, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2 core 2.5 sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Belden, Krystal, Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter) Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥ 140 dB. Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion $\leq 0.7\%$ (33

	kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted), Approved makes : Shure, DPA, Audix or equivalent make
	Supply, Installation, testing and commissioning of Junction Box (Junction Box For Mic Connectivity) with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	Second Floor - Restaurant
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker , 1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl : 114 dB SPL (peak) , Power handling : 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90, UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier , 19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls , e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications , mic selection, volume , source, labelling section, line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc Alloy Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon, Dlink, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2core 2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon, Krystal, Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung , Sony , Apart or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	Second Floor - Terrace Restaurant
	SITC of 6.5" two-way coaxial surface mount loudspeakers with compression drivers loudspeaker , 1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl : 114 dB SPL (peak) , Power handling : 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90, UL1480, complete with mounting bracket Approved makes : Community, d&b Audio , Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier , 19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls , e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications , mic selection, volume , source, labelling section, line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc Alloy Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon, Dlink, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2core 2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon, Krystal, Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung , Sony , Apart or equivalent make
	SITC of Front lockable door , ventialed , 16U Equipment Rack. or equivalent make
	Second Floor - Conference Room
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker , 1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl : 114 dB SPL (peak) , Power handling : 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL

	94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at 100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz, cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs, configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port, RS-232 serial port, GPIO, OLED display , ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes : Biamp, Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources. Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	SITC of Digital conference system Chairman unit ,it shall include a unidirectional condenser microphone, talk and delegate mute button. The chairman microphones system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	SITC of Digital conference system Delegate unit system. The delegate unit shall include a unidirectional condenser microphone and talk button. The system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	SITC of Digital conference system master processor for Main Control Unit ,It shall include digital connector for audio in and audio out as line level audio signal to an external amplification and loudspeaker system Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	Supply, Installation, testing and commissioning of Microphone Cable: 2core PVC insulated Cu conductor shielded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon, Krystal, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Speaker Cable: 2core 2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon, Krystal, Kramer or equivalent make
	Supply, Installation, testing and commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of networked messaging processor. The Playing live & Pre-recorded server shall networked based & to be rack mountable in one rack space (1RU) and shall support advanced paging functionalities such as recorded message storage and playback, system configuration storage, event scheduling, time server support, storage of logged system data, VoIP triggered paging, email notification, and remote third party control capability. The processor shall feature a status LED and separate ports for TCP/IP Control and networked based Layer-2 or above protocol . The message Server shall be CE marked and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL, Mediamatrix, Mediamatrix or equivalent make
	SITC of network based fire interface panel .The fire panels interface shall provide a networked emergency interface. It shall have redundant power supply and network connections. The fire panels interface shall be powered from a certified 24V DC power source or over Ethernet (PoE) via either of two network ports. The fire panel interface shall have eight monitored I/O and eight control inputs. The fire panel interface shall offer up to 20 discrete emergency inputs, 16 of which shall be programmable to play an emergency message, enable a zone reset or zone silence. The fire panels interface shall provide up to 10 inputs per emergency zone. The life safety interface shall be EN 54-16 certified, shall be CE marked, and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL, Mediamatrix, Mediamatrix or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes : Cisco, Netgear or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make
	PC Operating System: Windows 10., Processor: Intel Core i5-6600K @ 3.5 GHz. Memory: 8 GB RAM., Graphics: NVIDIA GeForce GTX 1070 8GB., Hard Drive: 1TB (SSD or HDD) for VOCIA Software Monitoring with software installed or equivalent make
	Lower Ground Floor - Restaurant
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section, line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make

	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBuV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable in 25mmPVC conduit (Not More than 3 wire in 1 conduit) etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make
	Lower Ground Floor - Event Hall / EXHIBITION HALL
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of multichannel Class D amplifier ,number of line level inputs : 4 , number of output channels : 4 , power output per channel : 240 Watts at 70V/100 V/ 4 Ohms) , bridge mode: 2 x 480 Watts : 70V/100 /8 Ohms, combined convection and fan cooling, 2 U, 19" rackmount, channel separation > 68 dB @ 1 kHz, frequency response (in Hz) :50 - 20 kHz Approved makes : Biamp ,Cloud Audio ,Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetri or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable.Approved make: Samsung ,Sony ,Apart or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBuV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories .(Wall Plate for Mic Connectivity) or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make
	Lower Ground Floor - Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2
	SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better- frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio, CSC or equivalent make
	SITC of Dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling

	system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make
	BACKEND EQUIPMENT in EQUIPMENT ROOM AT LOWER GROUND FLOOR
	SITC of networked audio output expansion device with 4 line-level output channels.The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol . It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for linelevel audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover,local non-volatile storage of Emergency Messages,dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control OutputsThe audio output device shall provide local digital audio signal processing and local storage of configuration data,signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panel Approved makes : Biamp, ASL,Mediamatrix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make or equivalent make
	Ground Floor - Convention Centre
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm ,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make
	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active

	directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	Ground Floor - Prefunction Area 1 & 2/Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2
	SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better- frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	BACKEND EQUIPMENT in EQUIPMENT ROOM AT GROUND FLOOR
	SITC of networked audio output expansion device with 4 line-level output channels.The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol . It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for linelevel audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover,local non-volatile storage of Emergency Messages,dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control OutputsThe audio output device shall provide local digital audio signal processing and local storage of configuration data,signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panel Approved makes : Biamp, ASL,Mediamatrix or equivalent make
	SITC of desktop networked paging station.The desktop paging station shall provide paging audio and control data via networked based Layer-2 or above protocol and receive Power over Ethernet (PoE), utilizing a single (CAT5) network cable to a rear panel RJ-45 connector. Minimum Ten buttons shall be provided on the front panel for recalling page codes with optional preambles.Up to 999 user-configurable page codes. Four software configurable priority paging levels shall be available. The desktop paging station shall include override, store and forward, and lock-out capabilities. Each desktop paging station shall provide local digital audio signal processing, local storage of configuration data and preambles. Desktop paging stations shall have a backlit LCD screen, PIN code accessibility and a gooseneck cardioid microphone. The desktop paging station shall be CE marked and shall be compliant with the RoHS directive. Frequency Response (100Hz ~ 20kHz): +0, - 1dB, THD+N (100Hz ~ 8kHz): <0.05% , Effective Input Headroom: 30dB , System Headroom: 18dB, Input Impedance: 3kΩ, Maximum Input: 125dB SPL , Balanced Line In: -10dB , Nominal Mic Type: Dynamic microphone with dual transducer (monitored), Mic Pattern: Cardioid , Mic Frequency Response: 100Hz-10kHz , Mic Gooseneck Length: 12.5 inches (317.5mm) Approved makes: Biamp ,ASL or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	First Floor - Multipurpose Hall
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port, RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make

	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	Second Floor - Lecture Hall 1
	SITC of Two-Way Compact Column Loudspeaker with directivity controlled vertical dispersion with following specification or better ,frequency Range: 110 Hz - 20 kHz , Max Output: 127 dB Peak , Transducers: LF - 10 x3" , HF - 12 Power Handling: 650W prog. @ 8 ohms, coverage angle (H x V): 130° x 15-20° ,Sensitivity (1W/1m): 95 dB ,complete with pan-tilt mounting bracket include. Approved makes : Community,d&b audio,Renkus heinz or equivalent make
	Universal mounting kit for above loudspeaker or equivalent make
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	Second Floor - Restaurant
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption

	reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc Alloy Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack.or equivalent make
	Second Floor - Terrace Restaurant
	SITC of 6.5" two-way coaxial surface mount loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480,complete with mounting bracket Approved makes : Community,d&b Audio ,Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc Alloy Approved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	Second Floor - Conference Room
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio, Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes : Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	SITC of Digital conference system Chairman unit ,it shall include a unidirectional condenser microphone, talk and delegate mute button. The chirman microphones system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make

	SITC of Digital conference system Delegate unit system. The delegate unit shall include a unidirectional condenser microphone and talk button. The system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	SITC of Digital conference system master processor for Main Control Unit ,It shall include digital connector for audio in and audio out as line level audio signal to an external amplification and loudspeaker system Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor shielded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of networked messaging processor. The Playing live & Pre-recorded server shall networked based & to be rack mountable in one rack space (1RU) and shall support advanced paging functionalities such as recorded message storage and playback, system configuration storage, event scheduling, time server support, storage of logged system data, VoIP triggered paging, email notification, and remote third party control capability. The processor shall feature a status LED and separate ports for TCP/IP Control and networked based Layer-2 or above protocol . The message Server shall be CE marked and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL,Mediamatrix,MediamatrixMediamatrix or equivalent make
	SITC of network based fire interface panel .The fire panels interface shall provide a networked emergency interface. It shall have redundant power supply and network connections. The fire panels interface shall be powered from a certified 24V DC power source or over Ethernet (PoE) via either of two network ports. The fire panel interface shall have eight monitored I/O and eight control inputs. The fire panel interface shall offer up to 20 discrete emergency inputs, 16 of which shall be programmable to play an emergency message, enable a zone reset or zone silence. The fire panels interface shall provide up to 10 inputs per emergency zone. The life safety interface shall be EN 54-16 certified, shall be CE marked, and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL,Mediamatrix,MediamatrixMediamatrix or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	PC Operating System: Windows 10., Processor: Intel Core i5-6600K @ 3.5 GHz. Memory: 8 GB RAM., Graphics: NVIDIA GeForce GTX 1070 8GB., Hard Drive: 1TB (SSD or HDD) for VOCIA Software Monitoring with software installed or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	Second Floor - Lecture Hall 1
	SITC of Two-Way Compact Column Loudspeaker with directivity controlled vertical dispersion with following specification or better ,frequency Range: 110 Hz - 20 kHz , Max Output: 127 dB Peak , Transducers: LF - 10 x3" , HF - 12 Power Handling: 650W prog. @ 8 ohms, coverage angle (H x V): 130° x 15-20° ,Sensitivity (1W/1m): 95 dB ,complete with pan-tilt mounting bracket include. Approved makes : Community,d&b audio,Renkus heinz or equivalent make
	Universal mounting kit for above loudspeaker or equivalent make
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control

	,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor shielded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make
	Second Floor - Restaurant
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack.or equivalent make
	Second Floor - Terrace Restaurant
	SITC of 6.5" two-way coaxial surface mount loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480,complete with mounting bracket Approved makes : Community,d&b Audio ,Renkus-Heinz or equivalent make
	SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to

	override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix` or equivalent make
	Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make
	SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make
	Second Floor - Conference Room
	SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make
	SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make
	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make
	SITC of Digital conference system Chairman unit ,it shall include a unidirectional condenser microphone, talk and delegate mute button. The chirman microphones system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	SITC of Digital conference system Delegate unit system. The delegate unit shall include a unidirectional condenser microphone and talk button.The system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	SITC of Digital conference system master processor for Main Control Unit ,It shall include digital connector for audio in and audio out as line level audio signal to an external amplification and loudspeaker system Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make
	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make
	Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make
	SITC of connectors UL Listed for connectivity with accessories or equivalent make
	SITC of networked messaging processor. The Playing live & Pre-recorded server shall networked based & to be rack mountable in one rack space (1RU) and shall support advanced paging functionalities such as recorded message storage and playback, system configuration storage, event scheduling, time server support, storage of logged system data, VoIP triggered paging, email notification, and remote third party control capability. The processor shall feature a status LED and separate ports for TCP/IP Control and networked based Layer-2 or above protocol . The message Server shall be CE marked and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL,Mediamatrix,MediamatrixMediamatrix or equivalent make
	SITC of network based fire interface panel .The fire panels interface shall provide a networked emergency interface. It shall have redundant power supply and network connections. The fire panels interface shall be powered from a certified 24V DC power source or over Ethernet (PoE) via either of two network ports. The fire panel interface shall have eight monitored I/O and eight control inputs. The fire panel interface shall offer up to 20 discrete emergency inputs, 16 of which shall be programmable to play an emergency message, enable

	a zone reset or zone silence. The fire panels interface shall provide up to 10 inputs per emergency zone. The life safety interface shall be EN 54-16 certified, shall be CE marked, and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL, Mediamatrix, Mediamatrix or equivalent make
	SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make
	SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make
	PC Operating System: Windows 10., Processor: Intel Core i5-6600K @ 3.5 GHz. Memory: 8 GB RAM., Graphics: NVIDIA GeForce GTX 1070 8GB., Hard Drive: 1TB (SSD or HDD) for VOCIA Software Monitoring with software installed or equivalent make
	PUMPS & ACCESSORIES
	Supplying, Installation, Testing & Commissioning of Local Fire authrity approved Electric Driven Main fire pump for Sprinkler / Hydrant applications suitable for automatic operation and consisting of following details given as A, B, C, D, E, F and G .
	(A) Horizontal Single / Multi stage Centrifugal End suction, back pull type pump complete for delivery of below mentioned discharge , with necessary Butterfly valve on the suction side (all items to be matching with the suction side dia of the pump) and pressure gauge ,Butterfly valve and non return valve on the delivery side side (all items to be matching with the delivery side dia of the pump) and including bypass arrangement for Testing of pump
	(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal
	(C)Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head
	(D) Squirrel cage induction motor suitable for 3 phase, 415 V, 50 HZ, Ac supply 2900 / 1450 RPM T.E.F.C confirming to IP:55 , of required HP suitable for the above pump ,along with flexible coupling , coupling guard complete in all respect .
	(E) Common bed plate fabricated from mild steel channel for installation of pump and Motor
	(F) Pump is to be inspected by third party like RITES / PDIL at manufacturer's premises and inspection report is to be submitted.
	(G) Suitable cement concreat foundation duly plastered with anti vibration pads.
	2280 LPM suitable for 88 Mtr Head, multi stage, 1500 RPM
	SITC of Local fire authority approved Diesel Engine driven Pump suitable for automatic operation as per discharge defined beolw consisting of the following details given as A, B, C, D, E and F .
	(A) Horizontal Single / Multi stage Centrifugal End suction, back pull type pump complete for delivery of below mentioned discharge complete with necessary flexible pipe, Butterfly valve on the suction side (all items to be matching with the suction side dia of the pump) and pressure gauge ,Butterfly valve and non return valve on the delivery side side (all items to be matching with the delivery side dia of the pump) and including bypass arrangement for Testing of pump
	(B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal
	(C)Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head
	(D) Radiator cooled Diesel Engine developing suitable BHP for the below mentioned discharge at 1500 / 1800 RPM, flexible coupling and coupling guard with the Pump, common bed plate for mounting of the Engine and Pump,Antivibration damping arrangement by cushy foot, Diesel Engine starting Panel for starting of the engine automatically if the Normal electrical supply fails with a unit of battery bank of 12/24v,180 Ah, Lead Acid Battery with Boost / Trickle charger as required for operation of Diesel engine, Exhaust Pipe of suitable diameter minimum 10 M length, with muffler, day oil tank of 300 lts capacity with first charge and hand operated oil pumping set,
	(E) Pump is to be inspected by third party like RITES / PDIL at manufacturer's premises and inspection report is to be submitted.
	(F) Suitable cement concreat foundation duly plastered with anti vibration pads.
	2280 LPM suitable for 88 Mtr Head, multi stage, 1500 RPM
	SITC of Local fire authority approved Vertical multistage Jockey pump with SS Body, SS impellor, SS shaft, mechanical seal coupled with Squirrel cage induction motor for automatic operation suitable for three phase, 415 V, 50 Hz AC supply with synchronous speed of 2900 RPM ,T.E.F.C type confirming to IP:55 with flexible coupling and coupling guard with the pump ,Common bed plate fabricated from mild steel channel , Suitable cement concreat foundation duly plastered with anti vibration pads.
	180 LPM suitable for 88 Mtr
	SITC of Local fire authority approved single stage Centrifugal End suction, back pull type Terrace pump with Bronze impellor, SS shaft, mechanical seal coupled with Squirrel cage induction motor for automatic operation suitable for three phase, 415 V, 50 Hz AC supply ,T.E.F.C type confirming to IP:55 with flexible coupling and coupling guard with the pump ,Common bed plate fabricated from mild steel channel , Suitable cement concreat foundation duly plastered with anti vibration pads.along with suitable rating Control panel as per rating of Motor including 4 pole MCCB, automatic star delta starter, Single phase Preventor , overload protection rely, contactors, MCBs , interlocking wiring , ferruling etc complete in all respect.
	900 LPM with 35 mtr head
	SITC of pressure switches for Main, Jockey, Terrace pump and standby Diesel pumps, including necessary wiring upto control panel and Ball valve.

	Supplying and fixing air vessel of continuous welded construction for pump room made of 450 mm dia, fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, 2000 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gun Metal wheel valve, with required accessories, pressure gauge and painting with two coats of Red Oxide and two coat of post office red enamel paint as required.
	Providing, installation, testing and commissioning of stainless steel strainer of dia given below fabricated out of 1.6 mm. thick stainless steel sheet with 3 mm. dia holes with stainless steel flange of following sizes.
	150 mm dia
	200 mm dia
	Supplying and fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze /gun metal seat ISI marked complete with nuts, bolts, washers, gaskets, conforming to IS 780 of following sizes as required.
	150 mm dia
	200 mm dia
	SITC of floor mounted dust and vermin proof compartmentalised cubical type main fire pump house panel made out of CRCA sheet, required hardware, duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness, separate detachable gland plate M.S. base channel, hinged door with locking arrangement for equipment/switchgear. Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors and having accessories (Group -I) as below:
	Incomer
	320 Amp. TPN MCCB (adj.O/L) with Extended ROM, 35 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches, CT, Indicating Lamps, 400 Amps Alum. Bus bar with with heat shrinkable sleeves.
	Out going
	(a) 200 Amp. TPN MCCB (adj.O/L) with Extended ROM, 35 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches, CT, Indicating Lamps for 'ON', 'OFF', 'TRIP' 1 no. star Delta Starter of 75 HP with thermal over load relay, timer, push buttons, Auto / Manual selector switch, Single phase preventor - 2 Sets
	(b) 63 Amp. TPN MCCB (adj.O/L) with Extended ROM, 25 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches, CT, Indicating Lamps for 'ON', 'OFF', 'TRIP' 1 no. Star Delta / DOL Starter of 5 - 15 HP with thermal over load relay, timer, push buttons, Auto / Manual selector switch, Single phase preventor - 1 Set
	© One no. Diesel Engine Auto Starting kit with Auto . Manual selector switch & 3 attempt starting device, timers, relays, Indicating lamp for High / Low Lub. Oil pressure, High water temperature and engine ON indication, Battery charger, suitable for 12 V / 24 V DC with trickle / boost selector switch, DC ammeter & voltmeter
	(d) System controller to control Operation Main Electric pumps, Diesel pump, jockey pump in sequence as per specs. Consisting of relays, timers, sensors, annuciation window for fault indication.
	Providing/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, 11nd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.
	3.5C x 25.0 Sq.mm
	3.5C x 120.0 Sq.mm
	S & Laying following size earth wire/strip in horizontal or vertical run in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.
	8 SWG GI Wire
	Supplying, Installation, Testing & Commissioning submersible type dewatering pump of stainless steel / Noryl casing & impellor of discharge and head given below complete with base plate and all accessories suitable for operation on 230 V, single phase/415 V /3 phase, 50 Hz. AC supply complete with starter for automatic operation including water level sensing device / float switch inter connection with submersible cable etc. as required.
	180 LPM with 10 mtr head
	HYDRANT SYSTEM
	Supplying and fixing Gun metal single headed Internal / external yard hydrant valve with 1 No. 63 mm dia instantaneous Gun metal coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal cap and chain as required.
	Supplying and fixing of Hose Cabinet of size 750 mm x 600 mm x 250 mm made of 1.6 mm thick MS sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate external hydrant with butterfly valve, 2 Nos 15 Mtr. Long Hose pipe, 1 No. branch pipe, mounted on wall OR raised brick platform & duly painted with post office red externally and white internally with synthetic enamel paint complete in all respect, for external hydrant, as required.
	Supplying and fixing of Hose Cabinet of size 2100 mm x 900 mm x 715 mm made of 1.6 mm thick MS sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate Internal hydrant with butterfly valve, 2 Nos 15 Mtr. Long Hose pipe, 1 No. branch pipe, first aid hose reel drum etc. & mounted on wall OR raised brick platform & duly painted with post office red externally and white internally with synthetic enamel paint complete in all respect, for external hydrant, as required.

	Supplying and fixing Fire Brigade Connection of CI body with Gun Metal male instantaneous inlet couplings complete with cap and chain as required for 150mm dia MS pipe connection, conforming to IS 904 as required of following way :
	2 Way (for Drawout)
	4 Way (for Inlet)
	Providing and fixing of 4 way suction coupling for fire brigade withdrawal of water from fire tank with 150mm dia pipe and foot valve.
	Supplying and fixing 63 mm dia, 15 mtr. Long RRL hose pipe with 63 mm dia male and female Gun metal couplings duly binded with GI wire, rivets etc. conforming to IS 636 (type-A) as required.
	Supplying & fixing 63 mm dia Gun metal branch pipe with 20 mm (nominal internal diameter) size nozzle conforming to IS 903, suitable for instantaneous connection to interconnect hose pipe coupling as required
	Providing & fixing 100mm dia bourden type, Stainless steel dial type pressure Gauge (0 - 16 Kg) range, 3 / 8 " BSP bottom entry on Pump Delivery Line complete with Ball valve
	Supplying and fixing first -Aid hose reel wall mounted swinging type with MS construction spray painted in post office Red, conforming to IS 884 with upto date amendments, complete with the following as required.(A) 30 m long 20 mm (nominal internal) dia water hose Thermoplastic (Textile reinforced) Type -2 as per IS: 12585 (B)20 mm (nominal internal) dia gun metal globe valve & nozzle.(C)Drum and brackets for fixing the equipments on wall.(D) Connections from riser with 40 mm dia stop valve (gun metal) & M.S. pipe
	Supply & Fixing of Fire Man's Axe with heavy Insulated rubber tested up to 20 KV and confirming to IS ;926
	Providing, laying, testing & Commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 / 1239 for hydrent and sprinkler applications including fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps and including painting of two coats of Red Oxide , painting with two or more coats of synthetic enamel paint of Post office red shade complete as required.The installation includes all civil openings ,breakages and making good the same.
	25 mm dia
	32 mm dia
	40 mm dia
	50 mm dia
	65 mm dia
	80 mm dia
	100 mm dia
	150 mm dia
	200 mm dia, 6.0 mm thick
	250 mm dia, 6.35 mm thick
	Providing, laying, testing & Commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 and 1239 for hydrent and sprinkler underground rings including all accessories such as screwed/ welded flanges, tees, reducers etc. Conforming to IS : 1239/3589 complete including , welding, jointing with compressed asbestos gaskets, nuts, bolts etc. as required. with cleaning,wrapping and coating of the pipe with 4 mm thick tar based plymaric corrosion protection tape or equivalent including applying uniform coat of cold pipekot primer as per IS; 10221 for protection against corrsion suitable for all kind of soil at 1.0 M depth including excavation and making good the same as required at site .
	80 mm dia
	150 mm dia
	Providing, installation, testing and commissioning of dual plate non-return valve of following sizes confirming to IS:5312 complete with rubber gasket, G I bolts, nuts, washers etc. as required.
	150 mm dia
	Supplying, fixing, testing commissioning of butterfly valve PN 1.6, with Bronze/ Gunmetal seat duly ISI marked complete with Nuts, Bolts, washers, gaskets, conforming to IS 13095, of following sizes as required.
	80 mm dia
	100 mm dia
	150 mm dia
	Providing, installation, testing and commissioning of Brass ball valves of following sizes as required.
	25 mm dia.
	Providing, fixing, testing & commissioning of 15 mm dia size ,quartzoid bulb sprinkler heads suitable for 68 degree centigrade rating of the following type :
	Pendant type
	Upright type
	Sidewall Sprinklers (ordinary)
	FIRE ALARM SYSTEM
	SITC of microprocessor based loop UL/ EN54 Addressable Fire Alarm Control Panel as per NFPA 72 approval. The Panel shall be able to give pin point location of addressable units via the address code for each unit. The Panel shall also be able to automatically switch off all control switches when-ever any Alarm is triggered. . The Panel shall have built in buzzer, SMF batteries for min. 24 Hrs.back up, battery charger, rectifier. Loop interface cards, communication module, LCD unit to indicate Fire / Fault Signal of individual unit, option for external printer, to log all incoming data etc complete in all respect. The Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI
	3 - Loop
	Add extra for per loop expansion beyond three loop

	SITC of Repeater Panel for Fire Alarm System with piezo sounder, LCD alpha numeric character display with accept / reset buttons for alarm address of any sensor / field device. The Repeater Panel shall only provide field device address with room number. Analogue Output is not required. The Panel shall be connected to the Fire Alarm Panel.
	SITC of Addressable type manual fire alarm boxes (MCP/Pull Station) shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. Manual fire alarm boxes shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger. etc. as required.
	SITC of Hooter suitable for addressable type fire alarm system with strobe light with minimum 85 db audible etc. as required.
	S&F following sizes (dia.) of ISI marked (IS:9537 P - II) rigid steel conduit along with accessories in surface / recessed using saddles, clamps, fastener pvc bushes, check nuts, as required including cutting the wall and making good the same as required.
	25 mm
	Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS:694) of 1.1 kV grade and approved make in existing surface or recessed conduit/casing capping including making connections etc. as required.
	2 x 1.5 sq.mm
	SITC Addressable analogue Optical type Smoke Detector with mounting base, two LED's etc. as required.
	SITC of Rate of Rise cum fixed temperature thermister type Heat Detectors with LED, mounting base etc. as required.
	SITC of Addressable analogue Beam detectors suitable for range upto 10-100 meters including transmitter and receiver units, mounting kits , complete as required.
	FIRE EXTINGUISHERS
	Supply & Fixing ISI marked (IS : 15683) Poratable Fire Exitnguisher,Trolley mounted Mech. Foam type capacity 09 ltrs with gun-metal cap and nozzle and complete respects in all respects including initial fill and wall suspension.
	Supply & Fixing ISI marked (IS : 15683) Portable Fire Exitnguisher, ABC type,finished externally with red enamel paint, complete in all respects including initial fill and wall suspension of following capacity.
	6 kg
	P&F of Recesslowglare UGR<19 tunable & dimmable LED 2X2 ft fitting made of CRCA Housingwith high transmittivity>85% PS diffuser.Fixture should have minimum efficacy at System level (Not Chip Level) >=100lumens/watt and a minimum system lumen output of 3600 lumens and maximum system wattage of 36W. Luminaire should have Life of 50000hrs@L70B50 Lumen maintenance, CCT change from 3000-6500K (SDCM < 5), CRI >80, PF >0.90 and an operating VoltageRange of 140 - 270 Internal Surge Protection 2.5KV having DALI 209 Dual chanel Tunable system ready driver.The fixture should comply with the parameters as per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009for Harmonics, IEC61347-2 -13, 2006 in Conjunction with IEC61347-1 ed.2.0, 2007 for Electrical Safety, IEC62384 ed.1.1, 2011 for performanceand IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have inhouse lab approved by NABL or ministry of science of govt of India. LM 79 and LM80 reportsneed to be submitted from a NABL/UL accrAAC, Image format JPEG/BMP/TIF/PNG/GIF,Image resolution 480P/720P/1080Putton Touch panel status LED: flashes green during charging, steady green for fully charged, red for camera on POWER INPUTS Power over Ethernet(complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit power The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	2x2 PANEL 36 W RECESS / SURFACE
	P&F of Suspended tunable & dimmable low wildth 60mm LED channel fitting made of Extruded Aluminum Housling with high transmittivity >85% PC diffuser. Fixture should have minimum efficacy at System level (Not Chip Level) >100lumens/watt and a minimum system lumen output of 2300 lumens and maximum system wattage of 23W, Luminaire should have Life of 50000hrs@L70B50 Lumen maintenance, CCT change from 3000-6500K (SDCM5), CRI >80, PF 0.90 and an operating Voltage Range of 140- 270 Internal Surge Protection 2.5KV having DALI 209 Dual chanel Tunable system ready driver. The fixture should comply with the parametersas per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009 for Harmonics,IEC61347 -2 -13, 2006 In Conjunction with IEC61347-1 ed.2.0, 2007 for Electrclal Safety, IEC62384 ed.1.1, 2011 for performance and IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have Inhouse lab approved by NABL or ministry of science of govt of India. LM 79 and reports need to be submitted frAAC, Image format JPEG/BMP/TIFF/PNG/GIF, Image resolution 480P/720P/1080Putton Touch panel status LED: flashes green durlng chargln8,steady green for fully charged, red for camera on PoWER INPUTs Power over Ethernet (complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit POWER CONSUMPTION SV DC . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	23 watt Linear Light (Extruded)
	P& F of Recessed mounted dali dimmable Direct-indirect lighting LED Panel complying to UGR<19, made of CRCA housing with high efficiency Single Piece inner side walls mounted PC Diffuser.fixture to be hollow from center& should have the possibility of customising the ceiling tile to be placed on the top of panel with different graphics/prints, LED USSed shall be SMD type and fixture should have minimum efficacy at System level >=90lumens/watt with Minimum system Lumens 3000, Life of fixture 50000 burning Hrs. L70B50 Lumen maintenance,4000K(SDCM<=5), CRI Ra >=80, PF >0.95, an operating Voltage Range of 140 270 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliancewith flicker free operationsripple <5%, BIS certification is required for LED Driver & Luminaire,

	Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips Dyaspace RC740B LED30S/840 W60L60 PSD WH or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	&F of Recessed mounted LED panel, made of CRCA housing with high efficiency PS Diffuser. LED Used shall be SMD type and fixture should have minimum efficacy at System level ≥ 125 lumens/watt with Minimum system Lumens 3000, Life of fixture :50000 burning Hrs. @L70B50 Lumen maintenance, CCT of 4000K (SDCM ≤ 5), CRI Ra ≥ 80 , PF > 0.95 , an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple $\leq 5\%$, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips RC380B LED30S-4000 G5 L60WxO PSU OD LED Panel or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	2x2 panel 36 watt Recess/ surface
	P & F of Recess low glare UGR <19 tunable & dimmable Deep Recessed LED downlighter fitting made of pressure die cast aluminum Housing with high efficiency multifaceted aluminum reflector . Fixture should have minimum efficacy at System level (Not Chip Level) ≥ 100 lumens/watt and a minimum system lumen output of 1200 lumens and maximum system wattage of 12W. Luminaire should have Life of 50000 hrs @L70B50 Lumen maintenance, CCT change from 3000-6500K (SDCM ≤ 5), CRI > 80 , PF 0.90 and an operating Voltage Range of 140 270 Internal Surge Protection 2.5KV having DALI 209 Dual channel Tunable system ready driver. The fixture should comply with the parameters as per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009 for Harmonics, IEC61347-2-13, 2006 Conjunction with IEC61347-1 ed.2.0, 2007 for Electrical Safety, IEC62384 ed.1.1, 2011 for performance and IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have inhouse lab approved by NABL or ministry of science of govt of India. LM 79 and operation CONTROLS Hidden Reset button, power button (ON/OFF), volume up button Touch panel status LED: flashes green during charging, steady green for fully charged, red for camera on POWER INPUTS Power over Ethernet (complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit POWER CONSUMPTION 5V DC, 3A . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 12 W SURFACE / RECESS
	P & F of 78mm cutout Glare free deep recessed LED Downlighter UGR <19 , made of Aluminum ADCi2 housing with high efficiency clear surface dark aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level ≥ 70 lumens/watt with Minimum system Lumens 750 & Max 11W, Life of fixture: 50k hours L80B50 @25C Ta Lumen maintenance, CCT of 4000K (SDCM ≤ 5), CRI ≥ 90 with light Beam angle of 50Deg, PF > 0.90 , an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC / EMI compliance with flicker free operations ripple $\leq 5\%$, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS RS378B P11 940 WB M55+R\$378Z M55 D78 R-R FX D 11W 50Deg or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 10 W SURFACE / RECESS
	P & F of 78mm cutout Glare free deep recessed LED Downlighter UGR <19 , made of Aluminum ADCi2 housing with high efficiency clear surface dark aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level ≥ 70 lumens/watt with Minimum system Lumens 1050 & Max 15w, Life of fixture : 50k hours L80B50 @25C Ta Lumen maintenance, CCT of 4000K (SDCM ≤ 5), CRI ≥ 90 with light Beam angle of 50Deg, PF > 0.90 , an operating Voltage Range of 140 -270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple $\leq 5\%$, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS RS378B P15 940 WB M55+R\$378Z M55 D78 R-R FX D 11W 50Deg or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 15 W SURFACE / RECESS
	P & F of 78mm cutout Glare free deep recessed LED LED Wall Washer UGR 19, made of Aluminum ADC12 housing with high efficiency clear surface aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level ≥ 70 lumens/watt with Minimum system Lumens 390, Life of fixture: 50k hours L80B50 @25C Ta Lumen maintenance, CCT of 4000K (SDCM ≤ 5), CRI ≥ 90 with light Beam angle of 24Deg, PF > 0.90 , an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple $\leq 5\%$, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS RS378B P6 930 WB M55+R\$378Z M55 D78 R-RAJ D 24Deg or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 6 W SURFACE / RECESS
	P & F of Glare free recess LED Downlighter UGR ≤ 19 , made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & $\phi 125$ mm cutout, fixture should have minimum efficacy at System level ≥ 120 lumens/watt with nominal system lumens 750 & Max wattage 6W, Life of fixture 50000 burning Hrs. @ L70B50 Lumen maintenance, CCT of 3000K (SDCM ≤ 5), CRI Ra ≥ 80 ; R9 ≥ 0 with beam angle of 60/65 Deg and max allowed' ahellid angle of 38Deg, PF > 0.95 & THD $< 15\%$, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple $\leq 5\%$, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED65-3000 PSU wH WB or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya

	DOWN LIGHTER 6 W SURFACE / RECESS
	P&F of Glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture: 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD<15%, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DN590B M LED15S-4000 PSU WH WB or equivalent In Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 15 W SURFACE / RECESS
	P & F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & Each 260 13 THD 10%, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED15S-4000 PSD WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 15 W SURFACE / RECESS
	P & F of Glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture : 50000 burning Hrs. @ L70B50 Lumen maintenance CCT of 3000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD<10%, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED15S-3000 PSU WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 15 W SURFACE / RECESS
	P & F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 2000, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 3000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & 15 THD 10%, an operating Voltage Range of 140- 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI Compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DN590B M LED20S-3000 PSD WH WB or equivalent in In Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 20 W SURFACE / RECESS
	P&F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 2000, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance , CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >=0 with beam angle of 60/65 Deg and max allowed shield angle of 38 Deg, PF >0.95 & 16 THD 10%, an operating Voltage Range of 140 - 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED20S-4000 PSD WH WB or 330 equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 20 W SURFACE / RECESS
	P&F of LED lights with textile fabric based diffuser to create a white light ceiling surface for daylight experience that hides the source of light completely. The light output should be at least 3200lm/sq mt. The CCT should be 3000k or 4000k. The CRI of the luminaire should be not less than 85. The luminaire should have life of 50k hrs for L70. The luminaire diffuser should have acoustics properties of class C EN 11654, also the noise reduction coefficient of NRC 0.6 ASTM C423 99. The luminaire driver should be compatible for DALI or 0-10V. The luminaire should be compatible for ambient temp of 5 to 35 C. Approved for fire rating of fabric by (EN 13501) B-s1, d0 and panel at (EN 13501) B-s2, d0. CE certified luminaire. Similar to Philips One Space or equivalent in Zumtobel & Cooledge. Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	P & F of Slim 50mm width recessed mounted 4ft LED Channel suitable for end to end fixing. Fixture to be made of extrusion Aluminum housing in anodised finish with high efficiency polycarbonate diffuser. LED Used shall be SMD type with Minimum system Lumens 2200 & efficacy 100lm/W, fixture Life of : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI >80 for high quality light output. power factor >0.95 an operating Voltage Range of 140 -277 VAC. Minimum Internal Surge Protection 2.0Kv. The fixture design should comply with EMC/EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED

	Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips RC780 50mm or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	4 feet Channel Al 22 watt
	P& F of Low depth 40mm glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency prismatic diffuser, fixture should have minimum efficacy at System level >=100lumens/watt with nominal system lumens 1200, Life of fixture 50000 burning Hrs. @ L70B50 Lumen maintenance, CCT of 4000K (SDCM=5), CRI Ra >=80; with diffused beam angle, PF >0.95 & THD 10%, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report rom NABL accredited lab & LMB0 report issued by LED manufacturer. Simillar to Philips DN2968 LED125 PSU wH or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DOWN LIGHTER 12 WATT SURFACE / RECESS
	P& F of Dall dimmable LED strip light, Strip should have minimum efficacy [at System level >=90lumens/watt with nominal system lumens 800/mtr, Life of strip with driver 30000 burning Hrs.(ta 25 C)@L70B50Lumen maintenance, CCT of 2400K (SDCM<=4), CRI Ra >=80, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.0KV & Supply Voltage of 24VDC. The fixture design should comply with CB report, LM79, 1P test, thermal test. Similar to Philips Flex Cove G4 or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	LED STRIP 800 LUMEN / METER (DIMABLE)
	P&F of LED strip light, Strip should have minimum efficacy at System level =90lumens/watt with nominal system lumens 800/mtr, Life of strip with driver 30000 burning Hrs. @ (ta 25 C) @L70B50 Lumen maintenance, CCT of 2400K (SDCM<=4), CRI Ra >=80, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.0KV & Supply Voltage of 24VDC. The fixture design should comply with CB report, LM79, IP test, thermal test. Similar to Philips Flex Cove G4 or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	LED STRIP 800 LUMEN
	P & F of LED based Recessed mounted step light having power consumption not more than 2W. Fixture made up of aluminum having white finish body. Similar to Philips Step Recessed or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	2/3W STEP LIGHT
	P & F of 4ft LED wall washing /wall grazing luminaires with dedicated optics. It should have a Beam angles of 28 x 84. Luminaire should have Maximum wattage of 20W with Lumen output not less than 1000 lumen. Luminaire should be capable of operating at 100-240 V AC. Luminaire has Extruded aluminium housing with dark grey anodized housing and tempered glass lens. Luminaire should have built in daisy chain connector. Lifetime should be at least 60,000 burning hours at L70 at 25 degree centigrade with total 1P66 protection. Fixture shall equipped with mechanical Impact of IK06. Luminaire should have UL/cUL/FCC Class A, CE, CB certifications. Bidder to submit relevant beam angles LM-79 (from third party lab or BIS approved lab), LM-80. Similar to Phillips Vaya Linear LP or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	4 feet wall washer 20 W
	P & F of Track mounted sleek size 60mm X 130mm dali dimmable LED luminaire, fixture with Magnetic hinge mounting solution for Accent luminaire made of pressure die cast aluminum housing in white RAL9003 finish with high efficiency Optical cover/lens type parameterized high punch Lens ensuring Wide Beam Angle: 31. intensity, fixture should have minimum efficacy at System level >60lumens/watt with nominal system lumens 1800, Life of fixture 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 3000K (SDCM=3), CRI Ra >90, PF >0.95, an operating Voltage Range of 140 -270 VAC. Minimum Internal Surge Protection 2.5KV & Operating Temperature range of -15 C 35°C, The CCC/CB/CE/EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Phillips Style State ST916T or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	TRACK LIGHT 18 W DIMMABLE
	P & F of Single circuit, 220-240V aluminum based tracks suitable for 36' & Imax: 2906 cd/klm 24 Each 915 fixture design should comply with Each 300 25 mounting of LED Based track lights . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DALI TRACK
	P& F of Recess bottom maintained LED 600x600X120mm fitting made of white CRCA Housing having Acrylic, DME 70 type diffuser with IP65 (From front) /IK07 protection. LED Used shall be SMD type and fixture should have minimum efficacy at System level >=110 lumens/watt, Life 50K Hrs. L70B50 Lumen maintenance, CCT 4000 (SDCM 5), CoRfl f>ix8t0u, reP f>0.95 & THD<10%, an operating Voltage Range of 140 270 V. Minimum internal Surge Protection 4KV with Insulation Class I protection. The fixture design should comply with IS 10322 (Part 5/sec 1) -1985 & Must be EMC /EMI compliance maintaining driver leakage current as per as per IEC IEC60598 along with IS 15885/ IEC61347 (Part 2/sec 13) -1985 & CISPR15(9KHz-30mHz) Compliance. Minimum system Lumens 3600 and total power consumption not more than 32W. Operating voltage of 140-270V with Over Voltage protection @320V cut-off with auto-restart. LM 79 and LM80 reports need to be

	submitted from a NABL/UL accredited lab to verify above parameters along with IEC/EC 6AAC, Image format JPEG/BMP/TIFF/PNG/GIF, Image resolution 480P/720P/1080 Putton Touch panel status LED : The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	32/36 WATT 2X2 PANEL RECESS/SURFACE
	P & F of Cylindrical surface mounted LED downlighter, made of pressure die cast aluminum housing with high efficiency clear surface aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level >=100lumens/watt with Minimum system Lumens 2000, Life of fixture 50000 burning Hrs. L70850 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; with light Beam angle of 36/60/90Deg, PF >0.95 & THD<10%, an operating Voltage Range of 140 - 270 VAC. Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC / EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips GreenSpace Surface SM293 or Equivalent in Surya The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	DALI TRACK
	P & F of Surface mounted with IP65 LED batten made of virgin PC housing high efficiency diffuser, LED Used shall be SMD type and fixture should have minimum efficacy at System level (Not Chip Level) >=100lumens/watt with Minimum system Lumens 2000, Life of fixture (Including Driver) 50000 burning Hrs. @ L70850 Lumen maintenance, 6500K (SDCM=4) CCT of 6500K , CRI >80, PF >0.95 & THD<10%, flicker free operation with ripple <5% an operating Voltage Range of 140 Surge - 270 VAC. Minimum Internal Protection 4KV. The fixture design should comply with EMC / EMI compliance along with BIS certification for LED Driver & Luminaire. luminair manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to WT201LED44S IP65 Closed type or equivalent in Surya. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	20 WATT AL BATTEN
	PB54:B65d/square shape wall/ceiling mounted LED Spot Light in furniture or interior work as per Architectural interior plan with powder coated finish and toughened glass diffuser, supply accessories(220 V, 50 HZ/ 12 V DC) complete in all respect. Available with 5 color option The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya
	SPOT LIGHT
	Supply, Installation, frequency testing & commissioning of 3 Channel DALI high DALI ballasts controller. Each DALI outputs allowing it to control up to 192 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN=rail mountable integral DALI bus power supply, removing the need for an additional external device. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes Dynalite/Creston/Schneider
	Supply, Installation, testing & commissioning of 1 Channel DALI high frequency DALI Ballast controller. Each DALI outputs allowing it to control up to 64 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. Device on 209 protocol for tuneable lights. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes - Dynalite/Creston/Schneider
	Supply, installation, testing and commissioning of Antumbra 6 Button keypad with Proximate Feautre with IP 22 degree protection. Makes Dynalite/Creston/Schneider / SURYA The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, installation, testing and commissioning of Antumbra 6 Button Display keypad with Proximate Feautre, 8 Pages, with IP 22 degree protection. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes- Dynalite/Creston/Schneider/SURYA
	Supply, installation, testing and commissioning of Ceiling Mount 360 degree Multi Sensor with PIR, LUX and IR Function inbuilt, having range of 7.5 x5.4 meter at a height of 2.5-3 meter The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, Testing & Commissioning of Power Supply 15V-1.5A Din Rail The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, Testing& Commissioning of IP Gateway with Time Clock The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of Automation Panel with Incoming protection Devices like MCB, DP ELCB, Surge Arrestorwith CableAlley, Netural/Earth Link The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of Cat 6 Cable to connect LMS Components ike Sensor, Keypad, Controller The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of 2 x 1.5 sq mm wire for DALI Connection The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	PB54:B65d/square shape wall/ceiling mounted LED Spot Light in furniture or interior work as per Architectural interior plan with powder coated finish and toughened glass diffuser, supply accessories(220 V, 50 HZ/ 12 V DC) complete in all respect. Available with 5 color option The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya

	SPOT LIGHT
	Supply, Installation, frequency testing & commissioning of 3 Channel DALI high DALI ballasts controller. Each DALI outputs allowing it to control up to 192 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes Dynalite/Creston/Schneider
	Supply, Installation, testing & commissioning of 1 Channel DALI high frequency DALI Ballast controller. Each DALI outputs allowing it to control up to 64 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. Device on 209 protocol for tuneable lights. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes - Dynalite/Creston/Schneider
	Supply, installation, testing and commissioning of Antumbra 6 Button keypad with Proximate Feautre with IP 22 degree protection. Makes Dynalite/Creston/Schneider / SURYA The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, installation, testing and commissioning of Antumbra 6 Button Display keypad with Proximate Feautre, 8 Pages, with IP 22 degree protection. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes- Dynalite/Creston/Schneider/SURYA
	Supply, installation, testing and commissioning of Ceiling Mount 360 degree Multi Sensor with PIR, LUX and IR Function inbuilt, having range of 7.5 x5.4 meter at a height of 2.5-3 meter The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, Testing & Commissioning of Power Supply 15V-1.5A Din Rail The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply, Testing& Commissioning of IP Gateway with Time Clock The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of Automation Panel with Incoming protection Devices like MCB, DP ELCB, Surge Arrestorwith CableAlley, Netural/Earth Link The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of Cat 6 Cable to connect LMS Components ike Sensor, Keypad, Controller The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	Supply of 2 x 1.5 sq mm wire for DALI Connection The rates are inclusive of Taxes , contract profit , FOR Jaipur site
	SITC of 200 W LED FRESNEL LIGHT Features: 200W cool white LED, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak) ? 29-degrees; Soft Light (1/10 peak), 97-degrees, Manual zoom, Color Temperature: 5000K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer,Housing: High-intensity die-casting aluminum, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of 30 W LED Flood light light 3200 K, with integral driver complete with mounting clamp as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of LED PROFILE SPOT LIGHT(on stage) 200W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of LED PROFILE SPOT LIGHT (FOR FOH BAR) 300W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of LED Par 64 - Light source: RGBW 4in1 Quad Colour LED 162W / 200W, Beam angle: 25 °, Control: DMX-512 (4, 6 or 8 channels selectable), direct control via display with 4 control buttons, automatic mode, sound to light mode, master / slave with ID function, DMX input and output: 3-pol. XLR, Power supply: 110 V - 230 V AC, 50/60 Hz. Make:- Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC 200 W LED PLANOCONVEX LIGHT - warm white LED, DMX 512, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak), 10-40-degrees; Soft Spot Light (1/10 peak) 97-degrees, Manual zoom, Color Temperature: 3200K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer, Housing: High-intensity die-casting, aluminum, Painted in black matte color, 1.5 sq.mm x 3 core copper wire with 5 Amp plug top and suitable clamp, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.

	SITC of CE Certified 150W LED Hybrid Moving head Light Beam, spot & wash features with RDM protocol including Identification name plate as per the technical specification as required. Make: Sholite / OSRAM / ADB / Claypaky / PR Lighting or equilant make.
	SITC of LED PAR: 54 x 3W, 15°/30°/45°/60° RGBW LED PAR of IP 20 rating, delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light program. Make: Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC of LED LONG BAR : Power Supply : AC 100 - 240v, 50 / 60 Hz, Light Source : FC RGBW, LED : 24 Pcs., Play Mode : Sound Active / Auto Play / DMX 512, Master Slave, DMX Channel : 8 CH DMX, Working Temperature : 10 - 40 Degree, IP20 rating power consumption 200 Watt Max Lumen outpur not less than 8000 Make : Sholite / OSRAM / ADB / Claypaky/DTS or equilant make.
	SITC of RDM Compatible DMX Splitter 1 Inputs and 6 Optically isolated output for DMX network as per the technical specification as required. Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of 12 Channel x 4KW Digital Dimmer with 19" Rack Mount, 3U high, DMX input via 5 pin XLR IN/THRU at front panel, Flexible DMX patch method, LED function menu, Dimmer condition display: Volt/Amp/DMX, Individual MCB protection, LED indicator for individual channel level, 5 fade curves selection, Min. load per channel: 40W. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	Lighting Console with Internal Flash Drive, similar in functionality to a hard disk but faster and more rugged. Provides enough storage for:- The entire Fixture Library of more than 3,000 files, Over a hundred show files, Removable external Memory Stick, Cache the entire Fixture library of more than 3,000 files, Improved method of Fixture selection for Patching, New Locate Fixture button, Fixture Selects (selecting the top row of faders), 2048 Channels, 240Intelligent Fixtures, 240 Dimmer Control Channels, Theatrical Plotting and Playback functions, Shape Generator for instant creation of patterns and effects, 15 Playback Masters controlling 450 memories, chases or cue lists, MIDI and Bass, Mid, Treble sound to light triggers, Color VGA output fitted as standard. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of FRLS 3 Core 2.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 7 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 4 Core 4 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FR DMX signal Cable with CE Mark per the technical specification as required. Make:-Polycab / Havells / RR Kable / Falcon / Beldon or equilant make.
	SITC of die casted aluminium C - Clamp with rotatable spud with key lock as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 4-leaf barndoor made up of Aluminium sheet with brand name ebossed as per the technical specification as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of Safety bond with lock clip as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 2 Way 10A IEC Socket for lights in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 2 Way 10A IEC Socket with DPST Rocker switch to supply power to splitter and console in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal IN Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal OUT Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated DMX Signal Loop cable with 5 /3 Pin DMX connectors Socket with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti or equilant make.
	SITC of MS Fabricated Auxilliary Marshalling Boxes for Light bars with required connectors, black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated Direct Lighting Distribution Board with 125A TPN MCCB Incomer for power network connections with individual MCB's, powder coated per the technical specification as required. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.
	SITC of 5 Pin XLR Male / Female cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.

	SITC of 5 Pin XLR Termination Plug cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of Following size of Perforated Hot/cold Dipped Galvanised Iron cable tray with lid with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. Make : Sholite / Mec / Premier / Support or equilant make.
	75 mm width X 50 mm depth X 1.6 mm thickness
	150 mm width X 50 mm depth X 1.6 mm thickness
	SITC of Hardwares required for the system and Black valcro tape for cable dressing as per the technical specification as required. Make :-CUSTOM or equilant make.
	SITC of 200 W LED FRESNEL LIGHT Features: 200W cool white LED, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak) ? 29-degrees; Soft Light (1/10 peak), 97-degrees, Manual zoom, Color Temperature: 5000K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer, Housing: High-intensity die-casting aluminum, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of LED PROFILE SPOT LIGHT 200W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of 280W Beam Moving Head with Input Voltage: AC110/240V, 50-60Hz, Lamp: 10R 280W, Power: 400W, Average Lifespan: 2000 H, Color Temperature: 8000K, Channel: 16CH, Pan: 540° (16bit), Tilt: 270° (16bit), Color: 14 colors + white, Gobo: 17 fixed gobos + white, Prism: rotation 8-face prism + frost + shake, Lens: high precision optical lens, Focus: 0-100% linear adjustment, Dimmer: 0-100% linear adjustment, Strobe: Double lens strobe (0-13 times/ second), Dimmer: 0%-100% linear adjustment, Beam angle: 0°-30° parallel beam angle, Control Mode: Standard DMX512, Master / slave mode, IP Rate: IP20. Make: Sholite / OSRAM / ADB / Claypaky / PR Lighting or equilant make.
	SITC of LED PAR: 54 x 3W, 15°/30°/45°/60° RGBW LED PAR of IP 20 rating, delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light program. Make: Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC of CE Certified 4X100W 3200K LED Blinder Light with RDM protocol including Identification name plate as per the technical specification as required. Make:- Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC of RDM Compatible DMX Splitter 1 Inputs and 6 Optically isolated output for DMX network as per the technical specification as required. Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of 12 Channel x 4KW Digital Dimmer with 19" Rack Mount, 3U high, DMX input via 5 pin XLR IN/THRU at front panel, Flexible DMX patch method, LED function menu, Dimmer condition display: Volt/Amp/DMX, Individual MCB protection, LED indicator for individual channel level, 5 fade curves selection, Min. load per channel: 40W. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of CE Certified RDM Enabled 1 universe 512 channel DMX Lighting Console, 96 individual lighting fixture control for RDM/DMX network with 7" Multi touch screen for easy navigation as per the technical specification as required. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of FRLS 3 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 7 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 4 Core 4 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FR DMX signal Cable with CE Mark per the technical specification as required. Make:-Polycab / Havells / RR Kable / Falcon / Beldon or equilant make.
	SITC of die casted aluminium C - Clamp with rotatable spud with key lock as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 4-leaf barndoor made up of Aluminium sheet with brand name ebossed as per the technical specification as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of Safety bond with lock clip as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 2 Way 10A IEC Socket for lights in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.

	SITC of 2 Way 10A IEC Socket with DPST Rocker switch to supply power to splitter and console in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal IN Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal OUT Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated DMX Signal Loop cable with 5 /3 Pin DMX connectors Socket with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti or equilant make.
	SITC of MS Fabricated Auxilliary Marshalling Boxes for Light bars with required connectors, black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated Direct Lighting Distribution Board with 63A TPN Incomer for power network connectors, Grey epoxy polyester powder coated per the technical specification as required. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.
	SITC of 5 Pin XLR Male / Female cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of 5 Pin XLR Termination Plug cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of Following size of Perforated Hot/cold Dipped Galvanised Iron cable tray with lid with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. Make : Sholite / Mec / Premier / Support or equilant make.
	75 mm width X 50 mm depth X 1.6 mm thickness
	150 mm width X 50 mm depth X 1.6 mm thickness
	SITC of Hardwares required for the system nd Black valcro tape for cable dressing as per the technical specification as required. Make :-CUSTOM
	SITC of 200 W LED FRESNEL LIGHT Features: 200W cool white LED, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak) ? 29-degrees; Soft Light (1/10 peak), 97-degrees, Manual zoom, Color Temperature: 5000K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer,Housing: High-intensity die-casting aluminum, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of LED PROFILE SPOT LIGHT 200W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of 280W Beam Moving Head with Input Voltage: AC110/240V, 50-60Hz, Lamp: 10R 280W, Power: 400W, Average Lifespan: 2000 H, Color Temperature: 8000K, Channel: 16CH, Pan: 540° (16bit), Tilt: 270° (16bit), Color: 14 colors + white, Gobo: 17 fixed gobos + white, Prism: rotation 8-face prism + frost + shake, Lens: high precision optical lens, Focus: 0-100% linear adjustment, Dimmer: 0-100% linear adjustment, Strobe: Double lens strobe (0-13 times/ second), Dimmer: 0%-100% linear adjustment, Beam angle: 0°-30° parallel beam angle, Control Mode: Standard DMX512, Master / slave mode, IP Rate: IP20. Make: Sholite / OSRAM / ADB / Claypaky / PR Lighting or equilant make.
	SITC of LED PAR: 54 x 3W, 15°/30°/45°/60° RGBW LED PAR of IP 20 rating, delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light program. Make: Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC of CE Certified 4X100W 3200K LED Blinder Light with RDM protocol including Identification name plate as per the technical specification as required. Make:- Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.
	SITC of RDM Compatible DMX Splitter 1 Inputs and 6 Optically isolated output for DMX network as per the technical specification as required. Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of 12 Channel x 4KW Digital Dimmer with 19" Rack Mount, 3U high, DMX input via 5 pin XLR IN/THRU at front panel, Flexible DMX patch method, LED function menu, Dimmer condition display: Volt/Amp/DMX, Individual MCB protection, LED indicator for individual channel level, 5 fade curves selection, Min. load per channel: 40W. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.

	SITC of CE Certified RDM Enabled 1 universe 512 channel DMX Lighting Console, 96 individual lighting fixture control for RDM/DMX network with 7" Multi touch screen for easy navigation as per the technical specification as required. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of FRLS 3 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 7 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FRLS 4 Core 4 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of FR DMX signal Cable with CE Mark per the technical specification as required. Make:- Polyvab / Havells / RR Kable / Falcon / Beldon or equilant make.
	SITC of die casted aluminium C - Clamp with rotatable spud with key lock as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 4-leaf barndoor made up of Aluminium sheet with brand name ebossed as per the technical specification as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.
	SITC of Safety bond with lock clip as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 2 Way 10A IEC Socket for lights in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 2 Way 10A IEC Socket with DPST Rocker switch to supply power to splitter and console in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal IN Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of 1 Way 5 Pin DMX Signal OUT Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated DMX Signal Loop cable with 5/3 Pin DMX connectors Socket with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti or equilant make.
	SITC of MS Fabricated Auxilliary Marshalling Boxes for Light bars with required connectors, black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated Direct Lighting Distribution Board with 63A TPN Incomer for power network connectors, Grey epoxy polyester powder coated per the technical specification as required. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.
	SITC of 5 Pin XLR Male / Female cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of 5 Pin XLR Termination Plug cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of Following size of Perforated Hot/cold Dipped Galvanised Iron cable tray with lid with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. Make : Sholite / Mec / Premier / Support or equilant make.
	75 mm width X 50 mm depth X 1.6 mm thickness
	150 mm width X 50 mm depth X 1.6 mm thickness
	SITC of Hardwares required for the system and Black valcro tape for cable dressing as per the technical specification as required. Make :-CUSTOM or equilant make.
	SITC of Moving head wash 7X30 W , output CCT (White colour) 7300K with pixel control , motorised zoom beam angle 6-40 degree, lumen output of 4680 at 5 meter at narrow beam, max PAN 540 degree & max tilt angle of 250 degree, noise level of 45 dB, Make : VARILITE PHILIPS / DTS / Robert Julieta or equilant make.
	SITC of 440W LED 12-36Deg Moving Head Profile Fixture 4-blade dual position rotating framing system, a stunningly bright 440 W LED engine, two 6-position rotating slot and lock gobo wheels, CMY + CTO color mixing, a 7-position + white color wheel, variable frost, 3-facet prism, and a 13° to 37° zoom range. Take control with DMX, SACN, Art-Net, or W-DMX, and test with RDM. Make : VARILITE PHILIPS / DTS / Robert Julieta or equilant make.
	SITC of MS perforated cable trays of size 75 x 40mm, 150 x 40mm and 300 x 40mm, 2mm in thickness with cable tray lid treated with 7 tank process with various chemical treatment to keep them rust free, duly powder coated/painted with matt black texture finish paint along with clamping arrangement assuring all the cables to

	be concealed in them. Make : Sholite / Mec / Premier / Support or equilant make.
	a) Size 40 x 75 x 40mm
	b) Size 40 x 150 x 40mm
	SITC of MS lighting junction box (On Motorised Bar 1) with 10A 4 Way IEC socket of imported make CE Certified for direct points, Box should undergo through chemical treatment to keep them rust free duly powder coated/painted with matt black texture finish for scissor motor along with the FC11 glands. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS lighting junction box with 16A CE socket of imported make for dimmer points, undergone through chemical treatment to keep them rust free duly powder coated/painted with matt black texture finish for moving heads along with the FC11 glands. (Direct Power Out Late) Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS sheet metal fabricated DMX junction box(Outbox) undergone through chemical treatments to keep them rust free duly powder coated /painted with Matt black texture finish for dimmable points along with the FC7 glands. (On FOH Bar) Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS sheet metal fabricated power cable termination marshalling box chemical treatment to keep them rust free duly powder coated/painted/painted with Matt black texture finish for moving headpoints along with the Brass glands. (Total circuit termination complete with connectors, glands and mounting brackets). Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of Auxiliary marshalling box made of fabricated Sheet chemical treatment to keep them rust free duly powder coated/painted with Matt black texture finish for scissor lift points along with the FC11&FC13 glands. and connectors to terminate the power and signal cables for Teleclimber. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated duly powder coated/painted/painted Recessed Wall Plate DMX loop box with DMX male/Female 500mm loop cord, undergone through chemical treatment to keep them rust free duly powder coated/painted with Matt black texture finish for moving head points along with the FC7 glands. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of MS Fabricated undergone through various chemical treatments to keep them rust free duly powder coated/painted/painted with Matt black texture finish power junction box (PJB) with black Matt texture finish to terminate the Motorized section power connections. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of Well designed and engineered rack mount power distribution center panel with necessary metering, outgoing feeders and incomer and emergency trip arrangement (PDCP)(Qty As per drawings) And IEC junction Boxes(Qty as per drawings) way MCB Panel rack mount internally wired for IEC points to control individual light points. It shall also include control system for all types of scissor lifts etc. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.
	PDCP
	MCCP
	SITC of Wall Plate MS sheet metal fabricated 2-way power junction box duly powder coated in black/painted Matt texture finish and fitted with 2no 10amps IEC socket ON / OFF switch and FC11 gland. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	SITC of Internal earthing copper baren conductor network related to work coming under integrator scope. Providing and fixing following size of the copper strip on the surface or in recessed for connection as required Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.
	25mm x 3mm
	4 mm dia copper earth wire
	Installation hardware such as clamps, connectors, glands, lugs, ferrules, welding rods etc. Make : Custom or equilant make.
	SITC of Die cast aluminium "C" clamp with safety locking chain. Lock - MS threaded Galvanized lock key, Plastic Glass filled nylon moulded M6 key. Receptacle - 28mm standard TV spigot. Safety - MS Galvanized chain with pin. Finish - Pretreated and black epoxy polyester powder coated. Self-weight - 0.54Kg, Safe working load - 150Kg Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of 1.5mtr long safety bond with lock clip to be fixed around the grid and each lighting fixture to avoid fall of the fixture in case if the "C" clamp is not locked properly . SWL 100Kgs. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.
	SITC of Grid mount photo isolator DMX splitter unit 1 DMX input and 8 isolated output with following specifications: Power Supply: 90-240V AC, 45-63Hz. Control: DMX 512 protocol, Control Signal input: 5 pin XLR female, Size: 482 x 44 x 128mm, Weight: 2Kg.with splitter bracket Make:- Sholite / Signify / Zero88 / Avolite / ADB / Claypaky or equilant make.
	SITC of Digital Lighting Console with 1024 DMX channels • 1024 Channels. • 96 Fixtures. • 96 Dimmer Control Channels. • Time control of scenes: Fade in/out, LTP slope • Channels for each fixture 40 primary + 40 fine tune • LCD display with back light • 60 Scenes/Playbacks • 600 Scene step • 10 Scenes to run simultaneoulsy • Shape generato: Shapes of Dimmer, Pan/Tilt, RGB, CMY, Color, Gobo, Iris and Focus

	• Master slider - Global, playback, fixture • USB Memory - FAT32 supported Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.
	SITC of 5 pin XLR male / female connectors for dimming network Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of 5 Pin XLR Termination plug Make:- Sholite / Neutric / Amphenol or equilant make.
	SITC of PVC Copper unarmoured flexible FRLS insulated multicore cable 1100V grade confirming to IS694 size 4cx4 sq mm. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of PVC Copper unarmoured flexible FRLS insulated multicore cable 1100V grade confirming to IS694 size 3cx2.5 sq mm. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of 5 core DMX signal cable for DMX network. Make:- Polycab / Havells / RR Kable or equilant make.
	SITC of Sky Hooks to be constructed as per the drawings supplied in the tender. Make : Custom or equilant make.
	SITC of Motorized Lifts 5 Mtr travel well designed for the luminaire mounting with 180W EM brake Motor duly powder coated body, well designed gear box and mountings having a safe working load of 60Kg control through Wired RCP, DmX control. 2 Limit controllers for Up and down limits, Minimum Collapse height 0.6 Mtr and Max Travel 5 Mtr. Make:- Sholite / Effectron or equilant make.
	Outdoor units of the VRV System shall be compact air cooled type, The outdoor unit should comprise of inverter controlled scroll compressor, Each module of outdoor unit should be all inverter scroll type which can work on part load suitable to operate at heat load proportional to indoor requirement. In order to avoid short cycling of hot air, the outdoor unit fan should have an external static pressure of more than 75 Pa, top discharge for easy discharge of hot air. The ODU must deliver COP of minimum 5 at 50% load. The outdoor units must be suitable for upto 165 m refrigerant piping between outdoor unit & the farthest indoor units. Allowable level difference between outdoor units & Indoor Units shall be 90 m in case of outdoor unit at top & 90 m in case of outdoor unit at bottom. Allowable level difference between various indoor units connected to one outdoor unit shall be upto 30 m. The outdoor units shall be suitable to operate in an ambient temperature range of 5 Deg C to 49 Deg C in cooling mode & -20 Deg C to 15 Deg C in heating mode. The entire operation of outdoor units shall be through independent remotes of indoor units. No separate start/stop function shall be required. Inverter compressor of the unit shall start first & at minimum frequency, to reduce the inrush current during starting. complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested. Units above 12 HP shall be with multiple compressor.
	ODU - 24HP (12HP+12HP) + Connection Kit
	ODU - 32HP (16HP+16HP) + Connection Kit
	ODU - 34HP (16HP+18HP) + Connection Kit
	ODU - 38HP (18HP+20HP) + Connection Kit
	ODU - 44HP (12HP+12HP+20HP) + Connection Kit
	Double Skin puff insulated Air Handling Units with DX Coil and Control Box with EEV, Electrical Pannel, Ceiling/Floor Mounted ,Compatible with VRV/VRF System as per following capacities and Air Flow Rates :-
	AHU
	4500 CFM
	4900 CFM
	6000 CFM
	Supply of Round Flow type Cassette indoor units comprising with per-filter, drain pump, fan section with low noise fan multi speed motor, coil section with DX coil, outer cabinet, insulation, pipe connections with human occupancy sensor and VRT Smart technology and following capacities, The cassettes units shall have dual sensor which detect the presence of people and floor temperature to provide comfortable air – conditioning and energy saving. The sensor should detects human presence and adjust the air flow direction automatically to prevent drafts. Room temp should be increase up to 4 Deg C or the indoor unit to be switched off when people are not detected. The sensor should detect the floor temperature and automatically adjusts the operation of the indoor units to reduce the temperature difference between the ceiling and the floor.
	Round Flow Cassette Type - 2.65 TR + Cordless Remote + Joint
	Round Flow Cassette Type - 3.30 TR + Cordless Remote + Joint
	Round Flow Cassette Type - 4.13 TR + Cordless Remote + Joint
	Round Flow Cassette Type - 4.75 TR + Cordless Remote + Joint
	Supply of Ductable indoor units comprising with per-filter, drain pump, fan section, coil section with DX coil, outer cabinet, insulation, pipe connections with VRT Smart technology and following capacities :-
	HS Duct Type - 5.60 TR + Corded Remote + Joint
	Supply of Hi wall type indoor units comprising with per-filter, fan section with low noise fan multi speed motor, with DX coil, outer cabinet, pipe connections Compatible with VRT Technology.
	Hi-wall Type - 1.32 TR + Cordless Remote + Joint
	Installation and Testing
	Lifting, shifting, positioning, installation and testing of following AHU / Indoor units, outdoor units, as per specification and drawings.
	VRV Single Outdoor Unit

	VRV Double Outddoor Unit
	VRV Triple Outddoor Unit
	AHU type Indoor Unit
	Cassette AC type Indoor Unit
	Ductable type Indoor Unit
	Hi Wall type Indoor Unit
	Gas Charging
	Commissioning of VRV systems including topping R410A gas per site requirements
	Refrigerant Piping
	Providing, fixing and testing insulated liquid and suction copper refrigerant piping of adequate size along with necessary fittings to interconnect the condensing unit and the evaporating unit.
	6.4mm dia
	9.5mm dia
	12.7mm dia
	15.9mm dia
	19.1mm dia
	22.2mm dia
	28.6mm dia
	34.9mm dia
	41.3mm dia
	Communication Cabling
	Providing, fixing and testing of control cabling to interconnect the condensing unit and the evaporating unit .
	Providing, fixing and testing of Remote cabling.
	Drain Piping
	Providing, fixing, testing and commissioning insulated PVC drain piping for indoor unit with 6 mm thick Nitrile Rubber insulation.
	25mm dia x 6 mm insulation
	32mm dia x 6 mm insulation
	40mm dia x 6 mm insulation
	Ducting
	Supply, fabrication and erection of following gauge of G.S.S. ducting complete with elbows splitters, supports / suspenders bends, tees vanes, double canvas connection of the equipment etc. all complete as required.
	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated
	0.63 mm (24 gauge)
	0.80 mm (22 gauge)
	0.92 mm (20 gauge)
	G.I sheet metal ducting (Oval/ Round duct) Factory Fabricated
	0.63 mm (24 gauge)
	0.80 mm (22 gauge)
	Duct Acoustic Lining
	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.
	10 mm
	Duct Insulation
	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with addesive.
	13 mm
	Flexible Duct Connection
	Providing and fixing fire retardant nonporous double layer flexible connection between each VRV unit and duct.
	Grilles / Diffusers / Dampers
	Supply & erection of Aluminium powder coated supply air grills with volume control dampers
	Supply & erection of Aluminium Powder Coated return air grilles without volume control dampers
	Supply & erection of Aluminium powder coated supply air diffuser with volume control dampers
	Supply & erection of Aluminium Powder Coated return air diffuser without volume control dampers
	Supply & fixing of Duct Damper
	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.
	Isolators
	Providing, fixing and testing of Weather proof isolators for ODU
	Cable Tray
	Providing & fixing of cable Tray for protection of piping.
	UV Treatment of exposed Ref. Pipes
	Providing & fixing of UV Treatment on exposed copper pipe insulation.
	Electrical Pannel
	Supply, installation, testing and commissioning of outdoor type cubicle type free standing/ floor mounting sheet metal clad dead front dust and vermin proof compartmentalized design fabricated out of 16 SWG sheet steel complete with Copper bus bars separate earth bus to be provided through out the length of panel. The panel should be with suitable as per specifications & system required.Necessary cable alleys,cable trays (If Required), space for spare switches, Power cabling (from panel to equipment) and copper earthing shall also be included. for 238 HP

Following MAKE should be considered :-

LIST OF PREFERRED MAKES OF MATERIALS FOR CIVIL WORKS

S.N.	Material	List of Preferred Make
1.	(i) Ordinary Portland Cement	ACC, Ultratech, Wonder Cement
	(ii) White Cement	Birla White, J. K. White
3.	Water Proofing Compounds, Admixtures, Plasticizer, Super Plasticizer, Curing Compounds	Fosroc, ROFF/Dr. Fixit(Pidilite Industries), CICO, Sika, BASF, Ardex Endura (Bal Endura), Nerolac Perma
4.	Integral Water proofing compound with cement (For Plaster & Mortar)	Fosroc, Conplast 421 Dr. Fixit : LW+, Sika : Sikacim, & equivalent product of BASF, CICO, Ardex Endura, Nerolac-Perma, Asian Paints
5.	Water proofing for bathroom/ toilet/ balcony & other wet areas	Fosroc : Brush Bond/Brushcrete, CICO : Tapecrete, Dr. Fixit : Pidifine 2K, Sika : Nito Bond, Asian Paints : Damp Block 2 K & equivalent product of BASF, Ardex Endura, Nerolac-Perma
6.	Crystalline water proofing compound	Fosroc : Fosroc Crystalline Dr Fixit : Dr. Fixit Crystalline Sika : Sika Crystalline Asian Paints : Crystalline Quart & equivalent product of BASF, CICO, Ardex Endura, Pentron, Nerolac-Perma
7.	Grouts, Tile Adhesive	Latecrete, BASF, Ardex Endura, Ferrous Crete, Pidilite, UltraTech,
8	Stone Adhesive	Pidilite - Fevimate excel, BASF, Ardex Endura, MYK Laticrete
12	Particle Board	Action TESA, Greenlam, Merino
13	Laminates	Action TESA, Greenlam, Century Ply, Merino, Sunmica
14	Flush door shutters	Duro, Century, Durian, Green ply.
15	Fire Rated Doors	Signum Fire Protection, Shakti Metdoor, NAVAIR, Sukri, Promat International
16	False Ceiling System	Armstrong, Hunter Douglas, USG Boral, Saint Gobain, Aerolite, Durlum, Gyproc
17	Plywood/ Veneer	Green ply, Century, Merino, Duro, Durian
18	Melamine Polish	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI Dulux.
19	Floor Spring & Door Closure	Godrej, Dorma, Dorset, Kich
20. (a)	Aluminium Section	Hindalco, Jindal, Indian Aluminum co.
20. (b)	Anodised Aluminium Hardware (Heavy Duty)	Kilong, Alualpha, Classic, Ebco

S.N.	Material	List of Preferred Make
21	Clear/Float/Frosted/ Toughen Glass/ Refractive Glass	Saint Gobain, AIS, Modiguard, Ashai Float.
22	Stainless Steel Railing, Accessories etc.	Dorma, Kich, GEZE, Godrej
23	S.S. Door & window & Fittings	Jindal, Dorma, Kich, Dorset, Godrej, Ozone
24	Silicon based water repellant /Weather Sealant	G.E. Plastics, Dow Corning, Wacker, BASF, Pidilite (Dr. Fixit/Roff), Nerolac-Perma
25	Poly-Sulphide Sealant	Fosroc, Pidilite (Dr. Fixit/Roff), Sika, BASF, Nerolac-Perma
26	Mosaic tiles/ Chequered Tiles	Ultra Tiles, NITCO, Hyper(Mayur), Pavcon
27	Ceramic Tiles	Kajaria, RAK, Somany, Johnson, Marbita
28	Vitrified Tiles (Satin/Matt/Glazed finish)	Kajaria, RAK, Somany, Johnson, Marbita
29	Paver block & Kerb Stone	Pavcon, Hyper Tiles/Dynamic Industries/ Mayur, KK, Power, Sharda, Navya
30	Dash / Anchoring Fasteners	HILTI, Fischer, Bosch, Wurth.
31	Cement Based Wall putty	Birla wall care, JK White, Berger, Asian Paints
32	Oil Bound Washable Distemper / Dry Distemper	Asian Paints : Professional Acrylic Distemper, Nerolac: Beauty Acrylic Distemper, Berger : Bison Acrylic Distemper, Dulux ICI : Maxilite
33	1 st Quality Acrylic Distemper (washable/Ready mix/ Low VOC)	Asian Paints : Tractor Aqua Lock Paint, Berger : Commando or equivalent paints of Nerolac or ICI-Dulux
34	Acrylic Emulsion Paints	Asian Paints : Professional Premium Interior Emulsion Paint, Nerolac : Beauty Gold, Berger : Rangoli total care, ICI-Dulux : Super Cover
35	Plastic Emulsion Paint	Asian Paints : Apcolite Heavy Duty Premium Emulsion Paint, Nerolac : Impression, Berger : Easy Clean, ICI-Dulux : 3 in 1
36	Premium Acrylic Emulsion Paints (Interior)	Asian Paints : Royale Luxury Emulsion, Nerolac : Impression , Berger : Silk, ICI Dulux : Velvet touch
37	Synthetic Enamel Paint	Asian : Apcolite Premium gloss enamel, Nerolac : Synthetic Hi gloss Berger : Luxol Hi gloss ICI -Dulux : Gloss Synthetic enamel
38	Cement Primer	Nerolac, BP White(Berger), Decoprime WT(Asian), White primer (ICI)
39	Steel Primer(Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Berger, ICI
40	Wood Primer	Asian Paints (Wood Primer - White/Pink), Berger ICI, Nerolac,
41	Epoxy Paint	Asian, Nerolac, Berger, ICI, Kansai Akzo Nobel
42	Fire Paint	Caboline, Akzo Nobel Coatings India Ltd., PROMAT, Jotun, Asian Paints, Berger
43	Mirror Glass	Atul, Modi Guard, Jaquar, CERA.
44	Stainless Steel Sink	Neelkanth, Niralli, CERA
45	UPVC Doors & Windows (PROFILE makers & their authorized Fabricators only)	Fenesta, KOMERLING, RHEAU, Aluplast.

S.N.	Material	List of Preferred Make
58	Extruded Polystyrene Insulation Board	Dowcorning, Supreme, Texas, Analco
60	Heat Resistant Tiles	Swastik, Thermatek
62	Gypsum Plaster	Ferrous Crete, Gyproc Saint Gobain, Boral, UltraTech-Birla white, JK lakshmi
63	Floor hardener	Ironite, Ferrok, Hardonate
64	Modular Expansion Joint	Herculus, Sanfield India Ltd. Vexcolt, Tristar
65	Glass Wool	Dow Corning, U.P. Twiga, Isover
66	UPVC doors and window hardware	Rotto, Dorset, Kinlong
67	AAC Block Adhesive	Xtralite, Orifix, Ardex Endura, Ferrous Crete, UltraTech
68	AAC Block	UltraTech, Orilite, Seporex(Buildtex), HIL-Aerocon,
69	Stone Polymer Composite tile Flooring	Welspan, Fundermax, Egger
70	Artificial/Synthetic Grass	Welspan, Floortex, Matrix turf
71	Acoustical Wall Panelling	Armstrong, Nowofil, Anutone
72	Acoustical False ceiling	Gyproc, Armstrong, Anutone
73	False ceiling	JK birla white
74	Laminated wall panelling	Century ply, Green ply, Royal Touch
75	Veneer wall panelling	Century ply, Green ply, Royal touch
76	Wood work	Burma teak, Ghana, Sal wood, Nigeria, Ivory coast
77	Wooden floor	Vista, Welspun
78	Carpet	Unitex, flotex
79	led fixtures	Philips, wipro
80	chandelier	jaquar, tisva
81	furniture	godrej
82	paint	Ashian paint, Burger
83	PVC LAMINATE	D-Stona
84	Hardware for door window	
85	Aluminium work	Standard make approved by EI
86	Glass work	Modi, saint gobain
87	clips, hangers fasteners	Standard make approved by EI
88	HDF Jali	Standard make approved by EI
89	Electrical items	Standard make approved by EI
90	Sanitary items	Jaguar, Kajaria, Roca, Cera

5.5.1 ANTI-TERMITE TREATMENT

5.5.1.1 Chemicals

The treatment of the areas shall be carried out by applying one of the following chemicals at not less than the designated concentration:

Chemicals	Concentration
Biflex	TC 0.05% concentration
Dieldrin	0.5% applied in oil solution or water
Trichlorobenzene	1 part to 3-part oil

The Contractor shall clearly indicate along with his quotation the chemical he proposes to use. A daily record shall be maintained by the Contractor indicating the amount of work done and the quantity of chemical consumed for the work.

5.5.1.2 Treatment at Junction of Walls and Floor

Special care shall be taken to establish continuity of the vertical chemical barrier on inner wall surfaces from the ground level (where it has stopped with the treatment described in 3.4 above) up to the level of the filled earth surface. To achieve this, a small channel 30 mm x 30 mm shall be made at all the junctions of wall and columns with the floor (before laying the sub grade) and rod holes made in the channel up to the ground level 150 mm apart and the rod moved backward and forward to break up the earth and chemical emulsion poured along with channel at the rate of 7.5 liters/m² of the vertical wall or column surface of the sub structure so as to soak the soil right to the bottom. The soil should be tamped back into place after this operation.

5.5.1.3 Treatment of Soil along external perimeter of building

After the building is complete, the earth along the external perimeter of the building should be rodded at intervals of 150 mm and to a depth of 300 mm. The rods should be moved backward and forward parallel to the wall to break up the earth and chemical emulsion poured along the wall at the rate of 7.5 litres/m² of vertical surfaces. After the treatment, the earth should be tamped back into place. Should the earth outside the building be graded on completion of building, this treatment should be carried out on the completion of such grading. In the event of filling being more than 300 mm, the external perimeter treatment shall extend to the full depth of filling up to the ground level so as to ensure continuity of the chemical barrier.

5.5.1.4 Treatment for Walls retaining soil above floor level

Retaining walls like the basement walls or outer walls above the floor level retaining soil need to be protected by providing chemical barrier by treatment of retained soil in the immediate vicinity of the wall, so as to prevent entry of termites through the voids in masonry, cracks and crevices etc., above the floor level. The soil retained by the walls shall be treated at the rate of 7.5 liters/m² of the vertical surface so as to affect a continuous outer chemical barrier in continuation of the one formed under column centre.

5.5.1.5 Treatment of Soil surrounding pipes, wastes and conduits

When pipes, wastes and conduits enter the soil inside the area of the foundation, the soil surrounding the point of entry must be loosened around each such pipe, waste or conduits for a distance of 150 mm and up to a depth of 75 mm before the treatment is commenced.

When they enter the soil, they shall be similarly treated unless they stand clear of the walls of the building by about 75 mm for a distance of over 300 mm.

5.5.1.6 Treatment to Expansion Joints

Expansion joints at ground floor level are one of the biggest hazards for termite infestation. The soil beneath these joints should receive special attention when the treatment under 3.5 is carried out. This treatment should be supplemented by treating through the expansion joint after the sub grade has been laid at the rate of 2 liters/m.

5.5.1.7 Spraying Equipment

A pressure pump shall be used to carry out spraying operations to facilitate proper penetration of chemicals into the earth.

5.5.1.8 Safety Precautions

These chemicals shall be brought to site in the form of emulsifiable concentrates. The containers should be clearly labeled and should be stored carefully so that children and pets cannot get at them. They should be kept securely closed. Workers should wear clean clothing and should wash thoroughly with soap water, especially before eating and smoking. If

chemicals splash into the eyes, they shall be flushed with plenty of soap, water and immediate medical attention should be sought. The concentrates are oil solutions and present a fire hazard owing to the use of petroleum solvents. Flames, sparks, etc. should not be allowed while mixing. Care should be taken in the application of chemicals to see that they are not allowed to contaminate wells or springs, which serve as sources of drinking water.

5.5.1.9 Guarantee - 10 years

In the unlikely event of any treatment becoming necessary subsequently during the guarantee period, necessary inspection and treatment as required shall be carried out free of cost.

5.5.2 CONCRETE WORK: -

5.5.2.1 Scope: -

This specification describes the general requirements for concrete to be used on projects using in-situ production facilities including the requirements in regard to the quality, handling, storage of ingredients, proportioning, batching, mixing and testing of concrete, the requirements in regard to the quality, storage, bending and fixing of reinforcement and the transportation of concrete from the mixer to the place of final deposit, placing, curing, protecting, repairing and finishing.

5.5.2.2 Applicable codes and Specifications: -

5.5.2.2.1 Cement: -

Cement used on the works shall comply with the requirements of IS:269-1976 for ordinary or low heat Portland cement, IS:8112-1976 for high strength ordinary Portland cement and IS:1489-1976 for Portland Pozzolana, IS:455-1989 for Slag Cement and obtained from approved sources.

If ordered by the Engineer-in-Charge certificate of tests from an approved laboratory shall be obtained at the Contractor's cost. Samples for test shall be extracted as in Clause 5.6 IS:3535-1966 within one week of delivery and the test shall be made within four weeks of delivery and the test shall be made within four weeks of delivery. All cement shall be stored in weatherproof structures and prevented from damage by moisture. These buildings shall be provided by the Contractor at his own cost and placed in locations approved by the Engineer. Provision for storage shall be ample and shipments of cement as received shall be separately stored so as to provide easy access for identification and inspection of each shipment. Storage buildings shall have a capacity for the storage of sufficient cement to allow sampling & testing at least 15 days before use. The cement should be stacked on wooden platform leaving a gap of at least 150 mm between ground & the cement bag. The bags should not be touching to the walls & should be placed at least 300 mm away from sidewalls. Maximum 10 bags or max by 5'5" in height for safe handling should be allowed in

each stack. While shifting the bags from one place to other no hooks shall be allowed.

Stored cement shall meet the test requirements at any time after storage when re-test is ordered by Engineer.

The Contractor shall keep an accurate record of the delivery of cement along with its batch no & week of manufacture if the cement is 4-week-old at the time of purchase should not be purchased and its use in the work. Copies of the record shall be supplied to the Engineer-in-Charge as required.

Cement shall be used in the sequence in which it is received & within 8 weeks from the date of manufacture. No cement shall be unnecessarily stored for a long period. If the cement becomes lumpy it shall be removed from the site immediately. Any cement which has deteriorated or which has been damaged or contaminated, whether during transit to the site or at the site or otherwise, shall not be used and shall be immediately removed from the site and replaced at the expense of the Contractor.

5.5.2.2.2 **Admixtures: -**

The admixture shall be conformed to IS:9103. The use of admixtures to improve workability is allowed only if there is a proven evidence that neither the strength nor the other requisite qualities of concrete and/or steel, accessories, grout etc. are impaired by their use. The use of admixtures containing Calcium Chloride, Fluorides, Nitrates and Sulphates is prohibited.

The Engineer's decision on all matters relating to the use of admixtures shall be final.

Admixtures shall be stored in a suitable weatherproof building. Any material which has deteriorated or which has been contaminated or damaged whether during transit or at site shall not be used and shall be immediately removed from the site and replaced at the Contractor's own expense.

5.5.2.2.3 **Dosage: -**

Optimal dosage of a superplasticizer is important. Dosage beyond the optimal dosage may be detrimental and can cause segregation or excessive retardation, which can be harmful to concrete. The dosage optimization can be done by using Marsh Cone apparatus or using mini slump test or by the flow table methods described in ASTM C109.

5.5.2.2.4 **Aggregates: -**

All aggregates shall generally conform to the requirements of IS:383. Materials shall be used only from sources of supply approved by the Engineer. Any material which has deteriorated or been contaminated shall not be used for concrete. All aspects of aggregates handling and storage are subject to the approval of the Engineer and shall be such as to minimize segregation and breakage and prevent contamination by grass, soil, wood, sawdust, oil, aggregates of other sizes or other foreign materials and so that adequate supplies are available at site in advance

of the requirements. Each size of aggregate shall be stored on a separate platform or stockpile at locations to be approved by the Engineer and such platform or stockpiles shall be sufficiently removed from each other to prevent the material at edges of the edges of the piles from becoming intermixed by constructing bund walls at constructional cost. If the aggregates are stockpiled on the ground, the bottom portion of the stockpiles within one foot of the ground shall not be used.

For both fine and coarse aggregates, tests shall be carried out, for physical characteristics, limits of deleterious substances and soundness prior to use and also whenever the source of supply is changed. All tests will be conducted by the Contractor's expense at a laboratory or in facilities approved by the Engineer. Sand shall be of approved quality, clean, sharp and free from injurious amount of silt dust, mica, shells, soft and flaky particles, shale, alkali, organic matter, loam or other deleterious substances. The sand shall be from a source approved by the Engineer, and if required by him it shall be thoroughly washed, screened and graded by the Contractor at his own expense to the satisfaction of the Engineer, and he shall include in his rate the cost of washing. It shall be within the range of grading zone I and grading zone II of table III of IS:383. The sand shall have a fineness modulus of not less than 2.2 or more than 3.2. Stone dust or grit shall not be permitted.

Coarse aggregates shall be rounded / angular crushed stone of uniform sizes and gravel or shingle shall not be permitted. The whole of the ingredients of the coarse aggregates shall consist of hard stone free from deleterious substances and contain soft or elongated pieces or white spots. If it is considered necessary, the Engineer may instruct that it be washed, screened and graded at the Contractor's expense. The Contractor shall include in his price for concrete the cost of washing and screening the aggregate. Coarse aggregates of size 4.75 mm to 10 mm called as M1 & of size 10mm to 20mm called as M2 shall be stacked separately & should not be allowed to get intermixed at site prior to putting in concrete mixer by constructing bund walls at stock pits at contractors cost. The coarse aggregates shall have a fineness modulus of not less than 5.5 or more than 8.0.

5.5.2.2.5 **Mixing Water: -**

The water for mixing concrete shall be potable & shall be first tested at the Contractor's expense for its suitability by a laboratory approved by the Engineer. It is usually required to be fit for drinking, or to be taken from an approved source. This is to ensure that the water is reasonably free from such impurities as suspended solid, organic matter, dissolved salts which may adversely affect the proper ties of the concrete, especially the setting and hardening. If required IS:3025 and IS:3550 may be followed for testing. If the quality of water to be used for mixing concrete is in doubt, it should be assessed by comparing the setting times of cement paste and the compressive strength of

concrete made with it and with tap water under similar conditions. Seawater shall not be used for concrete work.

5.5.3 Expansion and Isolation joints

Expansion and isolation joints in concrete structures shall be provided at specified places, as detailed indicated on the drawings. The materials and types of joints shall be as specified hereinafter. In case of liquid retaining structures, additional precautions shall be taken to prevent leakage of liquids as may be specified on the drawings or as directed by the Engineer. All materials shall be procured from reliable/specified manufacturers and must have the approval of the Engineer.

5.5.3.1 Bitumen Board

Bitumen impregnated fiber board of approved manufacture as per IS:1838 may be used as fillers for expansion joints.

5.5.3.2 Expanded Polystyrene Boards

If required, commercial quality expanded polystyrene products commonly used for thermal insulations shall also be used as filler material in expansion joints. The thickness may vary from 12 mm to 50 mm. A coat of Bitumen paint shall be applied on the board against which concrete shall be placed.

5.5.3.3 Joint Sealing Strips

Joint sealing strips may be provided at the construction, expansion and isolation joints as a continuous diaphragm to contain the filler material and/or to exclude passage of water or any other material into or out of the structure. The sealing strips shall be either metallic like G.I., Aluminum or Copper, or non-metallic like rubber or PVC.

5.5.4 REINFORCEMENT STEEL WORKS: -

5.5.4.1 General

The steel to be used for reinforcement concrete work shall comply with the requirements of Indian Standard Specification No. 2062, 432, 1139 and 1786. Steel bars made for rerolling old rails, bars etc. will not be allowed to be used on any account and the Contractor must produce proof that such bars are not being used. Should the results of tests conducted through an approved laboratory at the Contractor's expense made in accordance with the provisions of relevant Indian Standard Specification show that the steel does not comply with these specification, the Engineer may, at his discretion, reject the lot or lots from which the sample or samples were taken and the same shall not be used in the works but shall be removed there from and the work already executed with such bars may be ordered to be demolished at the Contractor's cost. The Contractor will not be paid for the demolished work nor will the completion time limit be extended, in that case.

All steel used for reinforcement shall be free from loose scales or rust which must be removed with a stiff wire brush and coated with neat cement as directed. Bars must also be free from oil or paint.

All bending shall be done cold, gradually, evenly and without jerks. All protruding bars to which other bars are to be spliced later, must be protected from rusting by a coat of thin neat cement grout and contractor's rates shall be inclusive of this item. The steel shall be properly braced, supported and otherwise held in position by plastic or concrete spacer blocks and steel

chairs so as to prevent displacement while concrete is put in. Tiles or stone chips will not be permitted to be used as spacer blocks. The correct number and size of reinforcing bars, stirrups and binders shall be provided and placed in position strictly according to the contract drawings and instructions. This must be looked after with proper care and checked over by a competent foreman of the Contractor personally and finally before pouring the concrete. A steel fitter should be in full time attendance while pouring concrete to adjust and fix the reinforcement.

5.5.4.2 Storage: -

The reinforcement shall not be kept in direct contact with the ground but stacked on top of an arrangement of timber sleepers or the like.

If the reinforcing rods have to be stored for a long duration, they shall be coated with cement wash before stacking and/or be kept under cover or stored as directed by Engineer.

Fabricated reinforcement shall be carefully stored to prevent damage, distortion, corrosion and deterioration.

5.5.4.3 Quality: -

All steel shall be of Grade 1 quality unless specifically permitted by Engineer. No rerolled material will be accepted. If demanded by Engineer, Contractor shall submit the manufacturer's certificate for steel. Random tests on steel supplied by Contractor may be performed by Owner as per relevant Indian Standards. All costs incidental to such tests shall be at Contractor's expense. Steel not conforming to specifications shall be rejected and shall be carried away from site by Contractor at his cost.

All reinforcement shall be clean, free from grease, oil, paint, dirt, loose mill scale, loose rust, dust, bituminous material or any other substances that might destroy or reduce the bond. All rods shall be thoroughly cleaned before being fabricated. Pitted and defective rods shall not be used. All bars shall be rigidly held in position before concreting. No welding of rods to obtain continuity shall be allowed unless approved by Engineer.

If welding is approved, the work shall be carried out as per IS:2751 according to best modern practices and as directed by Engineer.

In all cases of important connections, tests shall be made to prove that the joints are of the full strength of bars welded, special precautions, as specified by Engineer, shall be taken in the welding of cold worked reinforcing bars and bars other than mild steel.

5.5.4.4 Laps: -

Laps and splices for reinforcement shall be as shown on the drawings. Splices in adjacent bars shall be staggered and the locations of all splices, except those specified on the drawings or approved by Engineer. The bars shall not be lapped unless the length required exceeds the maximum available lengths of standard bars.

5.5.4.5 Bending: -

Reinforcing bars supplied bent or in coils, shall be straightened before they are cut to size. Straightening of bars shall be done in cold and without damaging the bars. This is considered as a part of reinforcement bending fabrication work.

All bars shall be accurately bent according to the sizes and shapes shown on the detailed working drawings/bar bending schedules. They shall be bent gradually by machine or other approved means. Reinforcing bars shall not be straightened and regent in a manner that will injure the material; bars containing cracks or splits shall be rejected. Bars shall be bent cold, except for diameter of over 25 mm, which may be bent hot, if specifically approved by Engineer. Bars, which depend for their strength for cold working, shall not be bent hot. Bars bent hot shall not be heated beyond cherry red color (not exceeding 845oC) and after bending shall be allowed to cool slowly without quenching. Bars incorrectly bent shall be used only if the means used for straightening and re-bending be such as shall not, in the opinion of Engineer, injure the material. No reinforcement shall be bent when in position in the work without approval, whether or not it is partially embedded in hardened concrete. Bars having kinks or bends other than those required by design shall not be used. Contractor shall prepare his own bar bending schedule as per RCC drawings as per requirement and as directed and instructed, keeping wastage of bar length to minimum possible in general & bigger diameter of bars in particular. Contractor shall keep a competent person for supervising bar cutting & bending so that already cut length of bar is utilized before a new length of bar is taken.

5.5.4.6 Fixing: -

Reinforcement shall be accurately fixed by any approved means and maintained in the correct position shown in the drawings by the use of blocks, spacers and chairs as per IS:2502 to prevent displacement during placing and compaction of concrete. Bars intended to be in contact at crossing points shall be securely bound together at all such points. The vertical distances required between successive layers of bars in beams or similar members shall be maintained by the provision of mild steel spacer bars at such intervals that the main bars do not perceptibly sag between adjacent spacer bars. Binding wire shall be 16 gauge annealed soft iron wire for tying bars.

5.5.4.7 Cover: -

Unless indicated otherwise on the drawings, clear concrete cover for reinforcement (exclusive of plaster or other decorative finish) shall be as follows:

At each end of reinforcing bar, not less than 25 mm nor less than twice the diameter of the bar.

For a longitudinal reinforcing bar in a column, not less than 40 mm, nor less than the diameter of the bar. In case of columns of minimum dimension of 200 mm or under, with reinforcing bars of 12 mm and less in diameter, a cover of 25 mm to be used & provided.

For longitudinal reinforcing bars in a beam, not less than 25 mm or less than the diameter of the bar.

For tensile, compressive, shear, or other reinforcement in a slab or wall not less than 13 mm, nor less than the diameter of such reinforcement.

For any other reinforcement, not less than 13 mm, nor less than the diameter of such reinforcement.

For footings and other principal structural members in which the concrete is deposited directly against the ground, cover to the bottom reinforcement

shall be 75 mm. If concrete is poured on a layer of lean concrete the bottom cover may be reduced to 50 mm.

For concrete surfaces exposed to the weather or the ground after removal of forms, such as retaining walls, grade beams, footing sides and top, etc. not less than 50 mm.

Increased cover thickness shall be provided, as indicated on the drawings, for surfaces exposed to the action of harmful chemicals (or exposed to earth contaminated by such chemicals) acid, alkali, saline atmosphere, Sulphur us smoke etc.

For reinforced concrete members, totally or periodically immersed in sea water or subject to sea water spray, the cover of concrete shall be 50 mm more than those specified above.

For liquid retaining structures, the minimum cover to all steel shall be 40 mm or the diameter of the main bar, whichever is greater. In the presence of sea water and soils and waters of a corrosive character the cover shall be increased by 10 mm.

Protection to reinforcement in case of concrete exposed to harmful surroundings may also be given by providing a dense impermeable concrete with approved protective coatings, as specified on the drawings. In such a case, the extra cover mentioned above, may be reduced by Engineer to those shown on the drawings.

The correct cover shall be maintained by cement mortar (1:2) cubes, PVC cover blocks or other approved means. Reinforcement for footings, grade beams and slabs on subgrade shall be supported on precast concrete blocks as approved by Engineer. The use of pebbles or stones shall not be permitted.

The minimum clear distance between reinforcing bars shall be in accordance with IS:456 or as shown in drawings.

For bars in corrosive environment these covers will be increased by 20 mm in every case.

5.5.4.8 Inspection: -

Erected and secured reinforcement shall be inspected and approved by Engineer prior to placement of concrete.

5.5.5 MASONRY: -

5.5.5.1 Scope

This specification covers furnishing, installation, repairing, finishing, curing protection, maintenance and handling of masonry and allied works for use in structures and locations covered under the scope of the Contract.

5.5.5.2 General

All the connected masonry in structure shall be carried up neatly at one uniform level throughout but where breaks are unavoidable, the joint shall be made in good long step so as to prevent cracks developing between new and old work. All joints shall be full of mortar. The work shall be kept constantly moist on all the faces for a period of at least ten days and wetted twice a day thereafter for a month. Green work shall be

protected from rain by suitable covering. The work shall also be suitably protected from damage during construction.

5.5.5.3 Scaffolding

Simple scaffolding shall be allowed for the masonry work. In this case, the inner end of the horizontal scaffolding pole shall rest in a hole provided in the header course only. Only one header for each pole shall be left out. The holes left in masonry work for supporting the scaffolding shall be filled and made good before plastering.

The Contractor shall be responsible for providing & maintaining sufficiently strong scaffolding, so as to withstand all loads likely to come on it.

5.5.5.4 Mortar

Mix for mortar shall be specified in the schedule of items. For cement and sand mortar, cement and sand in required proportions shall be mixed dry in a mechanical mixer and then water added and mixed further. Minimum quantity of water shall be added to achieve working consistency. Surplus mortar dropping from masonry, if received on surface free from dirt may be mixed with fresh mortar if permitted by the Engineer who may direct additional cement to be added without any extra payment. No mortar that has stood for more than half an hour shall be used

5.5.5.5 Brick Masonry

Bricks shall be table molded, sound, hard, homogeneous in texture of uniform size, shape and color, must be well burnt so as to give a clear ringing sound when struck. They shall be clean, free from flaws, cracks, chips, stones or lumps of any kind, especially lime. These shall not show appreciable signs of efflorescence either dry or subsequent to soaking in water. They shall have sharp edges and angles and even surfaces and shall be sound & hard. They shall be from a source approved by the Engineer-in-Charge and quality of bricks should be such that they shall not absorb more than 20% of water by weight after immersion in water for 24 hours and shall have a crushing strength of 40 kg/cm² minimums. All bricks shall be thoroughly soaked in water before use. They should be soaked for about twelve hours for this purpose. No broken bricks shall be used except as closures. The courses shall be laid flush in mortar and every course shall be thoroughly grouted. Joints shall be broken vertically and they shall not exceed 10 mm in thickness. The work shall not be raised more than 12 courses per day. It shall be kept constantly wetted for at least 10 days and wetted twice a day thereafter for a month. All joints shall be thoroughly flushed with mortar of mix as specified in the schedule of quantities, at every course. Care shall be taken to see that the bricks are bedded effectively and all joints completely filled to the full depth.

The joints of brickwork to be plastered shall be raked out to a depth not less than 10 mm as the work proceeds. The surface of brickwork shall be cleaned down and watered properly before the mortar sets.

Before starting the brick masonry, the concrete surface e.g. beams, columns, slabs, chajjas etc. shall be thoroughly hacked and washed to remove all mud, dirt, loose particles etc. When fresh brick work is to be

started on the old brick masonry, the surface should be thoroughly cleaned and washed to remove all loose mortar, mud, dirt etc. The size of a brick shall be 230 x 115 x 75 mm. 230 mm & 115 mm thick walls will be built with fair face on one side only. All walls of greater thickness shall be built without exception with fair face to both sides. The Contractor shall provide all necessary openings for doors and windows or other services and shall embed electrical fittings, fixtures and sleeves supplied by another agency, if required, at no extra cost.

The rates for brickwork shall also include the cost of the following:

- 1) Making good all holes, chases etc. to any depth due to conduit pipes, hold fasts, switches, plug boxes, exhaust fans openings and other openings.
- 2) Single Brick Masonry: Brickwork 115 mm they shall be provided with transoms & mullions when length or height of the wall exceeds 2 m. Materials and workmanship for a half brick on edges partition wall shall be specified above. The wall shall be stiffened at interval of 1 m vertically & 3 m horizontally by RCC M20. Stiffeners of size 115 mm x 115 mm thickness to the full length of wall and shall be provided with two numbers 8 mm MS Bars as center reinforcement (only the reinforcement will be paid separately under relevant items.) Measurement of brickwork shall be in square meter. The rate shall also include the cost of making good holes, chases etc. at any depth due to the conduit pipes, hold fasts, switches, plug boxes, exhaust fan openings and other openings.
- 3) Bad workmanship if observed will lead to the rejection of the work and the bad work will be demolished and redone to the satisfaction of the Engineer by the Contractor at his own cost.

5.5.6 PLASTERING: -

5.5.6.1 Scope

This specification covers applying the plaster to old and new contracted concrete and masonry in the structure as per specified proportions, in line and level including making good surface, curing and as per the instruction by Engineer.

5.5.6.2 Applicable Codes

IS:383	Specification for Coarse and Fine Aggregates
IS:412	Specification for Expanded Metal Sheets for General Purpose.
IS:1542	Specification for Sand for Plaster
IS:1635	Code of Practice for field Slaking of Building lime and Preparation of Putty.
IS:1661	Code of Practice for the Application of Cement and Cement Lime Plaster Finishes
IS:2394	Code of Practice for the Application of Lime Plaster Finish
IS:2402	Code of Practice for External Rendered Finishes

IS:2645	Specification for Integral Cement Waterproofing Compound.

5.5.6.3 General

The item refers to plastering concrete or masonry surface in cement mortar of specified proportion and specified thickness including scaffoldings, curing etc. complete as specified and directed.

5.5.6.4 Cement Plaster:

5.5.6.4.1 Cement

It shall conform to IS:269-1958 when the type of cement is not specified, ordinary Portland cement shall be used.

The weight of ordinary Portland cement shall be taken as 1140 kg/m³ (90 lbs per cubic foot). The measurement of proportion of cement should normally be on the basis of weight and whole bags, each undisturbed and sealed 50 kg. A bag being considered equivalent to 35 liters (0.034 cu.m.) in volume. When part bag is required, cement shall be taken by weight, assuming 35 liters to be equal to 50 kg. (1 cu.ft. = 90 lbs). Care should be taken to see that each bag contains full quantity of cement.

5.5.6.4.2 Tests

When the tests are considered necessary, they shall be carried out as indicated in IS:269-1958. The Contractor should ensure that the cement is of sound and required quality.

5.5.6.4.3 Storage

Cement required for the use shall be as fresh as possible and stored on planks raised 150 mm (6") to 200 mm (8") above the floor and stacked about 300 mm (12") away from the walls in suitable closed weatherproof buildings at the work site or at the selected approved site, in such a manner as to prevent deterioration by dampness or moist atmosphere or intrusion of foreign matter. Cement shall be stored in such a way as to allow the removal and use of cement in chronological order of receipt i.e. first received first used. Not more than 10 bags or max by 5'5" in height for safe handling shall be stacked vertically in one pile and maximum width of the piles should not be more than 3 m (10' -0"). Any cement, which has deteriorated, caked or which has been damaged shall not be used. Cement concerning which there is doubt shall not be used pending testing & satisfactory results. Cement that is condemned shall be immediately removed from the work site. When temporarily stored in the open for use within 48 hours, it shall be kept on platform of planks about 150 mm (6") to 200 mm (8") above ground and covered with a tarpaulin. Ordinary cement stored for more than one month from the date of receipt from the factory shall be subject to test and used only if found satisfactory. The cost of test shall be borne by the agency responsible for the storage after two months from receipt.

Different kinds of brands of cement of the same brand from different mills should be stored in different groups and should not be mixed during use except when directed in writing by the Engineer. The

cement shall not be stored for unduly long periods. It should not be handled in such a way as to impair its strength or useful characteristics.

5.5.6.4.4 Sand

Sand shall conform to IS:383-1952 and equivalent portion of IS:515-1959 as directed by the Consultant.

Sand shall be crushed stone screenings or natural sand. Sand shall be clean, well graded, hard, strong, durable and gritty particles free from injurious amounts of dust, clay, kankar nodules, soft or flaky particles, shale, alkali, salts, organic matters, loam, mica or other deleterious substances and shall be approved by the Consultant.

The maximum size of particles shall be limited to 5 mm (3/16"). Where best trap sand available in the region contains murum or laterite particles, such particles may be allowed up to 5%. If the fine aggregate contains more than 4% of clay, dust or silt it shall be washed. If the quality of fine aggregate is doubtful, it shall be tested for clay, organic impurities and other deleterious substances as laid down in IS:383-1952. It shall not contain deleterious materials in such quantity as to reduce the strength or durability of the mortar. Sea sand shall not be used.

The sand shall not contain more than 8% of silt as determined by field test with measuring cylinder.

The fine aggregate for cement mortar for first coat of plaster should generally satisfy the following grading:

I.S. Sieve	Percentage by Weight Passing Sieve
4.8 mm	100
2.4 mm	80 - 95
1.2 mm	70 - 90
0.6 mm	40 - 85
0.3 mm	5 - 50
0.15 mm	0 - 10

The fineness modulus shall not exceed 3.0.

The fine aggregate for cement mortar for second coat of plaster may have the following grading:

I.S. Sieve	Percentage by Weight Passing Sieve
4.8 mm	100
2.4 mm	100
1.2 mm	75 - 100
0.6 mm	40 - 85
0.3 mm	5 - 50
0.15 mm	0 - 10

The fineness modulus shall not exceed 1.6

IS:1543-1960 shall generally apply for sand for plaster.

5.5.6.4.5 Gradation

The gradation of materials from any one source shall not vary in composition beyond the range of values that governs it, in selecting source of supply. For determining the degree of uniformity, determination of fineness modulus shall be made upon representative

samples furnished by the Contractor from such source as he proposes to use. Fine aggregate from any one source having a variation in fineness modulus of the representative samples submitted by the Contractor shall be rejected or may be accepted subject to such change in the proportion of aggregate as the Engineer may direct.

5.5.6.4.6 Storage

The fine aggregate should be stacked carefully on a clean hard surface so that it will not get mixed up with deleterious foreign material. Sand shall not be stacked in high conical heaps so that segregation of heavier particles by sliding down may be prevented. It shall be placed in layers not thicker than those resulting from lorry loads dumped on the same plane.

5.5.6.4.7 Tests

The aggregates shall satisfy the tests referred to in IS:383-1952. Samples of sand to be used for a particular item shall be got approved by the Engineer, who shall keep it in his office for reference.

5.5.6.4.8 Water

Water for mixing cement mortar shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil, acid and injurious alkali, salts, organic matter and other deleterious material, which will weaken the mortar. Water shall be obtained from sources approved by the Consultant. Sources of water shall be maintained at such a depth and water shall be withdrawn in such a manner as to exclude silts mud, grass or other foreign materials. Containers for transport, storage and handling of water shall be clean.

If required by the Consultant, it shall be tested by comparison with distilled water. Comparison shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in IS:269-1958. Any indication of unsoundness, change in time of setting by 30 minutes or more, or decrease of more than 10% in strength of mortar prepared with the water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water tested. Seawater shall not be used.

Water fit for drinking will generally be found suitable for mixing cement mortar.

Water for curing cement mortar should not be too acidic or too alkaline. It should have a PH value ranging between 4.5 to 8.5. It should be free of elements, which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar surfaces. Hard and bitter water containing more than 100 p.p.m. of sulphates shall not be used for curing purpose.

Portable water will generally be found suitable for curing cement mortar.

5.5.6.4.9 Proportions

Cement and sand shall be mixed in specified proportions, sand being measured in measuring boxes. The proportions will be by volume on

the basis of 50 kg. Bag of cement being equal to 35 liters (about 0.034 cu.m.) The mortar may be hand mixed or machine mixed as directed by the Engineer.

5.5.6.4.10 Preparation

In hand mixed mortar, cement and sand in the specified proportions shall be thoroughly mixed dry on a clean impervious platform by turning over at least 3 times or more till a homogeneous mixture of uniform color is obtained. Fresh and clean water as specified above shall be added gradually & thoroughly mixed to form a stiff plastic mass of uniform color so that each particle of sand shall be completely covered with a film of wet cement.

The water cement ratio may be as under or as directed by the Engineer.

Cement	Sand	Water-Cement Ratio	Quantity of water per 50 kg of cement
1	1	0.25	12.5
1	1.5	0.28	14.0
1	2	0.30	15.0
1	2.5	0.35	17.5
1	3	0.40	20.0
1	4	0.53	26.5
1	5	0.60	30.0
1	6	0.70	35.0
1	8	0.90	45.0

Mixing platform shall be so arranged that no deleterious extraneous material shall get mixed with mortar nor the mixing water of the mortar shall flow out. Machine mixed mortar shall be prepared in an approved mixer. About 5% to 10% of mixing water shall be put into the mixer and sand & cement in the required proportions shall be then added. The remainder of water, quantity of which shall be predetermined by consideration of strength and consistency shall be added uniformly. Mixing will be continued until all particles of sand are uniformly coated with cement paste. Mixing for 1½ to 2 minutes will normally be sufficient. Water cement ratio shall be as per hand mixed mortar.

The mortar so prepared shall be used within 30 minutes of adding water; only such quantity of mortar shall be prepared as can be used within 30 minutes. The mortar remaining unused after that period or mortar which has partially hardened or is otherwise damaged shall not be tempered or remixed. It shall be thrown away.

5.5.6.4.11 Scaffolding

Scaffolding required for facility of construction shall be provided by the Contractor at his own expense.

Scaffolding shall be double or single as is warranted. Scaffolding shall be erected with steel sections or pipes, so as to be safe for all construction operations. The Contractor shall take all measures to ensure the safety of the work and working people. Any instructions by the Engineer in this respect shall also be complied with. The

Contractor shall be entirely responsible for any damage to property or injury to persons resulting from ill-erected scaffolding, defective ladders and materials or otherwise arising out of his default in this respect. Proper scaffolding shall be provided to allow easy approach to every part of the work. Overhead work shall not be allowed. No log holes shall be made in the wall when scaffolding is being erected. For internal / External plaster double scaffolding with steel pipes / H frames to be used.

5.5.6.4.12 Tools and Accessories

Tools & accessories used in plasterwork may advantageously conform to IS:1630-1960. All tools shall be cleaned by scraping and washing at the end of each day's work or after use. Metal tools shall be cleaned after each operation. All tools shall be examined to see that they are thoroughly cleaned before plastering is begun.

5.5.6.4.13 Program of work in relation to plastering

All general precautions as specified in IS:1661-1960, Clause 9, shall be done in IS:1661- 1960, Clause 13. Care shall be taken to see that other parts of the work or adjacent works are not damaged while plastering.

5.5.6.4.14 Preparatory Work

All joints in the face work that is to be plastered shall be raked out to a depth equal to not less than the width of the joints or as directed by the Engineer. The raking shall be done taking care not to allow any chipping of masonry. In new work the raking out shall be done when the mortar in the joints is green. Smooth surfaces of concrete must be suitably roughened to provide necessary bond for the plaster. All dirt, soot, oil, paint or any other material that might interfere with satisfactory bond shall be removed. The surface to be plastered shall be cleaned and scrubbed with fresh water and kept wet for 6 hours prior to plastering. Level pads, rough grounds for windows to be fixed before plastering. It shall not be commenced unless the preparatory work is passed in writing by the Engineer.

5.5.6.4.15 Gauges

Patches of plaster 150 mm x 150 mm (6" x 6") shall be put on about 3 m (10' –0") apart as gauges to ensure even plastering in one plane.

5.5.6.4.16 Plastering

In all plaster work, the mortar shall be firmly applied with somewhat more than the required thickness and well pressed into the joints and on the surface and rubbed and leveled with a flat wooden rule to give required thickness. Long straight edges shall be freely used to ensure a perfectly plane even surface. All corners must be finished to their true angles or rounded as directed by the Engineer. The surface shall be finished to plane or curved surfaces as shown on the drawings or as directed by the Engineer and shall present a neat appearance. The mortar shall adhere to the masonry surface intimately when set and there should be no hollow sound when struck. Plaster shall be done from top downwards.

At all the joints of concrete and brickwork or at the junction of different construction materials, 150 mm wide chicken wire mesh of 26 G thickness & 15 mm mesh size shall be used fixed after the first coat of plaster. The wire mesh will then be covered by the final coat of plaster.

5.5.6.4.17 Finishing

In any continuous face of a wall, finishing treatment of any type should be carried out continuously and day to day breaks made to coincide with architectural breaks in order to avoid unsightly junctions.

5.5.6.4.18 Moldings, Grooves, Bands etc.

These shall be worked true to template and drawn neat, clean and level. All exposed angles and junctions with doorframes etc. shall be carefully finished.

5.5.6.4.19 Watering and Curing

All plasterwork shall be kept damp continuously for a period of 14 days. To prevent excessive evaporation on the sunny or windward side of the buildings in hot, dry weather, matting or gunny bags may be hung over on the outside of the plaster in the beginning and kept moist. The fog curing of internal / external shall start within 90 minutes of completion of plastering to avoid hair cracks on plastered surface. Should the Contractor fail to water the work to the satisfaction of the Engineer, the latter engage requisite labor, materials and equipment to water the work properly at the Cost of the Contractor.

5.5.6.4.20 Bad Work

Should the mortar of the plaster perish through neglect of watering or for any other default and if the work is not done as specified, the plaster shall be removed and redone at the Contractor's expense. It is most essential that the Contractor shall properly plan out his overall construction and finishing program in such a way as to ensure that all such plastered and form finished surfaces are completed and handed over by him free from any defects – especially from any of the following aesthetic defects: -

Smudges and stains as result of spilling of cement mortar, plaster or any other material on to the finished surfaces.

Rectification patches, which may be the result of plastered or form finished surfaces having been accidentally damaged or broken, or because of such surfaces having had to be chased or opened out after final finishing.

Even minor chipping, scratching or other forms of accidental damage to the finished surfaces, as a result of negligence or carelessness on the part of the site organization during construction.

Item to include

- Erecting, dismantling and removing the scaffolding.
- Preparing the surface to receive plaster.
- Providing cement plaster of the specified average thickness with specified number of coats.

- Any moldings, grooves, bands etc. if shown on the drawings or as specified unless separately provided in the tender.
- All labor, materials, use of tools and equipment to complete the plastering as per specifications.
- Curing

5.5.5 Oil Emulsion (Oil Bound) Washable Distempering

5.5.5.1 Materials

Oil emulsion (Oil Bound) washable distemper (IS 428) of approved brand and manufacture shall be used. The primer where used as on new work shall be cement primer or distemper primer as described in the item. These shall be of the same manufacture as distemper. The distemper shall be diluted with water or any other prescribed thinner in a manner recommended by the manufacturer. Only sufficient quantity of distemper required for day's work shall be prepared.

The distemper and primer shall be brought by the contractor in sealed tins in sufficient quantities at a time to suffice for a fortnight's work, and the same shall be kept in the joint custody of the contractor and CPWP SPECIFICATIONS 2009 554 the Engineer-in- Charge. The empty tins shall not be removed from the site of work, till this item of work has been completed and passed by the Engineer-in-Charge.

Providing and applying two or more coats of plastic emulsion paint of matt finish: 50-60 micron each coat of approved brand, manufacturer and shade to give a smooth finish on new concrete surfaces over a coat of approved primer including the cost of preparing the surfaces with approved filling materials, along with sand papering wherever required, scaffolding etc. complete.

5.5.5.2 Preparation of the Surface

For new work the surface shall be thoroughly cleaned of dust, old white or color wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying putty, made of plaster of paris mixed with water on the entire surface including filling up the undulations and then sand papering the same after it is dry.

In the case of old work, all loose pieces and scales shall be removed by sand papering. The surface shall be cleaned of all grease, dirt etc. Pitting in plaster shall be made good with plaster of paris mixed with the color to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. A coat of the distemper shall be applied over the patches. The patched surface shall be allowed to dry thoroughly before the regular coat of distemper is applied.

5.5.5.3 Application

5.5.5.4 Priming Coat:

The priming coat shall be with distemper primer or cement primer, as required in the description of the item. The application of the distemper primer shall be as described in 13.18.4.

Note: If the wall surface plaster has not dried completely, cement primer shall be applied before distempering the walls. But if distempering is done after the wall surface is dried completely, distemper primer shall be applied.

Oil bound distemper is not recommended to be applied, within six months of the completion of wall plaster. However, newly plastered surfaces if required to be distempered before a period of six months shall be given a coat of alkali resistant priming Paint conforming to IS 109 and allowed to dry for at least 48 hours before distempering is commenced.

For old work no primer coat is necessary.

5.5.5.5 Distemper Coat:

For new work, after the primer coat has dried for at least 48 hours, the surface shall be lightly sand papered to make it smooth for receiving the distemper, taking care not to rub out the priming coat. All loose particles shall be dusted off after rubbing. One coat of distemper properly diluted with thinner (water or other liquid as stipulated by the manufacturer) shall be applied with brushes in horizontal strokes followed immediately by vertical ones which together constitutes one coat.

The subsequent coats shall be applied in the same way. Two or more coats of distemper as are found necessary shall be applied over the primer coat to obtain an even shade.

A time interval of at least 24 hours shall be allowed between successive coats to permit proper drying of the preceding coat. For old work the distemper shall be applied over the prepared surface in the same manner as in new work. One or more coats of distemper as are found necessary shall be applied to obtain an even and uniform shade.

15 cm double bristled distemper brushes shall be used. After each day's work, brushes shall be thoroughly washed in hot water with soap solution and hung down to dry. Old brushes which are dirty and caked with distemper shall not be used on the work.

5.5.6 Exterior Painting on Wall

5.5.8.1 Material

The paint shall be (Textured exterior paint/Acrylic smooth exterior paint/premium acrylic smooth exterior paint) of approved brand and manufacture.

This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a for night's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in-Charge. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

5.5.8.2 Preparation of Surface

For new work, the surface shall be thoroughly cleaned off all mortar dropping, dirt dust, algae, fungus or moth, grease and other foreign matter of brushing and washing, pitting in plaster shall make good, surface imperfections such as cracks, holes etc. should be repaired using white

cement. The prepared surface shall have received the approval of the Engineer in charge after inspection before painting is commenced.

5.5.8.3 Application

Base coat of water proofing cement paint.

1. All specifications in respect of base coat of water proofing cement paint shall be as described under above similar clauses.
2. Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its container, when applying also the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. Dilution ratio of paint with potable water can be altered taking into consideration the nature of surface climate and as per recommended dilution given by manufacturer. In all cases, the manufacturer's instructions & directions of the Engineer-in-charge shall be followed meticulously.

The lids of paint drums shall be kept tightly closed when not in use as by exposure to atmosphere the paint may thicken and also be kept safe from dust.

1. Paint shall be applied with a brush on the cleaned and smooth surface. Horizontal strokes shall be given, First and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks.
2. All specifications in respect of base coat of water proofing cement paint shall be as described under above similar clauses.
Painting

5.5.7 CARPENTRY, JOINERY, DOORS:

5.5.9.1 Scope

The work in general shall consist of supplying and/or erecting and installing of all doors, windows, ventilators, louvers, rolling shutters, glazed partitions, etc. as shown on drawings with all materials complete including supply and fixing of glass and glazing.

The scope shall also include the assembly and erection of all doors, windows, louvers, glazed partitions, etc. Supplying and/or fixing of all door and window accessories and hardware are also included in the scope.

5.5.9.2 Applicable Codes and Specifications

The following codes, standards and specifications are made a part of this specification. All standards, specifications, codes of practices referred to herein shall be the latest edition including all applicable official amendments and revisions.

In case of discrepancy between this specification and those referred to herein, this specification shall govern.

IS: 4021	Timber door, window and ventilator frames.
IS: 2202	Wooden flush door shutters (Solid core Type) Part – I.
IS: 1003	Timber paneled and glazed shutters. (Parts I & II)

IS: 4020	Methods of tests for wooden flush doors: Type tests.
IS: 1761	Transparent sheet glass for glazing and framing purposes.
IS: 4351	Steel door frames.
IS: 1038	Steel doors, windows and ventilators.
IS: 1361	Steel windows for industrial buildings.
IS: 1081	Code of practice for fixing and glazing of metal (Steel and Aluminum) doors, windows and ventilators.
IS: 5807	Method of test for clear finishes for wooden furniture (Part I to III)
IS: 1477	Code of practice for painting of ferrous metals in buildings and allied Finishes (Part I & II)
IS: 2338	Code of practice for finishing of wood and wood-based materials (Part I).
IS: 1948	Aluminum doors windows and ventilators
IS: 1949	Aluminum windows for industrial buildings.
IS: 3548	Code of practice for glazing in building.

5.5.9.3 Wood works:

Timber used for joinery shall be of good approved quality or Teak wood unless otherwise specified (Ref.IS:4021) and shall be well seasoned (IS:1141) cut square, of natural growth, uniform in texture, straight grained, free from excess wane, from sapwood dead knot or other defects and blemishes (Ref.IS:3364).

All timber for carpentry, joinery, rough frame work, backings, grounds, fixing strips and the like shall be treated with an approved wood preservative (Ref.IS:401) and the Contractor shall strictly observe the manufacturer's instructions for using this material. The maximum permissible moisture content in timber shall be in accordance with IS: 287-latest.

All workmanship shall be of the best quality (IS: 6534) Scantlings and boarding's shall be accurately sawn and shall be of uniform width and thickness throughout. All carpenter's work shall be left with a sawn surface except where otherwise specified. Work shall be framed together and securely fixed in the best possible manner and with properly made joints. All brads, nails, screws, plugs, pin, etc. to be provided as necessary and as directed and approved.

Timber of approved quality is to be purchased at the commencement of the contract for further seasoning on the site. The preparation of timber is to commence simultaneously with the beginning of the work generally and to proceed continuously until all the wood work is prepared and stacked on or near the site. All the timber of large scantlings is to be sawn immediately on arrival at site to allow for any shrinkage that may take place. All timber brought to site shall be given anti-termite treatment.

Joints in various members forming any timber frame shall be provided only as shown in the drawings or as directed by the Engineer. Two millimeters will be allowed for each wrought face of the sizes specified except when described as finished in which case they shall hold to the full dimensions specified.

All work is to be properly tenoned, shouldered, wedged, pinned, braded, etc. to the satisfaction of the Engineer and all properly glued with best

quality glue. All joinery shall be finished off in a proper manner, planed and sand papered as required (IS: 2338).

Any joiner's work which shall be split, fracture, shrink, or show flaws or other defects due to unsoundness, inadequate seasoning or bad workmanship, shall be removed and replaced with sound material at the Contractor's expense.

Use of nails shall not be permitted. Fixing of members shall be done by using screws or round brads, heads of which shall be properly punched in ends of timbers built into walls shall have air space left between themselves and the walls.

All exposed faces of woodwork shall be sand papered once before erection for approval of the Engineer. No color or other preservatives shall be applied without prior approval of the Engineer.

Doors, windows and ventilator frames, transoms and mullions shall be rebated. All dimensions shall be as per drawings. The top framing member of doors and top and bottom framing of windows and ventilators shall project about 150 mm in brick work. The verticals of door frames shall project about 50 mm below finished floor.

Frames for doors and windows will be provided with Mild Steel holdfasts made of 40 mm x 3mm thick flats 200 mm long and fixed into jambs M-15/10 P.C.C. 1200 mm high frames with 6 Nos and frames above 2000 mm with 8 Nos holdfasts. Each holdfast will be fixed to the frame with 3 Nos 50 mm GI screws.

The doors shall be paneled or solid flush doors as described in the item of work. All flush doors shall be supplied with approved fittings such as hinges, mortice lock of approved make with handles on sides, oxidized brass tower bolts and latch arrangements, door stops etc. and as shown in drawings but exclusive of door closer. Door closers, where separately specified shall be of heavy-duty hydraulic type to be approved by Engineer/Architect.

Doors shall generally have no sills but if a few have to be provided; the CONTRACTOR shall do so at no extra cost to the OWNER.

For fixing timber frames to concrete, raw plugs and screws of 16 gauges shall be used wherever specified. Rawle plugs and screws of gauge 16 shall also be used for fixing raw rough grounds, framing, hangers, hat hooks, curtain rails etc. Unless otherwise specified, screws used for the work shall be galvanized.

All timber surfaces coming into contact with masonry or concrete shall be given two coats of wood preservative or so lignum approved by the Engineer.

Paneled and glazed shutters, styles and rails shall be as shown in the drawing, molded and mortised together (Ref IS: 1003). The shutters shall be square and free from twist. All glazing is to be of sheet glass of selected quality and approved by the Engineer/Architect.

It shall be clear and free from defects. It shall be cut to the required size and fixed to frame either with spring clips, with approved quality, or with teakwood beading as per details.

The Engineer may order any timber frame to be put together on the ground and submitted to suitable tests to his satisfaction before being placed in position. The cost of any such test shall be borne by the Contractor.

All surfaces of timber resting on or bedded in masonry or concrete shall be well coated with coal tar.

All fixing holes shall be pelleted and concealed from view. 35 mm thick flush type block board (IS:2202) shall be manufactured from selected timber well-seasoned and shall be of solid particle board core construction with 25 mm thick teak wood lipping all around the edge. The stiles and rails shall be of one piece or alternatively, two or more pieces glued together. The thickness of the cross band shall not be less than 3mm and the thickness of the facing shall be of best quality commercial ply thickness not less than 1.5mm. Where veneer finish, or Formica finishes or any other type is specified they shall be glued separately. All the plywood shall be glued under pressure. Glue used shall be phenol formaldehyde resins.

5.5.9.4 Flush door shutter with paint finish

Providing and fixing ISI marked flush door shutters conforming to IS:2202 (Part I) nondecorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters. Flush door panel shall be 35 mm thick, with 25 mm thick teak wood lipping on all edges, including fixing with stainless steel butt hinges, screws and painting in approved color. Size and design of doors to be as per detailed door drawings. Painting shall include applying approved wood primer and 2 or more coats of paint of approved make and color.

5.5.9.4.1 Fixtures:

All doors and windows shall be provided with best quality fixtures as specified in the drawing. Samples of all fittings shall be submitted for approval by the Engineer. Unless otherwise specified, hinges, tower bolts, AL drops, handles, baby latches, etc. shall be of best quality of specified size. Mortise lock, hydraulic closer and other fixtures shall be of approved make.

5.5.9.4.2 Painting:

Painting shall be carried out only after the joinery has been inspected and approved by the Engineer. The surface preparation and applying of primer coats of paint and final coats of paint shall be carried out as per specifications for painting. Unless otherwise specified a minimum of 2 coats of primer paint and 3 coats of final paint to be applied. Where polishing or varnishing is specified, the surface to be varnished or polished shall be protected from contamination such as inadvertent painting and surface damage. The polishing or varnishing shall be according to the specifications for varnishing or polishing under the section Painting.

The contractor shall submit samples of each type of hardware to the Engineer. The approved samples shall be retained by the Engineer for comparison of bulk supply. The samples shall be returned to the Contractor towards the end for incorporation in the job. The frames shall be erected in accordance with manufacturer's instructions. The frame shall be aligned and kept plumb by suitable supporting arrangement. As the masonry is being constructed the holdfasts are embedded in concrete mix 15/10. Where required for fixing with concrete member, raw plug and GI screws shall be used. The joints between the steel frame and masonry work, after being finished with plaster shall be finished with approved bitumen mastic. Glass panes, unless otherwise specified shall be of 6mm thickness and shall be free from flaws, specks and bubbles. It shall have properly squared

corners and straight edges, and shall be fixed to frame with glazing pins and approved putty.

5.5.9.5 PVC DOOR & uPVC WINDOW MOLDED PVC DOOR (WOOD FREE)

Description: This item shall govern the provision of fabrication, supply and installation of 30 mm thick factory-made molded PVC door (Wood free) as per drawing approved by Engineer-in-charge

General Requirement: The 30 mm thick factory-made molded PVC door (Wood free) shall be fabricated in accordance with design requirement and detailed as per drawing, in conformity with the requirements of this specification.

Feature: Feature of molded PVC door are as follows:

1. 100% Water Proof
2. Dimensionally stable
3. Acid/Alkali Resistant
4. 100% Termite Proof
5. Maintenance Free
6. Flame Retardant

Fabrication description:

30 mm thick factory-made molded PVC door (Wood free) consisting of frame made out of M.S. tubes of 19-gauge thickness and size of 20 mm x 40 mm for stiles as well as top, bottom & lock rail. M.S. frame shall have a coat of metal primer of approved make & manufacturer. The inside panel shall consist of 20 mm thick multi-chamber hollow PVC section of 1mm wall thickness, bonded using solvent cement / cyanoacrylate adhesive with 5 mm (+0.25) thick molded PVC sheet of density 600 kg/cbm with 2, 4, 6 raised panel

design in plain / prelim colors after routing the molded design on one side of the inside panel. 5 mm (+0.25) plain / prelim PVC sheet to be pasted using solvent cement / cyanoacrylate adhesive on other side of the hollow PVC section.

All the four edge of the panel to be sealed with lipping of 10 mm thick & 20 mm wide PVC sheet baton made by sticking 2 nos. foam PVC sheets of 5 mm (+0.25) thickness using PVC solvent cement adhesive. Door edge lipping to be painted with PVC ink of matching color of Plain/Prelim molded PVC sheet of door 20 mm thick (5 mm x 4 nos.) thick PVC sheet to be given for lock provision at lock height. Door to be fixed with frame with 3 nos. stainless steel butt hinges of size 100 mm x 25 mm x 2mm and 50 mm long steel screws drilled suitable to pass through both the walls of the M.S. tube other hardware should be fixed with 25 mm x 8 mm size steel screws etc., complete as per manufacturer's specification and drawing or direction of Engineer-in-charge. Finish: All the surface of molded PVC door (Wood free) should be uniform smooth finish and free from crack and seam. Passing joints shall be finished ensuring that no gaps are visible.

Tolerance: All Dimensions (except thickness of profile sections) shall be as per drawing ± 0.25 mm.

Test: Molded PVC door shall be subjected to the following test: -

Edge Loading Test as per IS 4020 Part 7

Slamming test as per IS 4020 Part 10

Shocking resistant test for soft body and heavy body as per IS 4020 Part 8

Measurement: The unit of measurement shall be in square meter.

5.5.9.6 General Steel Door:

Fixing 50 mm thick steel door shutter with double skinned with 0.8 mm (22 gauge) galvanized steel sheets (bending radius 1.2) mm spangle free of size to fit the above frame, stressed-skin design, (no visible joint on faces), lock seam joint (without any visible weld joints on the vertical edges also) and flush top with inverted channel; and with paper honey-comb infill bonded to the skin with PU/Co-polymer resins, pre-punched /pre-drilled to receive ironmongery as per the manufacturer specification. Suitable reinforcement is to be provided in the door shutter to receive the hardware and hardware to be fixed on the door including vision panel fasteners. The doors with double shutters are to be provided with astragals on both sides & astragals to be fitted to the door without any fasteners. The shutter to be fixed with SS hinges 304 grades (size 100x75x3mm). The door frame (section size 143x57) will be made from 1.6mm thick GI steel /GP steel pressed to double rebate profile for better structural strength. Frames are to be fixed with fasteners.

1. GI – Sheet

GI-Sheets 1.6mm /120 gsm of Zinc Coating plus 40 micron of Primer / 40 micron of finish paints or powder coating upto 80 Micron, having 3 mm thick base plate and duly reinforced; pre-machined for receiving latch/lock; with recessed pre-drilled 3 mm hinge plates, Ready- to-receive specified hardware/ironmongery, to be supplied in CKD condition & to be jointed at site Butt & bolted as per kitty design.

2. Handling and Storage of Fabricated Materials

All doors, windows, etc. shall be packed and crated properly before dispatch, to ensure that there shall be no damage to the fabricated materials. Loading into wagons and trucks shall be done with all care to ensure safe delivery of materials at site in undamaged condition.

While taking delivery of items supplied by Owner, the Contractor shall satisfy himself that the items supplied are upto the specified standard. Any defect detected shall promptly be brought to the notice of the Engineer.

All doors, windows etc. shall be stored under cover in a way to prevent damage or distortion. Special care shall be taken to prevent staining of aluminum products by rust, mortar etc.

3. Assembly & Erection at Site

In general, the fixing of steel doors, windows, ventilators, louvers, etc. shall conform to IS: 1081 and as shown on drawings. The contractor shall assemble and install all steel doors. Sashes, fixed metal louvers etc. including transoms and mullions for composite units in respective places as shown on drawings, keeping proper lines and levels, and in approved workmanship manner, to give trouble free and leak-proof installations. The installation shall be done according to the instructions of the manufacturer, and/or as approved by the Engineer. If required by the Engineer, the installation shall be carried out under the supervision of the manufacturer's representative. The contractor shall take every precaution against damage of the components during installation. Necessary holes, chases, etc. required for fixing shall be made by the Contractor and made good again as per original, after installation, without any extra charge. After installation of steel doors

all abrasions to shop-coat of paint shall be retouched and made good with the same quality of paint used in shop coat.

All coupling mullions, transoms, frame, etc. in contact with adjacent steel and other members, shall be well bedded in mastic. The Contractor shall bring to the site the mastic cement in original sealed containers of manufacturer and shall apply it as per the instructions. For all frames supplied by either the Owner or the contractor, mastic shall be supplied by the Contractor and caulking done properly as per drawings, Specifications and as per instructions of the Engineer. Door shutters partition hardware fixtures etc. shall be fixed only after major equipment has been installed in rooms. Wherever required, nylon cords of approved quality shall be supplied along with pivoted sashes and shall be of adequate length to terminate one meter from the floor. Loose ends of cards shall end in metal or plastic pull as approved by the Engineer.

4. Acceptance Criteria

• For Fabricated Items

Overall dimensions shall be within ± 1.5 mm of the size shown on drawings.

Mullions, transoms etc. shall be in one length and permissible deviations from straightness shall be limited to ± 1.5 mm from the axis of the member.

Door and window shutters shall open without jamming. The clearance at head and jamb for door shutters shall not exceed 1.5 mm. For double leaf doors, the gap at the meeting stiles shall not be more than 1.5 mm.

Door leaves shall be undercut where shown on drawings.

Doors, windows, frames etc. shall be on a true plane, free from warp or buckle.

All welds shall be dressed flush on exposed and contact surfaces.

Correctness of location and smoothness of operation of all shop installed hardware and fixtures.

Provision for hardware and fixtures to be installed at site.

Glazing beads shall be cut with mitered corners.

Glazing clips, fixing devices etc. shall be supplied in adequate numbers.

Shop coats shall be properly applied.

Exposed aluminum surface shall be free from scratches, stains and discoloration;

Anodized surfaces shall present a uniform and pleasing look.

• For Installed Items

Installations shall be at correct location, elevation and in general on a true vertical plane.

Fixing details shall be strictly as shown on drawings.

Assembly of composite units shall be strictly as per drawings, with mastic caulking at transoms and mullions, gaskets, weather strips etc. complete.

All frames on external walls shall be sealed with polycopid or mastic caulked to prevent leakage through joint between frames and masonry.

All openable sections shall operate smoothly without jamming.

Locks, fasteners etc. shall be unique (one to one) positively. Keys shall be noninterchangeable.

Cutting to concrete or masonry shall be made good and all abrasions to shop paint shall be touched up with paint of same quality as shop paint.

Aluminum doors, windows etc. shall be free from scratches, stain or discoloration.

Hinges, Tower bolts, locks.

Hard ware shall include handle pull / push indicator plates etc., as specified.

- **Information to Be Submitted with Tender**

Names of manufacturers for doors, windows etc.

Manufacturer's catalogue for all hardware and fixture proposed to be used.

- a) **After Award**

Before starting fabrication of all metal doors, windows etc. the Contractor shall submit detailed fabrication drawings to the Engineer for approval. The fabrication shall be started only after approval of drawings.

Before bulk supply, he shall submit for the approval of the Engineer, samples of all bought out items and samples of each type of fabricated item. The samples shall be retained by the Engineer for comparison of bulk supply and returned to the Contractor towards the end for the final incorporation in the job.

- 5. **Rates**

Shall be unit rates for items described in schedule.

5.5.11.1 Integral Cement Based Treatment for Water Proofing on Horizontal

A. Preparation of Surface

The Water Proofing Treatment over the lean concrete/levelling course surface should adhere to the surface firmly, the surface of levelling course should be roughened properly when the concrete is still green. In case the surface is not made rough before the concrete is set, the work of water proofing should not be executed till proper key is provided for the base layer of Cement Mortar 1:3.

B. Blending Cement/Water with Water Proofing Compound

The required quantity of cement bags to be used for a particular portion of work should be emptied on a dry platform. Water proofing compound bearing ISI mark and conforming to IS 2645 should then be mixed properly with the cement. The quantity of water proofing compound to be mixed should be as prescribed by the manufacturer but not exceeding 3% by weight of cement. The quantity of cement and water proofing

compound thus mixed should be thoroughly blended and the blended cement should again be packed in bags.

For the water proofing compound in liquid form, the blending is to be done with water. This can be done by taking the just required quantity of water to be mixed in the particular batch of dry cement mortar.

The required quantity of water thus collected per batch of dry cement mortar to be prepared should be mixed with liquid water proofing compound from sealed tins with ISI mark. The water thus mixed with water proofing compound shall be thoroughly stirred so that the water is blended with water proofing compound properly.

C. Laying Water Proofing Course

Before laying the base course of cement mortar 1:3, the lean concrete surface shall be cleaned neatly with water. Cement slurry. (ii), shall be applied only on the area of the concrete surface, that can be covered with the cement mortar (1:3) base course within half an hour. The cement slurry should cover every spot of the surface and no place shall remain uncovered. Just after the application of cement slurry on the surface, the cement mortar prepared as per clause 5.6.11.2.1 (v) should be used for laying the base course. Base Course should be laid to a perfect level with wooden/aluminum straight edge of at least 2 mtrs. long. The top surface of cement mortar should be finished neatly and later scratched when green with a suitable instrument before the base course dries and gets hard that is just before the base course takes up initial set.

When the 25-mm thick base course is just getting set the cement slurry prepared as per clause 5.6.11.2.1 (iv) should be spread over the base course up to the area that shall be covered with just two to three stone slabs. The cement slurry shall be spread in such a way that the area of base course to be covered immediately shall be covered with slurry without any gap or dry spots. Immediately on applying cement slurry on the base course the Rough Kota Stone slab shall be laid over the base course and pressed gently so that the air gap can be removed.

The slurry applied on the surface which gets spread when the stone slab is pressed shall get accumulated in the joints of adjacent stone slabs and if any gap still remains between the stone slabs the same should also be filled with additional quantity of cement slurry. For laying the stone slabs in perfect level, two stone slabs at adjacent concerns/ends shall be fixed firmly to the required level and a string stretched over the two slabs, the intermediate slabs shall then be set to the level of the string.

D. Curing

Immediately after completing the fourth layer, arrangements shall be made for the top RCC slab as quickly as possible and in the meantime till the top slab is casted the water proofing treatment shall be kept wet continuously. In case the concreting of slab gets delayed for more than 2 weeks the curing can be stopped after 14 days.

E. Measurement

Length and breadth shall be measured along the finished surface correct to a cm and the area shall be worked out to nearest 0.01 sqm.

F. Rate

The rate shall include the cost of all labour & materials involved in all the operations described above. The cost of grading with cement concrete / cement mortar shall be paid for separately.

5.5.11.2 Water Proofing Treatment to Vertical and Horizontal Surface of Depressed Portion of WC, Kitchen and The Like

1) Before the Water Proofing Treatment

Before the water proofing treatment, the internal plaster of ceiling and walls of WC block leaving the portion for dado/skirting should be completed. Grooving / chasing for doing the concealed work of GI/CI pipes/Electrical conduits should be completed. Cleaning the depressed/sunken portion of WC of all debris, extra mortar sticking to the vertical and horizontal surface etc. Necessary holes for 'P' trap /Nhani trap/Water escape pipe etc. should be completed.

2) Preparing Surface and Fixing Pipes and Fittings

Before the water proofing treatment work, proper key in the concrete surface should be provided. The depressed/sunken portion should be hacked by a hacking tool, after the concrete slab is cast and when this concrete is still green. The vertical surfaces of the depressed /sunken portion should be hacked with a hacking tool just after the shuttering is removed. In case of old work, the water proofing treatment on such surfaces shall be permitted after making proper spatter dash key. Fixing the 'P' trap in position and all other pipes work including the water escape pipe shall be fixed properly and the holes should be plugged carefully before taking up the water proofing work.

- **1st Course**

Cement duly blended with water proofing compound as explained shall be used for preparing the cement slurry.

The consistency of the slurry should be such that 4.4 kg. of blended cement with water proofing compound is used per sq. meter area of surface to be treated. The slurry should be started from the vertical faces towards the bottom of the floor. Particular care should be taken to see that the slurry is applied to corners without leaving any gap.

- **2nd Course**

Immediately on applying the blended cement slurry on the surface to be treated cement plaster 20 mm thick in CM 1:3 (1 blended cement: 3 coarse sand) shall be applied both on vertical and horizontal surfaces taking particular care to complete the entire depressed/ sunken portion of WC within a day so that the plaster can be done without any joint. Junctions shall be properly rounded. The surfaces of the plaster shall be left rough but finished in one plain and cured for a week.

On completion of the curing period both horizontal and vertical surfaces shall be cleaned properly and gently and allowed to dry.

- **3rd Course**

Only after the surface is completely dried the blown or residual bitumen shall be applied @ 1.7 kg. of bitumen per sqm area.

- **4th Course**

PVC sheet 400 micron thick shall be spread evenly without any kink immediately, so that the PVC sheet sticks to the surface firmly. PVC sheet shall be continued to be laid over the main slab up to 100 mm.

Overlapping of PVC sheet should be done with a minimum overlap of 100 mm, duly pasting the overlapped sheet with an application of bitumen @ 1.7 kg. / sqm.

The projections of pipes and 'P' trap outlet etc. inside the depressed/sunken portion of WC shall also be cladded with water proofing treatment layer up to a height of 150 mm, using a coat of bitumen with PVC sheet complete.

The surfaces of depressed/sunken portion of WC shall not be left without covering with specified filling material and base concrete, otherwise the PVC sheet layer may be tampered by the labour working in the vicinity.

Fixing up of WC pan, filling specified material and the top base concrete should be done as early as possible and the top horizontal layer of water proofing may be taken up later i.e. just before laying the floor tiles.

3) **Measurement**

Length and breadth shall be measured along the finished surface correct to a cm. and area shall be worked out to nearest 0.01 sqm. No payment however shall be made for the 100 mm overlap of PVC Sheet over the roof slab.

4) **Rate**

The rate shall include the cost of labour and materials involved in all the operations described above.

5.5.8 FLOORING / ALLIED WORK & ACOUSTICAL WORK

5.5.12.1 Scope

This specification covers furnishing, installation, finishing, curing, testing, protection, maintenance till handing over various types of floor finishes and allied items (trades, risers, sills, cladding, dado etc.) of work as listed below:

5.5.12.2 Applicable Codes

IS:269 Specification for ordinary and Low Heat Portland Cement

IS:383 Specification for Coarse and Fine Aggregates

IS: 777 Specification for Glazed Earthenware Tiles

IS:1237 Specification for Cement Concrete Flooring Tiles

IS:1443 Code of Practice for Laying and Finishing of Cement Concrete Flooring Tiles

IS: 2571 Code of Practice for Laying In-situ Cement Concrete Flooring Tiles

IS: 457 Specification for Ceramic Unglazed Vitreous Acid Resisting Tiles

IS: 2114 Code of Practice for laying in situ Terrazzo Floor Finish

IS: 4860 Specification for Acid Resistant Bricks

IS: 5491 Code of Practice for laying in situ Granolithic Floor Topping

5.5.12.3 Vitrified Tiles in Flooring / Skirting

The base shall be cleaned and the bedding mortar 20 mm to 25 mm shall be laid. A neat cement grout shall be spread before laying tiles. The tiles shall be cured for 5 days. The joints shall be filled with cement slurry tinted to match the colour of tiles. For fixing the tiles in skirting the bedding mortar shall be 12 mm. The tiles shall conform to relevant I.S. code. The contractor shall produce test certificate for the tiles.

5.5.12.4 Polished Kotah, Cudappah, Shahabad & Tandur Stone Flooring, Skirting and Facing:

5.5.12.4.1 Materials

Stones shall be of the best variety to be approved by the Engineer and shall be of specified thickness and size.

The stone slabs shall be sound, durable and uniform in size, thickness and color. They shall be free from soft veins, cracks or flaws and their

edges shall be true and square and shall be machine cut and the surface double machine polished, if require as per item description. Sorting of stones of one-color shade shall be done prior to fixing to avoid color variation in the work.

5.5.12.4.2 Workmanship

The surface on which the stone slabs to be laid shall be cleaned of all dust and saturated with water.

The stone slabs shall be set in cement slurry over 20 mm thick lime mortar 1:2/cement mortar 1:4 bedding and tamped with wooden mallet. The joints shall be flushed with cement and cured for 7 days.

The final cutting / polishing shall be done as directed after the completion of curing period.

5.5.12.5 Marble / Granite Flooring, Skirting & Facing

5.5.12.5.1 Materials

Marble slabs shall be of the type mentioned in the item and of the color and quality approved by the Engineer. Slabs shall be hard, dense, uniform and homogenous in texture. They shall have even crystallizing grain and be free from defects and cracks.

The surface shall be machine polished to an even and perfectly plain surface and edges machine cut, true and square.

No slab shall be thinner than the specified thickness at its thinnest part. The dimensions of the slab shall be as specified in item. A few specimens of the finished slabs shall be deposited by the Contractor in the Engineer's office for reference.

5.5.12.5.2 Workmanship

They shall be laid to the pattern shown in the drawings or as directed by the Engineer.

The surface on which the marble / Granite slab is to be laid shall be cleaned of all dust and saturated with water.

The marble slabs shall be set in cement slurry over 20mm thick lime / cement mortar 1:1:2 bedding and tamped with wooden mallet. The joints shall not exceed 1 mm in thickness and shall be flushed with white cement and cured for 10 days.

Finishing shall be done as per IS:2114-1962. Normally polishing shall be done for flooring by machine. Hand polishing shall be allowed only for skirting and facing. A smooth polish shall be obtained in either case to the entire satisfaction of the Engineer.

5.5.12.6 Trimix Concrete Flooring

Trimix concrete is a method of producing high wear resistant & high compressive strength concrete minimizing water permeability & dusting.

The specification of work should conform to those specified by the manufacturer, as to achieve the desired results but in no case, shall be lesser than as mentioned hereunder

5.5.12.6.1 Concrete in floor

The surface where the trimix concrete method of laying the floor is to be adopted, shall be thoroughly cleaned of all dust, loose particles etc. It shall then be wetted to have just a moist surface & sprinkled with cement slurry. Then two side track rails on which leveling beam & a surface vibrator be mounted, shall be erected to proper/desired levels & gradient as to have the specified thickness of concrete. A stop ends then be placed at the starting end. Both track rails & stop ends should be preferably of mild

steel. The concreting then be started with desired/specified grade of concrete. However, it is advisable to use M20 grade concrete minimum for better final results. The placing of machine mixed concrete begins from starting end & is continued to horizontal manner. Poker vibrators will be used to vibrate the laid concrete thoroughly with minimum 50 mm dia. needles. On completion of laying of approximate 5/6 m² area the surface vibrator then be run over the concrete surface to achieve better overall compaction of concrete. This process is continued & the surface vibrator be run the second time along with leveling beam on the finished concrete surface.

Then the vacuum mat be placed on this leveled concrete & the excess water from the concrete is sucked off. A time of approximate 1.5 to 2.0 minutes per centimeter thickness of concrete slab is normally adopted for vacuum treatment. However, care to be taken at this stage is curling at ends due to excess use of vacuum mats. Immediately thereafter normal floating operation should begin or if special topping is specified then the same is worked into the concrete surface with the float disc. The floater suggested here are power operated skin floaters. The floating is continued till desired finish is obtained. The curing of the surface shall be done by ponding method for at least 15 clear days prior to putting the surface to use M.S. reinforcement 8 dia. at 250 mm c/c both ways shall be placed in concrete approx. 50 mm below the top surface of concrete. This mesh shall be for individual panels formed by side construction joint & expansion joint.

5.5.12.6.2 Joints in floor and sealing

- i. The Construction joints in concrete shall be spaced at approx. 40 m² area and /or as per item & will be made by sawing the already laid & finally cured concrete to obtain 3 mm to 4 mm by 30 mm to 40 mm deep joints. These joints shall be cleaned of all dust & be filled in with clear sand 3 mm by 26 mm to 36 mm deep & then the top be sealed properly by polysulphide joint sealant approx. 3 mm to 4 mm by 4 mm deep.
- ii. The Expansion joints shall be spaced at approx. 120 m² area and/or as per item & shall constitute formation of 20 mm to 25 mm clear joint between the two concrete. This joint be formed by placing the Shalitek board in position against the old concrete leaving 20 mm x 10 mm joint at top, which shall be filled in by polysulphide joint sealant.

5.5.12.6.3 HEAT RESISTANCE ON COMPLETE TERRACE & PORCH

5.5.12..7 ACOUSTICAL WORK

According to classic acoustics theory there are five requirements which, when met, result in good acoustics (Classified for Fire class 'A' as per ASTM E-84):

- Appropriate reverberation time depends on the size of the room. W. Furrer's recommendations can be used in rooms which are between 200 and 20,000 cubic metres. Unless it concerns a concert hall for classical music, the reverberation time must in so as far as possible be the same throughout the entire frequency range.
- Uniform sound distribution is important in large rooms and halls, where the sound must be able to be heard equally well everywhere. It is important to take

sound distribution into account in the architecture. A variation of max. ± 5 dB anywhere in the room is an appropriate requirement.

- Appropriate sound level for normal conversation is 60-65 dB, and in a busy street 70-85 dB. In large gatherings, a public address system in a dampened room can be used to ensure an appropriate sound level.
- Appropriate, low background noise is one of the most important acoustic criteria – especially in concert halls and theatres. In a room, the background noise may come from technical installations or ventilation systems.
- No echo or flutter echoes must occur for the acoustics to be good. It is easy to prevent echo by installing a little sound-absorbing material on the wall.

In addition, ensuring that the sound field in the room is diffuse is another fundamental rule. This can be achieved by distributing the sound absorbers on several non-parallel surfaces, by avoiding spherical, cuboid or cylinder shapes in for the room and by using as many sound-spreading elements as possible. In addition, it must be ensured that control rooms, listening rooms and cinemas in particular are built up symmetrically around a vertical plane bisecting the central space.

5.5.12.8 ACOUSTICAL / FALSE CEILING /

- i. Different type of ceiling tiles shall have smooth laminated visual with Humidity Resistance (RH) of 95%, NRC 0.85 – 0.95 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, , Light Reflectance $\geq 85\%$ as per ASTM E-1477, Colour Black, Fire Performance of Class 0/1 as per BS 476 Part 6/7 complete in all respect as per direction given by the Engineer-In-Charge.
- ii. 12.5 mm thick tapered edge gypsum board conforming to IS 2095- Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 complete in all respect as per direction given by the Engineer-In-Charge.
- iii. The thickness of POP ceiling shall be maximum 12mm & will include all the curves, coves, etc as per architectural design. The frame work shall be treated with one coat of primer of zinc coating of grade 350 as per IS 277 and shall be true to planers or slopes as specified. The joints in the expanded metal shall be provided only under the main steel frame work. The plaster of Paris shall be of calcium sulphate semi-hydrate variety, its fineness shall be such that when sieved through a sieve of IS sieve designations 0.05 mm for 5 min after drying the residue left on it shall not be more than 1% by weight complete in all respect as per direction given by the Engineer-In-Charge.

5.5.9 Sanitary Fixtures & Fittings: -

5.5.13.1 Scope

The scope of this section consists of but is not necessarily limited to supply, installation, testing and commissioning of following items:

- Sanitary/ Kitchen appliances and fixtures.
- Chromium plated brass fittings
- Accessories e.g. towel rods, soap dish, Grab bar, etc.

Whether specifically mentioned or not the Contractor shall provide for all appliances and fixtures all fixing devices, nuts, bolts, screws, hangers as required.

All exposed pipes within toilets and near appliances/fixtures shall be of chromium plated brass or copper unless otherwise specified.

5.5.13.2 General Requirement

Sanitary appliances and fixtures for toilets and kitchens, chromium plated brass fittings, stainless steel sinks, bathroom accessories like towel rods, toilet paper holders, soap dish, towel rails, coat hooks, mirrors etc. as listed in the relevant items in the Schedule of Quantities shall be supplied by the contractor. Contractor to take prior approval from the engineer / client for the make, model, type and color etc.

All appliances, fixtures and fittings shall be provided with all such accessories as are required to complete the item in working condition whether specifically mentioned or not in the Schedule of Quantities, specifications, and drawings. Accessories shall include proper fixing arrangements, brackets, nuts, bolts, washers, screws and required connection pieces.

The sanitary fixtures and fittings shall be installed at the correct assigned position as shown on the drawings and as directed by the Architect / Owner's Site Representative and shall fully meet with the aesthetic and symmetrical requirements as demanded by the Architect / Interior Designer.

All fixtures and accessories shall be fixed in accordance with a set pattern matching the tiles or interior finish as per Architect requirements. Wherever necessary, the fittings shall be centered to dimensions and pattern as called for.

Fixing screws shall be half round head chromium plated (CP) brass screws, with CP brass washers unless otherwise specified.

Fixtures shall be installed by skilled workman with appropriate tools according to the best trade practice.

All appliances, fittings and fixtures shall be fixed in a neat workman like manner true to level and to heights shown on the drawings and in accordance with the manufacturer's recommendations. Care shall be taken to fix all inlet and outlet pipes at correct positions.

Faulty locations shall be made good and any damage to the finished floor, tiling, plaster, paint, insulation or terrace shall be made good by the Contractor at his own cost. Fixtures shall be mounted rigid, plumb and true to alignment.

All materials shall be rust proofed; materials in direct or indirect contact shall be compatible to prevent electrolytic or chemical (bimetallic) corrosion.

Wall flanges shall be provided on all walls, floors, columns etc. wherever supply and disposal pipes pierce through them. These wall caps shall be chromium plated brass fittings and the receiving pipes shall be large enough to cover the punctures properly.

Sanitary appliances, subject to the type of appliance and specific requirements, shall be fixed in accordance with the relevant standards and the following:

During the entire period of installation and afterwards contractor shall protect the appliances by providing suitable cover or any other protection so as to absolutely prevent any damage to the appliances until handing over (The original protective wrapping shall be left in position for as long as possible)

The appliances shall be placed in correct position or marked out in order that pipe work can be fixed or partially fixed first.

The appliance shall be fixed in a manner such that it will facilitate subsequent removal if necessary.

The appliance shall be securely fixed. Manufacturer's brackets and fixing methods shall be used wherever possible. Compatible rust-proofed fixings shall be used. Fixing shall be done in a manner that minimizes noise transmission.

Appliances shall not be bedded (e.g. WC pans, pedestal units) in thick strong mortar that could crack the unit (e.g. ceramic unit)

Pipe connections shall be made with demountable unions. Pipe work shall not be fixed in a manner that it supports or partially supports an appliance. Appliances shall be fixed true to level firmly fixed to anchor or supports provided by the manufacturer and additional anchors or supports where necessary.

Sizes of sanitary fixtures given in the Specifications or in the Schedule of Quantities are for identification with reference to the catalogues of make considered. Dimensions of similar models of other makes may vary within + 10% and the same shall be provided and no claim for extra payment shall be entertained NOR shall any payment be deducted on this account.

The contractor shall fix all plumbing fittings such as water faucets, shower fittings, mixing valves etc. in accordance with manufacturer's instructions and connect to piping system. The contractor shall supply all fixing materials such as screws, raw plugs, unions, collars, compression fittings etc., as required.

Joints / gaps between all sanitary appliances / fixtures and the floor / walls shall be caulked with an approved mildew resistant sealant, having antifungal properties, of color and shade to match that of the appliances / fixture and the floor / wall to the extent possible.

5.5.13.3 European Water Closet

Water Closet shall be wash down or symphonic wash down type wall mounted set only, as shown in the drawings, designed for low volume flushing from 5-7 liters of water, flushed by means of a porcelain flushing cistern or an exposed or concealed type (as detailed in the drawings or as directed by the Owner's Site Representative) 32 mm size CP brass flush valve with regulator valve. Flush pipe / bend shall be connected to the WC by means of a suitable rubber adaptor. Wall hung WC shall be supported by CI floor mounted chair which shall be fixed in a manner as approved by the Owners Site Representative.

Each WC set shall be provided with approved quality of seat, rubber buffers and chromium plated hinges. Seat shall be so fixed that it remains absolutely stationary in vertical position without falling down on the WC. Each WC shall be provided with 110 mm dia (OD) PVC Pan Connector connecting the ceramic outlet of WC to CI pipe. For common toilets or otherwise mentioned Indian style WC is proposed.

Final WC selection will be as per drawings & architects comment or as per Owners site representative.

Low level flushing cistern (exposed or concealed) shall be provided for WC in specified toilets. Contractor shall install cistern in accordance to the manufacturer's specification to the satisfaction of the Owner Site Representative. Provision of flush valve shall be made for Public / Staff toilets.

Final selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.4 Urinals

Urinals shall be lipped type half stall with glazed vitreous China of size as called for in the Bill of Quantities or other mentioned in the BOQ.

Half stall urinals shall be provided with 15 mm dia CP spreader, 32 mm dia CP domical waste and CP cast brass bottle trap with pipe and wall flange and shall be fixed to wall by CI brackets, CI wall clips and CP brass screws as recommended by manufacturer complete as directed by the Owner's Site Representative.

Flushing for urinals shall be by means of no hand operation, infrared electric flush valve with complete kit of plumbing, electrical and electronic items, infrared photo cells, solenoid valve transformer and electrical connection. The automatic flush sensor plate shall be flush and press fitted and is of high-quality mirror polish finish. Each urinal shall be provided with one flush valve unit.

Flush pipes shall be GI pipes concealed in wall chase but with chromium plated bends at inlet and outlet.

Final Urinal selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.5 Urinal Partitions

Urinal partitions shall be white glazed vitreous china of size specified in the Schedule of Quantities.

Porcelain partitions shall be fixed at proper heights with CP brass bolts, anchor fasteners and MS clips as recommended by the manufacturer and directed by the Owner's Site Representative.

Final Urinal partition selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.6 Cisterns / Flush Valve

Low level flushing cistern (exposed or concealed) shall be provided for WC in specified toilets. Contractor shall install cistern in accordance to the manufacturer's specification to the satisfaction of the Owner Site Representative. Provision of flush valve shall be made for Public / Staff toilets. Final selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.7 Wash Basin

Wash basins shall be white glazed vitreous china of size, shape and type specified in the Schedule of Quantities. All Wash basins should be Wall mounted type or as per architecture comments if specified.

Each basin shall be provided with painted GI or CI brackets and clips and the basin securely fixed to wall. Placing of basins over the brackets without secure fixing shall not be accepted.

The CI brackets shall be provided with two coats of red oxide primer and two coats of synthetic enamel paint of make, brand and color as approved by the Owner's Site Representative. The cost of fixing the basin shall be inclusive of supply and installation of brackets as described above. Each basin shall be provided with 32 mm dia CP waste with overflow, pop-up waste or rubber plug and CP brass chain as specified in the Schedule of Quantities. Final selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.8 Chromium Plated Fittings

5.5.13.8.1 Stop Cock

A stop cock is a valve with suitable means of connection for insertion in a pipe line for controlling or stopping the flow. They shall be push button type & of brass chromium plated & of diameter as specified in the description of the item. They shall conform to IS 781-1977 & shall be polished bright.

5.5.13.8.2 Angle Valve

Angle Valve / Angular Stop Cock shall be chromium plated brass or powder coated brass of size, shape and type specified in the Schedule of Quantities. Angle Valve / Angular Stop Cock shall be fixed all with CP wall flanges of approved quality all as specified in the Schedule of Quantities. and shall include cutting and making good as required or directed by the Site Representative.

5.5.13.8.3 Pillar Cock

Pillar Cock shall be chromium plated brass of size, shape and type specified in the Schedule of Quantities.

5.5.13.8.4 Bib Tap

A bib cock is a draw off tap with horizontal inlet & free outlet. They shall be push button type & of brass, chromium plated & of diameter as specified in the description of the item. They shall conform to IS 781-1977 & shall be polished bright.

5.5.13.8.5 Gun Metal Gate Valve

The gun metal gate valve shall be approved quality & shall be gun metal fitted with wheel & shall be of gate valve opening full way & of the size as specified. These shall conform to IS 778 with latest updates & amendments.

5.5.13.8.6 Double Coat Hook

Twin coat hook shall be chromium plated brass or of stainless steel or powder coated brass of size, shape and type specified in the Schedule of Quantities. Twin coat hook shall be fixed with screws/capping having finish similar to the towel ring in wall with raw plugs or nylon sleeves and shall include cutting and making good as required or directed by the Site Representative.

5.5.13.8.7 Towel Ring

Towel ring shall be chromium plated brass or of stainless steel or powder coated brass of size, shape and type specified in the Schedule of Quantities. Towel ring shall be fixed with screws/capping having finish similar to the towel rail in wall with raw plugs or nylon sleeves and shall include cutting and making good as required or directed by the Site Representative.

5.5.13.8.8 Toilet Paper Holder

Toilet paper holder shall be of chromium plated as specified in the schedule of quantity.

5.5.13.8.9 Soap Dish

S.S Soap dish shall chromium plated brass or of stainless steel or powder coated brass of size, shape and type specified in the Schedule of Quantities. S.S Soap dish shall be fixed to wall with CP brass screws, etc. S.S Soap dish shall be fixed with screws/capping having finish similar to the towel ring in wall with rawl plugs or nylon sleeves and shall include cutting and making good as required or directed by the Site Representative.

5.5.13.8.10 Toilets for the Disabled

Where specified, in washroom facilities designed to accommodate physically disabled, accessories shall be provided as directed by the Owners Site Representative. Stainless steel grab bars of required size suitable for concealed or exposed mounting and opened non-slip gripping surface shall be provided in all washroom. The flushing cistern/ valve shall be provided with chromium plated long handles. Final selection will be as per drawings & architects comment or as per Owners site representative.

5.5.13.8.11 Mockup and Trial Assembly

The installation of the sanitary fixtures and fittings shall be as per the shop drawings approved by the Architect/Consultant. The contractor shall have to assemble at least one set of each type of sanitary fixtures and fittings in order to determine precisely the required supply and disposal connections. Relevant instructions from manufacturers shall be followed as applicable. This trial assembly shall be developed to determine the location of puncture holes, holding devices etc. which will be required for final installation of all sanitary fixtures and fittings. The above assembly shall be subject to final approval by the Architect / Interior Designer. The fixtures in the trial assembly can be re-used for final installation without any additional payments for fixing or dismantling of the fixtures.

5.5.13.8.12 Supporting and Fixing Devices

The contractor shall provide all the necessary supporting and fixing devices to install the sanitary fixtures and fittings securely in position. The fixing devices shall be rigidly anchored into the building structure. The devices shall be rust resistant and shall be so fixed that they do not present an unsightly appearance in the final assembly. Where the location demands, the Architect may instruct the contractor to provide chromium plated or other similarly finished fixing devices. In such circumstances, the contractor shall arrange to supply the fixing devices and shall be installed complete with appropriate vibration isolating pads, washers and gaskets.

5.5.13.8.13 Final Installation

The contractor shall install all sanitary fixtures and fittings in their final position in accordance with approved trial assemblies and as shown on drawings. The installation shall be completed with all supply and waste connections. The connection between building and piping system and the sanitary fixtures shall be through proper unions and flanges to facilitate removal/replacement of sanitary fixtures without disturbing the built-in piping system. All unions and flanges shall match in appearance with other exposed fittings.

Fixtures shall be mounted rigid, plumb and to alignment. The outlets of water closet pans and similar appliances shall be examined to ensure that outlet ends are butting on the receiving pipes before making the joints. It shall be ensured that the receiving pipes are clear of obstruction. When fixtures are being mounted, attention shall be paid to the possibility of movement and settlement by other causes. Overflows shall be made to ensure that necessary anchoring devices have been provided for supporting water closets, wash basins, sinks and other appliances.

5.5.13.8.14 Protection against Damage

The contractor shall take every precaution to protect all sanitary fixtures against damage, misuse, cracking, staining, breakage and pilferage by providing proper wrapping and locking arrangement till the completion of the installation. At the time of handing over, the contractor shall clean, disinfect and polish all the fixtures and fittings. Any fixtures and fittings found damaged, cracked chipped stained or scratched shall be removed and new fixtures and fittings free from defects shall be installed at his own cost to complete the work.

5.5.13.8.15 Testing

All appliances, fixtures and fittings shall be tested before and after installation. Water seals of all appliances shall be tested. The contractor shall block the ends of waste and ventilation pipes and shall conduct an air test.

5.5.10 QUALITY ASSURANCE & QUALITY CONTROL

Testing of all materials and works as mentioned in the JDA/PWD publications or stipulated in the codes or as directed by the Engineer shall be carried out by the Contractor and test reports shall be submitted regularly to the Engineer for his perusal. The Contractor is to notify the Engineer the program of such tests well in advance, so that such tests, either conducted in his own laboratory, laboratory established at the site or any accredited laboratory or at Manufacturer's place can be witnessed by him / his representative or Third Party, if appointed by the Procuring Entity. Also establish an office for uses of client at site.

The Contractor is to abide by the stipulations/clauses appearing in the QA & QC Manual published by the JDA/PWD.

Section VA

General Conditions of Contract

("Copy of appendix XI of PWF&AR, Govt. of Rajasthan effective from 01.07.99 and subsequent addendum dated 19.03.2001 & 29.03.2001 and other amendments up to date. In case of any typographical error or omission or alteration the original version of the same shall be valid.")

DEFINITIONS

The "Contract" means the documents forming the bid and acceptance thereof and the formal agreement executed between the Jaipur Development Authority and the Contractor, together with the documents referred to therein, including these conditions, Notice inviting Bids, Instructions to Bidders, Special Conditions of Contract, Specifications, Drawings and Designs, Tender and other information submitted by the Contractor and instructions issued from time to time by the Engineer-in-charge and all these documents taken together shall be deemed to form one contract and shall be complementary to another.

In the contract the following expressions shall, unless the context otherwise requires, have the meanings herein respectively assigned to them:-

The "WORKS OR WORK" shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by, or by virtue of the contract contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

The "SITE" shall mean the land an/or the other places on, into or through which work is to be executed under the contract, or any adjacent land, path or street, through which work is to be executed under the contract, or any adjacent land, path or street, which may be allotted or used for the purpose of carrying out the contract.

The "CONTRACTOR" shall mean the individual or firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representatives of such individual or the persons composing such firm or company, the successor of such firm or company and the permitted assign of such individual or firm or company.

The "ENGINEER-IN-CHARGE" shall mean the Executive Engineer In charge of Jaipur Development Authority who shall supervise and be in-charge of the work.

The "GOVERNMENT DEPARTMENT" shall mean the Jaipur Development Authority.

The "Accepting Authority" shall mean Executive Committee of Jaipur Development Authority.

The "Director" or "Chief Engineer" shall mean Director (Engineering-I) of Jaipur Development Authority.

The 'Superintending Engineer' shall mean the Superintending Engineer-VI of Jaipur Development Authority.

"ESTIMATED COST" shall mean the cost of the work or works as estimated on the basis of the TENDERED rate or rates agreed to between the parties to the contract.

Where the context so requires, words importing the singular only also include the plural and vice-versa. Any reference to masculine gender shall wherever required include feminine gender and vice versa.

Headings and marginal notes to these General Conditions of Contract shall not be deemed to form a part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

The clause 23 of condition of contract under section 2 of GCC i.e. standing committee for settlement of disputes is read as:

If any question, difference or objection, whatsoever shall arise in any way, in connection with or arising out of this instrument, or the meaning of operation of any part thereof, of the rights, duties or liabilities of either party men, save in so far, as the decision of any such matter, as herein before provided for, and been so decided, every such matter/ constituting a total claim of Rs. 50,000/- or above, whether its decision has been otherwise provided for an whether it has been finally decided accordingly, or whether the rights or obligations of the parities, as the result of such termination, shall be referred for decision to the empowered standing committee, which would consist of the followings:

Jaipur Development Commissioner, JDA, Jaipur -Chairman

Director (Engineering-I), JDA, Jaipur

Director (Finance), JDA, Jaipur

Director (Law), JDA, Jaipur

Superintending Engineer, JDA, Jaipur -

The Engineer-in-Charge, on receipt of application along with nonrefundable prescribed fee, (the fee would be two percent of the amount in dispute, not exceeding Rs. One lac) from the contractor, shall refer the disputes to the committee within a period of three months from the date of receipt of application.

Procedure and application form referring cases for settlement by the Standing Committee shall be, as given in form RPWA 90.

GENERAL CONDITIONS OF CONTRACT

("Copy of appendix XI of PWF&AR, Govt. of Rajasthan effective from 01.07.99 and subsequent addendum up to date. In case of any typographical error or omission or alteration the original version of the same shall be valid.")

Clause 1: Security Deposit

"The security deposit @ 3% of the gross amount of the running bill shall be deducted from each running bill and shall be refunded as per rules on completion of the contract as per terms and conditions. The earnest money deposited shall however be adjusted while deducting security deposit from the first running bill of the contractor. There will be no maximum limit of security deposit.

A contractor may, however, elect to furnish bank guarantee or any acceptable form of security for an amount equal to the full amount of security deposit @ 3% of the work order before or at the time of executing the agreement. In that case earnest money may be refunded only after furnishing of the bank guarantee as above. During the execution of the work or after completion of the work also a contractor may replace the security deposit by furnishing bank guarantee for an equal amount. However, during execution of the work if cost of work exceeds as shown at the time of furnishing bank guarantee, balance security deposit shall be deducted from the Running Account Bills."

No Price variation is payable in this contract.

All compensation or other sums of money payable by the Contractor to Government under the terms of his contract may be deducted from or paid by the sale of a sufficient part of his Security Deposit, or from interest arising therefrom, or from any sums, which may be due or may become due to the Contractor by the Government on any account whatsoever, and in the event of his Security Deposit being reduced by reason of any such deduction or sale as aforesaid, the Contractor shall within ten days thereafter, make good in cash or Bank Guarantee of Nationalized/Scheduled bank, as aforesaid, any sum or sums which may have been deducted from or raised by sale of his Security Deposit or any part thereof.

In case of Bank Guarantee of any Nationalized/Scheduled Bank is furnished by the Contractor to the Government, as part of the Security Deposit and the bank goes into liquidation or, for any reason is unable to make payment against the said Bank Guarantee, the loss caused thereby shall fall on the Contractor and the Contractor shall forthwith, on demand, furnish additional security to the Government to make good the deficit.

The liability or obligation of the bank under the Guarantee Bond shall not be affected or suspended by any dispute between the Engineer-in-Charge and the Contractor, and the payment, under the Guarantee Bond by the bank to the Government shall not wait till disputes are decided. The bank shall pay the amount under the Guarantee, without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the Contractor. The demand, so made, shall be conclusive as regards to amount due and payable by the bank, under the guarantee limited to the amount specified in the Guarantee Bond. The guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

The Bank Guarantee shall remain valid up to the specified date unless extended on demand by the Engineer-in-Charge which shall include the period of completion of the contract and the defect removal period as per terms of the Agreement. Bank's liability shall stand automatically discharged unless a claim in writing is lodged with the Bank within the period stated in the Bank Guarantee including the extended period. After satisfactory completion of the contract and clearance of all dues by the Contractor, the Chief Engineer or duly

authorized Engineer will discharge the Bank Guarantee after expiry of the original or the extended period, as the case may be. In case the date of expiry of the Bank Guarantee is a holiday, it will be deemed to expire on the close of the next working day.

Government is not concerned with any interest accruing to the Contractor on any form of Security (primary or collateral) lodged by him with the bank or any sums payable to sureties obtained by the Bank as counter guarantee to secure its own position. These will be the matters between the Bank and the Contractor.

Clause 2: Compensation for delay

The time allowed for carrying out the work as entered in the tender, shall be strictly observed by the Contractor and shall be reckoned from the 10th day after the date of written order to commence the work is given to the Contractor. If the Contractor does not commence the work within the period specified in the work order, he shall stand liable for the forfeiture of the amount of Earnest Money and Security Deposit. Besides, appropriate action may be taken by the Engineer-in-Charge/competent authority to debar him from taking part in future tenders for a specified period or black list him. The work shall, throughout the stipulated period of completion of the contract, be proceeded with all due diligence, time being essence of the contract, on the part of the Contractor. To ensure good progress during the execution of work, the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month (save for special jobs), to complete 1/8th of the whole of the work before 1/4th of the whole time allowed under the contract has elapsed, 3/8th of the work before 1/2 of such time has elapsed and 3/4th of work before 3/4th of such time has elapsed. If the contractor fails to complete the work in accordance with this time schedule in terms of cost in money, and the delay in execution of work is attributable to the contractor, the contractor shall be liable to pay compensation to the Government at every time span as below: -

A.	Time Span of full stipulated period	1/4th	1/2th	3/4th	Full
B.	Work to be completed in terms of money	1/8th	3/8th	3/4th	Full
		(Rs.)	(Rs.)	(Rs.)	(Rs.)
C.	Compensation payable by the contractor for delay attributable to contractor at the stage of:	Delay up to one fourth period of the prescribed time span – 2.5% of the work remained unexecuted			
		Delay exceeding one fourth period but not exceeding half of the prescribed time span – 5% of the work remained unexecuted.			
		Delay exceeding half of the prescribed but not exceeding three fourth of the time span – 7.5% of the work remained unexecuted			
		Delay exceeding three fourth of the prescribed time span – 10% of the work remained unexecuted			

Note: In case delayed period over a particular span is split up and is jointly attributable to Government and contractor, the competent authority may reduce the compensation in proportion of delay attributable to Government over entire delayed period over that span after clubbing up the split delays attributable to Government and this reduced compensation would be applicable over the entire delayed period without paying any escalation.

Following illustrations is given: -

First time span is 6 months, delay is of 30 days which is split over as under: -

5 days (attributable to Government) + 5 days (attributable to contractor) + 5 days (attributable to Government) + 5 days (attributable to contractor) + 5 days (attributable to Government) + 5 days (attributable to contractor)

Total delay is thus clubbed to 15 days (attributable to Government) and 15 days (attributable to contractor).

The normal compensation of 30 days as per clause 2 of agreement is 2.5% which can be reduced as $2.5 \times 15 / 30 = 1.25\%$ over 30 days without any escalation by competent authority.

Note: The compensation, levied as above, shall be recoverable from the Running Account Bill to be paid immediately after the concerned time span. Total compensation for delays shall not exceed 10 percent of the total value of the work.

The contractor shall, further, be bound to carry out the work in accordance with the date and quantity entered in the progress statement attached to the tender.

In case the delay in execution of work is attributable to the contractor, the spanwise compensation, as laid down in this clause shall be mandatory. However, in case the slow progress in one-time span is covered up within original stipulated period, then the amount of such compensation levied earlier shall be refunded. The Price escalation, if any, admissible under clause 45 of Conditions of Contract would be admissible only on such rates and cost of work, as would be admissible if work would have been carried out in that particular time span. The Engineer-in-Charge shall review the progress achieved in every time span, and grant stagewise extension in case of slow progress with compensation, if the delay is attributable to contractor, otherwise without compensation.

However, if for any special job, a time schedule has been submitted by the Contractor before execution of the agreement, and it is entered in agreement as well as same has been accepted by the Engineer-in-charge, the Contractor shall complete the work within the said time schedule. In the event of the Contractor failing to comply with this condition, he shall be liable to pay compensation as prescribed in forgoing paragraph of this clause provided that the entire amount of compensation to be levied under the provisions of this Clause shall not exceed 10% of the value of the contract. While granting extension in time attributable to the Government, reasons shall be recorded for each delay.

Clause 3: Risk & Cost Clause

The Engineer-in-charge or the Competent Authority defined under rules may, without prejudice to his rights against the Contractor, in respect of any delay or inferior workmanship or otherwise, or any claims for damages in respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provisions of this Contract or otherwise, and whether the date for completion has or has not elapsed, by notice in writing, absolutely determine the Contract in any of the following cases:

If the Contractor having been given by the Engineer-in-charge, a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in any inefficient or otherwise improper or un-workman like manner shall omit to comply with the

requirements of such notice for a period of seven days, thereafter, or if the Contractor shall delay or suspend the execution of the work so that either in the judgement of the Engineer-in-charge (which shall be final and binding) he will be unable to secure completion of the work by the date for completion or he has already failed to complete the work by that date,

If the Contractor, being a company, shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager, on behalf of a creditor, shall be appointed or if circumstances shall arise, which entitle the court or creditor to appoint a receiver or a manager or which entitle the court to make a winding up order,

If the contractor commits breach of any of the terms and conditions of this Contract,

If the contractor commits any acts mentioned in, clause 19 thereof.

When the Contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in charge on behalf of the Governor of Rajasthan shall have powers: -

To determine or rescind the contract, as aforesaid (of which determination or rescission notice in writing to the Contractor under the hand of the Engineer-in charge shall be conclusive evidence), upon such determination or rescission, the earnest money, full security deposit of the contract shall be liable to be forfeited and shall be absolutely at the disposal of Government.

To employ labour paid by the Department and to supply materials to carry out the work or any part of the work, debiting the Contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Engineer-in-charge shall be final and conclusive against the contractor) and crediting him with the value of the work done in all respects in the same manner and at the same rates, as if it had been carried out by the Contractor under the terms of this Contract. The certificate of the Divisional Officer, as to the value of the work done, shall be final and conclusive evidence against the Contractor provided always that action under the sub-clause shall only be taken after giving notice in writing to the Contractor. Provided also that; if the expenses incurred by the Department are less than the amount payable to the Contractor at his agreement rates, the difference shall not be paid to the Contractor.

After giving notice to the contractor to measure up the work of the contractor and to take such part thereof, as shall be unexecuted out of his hands, and to give it to another contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount of which excess, the certificate in writing of the Engineer-in-charge shall be final and conclusive) shall be borne and paid by the original Contractor and may be deducted from any money due to him by Government under this contract or on any other account whatsoever, or from his Earnest Money, Security Deposit, Enlistment Security or the proceeds of sales thereof, or a sufficient part thereof, as the case may be. In the event of any one or more of the above courses being adopted by the Engineer-in-charge, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of contract. And, in case action is taken under any of provisions aforesaid, the Contractor shall not be entitled to recover or be paid, any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-charge has certified, in writing, the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

Clause 4: Contractor remains liable to pay compensation, if action not taken under clause 3

In any case in which any of the powers conferred by clause 3 hereof, shall have become exercisable and the same shall have not been exercised, the non-exercise, thereof, shall not constitute waiver of any of the conditions hereof, and such power shall, notwithstanding, be exercisable in the event of any future case of default by the Contractor for which, by any clause or clauses hereof, he is declared liable to pay compensation amounting to the whole of his Security Deposit /Earnest Money/Enlistment security and the liability of the Contractor for past and future compensation shall remain unaffected.

Powers to take possession of, or require removal, sale of Contractor's plant

In the event of the Engineer-in-Charge putting in force, powers vested in him under the preceding Clause 3 he may, if he so desires, take possession of all or any tools, plants, materials and stores, in or upon the works or the site, thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account, at the contract rates or, in case of these not being applicable, at current market rates, to be certified by the Chief Engineer or duly authorized Engineer (whose certificate thereof, shall be final and conclusive), otherwise the Engineer-in-Charge may, by notice in writing to the contractor or his clerk of the works, foreman or other authorized agent, require him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and in the event of the contractor failing to comply with any requisition, the Chief Engineer or other duly authorized Engineer may remove them at the contractor's expenses, sell them by auction or private sale on account of the Contractor and at his risk in all respects, and the certificate of the Chief Engineer or other duly authorized Engineer, as to the expense of any such removal, and the amount of the proceeds and expense of any such sale shall be final and conclusive against the Contractor.

Clause 5: Extension of time

If the contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-Charge within 30 days of the date of the hindrance, on account of which he desires such extension as aforesaid, and the Authority Competent to grant extension under the rules/delegations of power or other duly authorized Engineer shall, if in his opinion, (which shall be final) reasonable grounds be shown therefore, authorize such extension of time, if any, as may, in his opinion, be necessary or proper, if the period of completion of contract expires before the expiry of the period of one month provided in this clause, the application for extension shall be made before the expiry of the period stipulated for completion of the contract. The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause (2) of this agreement.

Clause 5 A: Monthly Return of Extra Claims

Contractor has to submit a return every month for any work claimed as extra. The Contractor shall deliver the return in the office of the Executive Engineer and obtain Receipt Number of the Receipt Register of the day on or before 10th day of every month during the continuance of the work covered by this contract, a return showing details of any work claimed as extra by the contractor which value shall be based upon the rates and prices mentioned in the contract or in the Schedule of Rates in force in the District for the time being. The contractor shall be

deemed to have waived all claims, not included in such return, and will have no right to enforce any such claims not included, whatsoever be the circumstances.

Clause 6: Final Certificate

On completion of the work, the contractor shall send a registered notice to the Engineer-in-charge, giving the date of completion and sending a copy of it to the officer accepting the contract, on behalf of the Governor and shall request the Engineer-in-charge to give him a certificate of completion, but no such certificate shall be given nor shall the work be considered to be complete until the contractor shall have removed from the site on which the work shall be executed, all scaffolding, surplus materials and rubbish and cleared off the dirt from all wood work, doors, walls, floors, or other parts of any building in, upon or about which the work is to be executed or of which he may have possession for the execution thereof, he had filled up the pits. If the contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and cleaning off dirt and filling of pits on or before the date fixed for completion of the work, the Engineer-in-charge may, at the expense of the contractor, remove such scaffolding, surplus materials, and the rubbish and dispose of the same, as he thinks fit, and clean off such dirt and fill the pits, as aforesaid, and the contractor shall forthwith pay the amount of all expenses, so incurred, and shall have no claim in respect of any such scaffolding or surplus materials, as aforesaid, except for any sum actually realized by the sale thereof. On completion, the work shall be measured by the Engineer-in-charge himself or through his subordinates, whose measurements shall be binding and conclusive against the contractor. Provided that, if subsequent to the taking of measurements by the subordinate, as aforesaid, the Engineer-in-charge had reason to believe that the measurements taken by his subordinates are not correct, the Engineer-in-charge shall have the power to cancel the measurements already taken by his subordinates and acknowledged by the Contractor and to take measurements again, after giving reasonable notice to the Contractor, and such re-measurements shall be binding on the Contractor.

Within thirty days of the receipt of the notice, Engineer-in-charge shall inspect the work and if there is no visible defects on the face of the work, shall give the Contractor, a certificate of completion. If the Engineer-in-charge finds that the work has been fully completed, it shall be mentioned in the certificate so granted. If, on the other hand, it is found that there are certain visible defects to be removed, the certificate to be granted by Engineer-in-charge shall specifically mention the details of the visible defects along with the estimate of the cost for removing these defects. The final certificate of work shall be given after the visible defects pointed out as above have been removed.

Clause 7: Payment on Intermediate Certificate to be regarded as advance

No payments shall be made for works estimated to cost less than rupees twenty-five thousand, till after the whole of the works shall have been completed and a certificate of completion given. But in the case of works estimated to cost more than rupees twenty five thousand, the Contractor shall on submitting the bill therefore, be entitled to receive a monthly payment proportionate to the part, thereof, then approved and passed by the Engineer-in-charge, whose certificate of such approval and passing of sum, so payable, shall be final and conclusive. Running Account Bill shall be paid within 15 days from presentation. But all such intermediate payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed, and shall not preclude the requiring of bad, unsound and imperfect or unskillful work to be removed and taken away and re-constructed or re-erected, or considered as an admission of the due performance of the contract, or any part thereof, in any respect, or the accruing of any claim, nor shall it conclude, determine, or effect in any way the powers of the Engineer-in-charge

under these conditions or any of them to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be made/submitted by the Contractor within one month of the date fixed for completion of the work, otherwise the Engineer-in-charge's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties.

Clause 7A: Time Limit for Payments of Final Bills

The final bill shall be paid within 3 months on presentation by the contractor after issuance of final completion certificate in accordance with clause 6 of the conditions of contract. If, there shall be any dispute about any item(s) of the work, then the undisputed item(s) only, shall be paid within the said period of 3 months. If a final bill (which contains no disputed item or disputed amount of any item) is not paid within the period of three months from presentation of final bill or 6 months from the date of receipt of registered notice regarding completion of work in accordance with clause 6 of the conditions of the contract, the defects, if any, shall be brought to the notice of the higher authority. The period of 3 months shall commence from the date of rectification of the defects. The higher authority shall ensure that in no case final bill should be left unpaid after 9 months from the receipt of registered notice regarding completion of work. The contractor shall submit a memorandum of the disputed items along with justification in support within 30 days from the disallowance thereof, and if he fails to do so, his claims shall be deemed to have been fully waived and absolutely extinguished.

Clause 8: Bills to be submitted on completion of specified stage of work

In case of Lump Sum contract, bills will be submitted by the contractor on completion of various stages of work as specified in the contract document. The claim as far as admissible, authorized or paid, if possible, before expiry of 10 days from the presentation of the bill. The claims for additions & alterations, if any, may also be included in the bills if their measurements have been recorded and checked.

Clause 8A: Bills to be submitted on completion of specified stage of work

In case of Lump Sum contract, bills will be submitted by the contractor on completion of various stages of work as specified in the contract document. The claim as far as admissible, authorized or paid, if possible, before expiry of 10 days from the presentation of the bill. The claims for additions & alterations, if any, may also be included in the bills if their measurements have been recorded and checked.

Clause 8B: Recovery of Cost of Preparation of the Bill

In case of contractor of class A and AA do not submit the bill within time fixed, the Engineer in Charge may prepare the bill as per the provision of clause 8 of the general conditions of the contract but @ 0.5 % of amount of such a bill shall be made and credited to the general revenue on account of preparation of bill.

Clause 9: Bills to be on printed forms

The Contractor shall submit all bills on the printed forms, to be had on application, at the office of the Engineer-in-charge and the charges in the Bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, at the rates hereinafter provided for such work.

Clause 9A: Payments of Contractor's Bills to Banks

Payments due to the Contractor may if so desired by him, be made to this Bank instead of direct to him, provided that the contractor has furnished to the Engineer-in- Charge(I)an authorization in the form of a legally valid document, such as a Power of Attorney conferring

authority on the Bank to receive payments, and (ii) his own acceptance of the correctness of the account made out, as being due to him, by Government, or his signature on the bill or other claim preferred against

Government before settlement by the Engineer-in-Charge of the account or claim, by payment to the Bank. While the receipt given by such bank shall constitute a full and sufficient discharge for the payment, the Contractor should, whenever possible, present his bill duly receipted and discharged through his Banker. Nothing, herein contained, shall operate to create in favor of the Bank any rights vis-a-vis the Governor.

and stores.

Clause 10: Rejection of materials procured by the Contractor

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion, are not in accordance with the specifications and, in case of default, the Engineer-in-Charge shall be at liberty to employ other person(s) to remove the same without being answerable or accountable for any loss of damage, that may happen or arise to such materials to be substituted thereof, and in case of default, Engineer-in-Charge may cause the same to be supplied and all costs, which may attend such removal and substitution, are to be borne by the Contractor.

Clause 10B: Penal rate in case of excess consumption

The Contractor shall also be charged for the materials consumed in excess of the requirements calculated on the basis of standard consumption approved by the department, at double of the issue rate including storage and supervision charges or market rate, whichever is higher. A Material Supply and Consumption Statement, in prescribed Form RPWA 35A shall be submitted with every Running Account Bill, distinguishing material supplied by the Government and material procured by the Contractor himself. The recovery for such material shall be made from Running Account Bill next after the consumption and shall not be deferred. Certificate of such nature shall be given in each Running Account Bill.

Clause 10 C: Hire of Plant and Machinery

Special Plant and Machinery, required for execution of the work, may be issued to the Contractor, if available, on the rates of hire charges and other terms and conditions as per departmental Rules, as per Schedule annexed to these conditions. Rates of such Plant & Machinery shall be got revised periodically so as to bring them at par with market rate.

Clause 11: Works to be executed in accordance with specifications, Drawings, Orders etc.

The Contractor shall execute the whole and every part of the work in the most substantial and satisfactory manner and both as regards materials and otherwise in every respect, in strict accordance with the Specifications. The Contractor shall also conform exactly fully and faithfully to the designs, drawings (either designed by department or designed by contractor and approved by Engineer-in-charge during additional execution) and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office and to which the Contractor shall be entitled to have access at such office or on the site of the work for the purpose of inspection during office hours and the Contractor shall, if he so require, be entitled, at his own expense, to make or cause to be made copies of specifications and of all such designs, drawings and instructions, as aforesaid. A certificate of executing works as per approved design, specifications etc. shall be given on each Running Account Bill.

The specifications of work, material, methodology of execution, drawings and designs shall be signed by the Contractor and Engineer-in-charge while executing agreement and shall form part of agreement.

Clause 12:

The Engineer-in-charge shall have power to make any alterations, omissions or additions to or substitutions for the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-charge and such alterations, omission, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work, which the contractor may be directed to do in the manner above specified as part of the work, shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work. The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work bears to the original contract work, and the certificate of the Engineer-in-charge shall be conclusive as to such proportion. The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order:

If the rates for the additional, altered or substituted work are specified in the contract for the work, the contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract for the work.

If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the such rates will be derived from the rates for a similar class of work as are specified in the contract for the work.

If the rates for the altered, additional or substituted work cannot be determined in the manner specified in the sub-clauses (i) to (ii) above, then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates of the District/area specified above minus/plus the percentage which the total tendered amount bears to the estimated cost of the entire work put to tender. Provided always that if the rate for a particular part or parts of the item is not in the Schedule of Rates, the rate for such part or parts will be determined by the Engineer-in-Charge on the basis of the prevailing market rates when the work was done.

If the rates for the altered, additional or substituted work item cannot be determined in the manner specified in sub-clauses (i) to (iii) above, then the contractor shall within 7 days of the date of receipt of order to carry out the work, inform the Engineer- in – Charge of the rate which it is his intention to charge for such class of work supported by analysis of the rate or rates claimed and the Engineer-in-Charge shall determine the rate or rates on the basis of prevailing market rates, and pay the contractor accordingly. However, the Engineer-in-Charge, by notice in writing, will be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner, as he may consider advisable. But under no circumstances, the contractor shall suspend the work on the plea of non-settlement of rates on items falling under the clause.

Clause 13: No compensation for alteration in or restriction of work to be carried out.

If, at any time after the commencement of the work the Government shall, for any reason, whatsoever, not require the whole work, thereof, as specified in the tender, to be carried out, the Engineer-in-charge shall give notice, in writing, of the fact to the Contractor, who shall have no claim to any payments or compensation, whatsoever, on account of any profit or advantage, which he might have derived from the execution of the work in full but which he did not derive in consequence of the full amount of the work not having been carried out. Neither, shall he have any claim for compensation by reason of alterations having been made in the original specifications, drawings, and design, and instructions, which shall involve any curtailment of the work, as originally contemplated. Provided, that the Contractor shall be paid the charges for the cartage only, of materials actually brought to the site of the work by him for Bonafied use and rendered surplus as a result of the abandonment or curtailment of the work or any portion thereof, and taken them back by the Contractor, provided however, that the Engineer-in-charge shall have, in all such cases, the option of taking over all or any such materials at their purchase price or at local market rates whichever may be less. In the case of such stores, having been issued from Government Stores, charges recovered, including storage charges, shall be refunded after taking into consideration any deduction for claim on account of any deterioration or damage while in the custody of the contractor, and in this respect the decision of the Engineer-in-charge shall be final.

Clause 14: Action and compensation payable in case of bad work

If, it shall appear to the Chief Engineer or any authorized authority or the Engineer-in-charge or his subordinates in-charge of the work, or to the committee of the retired officers/officers appointed by the State Government for the purpose that any work has been executed with unsound, imperfect or unskillful workmanship, or with material of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted, or otherwise not in accordance with contract, the Contractor shall on demand in writing from the Engineer-in-charge, specifying the work/materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, will rectify or remove and reconstruct the work, so specified, in whole or in part, as the case may be, remove the materials or articles, so specified, and provide other proper and suitable materials or articles at his own cost, and in the event of his failing to do so, within a period to be specified by the Engineer-in-Charge in his demand as aforesaid, then the Contractor shall be liable to pay compensation at the rate of one percent, on the tendered amount of work for every week not exceeding ten percent, while his failure to do so shall continue, and in the case of any such failure, the Engineer-in-Charge may rectify or remove and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be, at the risk and expense, in all respects of the contractor.

Clause 15: Work to be open to inspection: Contractor or his responsible Agent to be present

All work, under or in course of execution or executed in pursuance of the contract shall, at all times, be opened to inspection and supervision of the Engineer-in-charge and his superior officers e.g. Superintending Engineer, Additional Chief Engineer, Chief Technical Engineer, Chief Engineer, and his subordinates and any other authorized agency of the Government and the contractor shall, at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate and any

other authorized agency of Government or committee of retired officers/officers appointed by the State Government for the purpose to visit the works shall have been given to the Contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself.

Clause 16: Notice to be given before any work is covered up

The Contractor shall give not less than 7 days' notice, in writing, to the Engineer-in-charge or his subordinate-in-Charge of the work, before covering up or otherwise placing beyond the reach of measurement, any work in order that the same may be measured, and correct dimensions thereof, be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Engineer-in-Charge of the work, and if, any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the Contractor's expense or in default, thereof, no payment or allowance shall be made for such work, or for the materials with which the same was executed.

Clause 17: Contractor liable for damage done and for imperfections

If the Contractor or his work people or servants shall break, deface, injure or destroy any part of a building, in which they may be working or any building, road, fence, enclosure, or cultivated ground contiguous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work, while in progress, from any cause, whatsoever, or any imperfections become apparent in it, within a period specified in clause 37, after a certificate, final or otherwise of its completion, shall have been given by the Engineer-in-charge, may cause the same to be made good by other workmen and deduct the expense (of which the certificate of the Engineer-in-charge shall be final) from any sums that may be then, or at any time thereafter, may become due to the Contractor, or from his security deposit, or the proceeds of sale thereof, or of a sufficient portion thereof.

Clause 18: Contractor to supply plant, ladders, scaffolding etc.

The Contractor shall arrange and supply, at his own cost, all material (except such special materials, if any, as may, in accordance with the contract, be supplied from the Engineer-in-charge's stores), plants, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works requisite or proper for the proper execution of the work, whether original, altered, or substituted, and whether included in the specification or other documents, forming part of the Contract, or referred to in these conditions, or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer in-Charge, as to any matter as to which, under these conditions, he is entitled to be satisfied or which he is entitled to require, together with carriage thereof, to and from the work. The Contractor shall also arrange and supply, without charge, the requisite number of persons with the means and materials, necessary for the purpose of setting out work and counting, weighting and assisting in the measurement or examination at any time and from time to time of the work, or materials. Failing his so doing, the same may be provided by the Engineer-in-charge, at the expense of the Contractor, and the expenses may be deducted from any money due to the Contractor under the Contract, or from his Security Deposit or the proceeds of sale

thereof, or a sufficient portion thereof. The Contractor shall also provide all necessary fencing and lights required to protect the public from accident and shall be bound to bear the expenses of defense of every suit, action or other proceeding at law, that may be brought by any person for injury sustained owing to neglect of the above precautions, and to pay any damages and costs which may be awarded in any such suit, action proceeding to any such person or which may, with the consent of the Contractor, be paid to compromise any claim by any such person.

Clause 19: Work not to be sub-let, Contract may be rescinded and Security

Deposit and Performance Forfeited for sub-letting, bribing or if Contractor becomes insolvent.

The Contractor shall not be assigned or sublet without the written approval of the Director Engineer, and if the contractor shall assign or sublet his contract or attempt so to do, or become insolvent, or commence any insolvency proceedings or mark any composition with his creditors, or attempt so to do, or if any bribe, gratuity, gift, loan, requisite reward or advantage, pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the Contractor or any of his servants or agents to any public officer or person, in the employ of Government, in any way, relating to his office or employment, or if, any such officer or person shall become, in any way, directly or indirectly, interested in the contract, the Chief Engineer may, thereupon, by notice, in writing, rescind the contract and Security Deposit of the Contractor shall, thereupon, stand forfeited and be absolutely at the disposal of Government and the same consequences shall ensure as, if the contract had been rescinded under Clause 3 hereof, and in addition the Contractor shall not be entitled to recover or be paid for any work therefore, actually performed under the Contract.

Clause 20: Sums payable by way of compensation to be considered as reasonable compensation without reference to actual loss

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of Government without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

Clause 21: Changes in constitution of firm

Where the Contractor is a partnership firm, the previous approval, in writing, of the Engineer-in-charge shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu undivided family business concern, such approval, as aforesaid, shall likewise be obtained before the Contractor enters into any partnership agreement thereunder the partnership firm would have the right to carry out the work thereby undertaken by the Contractor. If, previous approval, as aforesaid, is not obtained, the Contract shall be deemed to have been assigned in contravention of Clause 19 hereof, and the same action may be taken, and the same consequences shall ensure, as provided in the said clause 19.

Clause 22: Work to be under direction of Engineer-in-charge

All the works, to be executed under the contract, shall be executed under the direction and subject to the approval, in all respect, of the Engineer-in-charge of the Government of Rajasthan for the time being, who shall be entitled to direct, at what point or points, and in what manner, they are to be commenced, and from time to time, carried on.

Clause 23: Standing Committee for Settlement of Disputes

If any question, difference or objection, whatsoever shall arise in any way, in connection with or arising out of this instrument, or the meaning of operation of any part thereof, or the rights, duties or liabilities of either party then, save in so far, as the decision of any such matter, as herein before provided for, and been so decided, every such matter constituting a total claim of Rs. 50,000/- or above, whether its decision has been otherwise provided for and whether it has been finally decided accordingly, or whether the Contract should be terminated or has been rightly terminated, and as regards the rights or obligations of the parties, as the result of such termination, shall be referred for decision to the empowered Standing Committee, which would consist of the followings:-

Jaipur Development Commissioner, JDA, Jaipur -Chairman

Director (Engineering-I), JDA, Jaipur

Director (Finance), JDA, Jaipur

Director (Law), JDA, Jaipur

Superintending Engineer, JDA, Jaipur - Member Secretary

The Engineer-in-charge, on receipt of application along with non-refundable prescribed fee, (the fee would be two percent of the amount in dispute, not exceeding Rs. one Lac) from the Contractor, shall refer the disputes to the committee, within a period of three month from the date of receipt of application. Procedure and Application for referring cases for settlement by the Standing Committee shall be, as given in Form RPWA 90.

Clause 23A: Contractor to indemnify for infringement of Patent or design

Contractor shall fully indemnify the Governor of Rajasthan against any action, claim or proceeding, relating to infringement or use of any patent or design, or any alleged patent or design, rights, and shall pay any royalties, which may be payable in respect of any article or part thereof, included in the contract, in the event of any claims made under or action brought against Government. In respect of any such matters, as aforesaid, the Contractor shall be, immediately, noticed thereof, and the Contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation, that may arise there from provided that the Contractor shall not be liable to indemnify the Governor of Rajasthan, if the infringement of the patent or design or any alleged patent or design, right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

Clause 24: Imported Store articles to be obtained from Government

The contractor shall obtain from the stores of the Engineer-in-charge, all imported store articles which may be required for the work or any part thereof, or in making up articles required thereof, or in connection therewith, unless he has obtained permission, in writing, from the Engineer-in-charge, to obtain such stores and articles from else-where. The value of such stores and articles, as may be supplied to the Contractor by the Engineer-in-charge, will be debited to the Contractor, in his account, at the rates shown in the schedule attached to the contract, and if they are not entered in the schedule, they will be debited at cost price, which for the purposes of this contract, shall include the cost of carriage and all other expenses, whatsoever, which shall have been incurred in obtaining delivery of the same at the stores aforesaid plus storage charges.

Clause 25: Lump-sums in estimates

When the estimate, on which a tender is made includes lump sums, in respect of parts of the work, the Contractor shall be entitled to payment in respect of the item of work involved, or the part of the work in question at the same rates, as are payable under the contract for such items or if the part of the work in question is not, in the opinion of the Engineer-in-charge, capable of measurement, the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate and the certificate in writing of the Engineer-in-charge shall be final and conclusive with regard to any sum or sums payable to him under the provisions of this clause.

Clause 26: Action where no Specification

In case of any Class of work for which there is no such specification as is mentioned in the contract document referred in ITB Clause 4.1, such work shall be carried out in accordance with the detailed specification of the department and also in accordance with the instructions and requirement of the Engineer-in-charge.

Clause 27: Definition of work

The expression “works” or “work” where used in these conditions, shall, unless there be something either in subject or context, repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed, whether temporary or permanent, and whether original, altered, substituted or additional.

Clause 27A: Definition of Engineer-in-charge

The term “Engineer-in-charge” means the Divisional officer who shall supervise and be in-charge of the work and who shall sign the contract on behalf of the Governor.

Clause 28:

It cannot be guaranteed that the work will be started immediately after the tenders have been received. No claims for increase of rate will be entertained, if the orders for starting work are delayed.

Clause 29: Payments at reduced rates on account of items of work not accepted and not completed to be at the discretion of the Engineer-in-charge

The rates for several items of works, estimated to cost more than Rs. 1,000/-, agreed within, will be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specifications. In cases, where the items of work are not accepted, as so completed, the Engineer-in-charge may make payment on account of such items, at such reduced rates, as he may considers reasonable, in the preparation of final or on account bills, and his decision in the matter shall be final and binding.

Clause 29A: Payments at part rates

The rates for several items of works may be paid at part rates provisionally in running bills in proportion to the quantum of items executed at the discretion of Engineer-in- charge. In case

of item rates, if the rate quoted for certain items are very high in comparison to the average/overall tendered premium, then the payment at running stages shall not be made more than the average sanctioned premium. The deferred payment, will however be released after successful completion of the work.

Clause 30: Contractors Percentage:

The percentage referred to in the “Tender for works” will be deducted/ added from/ to the gross amount of the bill before deducting the value of any stock issued.

Clause 31: Contractor to adhere to labour laws/regulation

The Contractor shall adhere to the requirements of the Workmen's Compensation Act and Labour Legislation in force from time to time and be responsible for and shall pay any compensation to his workmen which would be payable for injuries under the Workmen's Compensation Act, here-in-after called the said Act. If such compensation is paid by the State as Principal employer under Sub Section (1) of section 12 of the said Act, on behalf of the Contractor, it shall be recoverable by the State from the Contractor under Sub Section (2) of the said section. Such compensation shall be recovered in the manner laid down in clause 1 of the Conditions of Contract.

Note: All contracts with Government shall require registration of workers under the building & other Construction Workers (Regulation of Employment & Conditions of Services) Act, 1996 and extension of benefit to such workers under the Act. Deduction of cess at source will be made as per provisions of the said Act, in force from time to time.

Clause 32: Withdrawal of work from the Contractor

If the Engineer-in-charge shall at any time and for any reasons, whatever, including inability to maintain prorate progress, think any portion of the work should not be executed or should be withdrawn from the Contractor, he may, by notice in writing to that effect, require the Contractor not to execute the portion of the work specified in the notice, or may withdraw from the Contractor the portion of work, so specified, and the Contractor shall not be entitled to any compensation, by reason of such portion of work having been withdrawn from him. The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work at the cost of the original contractor, without prejudice to his rights under clause 2. He shall also be competent to levy compensation for delay in progress. The recovery of excess cost shall be made from next available running bill or any other claim and shall not be deferred.

Clause 33:

The Contract includes clearance, leveling and dressing of the site within a distance of 15 meters of the building on all sides except where the building adjoins another building.

Clause 34: Protect works

The Contractor shall arrange to protect, at his own cost, in an adequate manner, all cut stone work and other work, requiring protection and to maintain such protection, as long as work is

in progress. He shall remove and replace this protection, as required by the Engineer-in-Charge, from time to time. Any damage to the work, so protected, no matter how it may be caused, shall be made good by the Contractor free of cost. All templates, forms, moulds, centering, false works and models, which in the opinion of the Engineer-in-Charge, are necessary for the proper and workman like execution of the work, shall be provided by the Contractor free of cost.

Clause 35: Contractor liable for settlement of claims caused by his delays

If the progress of the work has fallen so much in arrears as to prevent other contractors on the work, from carrying out their part of the work within the stipulated time, he will be liable for the settlement of any claim, put in by any of these contractors for the expenses of keeping their labour unemployed, to the extent considered reasonable by the Engineer-in-Charge.

Clause 36A:

The liability, if any, on account of quarry fees, royalties, Octroi and any other taxes, cess and duties in respect of materials actually consumed on public work, shall be borne by the Contractor.

Clause 36B:

The cost of all water connections, necessary for the execution of work, and the cost of water consumed and hire charges of meters and the cost of electricity consumed in connection with the execution of work, shall be paid by the Contractor, except where otherwise specifically indicated.

Clause 36C: Payment of Sales Tax, and any other Taxes

Royalty or other tax on materials, issued in the process of fulfilling contract, payable to the Government under rules in force, will be paid by the Contractor himself.

Clause 36D:

In respect of goods and materials procured by the Contractor, for use in works under the contract, sales tax will be paid by the Contractor himself. But in respect of all such goods manufactured and supplied by the Contractor and works executed under the contract, the responsibility of payment of sales tax would be that of the Engineer-in-charge.

Clause 37: Refund of Security Deposit

The Security Deposit will be refunded after the expiry of the period, as prescribed below: -

In case of contracts relating to hiring of trucks and other T&P, transportation including loading, unloading of materials, the amount of Security Deposit is refundable along with the final bill.

Supplies of material: As per provisions of G.F.& A.R.

Ordinary repairs: 3 months after completion of the work provided the final bill has been paid.

Original works/special repair works: Security Deposit will be refunded six months after completion, or expiry of one full rainy season, or after expiry of defect liability period as defined in the special condition of agreement, whichever is later provided the final bill has been paid.

In case of PWD original works/special repairs works costing more than Rs. 10.00 Lacs, partial amount of Security Deposit will be refunded during the defect liability period @ 10% of SD amount after lapse of one year of completion and thereafter 10% of original amount of SD at the end of each subsequent year. The remaining amount of SD be refunded after the expiry of Defect Liability period.

Clause 38: Fair Wage Clause

The Contractor shall pay not less than fair wages/minimum wages to labourers engaged by him on the work as revised from time to time by the Government, but the Government shall not be liable to pay anything extra for it except as stipulated in price escalation clause (clause 45) of the agreement.

Explanation: “Fair Wage” means minimum wages for time or piece work, fixed or revised, by the State Government under Minimum Wages Act, 1948.

The Contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wages to labourers indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work as if the labourers have been immediately or directly employed by him.

In respect of all labourers immediately or directly employed on the work, for the purpose of the Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with the Public Works Department Contract's Labour Regulations made, or that may be made by the Government, from time to time, in regard to payment of wages, wages period, deductions from wages, recovery of wages not paid, and unauthorized deductions, maintenance of wages register, wage card, publication or scale of wages and other terms of employment, inspection and submission of periodical returns and other matters of a like nature.

The Engineer-in-charge shall have right to deduct from the money due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers, by reasons of non-fulfillment of the conditions of the contract, for the benefit of the worker or workers, non- payment of wages or of deductions made therefrom, which are not justified by the terms of the contract, or as a result of non-observance of the aforesaid regulations.

Vis-a-Vis the Government of Rajasthan, the Contractor shall be primarily liable for all payments to be made and for the observance of the regulations aforesaid, without prejudice to his right to claim indemnity from his sub- contractors.

The regulations, aforesaid, shall be deemed to be part of this contract and any breach, thereof, shall be deemed to be breach of the Contractor

Clause 39 A	
Requirement of technical representative(s) and recovery rate	

S. N.	Minimum Qualification of Technical Representative	Designation of Technical Staff	Minimum experience (Years)	Number (Civil + E&M)	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)		Period of Deployment
					Figures	Words	
1.	Graduate Engineer (Civil Engineering)	Project Manager	20 and having experience of one similar nature of work)	1 no.	Rs. 60,000/- per month	Rs. sixty thousand per month.	Full duration from start of work to final bill payment
2.	Graduate Engineer (Electrical)	Site Engineer	5 or 10 respectively	2+1 nos.	Rs. 25,000/- per month per person	Rs. twenty five thousand per month per person	From start of work to completion of respective component of work
3.	Graduate Engineer (Civil / Electrical Engineering)	Quality Engineer (Civil & Electrical)	8	1+1 nos.	Rs. 25,000/- per month per person	Rs. twenty five thousand per month per person	-do-
4.	Diploma Engineer (Mechanical Engineering)	Diploma Engineer	8	1	Rs.15,000/- per month per person	Rs. fifteen thousand per month per person	-do-
5	Graduate Engineer (Civil / Electrical Engineering)	Project Planning/Billing Engineer	6	1+1 nos.	Rs. 20,000/- per month per person	Rs. twenty thousand per month per person	Full duration from start of work to final bill payment
6	Graduate Engineer (B. Arch)	Architect	5	1	Rs. 40,000/- per month per person	Rs. Forty Thousand per month per person	-do-
7	Interior Designer	Interior Designer	5	1	Rs. 25,000/- per month per person	Rs. twenty five thousand per month per person	-do-
8	HVAC Specialist	Electrical	5	1	Rs. 20,000/- per month per person	Rs. twenty thousand per month per person	-do-

Diploma holder with minimum 10 years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Degree of deployed Engineer should be corresponding to his discipline of work involved.

Clause 39 B:

The Contractor shall comply with the provisions of the Apprenticeship Act, 1961, and the Rules and Orders issued, thereunder, from time to time. If he fails to do so, his failure will be a breach of contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

Clause 40: Safety code

The Contractor shall follow the safety code (s) of the department and as specified in special conditions of contract. The contractor will take adequate precautions to avoid accidents, occupational illness with least disturbance to the environment, adjoining road users and traffic.

Clause 41: Near Relatives barred from tendering

The Contractor shall not be permitted to tender for works in Circle, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the Superintending Engineer and Assistant Engineer (both inclusive). He shall also intimate the names of persons, who are working with him in any capacity, or are subsequently employed by him and who are near relatives to any gazetted officer in the Organization/Department. Any breach of this condition by the Contractor would render him liable to be removed from the approved list of contractors of the Department. If such facts is noticed (a) before sanction of tender, his offer shall be declared invalid and earnest money shall be forfeited, (b) after sanction of the tender then the tender sanctioning authority may at his discretion forfeit his earnest money, security deposit and enlistment deposit and work/remaining work may allot to any registered contractor on the same rates as per rules.

Note: By the term "near relative" is meant wife, husband, parents, and grand-parents, children and grandchildren, brothers and sisters, uncles and cousins and their corresponding in-laws.

Clause 42: Retired Gazetted Officers barred for 2 years

No Engineer of Gazetted rank or other Gazetted officer, employed in Engineering or Administrative duties in an Engineering Department of the Government of Rajasthan, is allowed to work as a Contractor for a period of 2 years of his retirement from Government service without the previous permission of Government of Rajasthan. This contract is liable to be cancelled, if either the Contractor or any of his employee is found, at any time, to be such a person, who had not obtained the permission of Government, as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

Clause 43: Quality Control

The Government shall have right to exercise proper Quality Control measures. The Contractor shall provide all assistance to conduct such tests.

Clause 43 A:

The work (whether fully constructed or not) and all materials, machines, tools and plant, scaffolding, temporary buildings and other things connected therewith, shall be at the risk of the contractor until the work has been delivered to the Engineer-in-charge, and a certificate from him, to the effect, obtained.

Clause 44: Death of Contractor

Without prejudice to any of the rights or remedies under the contract, if the Contractor dies, the legal heirs of the Contractor or the Chief Engineer or duly authorized Engineer shall have the option of terminating the contract without any compensation.

Clause 45: Price Variation Clause: Deleted

No Price variation will be paid in this EPC contract.

Clause 46: Force-Majeure

Neither party shall be liable to each other, for any loss or damage, occasioned by or arising out of acts of God such as unprecedented floods, volcanic eruptions, earthquake or other invasion of nature and other acts.

Clause 47: General Discrepancies and Errors

In case of percentage rate tenders, if there is any typographical or clerical error in the rates shown by Department in the "G" Schedule, the rates as given in the Basic Schedule of Rates of the Department for the area shall be taken as correct.

Clause 48: Post payment Audit

The JDA shall have right to cause an audit and technical examination of the works, and the final bills of the contractor, including all supporting vouchers, abstracts, etc., to be made within 2 years after payment of the final bill, and if, as a result of such audit and technical examination, any sum is found to have been over paid in respect of any work done by the Contractor under the contract, or any work claimed by him to have been done by him under the Contract and found not to have been executed or executed below specifications, the Contractor shall be liable to refund the amount of over payment, and it shall be lawful for Department to recover the same from him in the manner prescribed in Clause 50 or in any other manner legally permissible, and if it is found that the Contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under- payment shall be duly paid by the Government to the Contractor.

Clause 48B: Check Measurements

The department reserves to itself, the right to prescribe a scale of check measurement of work, in general, or specific scale for specific works, or by other special orders (about which the decision of the department shall be final). Checking of measurement by superior officer shall supersede measurements by the subordinate officer, and the former will become the basis of the payment. Any over/excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion and the defect removal period specified elsewhere in this contract, shall be recoverable from the Contractor, as any other dues payable to the Government.

Clause 49: Dismantled materials

The Contractor, in course of the work, should understand that all materials e.g. stone, bricks, steel and other materials obtainable in the work by dismantling etc. will be considered as the property of the Government and will be disposed off to the best advantage of the Government, as per directions, of the Engineer-in-charge.

Clause 50: Recovery from Contractors

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the contract, the Department shall be entitled to recover such sum by appropriating, in part or whole of the Security Deposit, Security Deposit at the time of enlistment of the Contractor. In the event of the security being insufficient, or if no security has been taken, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum, then due or which at any time, thereafter, may become due to the Contractor, under this or any other contract with the Governor of Rajasthan. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Department on demand the balance remaining dues. The department shall, further, have the right to effect such recoveries under Public Demand Recovery Act.

Clause 51: Jurisdiction of Court

In the event of any dispute arising between the parties hereto, in respect of any of the matters comprised in this agreement, the same shall be settled by a competent Court having jurisdiction over the place, where agreement is executed and by no other court, after completion of proceedings under Clause 23 of this Contract.

SECTION VB

SPECIAL CONDITION OF CONTRACT

SPECIAL CONDITIONS

SCHEDULE 'H'

1. Use of Bitumen mixture Tar mechanical lime grinder, cement concrete mixer & vibrator is essential for the work. Which shall have to be arranged by the contractor at his own level/cost?
2. The contractor shall follow the contractor labour regulation and abolition Act 1970 & Rule 1971.
3. The JDA shall have right to cause on audit and technical examination of the work and the final bills of the contractor including all supporting vouchers, abstract etc. to be made within two years after payment of the final bills and if as a result such audit any amount is found to have been over paid/excess in respect of any work done by the contractor under the contract or any work claimed by him to have been done under this contract and found not to have been executed the contractor shall be liable to refund such amount and it shall be lawful ;for the JDA to recover such sum from him in ;the manner prescribed in special condition no. 8 or any other manner legally permissible and if it is found that the contractor was paid less then that was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be paid by the JDA to the contractor.
4. The contractor shall not work after the sunset and before sunrise without specific permission of the EIC.
5. Whenever any claim against the contractor for the payment of a sum of money arises out or under the contracts, the JDA shall be entered to recover the sum by appropriating in part or whole of the security deposit of the contractor. In the event of the security being insufficient or if no security has been taken from the contractor then the balance of the total sum recoverable as the case may shall be deducted from any sum then due or which a any time there contract with the JDA should this sum be sufficient to recover the full amount recoverable, the contractor shall pay to JDA on demand the balance remaining due. The JDA shall further have the right to effect such recoveries under P.D.R. Act.
6. The rate quoted by the contractor shall remain valid for a period of 4(four) months from the date of submission of bids.
7. By submission of this tender the contractor agree to abide with all printed conditions provided in the PWD manual from 64 (Chapter 3-para 36) and subsequent modification.
8. No conditions are to be added by the contractor and conditional tender is liable to be rejected.
9. All transaction in the execution of this work and this tender will be liable to sale-tax vide section 2(B) read with sub clause (4) Sale-tax Rule, 1954.
10. If any tenderer withdraws his tender prior to expiry of said validity period given at S.No. 6 or mutually extended prior or makes modifications in the rates, terms and conditions of the tender within the said period which are not acceptable to the department or fails to commence the work in the specified period, fails to execute the agreement the department shall without prejudice to any, other right or remedy, be at liberty to forfeit the amount of Bid Security (EMD) given in any form absolutely. If any contractor, who having submitted a tender does not execute the agreement or start the work or dose not complete the work and the work has to be put to retendering, he shall stand debarred for six months from

- participating of tendering in JDA in addition to forfeiture of Bid Security (EMD) / Security Deposit and other action under agreement.
11. The contractor shall arrange his own machinery required for the work such as Bitumen Mixer, Hot Mix plants and paver road roller, Tar boiler, sprayer etc.
 12. The contractor shall arrange his own storage tanks upto 10 Tones capacity for storing bulk bitumen wherever supplied by the department.
 13. Rules regarding enlistment of contractors provide that work upto five times limit for which they are qualified for tendering can be allotted to them Therefore, before tender the contractors will keep this in mind, and submit the details of work. Tenders with incomplete or incorrect information are liable to be rejected.
 14. Any material not conforming to the specifications collected at site shall have to be removed by the contractor within a period of 3 days of the instructions, issued by the Engineer-In-charge in writing. Failing which, such material shall be removed by the Engineer-In-charge at risk and the contractor after expiry of 3 days period.
 15. The material collected at site and paid provisionally shall remain under the watch and ward of the contractor till it is consumed, fully on the work.
 16. The rates provided in tender documents are inclusive of all Taxes royalty.
 17. For paver work at least 3 road rollers shall be simultaneously deployed.
 18. Bitumen for tack coat or any other purposes, shall be applied only by a bitumen sprayer of a mechanical pressure.
 19. No extra lead of earth/material shall be paid over and above as specified in 'G' schedule. Source/borrow pit area for earth shall have to be arranged by the Contractor at his own cost.
 20. Undersigned has full right to reject any or all tenders without given any reasons.
 21. Mortar of Masonry work and lean concrete will be permitted mixer with hopper.
 22. As per Supreme Court decision "All contracts with Governments shall require registration of workers under the building and other construction workers (Regulation of Employment and Conditions of Service) Act, 1996 and extension of benefits to such workers under the act."
 23. Special Conditions of Contract regarding Defect Liability Period (DLP) for Roads works costing Rs. 25.00 lacs and more shall be applicable.
 24. The tender are required to submit copy of their enlistment as contractor.
 25. Conditions of RPWA-100 will be mandatory & acceptable to the contractor.
 26. Any tender received with unattested cutting/overwriting in rates shall be rejected and such bidder will be debarred from tendering for three months in JDA.
 27. All the provisions of THE RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and Rules, 2013 will be applicable. If there is any contradictions in existing special conditions and provisions of THE RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and RULES, 2013, provisions of THE RAJASTHAN TRANSPARENCY IN PUBLIC PROCUREMENT ACT, 2012 and RULES 2013 shall be applicable.
 28. The Contractor will have to install display boards at site of work as directed by Engineer in charge. Failing which penalty of Rs. 5000.00 per day will be imposed.
 29. As per order no D-352, dated 29.08.2018, the last date of bid submission is considered a key date for deciding the base indexes.

30. For mix delayed period decision on price variation shall be applicable as per order no D-352, dated 29.08.2018 (Enclosed at page no 166-167)

**Signature of Contractor
with full address & Mobile No.**

**Executive Engineer (Project -II)
JDA, Jaipur.**

RTTP Annexure A: Compliance with the Code of Integrity and No Conflict of Interest

- (a) Any person participating in a procurement process shall-
- (b) Not offer any bribe, reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process;
- (c) Not misrepresent or omit that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation;
- (d) Not indulge in any collusion, Bid rigging or anticompetitive behavior to impair the transparency, fairness and progress of the procurement process;
- (e) Not misuse any information shared between the procuring entity and the bidders with an intent to gain unfair advantage in the procurement process;
- (f) Not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process;
- (g) Not obstruct any investigation or audit of a procurement process;
- (h) Disclose conflict of interest, if any; and
- (i) Disclose any previous transgressions with any entity in India or any other country during the last three years or any debarment by any other procuring entity.

Conflict of interest:-

The Bidder participating in a bidding process must not have a Conflict of Interest.

A Conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

(i) A bidder may be considered to be in conflict of interest with one or more parties in the bidding process if, including but not limited to:

- (a) Have controlling partners/shareholders in common; or
- (b) Receive or have received any direct or indirect subsidy from any of them; or
- (c) Have the same legal representative for purposes of the bid; or
- (d) have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another bidder, or influence the decisions of the procuring Entity regarding the bidding process; or
- (e) The bidder participates in more than one bid in a bidding process. Participation by a bidder in more than one bid will result in the disqualification of all bids in which the bidder is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a bidder, in more than one bid; or
- (f) the bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods, works or services that are the subject of the Bid; or
- (g) Bidder or any of its affiliates has been hired (or proposed to be hired) by the procuring entity as engineer-in-charge/consultant for the contract.

Signature of Bidder
with full address & Mobile No.

RTTP Annexure B: Declaration by the Bidder regarding Qualifications

Declaration by the Bidder

In relation to my/our Bid submitted to for procurement of in response to their Notice inviting Bids No.....Dated.....I/we hereby declare under Section 7 of Rajasthan Transparency in Public Procurement Act, 2012 that :

1. I/we possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entry;
2. I/we have fulfilled my/our obligation to pay such of the taxes payable to the union and the state government or any local authority as specified in the Bidding Document.
3. I/we are not insolvent, in receivership, bankrupt or being wound up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended and not the subject of legal proceedings for any of the foregoing reasons;
4. I/we do not have, and our directors and officers not have, been convicted of any criminal offence related to my/our professional conduct or the making of false statements or misrepresentations as to my/our qualifications to enter into a procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
5. I/we do not have a conflict of interest as specified in the Act, Rules and the Bidding Document, which materially affects fair competition;

Date :

Signature of bidder

Place :

Name :

Designation :

Address :

RTTP Annexure C: Grievance Redressal during Procurement Process

The designation and address of the First Appellate Authority is Executive Committee (EC), JDA, The designation and address of the Second Appellate Authority is **A.C.S./P.S., UDH, Govt. of Rajasthan.**

(1) Filing an appeal:-

- a) if any bidder or prospective bidder is aggrieved that any decision, action or omission of the procuring entity is in contravention to the provisions of the Act or the rules or the guidelines issued there under, he may file an appeal to First Appellate authority, as specified in the Bidding document within a period of ten days from the date of such decision or action, omission, as the case may be, clearly giving the specific ground or grounds on which he feels aggrieved:
 - b) Provided that after the declaration of a bidder as successful the appeal may be filed only by a bidder who has participated in procurement proceedings:
 - c) Provided further that in case a procuring entity evaluates the technical bids before the opening of the financial bids, an appeal related to the matter of financial bids may be filed only by a bidder whose technical bid is found to be acceptable.
- (2)** The officer to whom an appeal is filed under Para (1) shall deal with the appeal as expeditiously as possible and shall endeavor to dispose it of within thirty days from the date of the appeal.
- (3)** If the officer designated under Para (1) fails to dispose of the appeal filed within the period specified in Para (2), or if the bidder or prospective bidder or the procuring entity is aggrieved by the order passed by the first appellate authority, the bidder or prospective bidder or the procuring entity, as the case may be, may file a second appeal to second appellate authority specified in the bidding document in this behalf within fifteen days from the expiry of the period specified in Para (2) or of the date of receipt of the order passed by the first appellate authority, as the case may be.

(2) Appeals not to lie in certain cases:-

No appeal shall lie against any decision of the procuring entity relating to the following matters, namely:-

- (a) Determination of need of procurement
- (b) Provisions limiting participation of bidders in the bid process
- (c) The decision of whether or not to enter into negotiations
- (d) Cancellation of a procurement process
- (e) Applicability of the provisions of confidentiality

(3) Form of Appeals:-

- a) An appeal under Para (1) or (3) above shall be in the annexed form along with as many copies as there are respondents in the appeal.
- b) Every appeal shall be accompanied by an order appealed against, if any, affidavit verifying the facts stated in the appeal and proof of payment of fee,
- c) Every appeal may be presented to first appellate authority or second appellate authority, as the case may be, in person or through registered post or authorized representative.

(4) Fee for filing Appeal:-

- (a) Fee for first appeal shall be rupees two thousand five hundred and for second appeal shall be rupees ten thousand, which shall be non-refundable.
- (b) The fee shall be paid in the form of bank demand draft or banker's cheque of a scheduled bank in India payable in the name of appellate authority concerned.
- (5) Procedure for disposal of Appeal:-**
 - (a) The first appellate authority or second appellate authority as the case may be, upon filing of appeal, shall issue notice accompanied by copy of appeal, affidavit and documents, if any, to the respondents and fix date of hearing
 - (b) On the date fixed for hearing, the first appellate authority or second appellate authority, as the case may be shall-
 - (i) Hear all the parties to appeal present before him; and
 - (ii) Peruse or inspect documents, relevant records or copies thereof relating to the matter.
 - (c) After hearing the parties, perusal or inspection of documents and relevant records or copies thereof relating to the matter, the appellate authority concerned shall pass an order in writing and provide the copy of order to the parties to appeal free of cost.
 - (d) The order passed under sub-clause (c) above shall also be placed on the state public procurement portal.

Date :

Signature of bidder

Place :

Name :

Designation :

Address :

FORM No. 1
[see rule 83]
Memorandum of Appeal under the Rajasthan
Transparency in Public procurement Act, 2012

Appeal No.....of Before
the.....(First/Second Appellate authority)

- 1- Particulars of appellant :
 (i) Name of the appellant :
 (ii) Official address, if any:
 (iii) Residential address :
- 2- Name and address of the respondent(s):
 (i)
 (ii)
 (iii)
- 3- Number and date of the order appealed
 against and name and designation of the
 office/authority who passed the order
 (enclose copy), or a statement of a decision,
 action or omission of the procuring Entity
 in contravention to the provisions of the Act
 by which the appellant is aggrieved:
- 4- If the Appellant propose to be represented by
 a representative the name and postal address
 of the representative:
- 5- Number of affidavits and documents enclosed
 with the appeal:
- 6- Grounds of appeal :
 (Supported by an affidavit)
- 7- Prayer :

Place :

Date :

Appellant's Signature

RTPP Annexure D: Additional Conditions of Contract

1. Correction of arithmetical errors

Provided that a financial bid is substantially responsive, the procuring entity will correct arithmetical errors during evaluation of financial Bids on the following basis:

- i. if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the procuring entity there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;
- ii. (ii) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- iii. (iii) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.

If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be disqualified and its bid security shall be forfeited or its bid securing declaration shall be executed.

2. Procuring Entity's Right to Vary quantities.

- (i) At the time of award of contract, the quantity of goods, works or services originally specified in the bidding documents may be increased or decreased, by a specified percentage, but such increase or decrease shall not exceed twenty percent, of the quantity specified in the bidding documents. It shall be without any change in the unit prices or other terms and conditions of the bid and the conditions of contract.
- (ii) If the Procuring entity does not procure any subject matter of procurement or procures less than the quantity specified in the bidding document due to change circumstances, the bidder shall not be entitled to any claim or compensation except otherwise provide in the conditions of contract.
- (iii) In case of procurement of goods or services, additional quantity may be procured by placing a repeat order on the rates and conditions of the original order. However, the additional quantity shall not be more than 25% of the value of goods of the original contract and shall be within one month from the date of expiry of last supply. If the supplier fails to do so, the procuring entity shall be free to arrange for the balance supply by limited bidding or otherwise and the extra cost incurred shall be recovered from the supplier.

3. Dividing quantities among more than one bidder at the time of award (In case of procurement of Goods):-

As a general rule all the quantities of the subject matter of procurement shall be procured from the Bidder, whose Bid accepted. However, when it is considered that the quantity of the subject matter of procurement to be procured is very large and it may not be in the capacity of the Bidder, whose Bid is accepted, to deliver the entire quantity or when it is considered that the subject matter of procurement to be procured is of critical and vital nature, then in such cases, the quantity may be divided between the Bidder, whose Bid is accepted and the second lowest Bidder or even more Bidder in that order, in a fair, transparent and equitable manner at the rates of the Bidder, whose Bid is accepted.

Special Conditions of Contract regarding Defect Liability Period (DLP)

Table-I

S.No.	Type of work	DLP Period
1	Building work	
	(i) Work pertaining to Interior works, Fixed and movable furniture ,sanitary works electrical works, Joinery works and painting works.	5 Years
2	Sound system, HVAC, Air Condition in Force Ventilation, Fire Fighting, Generator etc.	5 Years

Note: DLP for all the components of the work under this project shall be 5 years.

2. General

2.1 Inspection of works during Defect Liability Period

2.1.1 The contracting agency shall undertake joint detailed inspection along with Engineer-in-charge/A.En., at once in three months in case of all Drain works. The Engineer-in-charge can reduce this frequency in case of emergency. The Contracting agency shall forward to the Engineer-in-charge the record of inspection and rectification immediately after the joint inspection. The Contracting agency shall pay particulars attention on those Drain sections, which are likely to be damaged during rainy season.

2.1.2 One register has to be maintained by every A.E.n for recording the inspection details of works in his jurisdiction under defect liability period.

2.2 Conditions regarding Security Deposit

2.2.1 Security for DLP-

The contracting agency shall have to furnish security deposit (SD)/Performance Security in the form of Bank Guarantee in favor of Secretary JDA, Jaipur valid from the actual date of completion, which shall be assigned by the Engineer-in-charge.

2.2.2 Refund of SD (Performance Guaranty)–

The release of SD amount shall be as following table:-

S.No.	Released SD DLP period	5th year
1	At the end of 1 year	10 %
2	At the end of 2 Years	10 %
3	At the end of 3 Years	10 %
4	At the end of 4 Years	20 %
5	At the end of DLP (5 Years)	50 %

Various conditions for managing DLP are as under:-

- (i) During DLP period if contractor fails to repair any work even after issue of 7 days written notice, same work shall be got executed by respective Executive Engineer at the contractor's risk and cost and the double of actual expenditure shall be recovered from his performance security/security deposit. This process shall be applicable throughout the

DLP period. In case of failure of any obligation under part of contractor during DLP should be debarred and blacklisted from JDA for three years as per RTPP Rule 2012 and 2013 where he defaults twice in a single agreement or in two different works.

- (ii) Quarterly inspection as per rules shall be carried out and DLP registers shall be maintained by respective Executive Engineers to monitor the DLP repairs.
- (iii) Special and regular inspection shall also be carried out as per order no. JDA/Ex.En & TA to DE-I/ 2014-15/D-223 dated 12.03.2015 and order no. SE (PMGSY) CIRCULAR 2006/D-115 dated 04.05.2006 point no. 3
- (iv) In case JDA feels to take up work on any existing DLP road due to any reason, following procedure should be adopted.

- (a) At the time of withdrawal total liability of repairs as per DLP conditions to be carried out and contractor shall be asked to complete the same. After completion of assessed repairs DLP period shall be released after deduction amt. as per table below.

DLP period	% recovery on withdrawal of DLP on work order amt.	1 Year	2 Year	3 Year	4 Year	5 Year
		9.00	7.88	6.45	4.62	2.47

Note :- Calculation is to be done on quarterly basis.

- (b) In case Contractor fails to carry out these repairs, same shall be carried out at his risk and cost. If the total amt. of such repairs works out to be more than total retained amt. of SD, same shall be recovered from other works and as per PDR rules. The amount as per Table-III is also to be deducted in addition to this amount.
- (c) Based upon type of work, DLP conditions for works to be carried out during DLP period with their frequency of respective type of work shall be prepared by respective SE's after approval of these periods.

2.2.3 Force Majeure

The defect arises due to earthquake, cyclone, and natural calamities shall not be the responsibly of contracting agency.

Signature of Contractor

With Full Address

Executive Engineer (Project-II)

JDA, Jaipur.

The following Particular Conditions of Contract shall complement, amend, and supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC

Definitions

1. The Intended Completion Date will be 18 Months from Start Date followed by 5 Years (60 months) of DLP.

The **Start Date** is the date as specified in the work order. This is the date when the Contractor can commence work on the Contract, but does not necessarily coincide with Possession Date of all the locations of Site.

2. Interpretation

Sectional Completion will be not allowed.

3. Language and Law

The law which shall govern the conduct of the Contract and according to which the Contract shall be construed is that in force in the State of Rajasthan, India. The language of the contract shall be in English.

4. Communications

Any notification under this Contract shall be served on the party concerned when received by telex, hand delivery, courier delivery, or registered letter at the addresses listed in the Contract Data Any notification under this Contract shall be served at the addresses provided below:

Address of the Contractor:

Name: _____

Address: _____

Address:

Executive Engineer (Project-II)
Jaipur Development Authority

Room No 126, First Floor, CCC Building
Ram Kishor Vyas Bhawan, Indira Circle,
Jawahar Lal Nehru Marg, Jaipur-302004

6. Insurance

The minimum amount of Third-Party Liability insurance cover shall be *Rs 10,00,000 (Rupees ten Lakhs only)* per occurrence or event, with the number of occurrences not less than four. The Contractor shall promptly notify the Engineer of each claim made under the Third-Party Liability coverage, and shall renew the Third-Party Insurance after each such occurrence in order to maintain the number of covered occurrences at not less than four.

The minimum coverage against damage to the Works and materials during construction shall be *Rs. 5,00,000 (Rupees Five Lakhs only)*.

7. Possession of Site

The employer will give possession of the sites as elaborated in the Notice to Proceed on the Date of Start as mentioned in NTP. The contractor will not be entitled to any delay or compensation event unless his work as per the agreed "Schedule of Work" is actually held up because of delay in the Employer's hand over of the site to the contractor. Refer Section V, Work Requirements for further details.

8. The work program shall be given in Inception Report submitted by the Selected Bidder and the same shall be final and binding, once approved by the Engineer. The Contractor shall submit the detailed method statement defining Contractor's methodology for implementation backed with his proposal for equipment planning & deployment duly supported with broad output calculation. The Drawings for any particular activity shall be issued to the contractor at least 30 days in advance of the schedule date of the start of the activity as per the approved program.
9. The Contractor shall provide an updated Work Program by the last day of each Month, which shall clearly demonstrate the actual progress achieved on each activity, the effect of the progress achieved on the timing of the remaining work, and the proposed changes in activities that will enable the Contractor to complete the Works within the Intended Completion Date. In case the Contractor fails to submit an updated Work Program within this time limit, the Engineer will be entitled to withhold an amount of Rs. 1,00,000/- (Rupees One lakh only) or 1% of the Contract Value (Whichever is more) from the next payment certificate, and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted.
- 10.1 If in the opinion of the Engineer, the work on site is not progressing satisfactorily in accordance with the mutually agreed "Work Program" and the delay is likely to affect the overall completion of the work within the intended date of completion, he may by a written notice to the Contractor ask him to expedite the works within 15 days suitably to make for deficiencies.
- 10.2 If the contractor fails to take appropriate action in time in pursuance of 10.1, the Engineer may by another notice inform him the components of work that will be carried out by him through another agency in parallel to the other activities being carried out by the contractor at his cost with a view of expediting the works and reducing delays. The value of the work so carried out will be credited to the contractor's account, but he will not be responsible for the quality of the said work. The Engineer will recover the cost spent plus 5% for supervision charges from the next bill or

If the contractor fails to take appropriate action in time in pursuance of 10.1, the Engineer may withhold 25% amount of the delayed part of the work from the next running bills, till the contractor achieves the progress as per the agreed Work Plan.

If authority still feels the slow progress of the project then authority is free to make payments to the eligible vendors of materials and labours and get the work executed without consent of the contractor. However the contractor will be responsible for the whole project.

10.3 In addition to the Updated Program, Monthly updated progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies in the first week of every calendar month. Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works. Each report shall include:

- (a) Photographs and detailed descriptions of progress.
- (b) charts showing the status of Construction Documents, purchase orders, manufacture and construction;
- (c) records of personnel and Contractor's Equipment on Site;
- (d) copies of quality assurance documents, test results and certificates of Materials;
- (e) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and

Comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome such aspects.

11. Identifying Defects:

Unless otherwise indicated elsewhere in the contract, the Quality Assurance and Quality Control (QA/QC) document, shall be followed. The Contractor, prior to commencement of permanent works at site shall set up his own laboratory with prior notification to the Employer's Representative as defined.

12. Correction of Defects:

- (i) The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins from the physical completion date specified in the completion certificate/ taking over certificate. The Defects Liability Period may be extended for as long as Defects remain to be corrected. The **Defect Liability Period** is 5 year from the date of completion mentioned in the certificate of Completion pursuant to the provisions of Clause 48.

(ii) The Engineer shall certify that all Defects have been corrected. If the Employer considers that

Correction of a Defect is not essential; he can request the Contractor to submit a quotation for the corresponding reduction in the Works Contract Price. If the Employer accepts the quotation, the corresponding change in the Contract Price is a Variation. The Defects Correction Period is 14 (fourteen) Days from the date of receipt by the Contractor of the Employer's notice to correct any Defects in the Works.

(iii) If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer may have the defect corrected by other contractor(s) and recover the cost paid for the same plus 5% for supervision charges from any amount due to the contractor.

13. Contract Price

This is a Lump Sum contract on EPC basis.

The Contract Price includes all duties, taxes, royalty, and fees that may be levied in the accordance with the laws and regulations in force as on the Base Date on the Contactor's equipment, Plant, Materials and supplies to be acquired for the purpose of this Agreement and on the services to be performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement.

14. Payments

14.1 The Contract Price shall not be adjusted, except as stated in Price adjustment as per Clause 44.

14.2 The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.

14.3 Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction, and the remedying of any Defects in the Project.

14.4 All payments under this Agreement shall be made in Indian Rupees.

14.5 No price escalation will be paid under this EPC contract

14.6 The Authority shall make payments to the Contractor as certified by the Engineer on completion of a stage, as specified, and valued in accordance with the proportion of the Contract Price assigned to each item and its stage. Contractor will be paid as per the Payment Schedule prescribed below:

14.7 The bidder will be completed the whole project in all respect including all basic facilities at the stage of run this project.

SCHEDULE OF STAGE PAYMENT

(A)FOR CIVIL WORK

S.N.	Stages of Payment		Breakup of % of Interior and Furnishing Works Value in Contract		Detailed Breakup of %
1.	Development of Interior works in RIC Building				
1.1	All Finishing work		10.0%		
	A.	Completion of Finishing work like AAC Block work, Steel Structure work in the building		10.0%	
	a.	Completion of AAC Block work			3.00%
	b.	Completion of Steel Structure Work			7.00%
1.2	False Ceiling work		13.0%		
1.2.1	Completion of All type of False ceiling work Block wise				
	A.	Completion of A Block Amenities like :		3.0%	
	a.	Exhibition Area			1.0 %
	b.	Convention Hall			1.0 %
	c.	Mini Auditorium			1.0 %
	B.	Completion of B Block Amenities like :		5.0%	
	a.	Central Lobby of Lower Ground Floor			0.50%
	b.	Central Lobby of Ground Floor			0.50%
	c.	Pre-Function area of Convention Hall			0.40%
	d.	Pre-Function area of Mini Auditorium			0.40%
	e.	Pre-Function area of Auditorium			0.40%
	f.	Pre-Function area of Conference Hall			0.40%
	g.	Conference Hall			0.40%
	h.	Multipurpose Hall			0.40%
	i.	Exhibition Area			0.40%
	j.	Lecture Hall			0.40%
	k.	Library			0.40%
	l.	Restaurant			0.40%
	C.	Completion of C Block Amenities like :		4.0%	
	a.	Exhibition Area			0.75%
	b.	Conference Hall			0.75%
	c.	Restaurant with Kitchen			0.75%
	d.	Auditorium Lobby			0.75%
	e.	Auditorium			1.0%

S.N.	Stages of Payment		Breakup of % of Interior and Furnishing Works Value in Contract		Detailed Breakup of %
	D.	In remaining areas like Foyer, Green Rooms, Toilets etc.		1.0%	1.0%
1.3	Acoustic Paneling work		12.0%		
1.3.1	Completion of All type of Acoustic Panelling work in B Block Amenities like :				
	A.	Completion of A Block Amenities like :		3.0%	
	a.	Convention Hall			1.50%
	b.	Mini Auditoriums			1.50%
	B.	Completion of B Block Amenities like :		5.0%	
	a.	Conference Hall			2.0%
	b.	Lecture Hall			1.50%
	c.	Library			1.50%
	C.	Completion of C Block Amenities like :		4.0%	
	a.	Auditorium			2.0%
	b.	Conference Hall			2.0%
1.4	Flooring Work		18.0%		
1.4.1	Completion of All type of Flooring, Skirting, Daddo, Window sills, Jambs Work Block wise Amenities like :				
	A.	Completion of A Block Amenities like :		3.0%	
	a.	Exhibition Area			1.0%
	b.	Convention Hall			1.0%
	c.	Mini Auditorium			1.0%
	B.	Completion of B Block Amenities like :		10.0%	
	a.	Central Lobby of Lower Ground Floor			0.90%
	b.	Central Lobby of Ground Floor			0.90%
	c.	Pre-Function area of Convention Hall			0.90%
	d.	Pre-Function area of Mini Auditorium			0.90%
	e.	Pre-Function area of Auditorium			0.90%
	f.	Pre-Function area of Conference Hall			0.90%
	g.	Conference Hall			0.90%
	h.	Multipurpose Hall			0.90%
	i.	Exhibition Area			0.90%
	j.	Lecture Hall			0.90%
	k.	Library			0.50%
	l.	Restaurant			0.50%
	C.	Completion of C Block Amenities like :		4.00%	

S.N.	Stages of Payment		Breakup of % of Interior and Furnishing Works Value in Contract		Detailed Breakup of %
	a.	Exhibition Area			1.00%
	b.	Conference Hall			1.00%
	c.	Restaurant with Kitchen			0.75%
	d.	Auditorium Lobby			0.75%
	e.	Auditorium			0.50%
	D.	In remaining areas like Foyer, Green Rooms, Toilets etc.		1.0%	1.0%
1.5	Completion of All type of Mural (stone ornamental work) works		6.0%		
	a.	In Auditorium			1.25%
	b.	Pre-Function Area of Auditorium			1.25%
	c.	Pre-Function Area of Conference Hall			1.25%
	d.	Pre-Function Area of Convention Hall			1.25%
	e.	Pre-Function Area of Mini Auditorium & Multipurpose Hall			1.0%
1.6	Providing & Laying of Carpet in all respect.		3.0%		
	a.	Mini Auditorium			1.0%
	b.	Auditorium			1.0%
	c.	Convention Hall			1.0%
1.7	Completion of Wood Work for Stage & Panelling (Arches) & CNC work in all respect.		3.50%	3.50%	
1.8	Completion of Aluminium Work		1.50%	1.50%	
1.9	Completion of All type of Doors, Windows in all respect		3.0%	3.0%	
1.10	Completion of Glass Work		2.50%	2.50%	
1.11	Completion of Stair case & its related work		2.00%	2.00%	
1.12	Completion of Plaster of Paris Work		2.50%	2.50%	
1.13	Completion of Squash Court in all respect.		3.00%	3.00%	
2	Furniture Works				
2.1	Auditorium Chairs		6.0%		
	A.	On Supply of Auditorium Chairs			3.0%
	B.	Installation of Auditorium Chairs in all respect			3.0%
2.2	Remaining furniture like Reception Counters, conference tables, other counters etc		4.0%		
	A.	On Supply of furniture			2.00%
	B.	Installation of furniture in all respect			2.00%

S.N.	Stages of Payment		Breakup of % of Interior and Furnishing Works Value in Contract		Detailed Breakup of %
3.0	Cladding Work (Karauli stone)		2.0%		
	A.	On Supply Karauli Stone			1.00%
	B.	On completion of work in all respect			1.00%
4.0	Heat Resistance Tiles		2.0%		
	A.	On Supply of Tiles			1.00%
	B.	Fixing of tiles in all respect			1.00%
5.0	Restoration of the site & handing over the site		6.0%		
	A.	On completion of all civil work in A Block			2.00%
	B.	On completion of all civil work in B Block			2.00%
	C.	On completion of all civil work in C Block			2.00%

(B) FOR ELECTRICAL WORKS

S.N.	Stages of Payment		Breakup of % of Electrification Works Value in Contract		Detailed Breakup of %
1.	Supply, Installation, Testing & Commissioning of Interior Electrification & Mechanical works				
1.1	Completion of HVAC work		30.0%		
1.1.1	Completion of All type of HVAC work Block wise				
	A.	Completion of A Block Amenities like :		6.0%	
	a.	Exhibition Area			2.0%
	b.	Convention Hall			2.0%
	c.	Mini Auditorium			2.0%
	B.	Completion of B Block Amenities like :		12.0%	
	a.	Central Lobby of Lower Ground Floor			1.0%
	b.	Central Lobby of Ground Floor			1.0%
	c.	Pre-Function area of Convention Hall			1.0%
	d.	Pre-Function area of Mini Auditorium			1.0%
	e.	Pre-Function area of Auditorium			1.0%
	f.	Pre-Function area of Conference Hall			1.0%
	g.	Conference Hall			1.0%
	h.	Multipurpose Hall			1.0%
	i.	Exhibition Area			1.0%
	j.	Lecture Hall			1.0%
	k.	Library			1.0%
	l.	Restaurant			1.0%
	C.	Completion of C Block Amenities like :		9.0%	
	a.	Exhibition Area			1.5%
	b.	Conference Hall			2.25%
	c.	Restaurant with Kitchen			1.5%
	d.	Auditorium Lobby			1.5%
	e.	Auditorium			2.25%
	D.	In remaining areas like Foyer, Green Rooms, Toilets etc.		3.0%	3.0%

S.N.	Stages of Payment		Breakup of % of Electrification Works Value in Contract		Detailed Breakup of %
1.2	Completion of Fire Fighting Work Block Wise		6.0%		
	a.	Completion in Block A			2.0%
	b.	Completion in Block B			2.0%
	c.	Completion in Block C			2.0%
1.3	Completion of Internal Electric wiring & fixtures Work		32.0%		
	A.	Completion in Lower Basement		4.0%	
	B.	Completion in Upper Basement		4.0%	
	C.	Completion of A Block Amenities like :		6.0%	
	a.	Exhibition Area			2.0%
	b.	Convention Hall			2.0%
	c.	Mini Auditorium			2.0%
	D.	Completion of B Block Amenities like :		12.0%	
	a.	Central Lobby of Lower Ground Floor			1.0%
	b.	Central Lobby of Ground Floor			1.0%
	c.	Pre-Function area of Convention Hall			1.0%
	d.	Pre-Function area of Mini Auditorium			1.0%
	e.	Pre-Function area of Auditorium			1.0%
	f.	Pre-Function area of Conference Hall			1.0%
	g.	Conference Hall			1.0%
	h.	Multipurpose Hall			1.0%
	i.	Exhibition Area			1.0%
	j.	Lecture Hall			1.0%
	k.	Library			1.0%
	l.	Restaurant			1.0%
	E.	Completion of C Block Amenities like :		6.0%	
	a.	Exhibition Area			1.5%
	b.	Conference Hall			1.5%
	c.	Restaurant with Kitchen			1.0%
	d.	Auditorium Lobby			1.0%

S.N.	Stages of Payment		Breakup of % of Electrification Works Value in Contract		Detailed Breakup of %
	e.	Auditorium			0.5%
	F.	In remaining areas like Foyer, Green Rooms, Toilets etc.			0.5%
1.4	Completion of Force Ventilation work		5.0%		
	A.	Completion of Lower Basement			2.5%
	B.	Completion of Upper Basement			2.5%
1.5	Completion of Sound And PA System		4.0%		
	A.	Completion of wiring & fitting			2.0%
	B.	Completion of Sound & PA System			2.0%
1.6	Completion of stage lighting in all respect		9.0%		
	A.	Completion of main auditorium			3.0%
	B.	Completion of mini auditoriums			3.0%
	C.	Completion of convention hall			3.0%
1.7	Completion of Conference Audio System With Wireless Mics		4.0%		
	A.	Completion of wiring & fitting			2.0%
	B.	Completion of Conference Audio System with Wireless Mics			2.0%
1.8	Completion of Digital Flush Mount Conference & Board Room System		2.0%		
	A.	Completion of wiring & fitting			1.0%
	B.	Completion of Digital Flush Mount Conference & Board Room System			1.0%
1.9	Completion of Kitchen Furnishing And Equipment		5.0%		
	A.	Completion of wiring & fitting			2.0%
	B.	Completion of Kitchen Furnishing And Equipment			3.0%
1.10	On completion of complete electrical work in all respect		3.0%		3.0%

Note :-

1. Any variations in drawings and designs for the betterment of the project made by consultant with variations upto 2% of contract value no additional cost shall be payable. The assessment of additional work shall be based on prevailing BSRs or market rates.
2. In case of execution of any substitute item, if required to be executed for the betterment of project, the payment of the same shall be made with mutual agreement after proper assessment of rates based on BSR's or Market Rates.

15. Advance Payment

Advances to contractors are as a rule prohibited, and every endeavor should be made to maintain a system under which no payments are made except for work actually done.

Exceptions are, however, permitted in the following cases:

- (a) Cases in which a contractor, whose contract is for finished work, requires an advance on the security of the materials brought to site. Divisional officers may, in such cases, make advances upto an amount not exceeding 75 percent of the current value of the materials (as assessed by themselves according to their character), provided that they are of an imperishable nature and that a formal indenture is drawn up in Form 31 with the contractor under which the Government secure a lien on the materials and are safe-guarded against losses due to the contractor postponing the execution of the work or the shortage or misuse of the materials and against the expense entailed for their proper watch and safe custody. Payment of such advances should be made only on the certificate of an officer, not below the rank of Sub-Divisional officer, that the quantities of materials, upon which the advances are made have actually been brought to site, that the contractor has not previously received any advance on that security and that the materials are all required by the contractor for use on items of work for which rates for finished work have been agreed upon. The officer granting such a certificate will be held personally responsible for any overpayment which may occur in consequence. Recoveries of advances, so made, should not be postponed until the whole of the work entrusted to the contractor is complete. They should be made from this bills for work done as the materials are used, the necessary deductions being made, whenever the items of work, in which they are used are billed for.

Note-1 Divisional Officers are responsible that:-

- i. When secured advances have been made for materials, recoveries are made regularly from the very first payment made for those items of actual work in which such materials have been used.
- ii. No secured advances are made for any materials, unless they are to be used within three months at the most.
- iii. Materials are actually measured in details before making secured advances on them and their value is based on the actual rates for the purpose of determining the percentage at which secured advances on materials should be made.

Note-2 Imperishable materials include Bricks, Rolled Steel Joists, etc. while articles such as Lime, Sand, kankar, etc. are perishable. Coal is, however, excluded from both the categories and no advance is permissible on his article.

- (b) Cases in which, in the interest of works, it is absolutely necessary to make petty advances, in such cases advances upto Rs. 250 may be allowed by subordinates.
- (c) In all other cases, only with the sanction of the Government who may, in exceptional circumstances authorize such advances as may be deemed indispensable, taking the necessary precautions for securing the Government against loss and for preventing the system from becoming general or continuing longer than is absolutely essential. A register in Form RPWA 68 shall be maintained in respect of Advance Payments made in exceptional circumstances with the sanction of the Government.
- (d) Note: The Executive Engineer has full powers to make advance payments to Electric Supply under taking under the Indian Electricity Act, 1910 for execution of works.

18. Completion

- (i) "When whole of the work has been substantially completed and have satisfactory passed any Tests on Completion prescribed by the contractor, the Contractor may give a notice to that effect to the Engineer, with a copy to the Employer, accompanied by a written undertaking to finish with due expedition any outstanding work. The Engineer shall issue a certificate complying completion of the works to the contractor."
- (ii) "If any part of the permanent work has been substantially completed and has satisfactorily passed

any Tests on Completion prescribed by the Contract, the Engineer may issue a Completion Certificate in respect of the part of the Permanent Work before completion of the whole of the Works and, upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in the part of the Permanent Work during the Defects Notice Period." Hence the defect liability period starts on the date on which part/ substantial completion certificate is issued, for that particular part of the permanent work has been substantially completed.

19 Taking Over

"The Employer shall take over the whole works or section of works within Seven (7) days of issuance of Completion Certificate, as per Clause no 52.1 and 52.2."

20. Site Environmental Plan (SEP)

The Contractor should prepare a detailed Site Environmental Plan (SEP) as per the Environmental and Social Management Framework and EMP format attached for location/s identified to be potentially impacted such as but not limited to the work site, base camp. The SEP should include arrangement for disposal of sites for excavated materials, sanitary and other waste, and storage location for fuel, oil and lubricants, facilities for equipment, labour and housing, among others. The SEP should be reviewed and approved prior to construction activities by the Engineer.

21. Safety, Security and Protection of the Environment

(A) General

- i. This section of the Specification sets out limitations on the Contractor's activities

- specifically intended to protect the environment.
- ii. The Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the works and all associated operations on site or off-site are carried out in conformity with statutory and regulatory environmental requirements including those prescribed elsewhere in this document.
 - iii. The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Works. This shall wherever possible be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated.
 - iv. In the event of any spoil, debris, waste or any deleterious substance from the Site being deposited on any adjacent land, the Contractor shall immediately remove all such material and restore the affected area to its original state to the satisfaction of the Engineer. This should be monitored regularly in accordance with the Environmental Management Plan.
 - v. During construction, the area should be to avoid trespassing of animals and people. Unauthorized persons should not be allowed within the construction area.
 - vi. During construction, there should be signs to inform public of on-going work, warning on dangers due to trenches along roads, excavations on different sites.
 - vii. Contact town authorities to arrange for the use of excavated material where possible, such as in construction projects, to raise the level of land prior to construction of roads or buildings, or to fill previously excavated areas.
 - viii. Especially for cleaning, desilting, and dredging of drainages: Contact town authorities to arrange for testing and analysis of sludge/excavated materials for hazardous components. If material are hazardous, coordinate with authorities for approve disposal sites;
 - ix. Prevent generation of dust by removing excavated materials as soon as it is excavated, by loading directly onto trucks and covering with tarpaulins to prevent dust during transportation.
 - x. All excavation should be done in the dry seasons to avoid any impacts on surface water drainage if water collects in any quantity, it will need to be pumped out, and it should be then be donated to neighboring farmers to provide a beneficial use to the communities most affected by this aspect of the work.
 - xi. Plant five (5) trees for every tree to be cut.
 - xii. Consult town authorities to identify any buildings at risk from vibration damage and avoiding use of pneumatic drills or heavy vehicles in the vicinity.
 - xiii. Providing wooden bridges for pedestrians and metal sheets for vehicles to allow access across open trenches where required (including access to houses).
 - xiv. Carefully planning of transportation routes with the municipal authorities to avoid sensitive areas as far as possible, including narrow streets, congested roads, important or fragile buildings and key sites of religious, cultural or tourism importance.
 - xv. Consulting historical and archaeological authorities at both national and state level to obtain an expert assessment of the archaeological potential of the site. Alternate location should be considered if the area is medium or high risk.
 - xvi. Developing a protocol in conducting any excavation work to ensure that any chance finds are recognized and measured are taken to ensure they are protected and conserved this should involve having excavation observed by a person with

- archaeological field training, stopping work immediately to allow further investigation if any finds are suspected; and calling the state archaeological authority if a find is expected and taking any action they acquire ensuring its removal or protection in situ.
- xvii. Living spaces for access between mounds of excavated soil and providing footbridges so that pedestrians can cross open trenches;
 - xviii. Increasing the workforce in these areas to ensure that work is completed quickly;

(B) . Water Quality

- i. The Contractor shall prevent any interference with the supply to or abstraction from, and prevent any pollution of, water resources (including underground percolating water) as a result of the execution of the Works.
- ii. Areas where water is regularly or repetitively used for dust suppression purposes shall be laid to fall to specially constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing.
- iii. All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution.
- iv. The Contractor shall not discharge or deposit any matter arising from the execution of the Works into any waters except with the permission of the Engineer and the regulatory authorities concerned.
- v. The Contractor shall at all times ensure that all existing stream courses and drains within, and adjacent to, the Site are kept safe and free from any debris and any materials arising from the Works.
- vi. The Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the like from pollution as a result of the execution of the Works.

22. Air Quality

- i. The Contractor shall devise and arrange methods of working to minimize dust, gaseous or other air-borne emissions and carry out the Works in such a manner as to minimize adverse impacts on air quality.
- ii. The Contractor shall utilize effective water sprays during delivery manufacture, processing and handling of materials when dust is likely to be created, and to dampen stored materials during dry and windy weather. Stockpiles of friable materials shall be covered with clean tarpaulins, with application of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement, except where this is contrary to the Specification.
- iii. Any vehicle with an open load-carrying area used for transporting potentially dust producing material shall have properly fitting side and tail boards. Materials having the potential to produce dust shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend at least 300 mm over the edges of the side and tail boards.
- iv. In the event that the Contractor is permitted to use gravel or earth roads for haulage, he shall provide suitable measures for dust palliation, if these are, in the opinion of the Engineer, necessary. Such measures may include spraying the road surface with water at regular intervals.

23. Noise

- i. The Contractor shall consider noise as an environmental constraint in his planning and execution of the Works.
- ii. The Contractor shall take all necessary measures so that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any

unnecessary or excessive noise, taking into account applicable environmental requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.

- iii. Using modern vehicles and machinery with standard adaptations to reduce noise and exhaust emissions and ensuring they are maintained to manufacturers' specifications.

24. Control of Wastes

- i. The Contractor shall control the disposal of all forms of waste generated by the construction operations and in all associated activities. No uncontrolled deposition or dumping shall be permitted. Wastes to be controlled shall include, but shall not be limited to, all forms of fuel and engine oils, all types of bitumen, cement, surplus aggregates, gravels, bituminous mixtures, etc. The Contractor shall make specific provision for the proper disposal of these and any other waste products, conforming to local regulations and acceptable to the Engineer.

25. Emergency Response

- i. The Contractor shall plan and provide for remedial measures to be implemented in the event of occurrence of emergencies such as spillages of oil or bitumen or chemicals.
- ii. The Contractor shall provide the Engineer with a statement of the measures he intends to implement in the event of such an emergency which shall include a statement of how he intends to provide personnel adequately trained to implement such measures.
- iii. Should any pollution arise from the Contractor's activities he shall clean up the affected area immediately at his own cost and to the satisfaction of the Engineer, and shall pay full compensation to any affected party.

26 Protection of Trees and Vegetation

The Contractor shall ensure that no trees or shrubs or waterside vegetation are felled or harmed except for those required to be cleared for execution of the Works. The Contractor shall protect trees and vegetation from damage to the satisfaction of the Engineer. No tree shall be removed without the prior approval of the Engineer and any competent authorities. Should the Contractor become aware during the period of the Contract that any tree or trees designated for clearance have cultural or religious significance he shall immediately inform the Engineer and await his instructions before proceeding with clearance. In the event that trees or other vegetation not designated for clearance are damaged or destroyed, they shall be repaired or replaced to the satisfaction of the Engineer, who shall also impose a penalty to twice the commercial value of any timber affected, as assessed by the Engineer.

27. Water Supply and Electric Power

The Contractor shall make his own arrangements at his own expense for water supply and electric power supply for construction, testing and other purposes. Only clean water free from deleterious

28. Fire Prevention

68.1 The Contractor shall take all precautions necessary to ensure that no vegetation along the line of the road outside the area of the permanent works is affected by fires arising from the execution of the Works. The Contractor shall obtain and follow any instructions of the competent authorities with respect to fire hazard when working in the vicinity of gas installations. Should a fire occur in the natural vegetation or plantations adjacent to the road for any reason the Contractor shall immediately suppress it. In the event of any other fire emergency in the vicinity of the Works the Contractor shall render assistance to the civil authorities to the best of his ability. Areas of forest, scrub or plantation damaged by fire considered by the Engineer to have

been initiated by the Contractor's staff or labour shall be replanted and otherwise restored to the satisfaction of the Engineer at the Contractor's expense.

29. Fossils

The Contractor shall make his staff available for briefing on archaeological matters as directed by the Engineer.

30. Clearance of Contractor's Facilities

On or before expiry of the Defects Notice Period the Contractor shall clear away all his temporary facilities including but not limited to offices, camps, storage and holding yards, workshops, crushing and mixing plant, diversion and haul roads so that the land is returned to at least its previous condition and, in the case of agricultural land, potential productivity. Clearance shall include but not be limited to tasks such as the removal of unwanted structures, removal of metallic and concrete debris, removal and disposal of any soil contaminated by diesel, bitumen or other polluting material, ripping to relieve compaction, grading, replacement of topsoil, and turfing and grassing, as appropriate. Where improvements have been made such as land filling or installation of boreholes or construction of boat landings these may be retained subject to the agreement of the landowner. The Employer reserves the right to inspect the site of any facilities established or used by the Contractor in connection with the Works and to undertake any corrective measures necessary to restore the land, and to recover the cost from monies due or to become due to the Contractor.

31. Fair Wages

31.1 The Contractor shall pay not less than fair wage/minimum wages to laborer's engaged by him on the work as revised from time to time by the Government of Rajasthan, but the Government shall not be liable to pay anything extra for it except as stipulated in price adjustment clause (Clause 41) of the Contract.

(Explanation: "Fair wage" means minimum wages for time or piece work, fixed or revised, as established by the State Government under the Minimum Wages Act, 1948.)

31.2 The Contractor shall, notwithstanding the provisions of any Contract to the contrary, cause to be paid fair wages to laborers indirectly engaged on the work, including any labour engaged by his sub-Contractors in connection with the said work, as if the laborers have been immediately or directly employed by him.

31.3 In respect of all laborers, immediately or directly employed on the work, for the purpose of the Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with, the Public Works Department Contract Labour Regulations' made, or that may be made, by the Government, from time to time, in regard to payment of wages, wage period, deductions from wages, recovery of wages not paid, and unauthorized deductions, maintenance of wages register, wage card, publication of scale of wages and other terms of employment, inspection and submission of periodical returns, and all other matters of a like nature.

31.4 The Engineer shall have the right to deduct, from the money due to the Contractor, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reasons of non-fulfillment of the conditions of the Contract for the benefit of the worker or workers, non-payment of wages or of deductions made there from, which are not justified by the terms of the Contract or as a result of non-observance of the aforesaid regulations.

31.5 Vs-à-Vs the Government of Rajasthan the Contractor shall be primarily liable for all payments to be made and for the observance of the regulations aforesaid, without prejudice to his right to claim indemnity from his sub-Contractors.

31.6 The regulations, aforesaid, shall be deemed to be part of this Contract and any breach thereof, shall be deemed to be breach of the Contract.

32. Safety and Accident Prevention Officer

Due precautions shall be taken by the Contractor, at his own cost, to ensure the safety and protection against accidents of all staff and labour engaged on the Works, local residents in the vicinity of the Works, and the public travelling through the Works. The Contractor shall have on his staff on Site a designated officer qualified to promote and maintain safe working practices. This officer shall have authority to issue instructions and shall take protective measures to prevent accidents, including but not limited to the establishment of safe working practices and the training of staff and labour in their implementation.

33. Protective Clothing and Footwear

33.1 The Contractor shall, at his own expense, provide protective clothing and equipment to all staff and labour engaged on the Works to the satisfaction of the Engineer, and on his failure to do so the Employer shall be entitled to provide the same and recover the cost from the Contractor. Such clothing and equipment shall include, at a minimum, protective footwear for workmen undertaking concrete mixing work, protective footwear and gloves for any workmen performing bituminous paving works, protective footwear, clothing, cream, gauntlet-type gloves, hats, safety glasses or goggles and filter masks for workmen undertaking lime stabilisation works, hard hats for workmen engaged on bridge construction, and otherwise as appropriate to the job in hand and to the Engineer's satisfaction.

33.2 Ensuring that all workers are provided with and use appropriate Personal Protective Equipment (PPE), Health and safety training should be conducted for all site personnel; availability of documented procedures to be followed for all site activities; and documentation of work-related accidents;

34. First-Aid Services

The Contractor shall, at his own expense, provide first aid equipment at all camps and work sites to the satisfaction of the Engineer, and shall ensure that at all work sites where 40 or more persons are engaged on the Works there shall at all times be a person qualified in first-aid with access to appropriate first-aid equipment. A first-aid post shall be established at each base camp comprising a suitable room with two beds, washing and examination facilities, appropriate medical supplies, and staffed on a full-time basis by a qualified paramedical attendant.

35. Health and Pests

The Contractor shall at his own expense and throughout the period of the Contract ensure that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements for his staff and labour, and shall comply with all the regulations and requirements of the local health authorities with respect to disease prevention and control. He shall warn his staff and labour of the dangers of communicable diseases including those transmitted by insects, water, faecal/oral contact and sexual activity. The Contractor shall take the precautions necessary to protect all staff and labour employed on the Site from insect nuisance, rats and other pests and minimise the dangers to health and the general nuisance caused by the same. Should malaria or other insect-borne diseases be prevalent in the area, he shall provide his staff and labour with suitable

prophylactics, equip living accommodation with screens and bed-nets, and carry out spraying with approved insecticides, as appropriate and to the Engineer's satisfaction.

36. Disorderly Conduct

The Contractor shall at all times take reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and for the preservation of peace and protection of persons and property in the neighbourhood of the Works against the same. "Disorderly conduct" shall include but not be limited to harvesting of natural resources such as firewood or fish by the Contractor's labour when this is done to the detriment of pre-existing local interests.

37. Records of Labour and Accidents

The Contractor shall maintain full records of numbers, working hours and wages of labour, safety, health and welfare of persons, accidents, and damage to property and make such reports on these matters to the Engineer as he may from time to time prescribe.

38. General

Unless otherwise indicated elsewhere in the Contract, The General Specification for civil works and the Quality Assurance and Quality Control (QAQC) document, as issued by the PMU of RUIDP, shall be followed. The QAQC document of JDA is an integral part of the document and it will be provided with the bid document. A copy of the same shall be made available at the site by the contractor.

39. Site Office for Engineer and Other Supervisory Staff

The Contractor shall arrange to provide office of minimum 100 sq. ft. size as per specification with two tables, four chairs, one steel almirah, sufficient number of display board, telephone etc. fully furnished office accommodation within 15 days from the date of commencement of same and shall become property of the Contractor at the completion of the work. The electrical charges / water charges and all other charges shall be arranged within the area of the work. Approval shall be taken from Engineer prior to making arrangement of the office. The construction of site office and its or maintenance are incidental to the work. The office shall be functional until work is completed. If Engineer found that office arranged by the contractor is not being maintained properly then Engineer has right to deduct a reasonable amount from that payment. In case adequate space is not available for setting up of such office, the Engineer may waive such requirement on being requested by the Contractor, in writing.

40. Field Laboratory

40.1 Within 15 (Fifteen) days from the date of commencement of the work, the Contractor shall arrange to provide a 250 sqft. fully furnished and adequately equipped field laboratory as per Specifications and directions of the Engineer, including maintenance of the same. This shall be removed at the completion of the work. All dismantled items of field laboratory and all equipment shall be property of the Contractor at the completion of the work. The Laboratory shall be functional till the work is completed. If Engineer found that Laboratory arranged by the Contractor is not being maintained properly then Engineer has right to deduct a reasonable amount from payment. The construction of Field Laboratory & its maintenance are incidental to the work. Notwithstanding the above, the Engineer may agree to the Contractor's proposal to use facilities of accredited/ Government laboratories, upon scrutinising the details of such laboratories, submitted by the Contractor. Even in that case also, the Contractor will keep and maintain certain basic equipment at site as mentioned under Section V: Procuring Entity's Requirement.

40.2 The calibration of the laboratory equipments and instruments shall at the initial stage to be certified by agencies approved by the Engineer. Laboratory equipments shall be properly maintained and calibrated throughout the period of the Contract by the Contractor at his own expense. The Contractor shall notify the Engineer in sufficient advance prior to conducting any tests for the materials and work. The Engineer will also inspect the laboratory and the contractor shall provide adequate facilities to the Engineers for his independent verification of the accuracy and adequacy of the facilities.

41. Pre-Construction Inspection, Testing & Review of Data for Materials, Plant & Equipment

41.1 The contractor shall place order for the material and the equipment only after the approval of the Engineer. The Contractor shall submit the detailed drawings for the approved manufacturer and the procedure of submission, review and revision shall be specified herein below.

41.2 The Contractor shall inform the Engineer about the likely dates of manufacturing, testing and dispatching. The Contractor shall notify the Engineer for Inspection and Testing, at least twenty-eight days prior to packing and shipping and shall supply the manufacturer's test results and quality control certificates. The Engineer will decide whether he or his representative will inspect and test the material/ equipment or whether he will approve it on the basis of manufacturer's certificate.

41.3 The inspection and test categories shall be applied prior to delivery of the equipment, of various categories as indicated in the technical specifications for each type of the equipment.

Category A: - The Drawing has to be approved by the Engineer before manufacturing and Testing. The material has to be inspected by the Engineer or by an Inspecting agency approved by the Engineer at the manufacturer's premise before packing and dispatching. The Inspection charges of the agency will be borne by the Employer but the contractor has to pay the inspection charges. The Contractor shall include in their next bill the inspection charges and the same will be reimbursed by the Employer from the provisional Sum. The Contractor shall provide the necessary equipment and facilities for tests and the cost, thereof, shall be borne by the Contractor. In case of failure of any item during third party inspection no charges shall be reimbursed to the contractor for the same.

Category B:- The drawings of the Equipment have to be submitted and to be approved by the Engineer prior to manufacture. The material has to be tested by the manufacturer and the manufacturer's test certificates are to be submitted and approved by the Engineer before dispatching of the Equipment. Notwithstanding the above, the Engineer, after examination of the test certificates, reserves the right to instruct the Contractor for retesting, if required, in the presence of Contractor's representative.

Category C: The material may be manufactured as per standard and delivered to the site.

42. Supply of Colored Record Photographs

The Contractor shall, at his own cost, arrange to take colour photographs at various stages / facets of the work including interesting and novel features of the work as directed by the Engineer and supply two copies of colour record photographs mounted in the albums including negatives with specification and these shall be kept by Employer.

43. Public Awareness / Information Display

The Contractor shall, at his own cost, arrange to provide, erect and maintain necessary display boards/ banners etc. at selection points of project site giving such information as

considered necessary for public awareness/ information/ safety as directed by the Engineer.

44. Contractor's Responsibilities

The contractor shall promptly inform the Employer and the Engineer of any error, omission, fault, or any other defect in the design or drawings or specification for the works, which he discovers when reviewing the contract documents, or in the process of execution of the works. The Engineer will resolve the ambiguity or correct the error and will notify the contractor of the interpretation to be adopted.

45. Services

45.1 Underground and overhead services are likely to be met with during construction. These are to be protected against damage by the Contractor at his own cost.

45.2 The contractor shall be required to carry out removal / shifting of existing utilities at his own cost. The contractor work program shall include this activity. The work shall be carried out under supervision of concerned department. The supervision charges of the line agencies shall be paid by the contractor and shall be reimbursed on actual on submission of receipt.

45.3 In cases of utilities to be shifted by Govt. departments, no amount shall be paid extra for shifting/ co-ordination. The employer would provide full support to contractor in coordinating with line agencies; however, no claim on account of delay in shifting of utilities by line department will be admissible.

46. Setting Out

46.1 The Contractor(s) shall set out the whole of the work in conjunction with an officer to be deputed by the Engineer and during the progress of the work to amend on the requisition of the Engineer any errors which may arise therein and provide all the necessary labour materials and equipments for so doing. The contractor(s) is/are to provide all tools, plant, machinery, labour and materials (with the exceptions noted in the relevant clauses for issue of departmental materials as per schedule attached) which may be necessary and required for the work. All materials and workmanship shall conform to the relevant specifications mentioned in the tender documents.

46.2 During execution of pile foundation, if there is any variation in soil strata which was not anticipated earlier, the matter shall be referred to Engineer – in – charge for review and modification of design by the competent authority, if considered necessary. Time taken in this process is consider in the original completion period, however no claim on account of delay in getting the sanction from competent authority will be admissible.

46.3 The contractor shall carryout the detailed topographic survey at site and prepare the pre-commencement survey map for approval of the Engineer's representatives. Based on the approved Pre-commencement survey map, the contractor will prepare the necessary working drawings for the purpose of execution.

46.4 Contractor shall be responsible for taking all traffic block and shutdowns etc. from west central railway authority for execution in railway land / spans. Contractor will get all designs and drawings approved from west central railway authority for all temporary and permanent works of railway land / spans. This will be all incidental to the work. No separate claim on this account shall be payable.

46.5 Defect liability period shall be 5 year. Contractor shall furnish an affidavit from the manufacture / supplier firms before actual date of completion.

47. Labor

47.1 Engagement of Staff and Labor

- a) Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, housing, feeding and transport.
- b) The contractor shall pay equal wages for men and women for work of equal value or type.
- c) The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills.
- d) The Contractor shall be responsible for obtaining all necessary permit(s) and/or Visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the Site is located. The Employer will, if requested by the Contractor, use his best endeavors in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.
- e) The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to the place where they were recruited or to their domicile. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor.
- f) Be required to employ atleast 50% of the labour force from communities within a radius of 2kms from the site, if sufficient people are available.

47.2 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Employer's Personnel.

47.3 Labor Laws

- (a) The Contractor shall comply with all the relevant labor Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.
- (b) The Contractor shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its Subcontractors.
- (c) The Contractor shall, in all dealings with its labor and the labor of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.

47.4 Rates of Wages and Conditions of Labour

- (a) The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.
- (b) The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages and allowances as are chargeable under the Laws for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

47.5 Working Hours

- (a) No work shall be carried out on the Site on locally recognized days of rest, or outside the Normal working hours, which shall be 9.00 AM to 5.00 PM on all days of the week., unless:
 - (i) otherwise stated in the Contract,
 - (ii) the Engineer gives consent, or
 - (iii) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.
- (b) If and when the Contractor considers it necessary to carry out work at night or on public holidays so as to meet the Time for Completion and requests the Engineer's consent thereto, the Engineer shall not unreasonably withhold such consent.
- (c) This Sub-Clause shall not apply to any work, which is customarily carried out by rotary or double-shifts.

47.6 Facilities for Staff and Labor

- (a) Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.
- (b) The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

47.7 Health and Safety

- (a) The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.
- (b) The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the performance of the Contract, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

- (c) The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.
- (d) The Contractor shall throughout the contract (including the Defect Liability Period):
 - (i) conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labor (including all the Contractor's employees, all Sub-Contractors and Employer's and Engineer's employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to of Sexually Transmitted Diseases (STD)—or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular;
 - (ii) provide male or female condoms for all Site staff and labor as appropriate; and
 - (iii) provide for STI and HIV/AIDS screening, diagnosis, counseling and referral to a dedicated national STI and HIV/AIDS program, (unless otherwise agreed) of all Site staff and labor.

The Contractor shall include in the program to be submitted for the execution of the Facilities under Sub-Clause 18.2 an alleviation program for Site staff and labor and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation program shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the program shall detail the resources to be provided or utilized and any related sub-contracting proposed. The program shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation of this program shall not exceed the Provisional Sum dedicated for this purpose

47.8 Funeral Arrangements

In the event of the death of any of the Contractor's personnel or accompanying members of their families, the Contractor shall be responsible for making the appropriate arrangements for their return or burial, unless otherwise specified in the SCC.

47.9 Records of Contractor's Personnel

The Contractor shall keep accurate records of the Contractor's personnel, including the number of each class of Contractor's Personnel on the Site and the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis in a form approved by the Engineer and shall be available for inspection by the Engineer. Until the Contractor has completed all work.

47.10 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

47.11 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

47.12 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce their danger to health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

47.13 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift barter or disposal by Contractor's Personnel.

47.14 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

47.15 Prohibition of All Forms of Forced or Compulsory Labour

The contractor shall not employ "forced or compulsory labor" in any form. "Forced or compulsory labor" consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

47.16 Prohibition of Harmful Child Labor

The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. "Child" means a child below the statutory minimum age of 14 years.

48. MONITORING

Provision for regular monitoring will be commensurate as per the Environmental Management Plan and actions will be taken in case of non-compliance.

49. Change of Scope

49.1 Authority may, notwithstanding anything to the contrary in this Agreement, require provision of such addition/deletion to the works and services on or about the Project which are beyond the scope of the Project as contemplated by this Agreement (Change of Scope), Provided such change do not require expenditure exceeding/ reducing by 10% of project cost and do shall be made by Authority by an order (the "change of Scope order") issued in accordance with the procedure set forth in sub clause 49.2

49.2 Procedure for Change of Scope

- a. Authority shall whenever it desires provision of addition/deletion of works and services referred to in sub clause 49.1 above, issue to bidder a notice of Change of Scope (the "Change of Scope Notice") through Engineer In-charge.
- b. Upon receipt of Change of Scope Notice, the bidder shall, within a period of 15 (fifteen) days, provide to the Engineer In-charge such information as is necessary and reasonable together with preliminary documentation in support of the following:

- I. The impact which the Change of Scope is likely to have on the Project Completion Schedule if the work is required to be carried out before construction period and
 - II. The cost to the bidder of complying with such Change of Scope Notice on account of increases in quantities of items of work mentioned in the Bill of Quantities at the rate mentioned therein. In case the Bill of quantities does not carry certain items of work required under the Change of Scope, the bidder shall provide the analysis of rates-for carrying out such items of work.
- c. Engineer In-charge shall review the information provided by the bidder, assess the change in quantities of items of work, verify the analysis of rates if required, determine the additional cost to the bidder as a result of such Change of Scope and determine the extension/ reduction, if any, to the construction period provided that there will be no change in construction period if the change in the project cost is up to 2%, Provided that where the change in project cost is beyond 2%, then the proposed extension/ reduction to the construction period would taken into account the total change in the project cost (including 2% above).
- d. Authority shall issue the Change of Scope Order within a period of 15 (fifteen) days from the date of recommendation made by the Engineer In-charge in accordance with preceding sub clause (c) above.
- e. The Change of Scope Order shall be effective and binding upon receipt thereof by the bidder, Notwithstanding a Dispute regarding cost and time for implementation of such order, the bidder shall proceed with the performance of such order promptly following; receipt thereof. Any Dispute regarding the extension in the construction period recommended by the Engineer In-charge shall be resolved in accordance with the Dispute Resolution Procedure.

SECTION V C

CONTRACT FORMS

Table of Contents

1. Letter of Acceptance
2. Contract Agreement
3. Performance Security
4. Performance Security Declaration

1. Letter of Acceptance

Letter of Acceptance

[on letter head paper of the Procuring Entity]

No.

Dated

To: ***[name and address of the Contractor]***

Subject: ***[Notification of Award for the Works]***

This is to notify you that your Bid dated ***[date]*** for execution of the
... ***[name of the contract and identification number, as given in the Contract Data]*** for the Accepted Contract Amount of the equivalent of
[amount in numbers and words and name of currency], as corrected
and modified in negotiations and in accordance with the Instructions to Bidders has
been accepted by ***[designation of the Procuring Entity]*** The date of
commencement and completion of the Works shall be:
.....

You are requested to furnish the Performance Security/ Performance Security
Declaration within Days in the form given in the Contract Forms for the
same for an amount equivalent to Rupees within days of
notification of the award valid up to 60 days after the date of expiry of Defects Liability
Period and maintenance period, if applicable, and sign the Contract, failing which
action as stated in sub-section 2 of section 42 of the Rajasthan Transparency in
Public Procurement Act, 2012 and Instructions to Bidders shall be taken.

Authorized Signature:

Name and Title of Signatory: THE EXECUTIVE ENGINEER (PROJECT-II) Jaipur
Development Authority

Designation:

2. Contract Agreement.

Contract Agreement Works

THIS AGREEMENT made this day of 2019, between Government of Rajasthan, represented by the Executive Engineer, JDA (Jaipur development Authority) Ram Kishor Vyas Bhawan, Indira Circle, Jawahar Lal Nehru Marg, Jaipur-302004 (hereinafter "the Employer") which expression shall, where the context so admits, be deemed to include his successors in office and assigns, of the one part and M/S _____(Contractor name)_____ (Contractor address) (hereinafter "the Contractor"), which expression shall, where the context so admits, be deemed to include his heirs, successors, executors and administrators, of the other part:

WHEREAS the Employer desires that the Works known as [name of the Contract] should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, and for which the Contractor has submitted Performance Security for Rupees ----- in the form of -----(For Jaipur Development Authority)

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - a) the Letter of Acceptance;
 - b) RFP as uploaded in eproc.rajasthan.gov.in; sppp.rajasthan.gov.in
 - c) Any addendum, corrigendum issued.
 - d) the Bid of the Contractor as accepted along with the correspondence done on it, if any;
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor Rupees_____ /- Rupees (word only) + GST as consideration for execution and completion of the Works and the remedying of defects therein, in the manner prescribed by the Contract.
5. All the terms and conditions of NIT _____, Jaipur will be part of this agreement.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of India on the day, month and year indicated above.

Signed by
Executive Engineer
Jaipur Development Authority

Signed by
Contractor
for and on behalf the Contractor

Witness, Name, Signature, Address
Signature, Address
Signed by

Witness, Name,
Signed by

3. Performance Security

(Format of the Bank Guarantee Bond Against Earnest Money Deposit,

En cashable at branch of the bank in Jaipur City).

The Secretary,

Jaipur Development Authority

Jaipur.

Whereas Jaipur Development Authority through Executive Engineer Project-II, (hereinafter called 'The Jaipur Development Authority') has called for tenders for execution of work " Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur" estimated to cost Rs. (Rupees.....only) on (Date) or any extended date as per normal rules.

1. In consideration of Jaipur Development Authority having made such a stipulation in Rules and M/s(name of contractors) are desirous of depositing Earnest Money Rs. (Rupees only) in the form of Bank Guarantee as Earnest Money in order to participate in the tender for work abovementioned as per Rules and will be so permitted on production of a Bank Guarantee for Rs. (Rupees.....only) We.....(name and address fo Bank) having Registered office hereinafter referred to as the Bank at the request of M/s Contractor (s), do hereby undertake to pay to Secretary, Jaipur Development Authority an amount not exceeding Rs./- (Rupees only) on demand.
2. We(name and address of bank)....., do hereby undertake to pay Rs./- (Rupees Only) The amount due and payable under this guarantee without any demur or delay, merely on a demand from Secretary, Jaipur Development Authority any such demand made on the bank by the Jaipur Development Authority shall be conclusive and payable by the Bank under the guarantee. The Bank Guarantee shall be completely at the disposal of Secretary, Jaipur Development Authority and We(name and address of bank)....., bound ourselves with all directions given by Jaipur Development Authority regarding this Bank Guarantee However our Liability under this guarantee shall be restricted to an amount not exceeding Rs./- (Rupees Only).
3. We the(Name and address of Bank), undertake to pay Jaipur Development Authority any money so demanded notwithstanding any dispute or disputes raised by the contractor (s) any suit or proceeding pending before any Court or Tribunal or Arbitrator etc. Relating thereto our liability under these presents being absolute, unequivocal and unconditional.
4. We(Name and address of Bank), further agree with Jaipur Development Authority that the Jaipur Development Authority shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Jaipur Development Authority against the said Contractor (s) and to forbear or enforce any of the terms

and conditions relating to said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor (s) or for any forbearance, act or omission on the part of the Jaipur Development Authority or any indulgence by the Jaipur Development Authority or the said Contractor (s) or by any such matter or thing whatsoever which would but for this provision have effect of so relieving us.

5. The liability of us (Name and address of Bank), under this guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor (s).
6. We(Name and address of Bank), lastly undertake not to revoke this guarantee except with the consent of Jaipur Development Authority in writing.
7. This Bank Guarantee shall remain valid and in full effect, until it is decided to be discharged by the Jaipur Development Authority. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs.....
8. It shall not be necessary for Jaipur Development Authority to proceed against the contractor before proceeding against the guarantee herein contained shall be enforceable against the Bank notwithstanding any security which Jaipur Development Authority may have obtained or obtain from the Contractor.
9. That on demand of JDA, this Bank Guarantee is encashable at following branch in Jaipur City.

1. Name of Bank:

2. Name of the branch with branch code:

3. Address:

4. E-Mail Id:

5. Telephone No.

6. Fax No.:

If the last date of expiry of the Bank Guarantee happens to be a holiday of the Bank, the Bank Guarantee shall expire on the close of the next working day.

10. We(Name and address of Bank), undertake that the amount covered under the above Bank Guarantee shall be automatically be credited in the accounts of JDA in ICICI Bank, JDA Campus, Jaipur through IFSC Code No ICIC0006754, Bank Account No. 675401700518 on the date of expiry or its validity, unless the agencies get it re-validated well before its expiry date or produce NOC from JDA in written for its release.

11. All claims under the guarantee will be **payable at Jaipur**.

This guarantee will be returned to us as soon as the purpose for which it is issued is fulfilled' The BG Confirmation letter No is an integral part of the BG No.

Date _____ Signature of the Bank _____

Witness _____ Seal _____

[Signature, Name and Address]

[Note: To be furnished on appropriate non-judicial stamps.]

4. Performance Security Declaration (Applicable for Public Undertaking departments)

Form of Performance Security Declaration

Date: _____ ***[insert date (as day, month and year)]***

Contract Name and No.: _____ ***[insert name and number of Contract]***

To: _____ ***[insert Designation and complete address of Procuring Entity]***

We, the undersigned, declare that:

We understand that, according to your conditions, the Contract must be supported by a Performance Security Declaration as a guarantee to ensure fulfillment of our all performance obligations under the Contract for _____ ***[insert name of subject matter of procurement]***.

We accept that we will automatically be suspended from being eligible for bidding in any contract with you for the period of time of _____ ***[Procuring Entity to indicate here the period of time for which the Procuring Entity will declare a Bidder ineligible to be awarded a Contract if the performance Security Declaration is to be executed]*** starting on the date that we receive a notification from you, the _____ ***[Designation of the Procuring Entity]*** that our Performance Security Declaration is executed, if we are in breach of any of our performance obligation under the conditions of the Contract,

We understand this Performance Security Declaration shall expire after 60 days of completion of our all obligations under the Contract including Defect Liability, warranty/ Guarantee, etc. in accordance with the conditions of the Contract.

Signed: _____

[insert signature of person whose name and capacity are shown]

In the capacity of: _____

[insert legal capacity of person signing the Performance Security Declaration]

Name: _____

[insert complete name of person signing the Declaration]

Duly authorized to sign the Contract for and on behalf of: _____

[insert complete name and address of the Bidder]

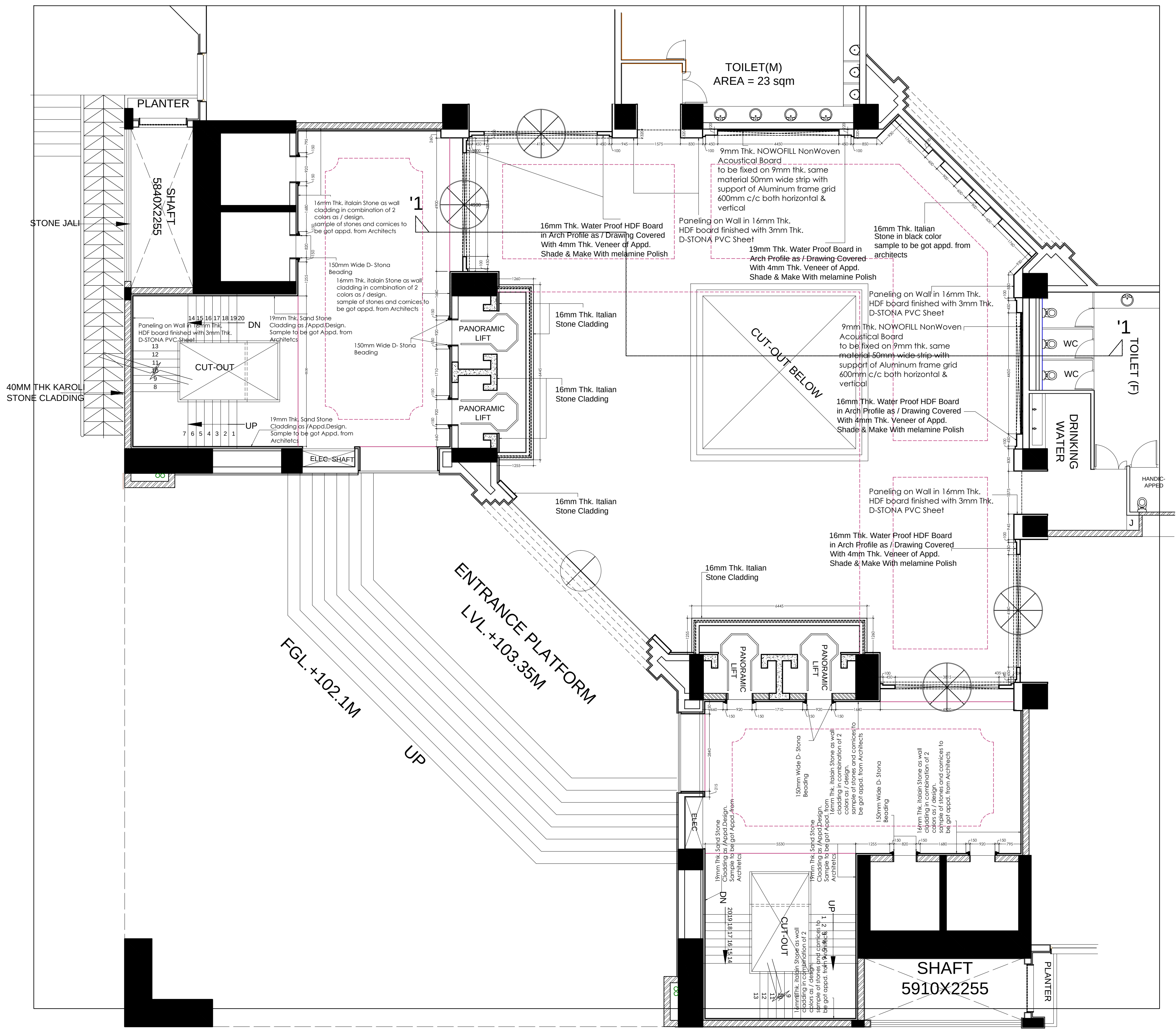
Dated on _____ day of _____, _____ ***[insert date of signing]***

Corporate Seal _____

SECTION VII DRAWINGS

NOTE:-

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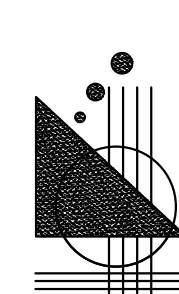
DRG. NO.

RIC / INT / WD / 01 / 151

WORKING DRAWING (ACOUSTICAL) FOR WALL PANELING
CENTRAL LOBBY GROUND FLOOR PLAN

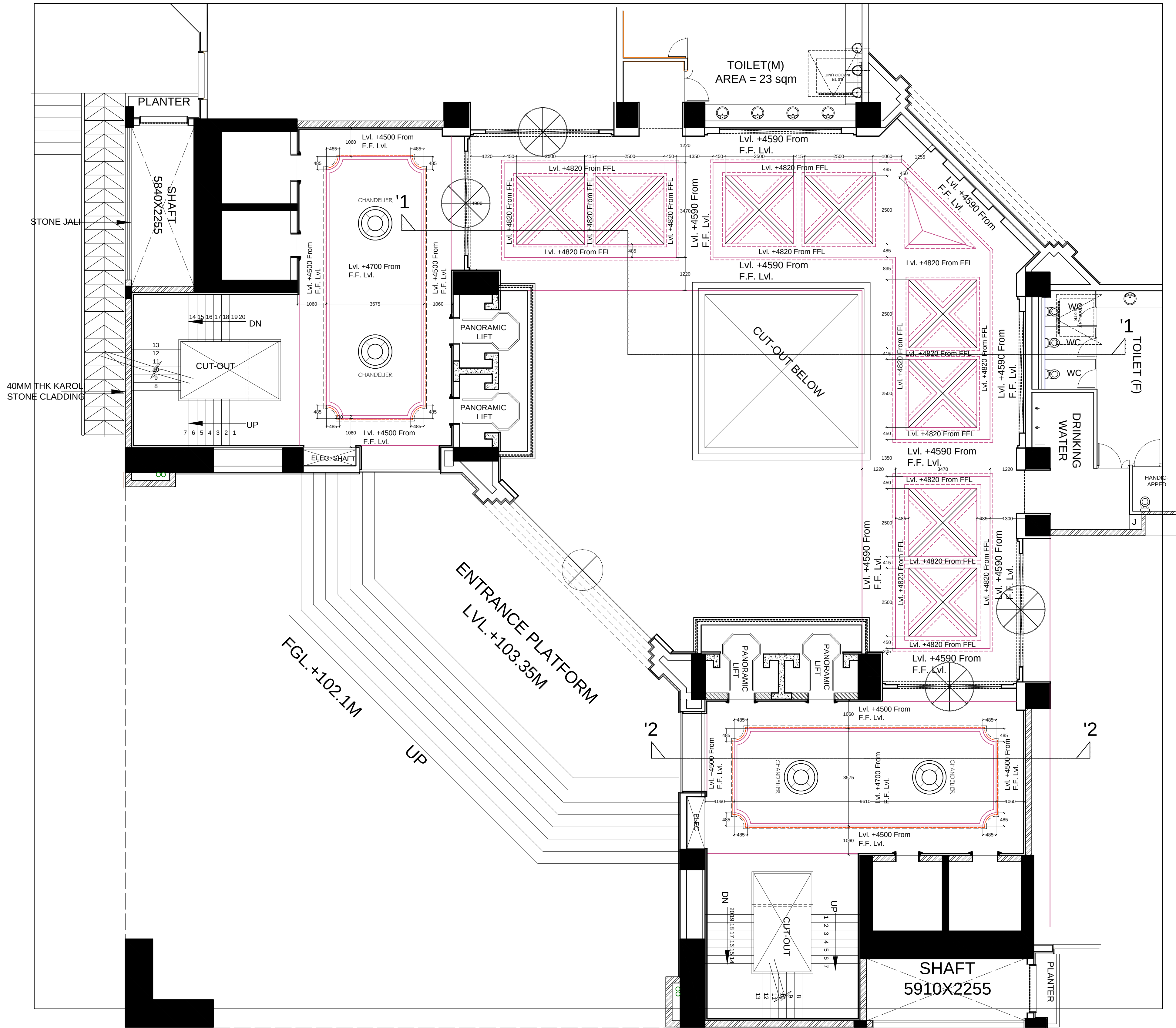
PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS



COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/80/5681 C-6, MOTI MARG, BAPU NAGAR JAIPUR 302015 PH. NO: 0141 - 2 719 022 / 23 FAX: 0141 - 2 719 120 E-MAIL : arkitectpj@gmail.com	DATE 22 / 06 / 2020 DONE BY MANISH

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JAIPUR DEVELOPMENT AUTHORITY

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REVISION		
REVISION	DATE	DESCRIPTION

DRG. NO. RIC / INT / WD / 02 / 152

WORKING DRAWINGS FOR REFLECTED CEILING PLAN (ACOUSTICAL) CENTRAL LOBBY GROUND FLOOR PLAN

PROPOSED RASTHAN INTERNATIONAL CENTER AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES

ARCHITECTS, PLANNERS, INTERIOR & INDUSTRIAL DESIGNERS

COUNCIL OF ARCHITECTURE
REGISTRATION NO. CA/80/5681
C-6, MOTI MARG, BAPU NAGAR
JAIPUR 302015
PH. NO: 0141 - 2 719 022 / 23
FAX: 0141 - 2 719 120
E-MAIL : arkitectpj@gmail.com

DATE
22 / 06 / 2020

DONE BY
MANISH

SCALE:-

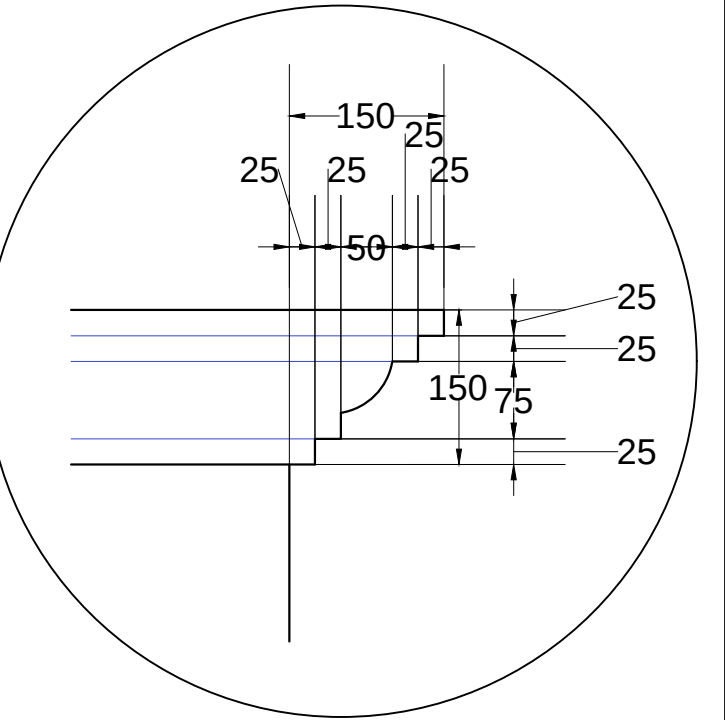
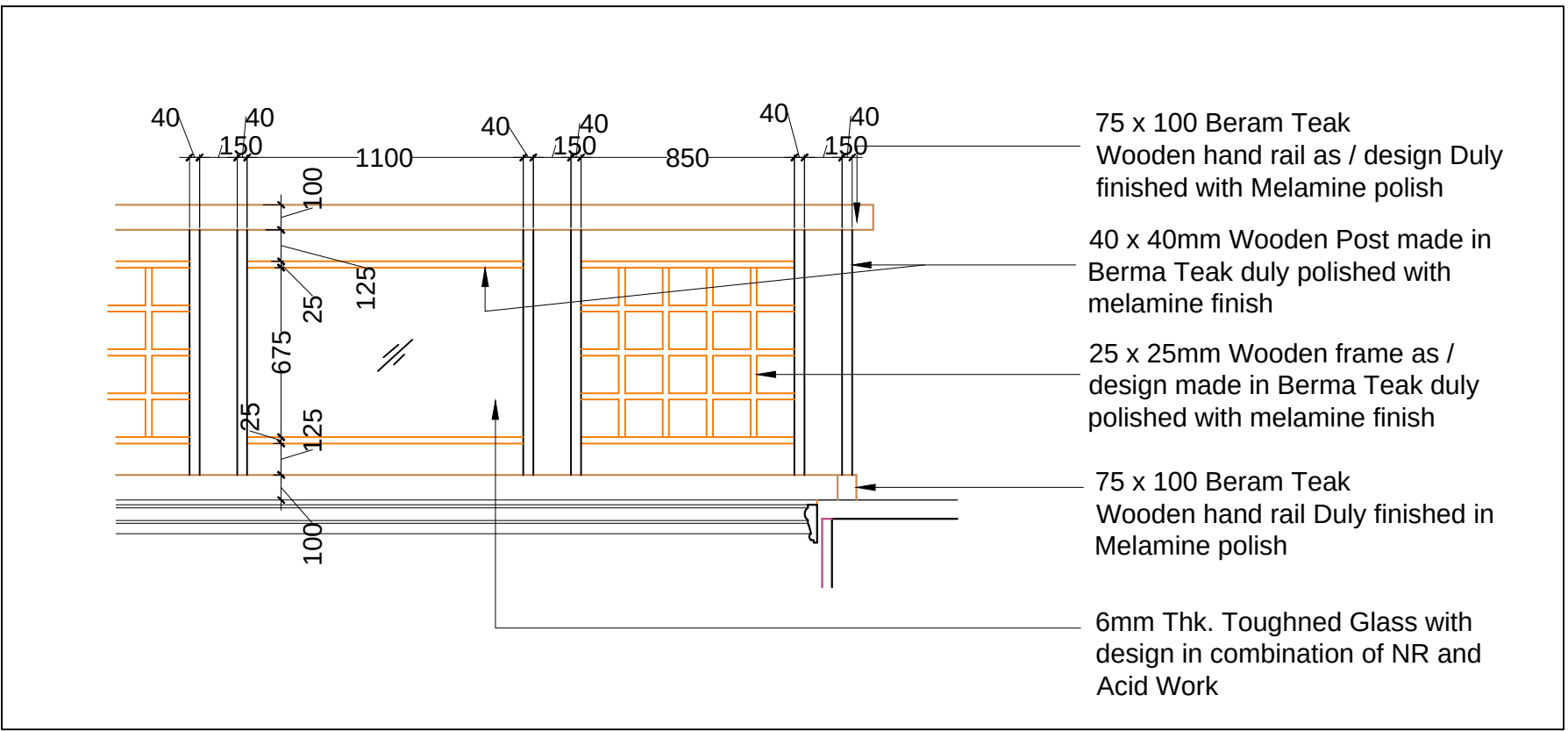
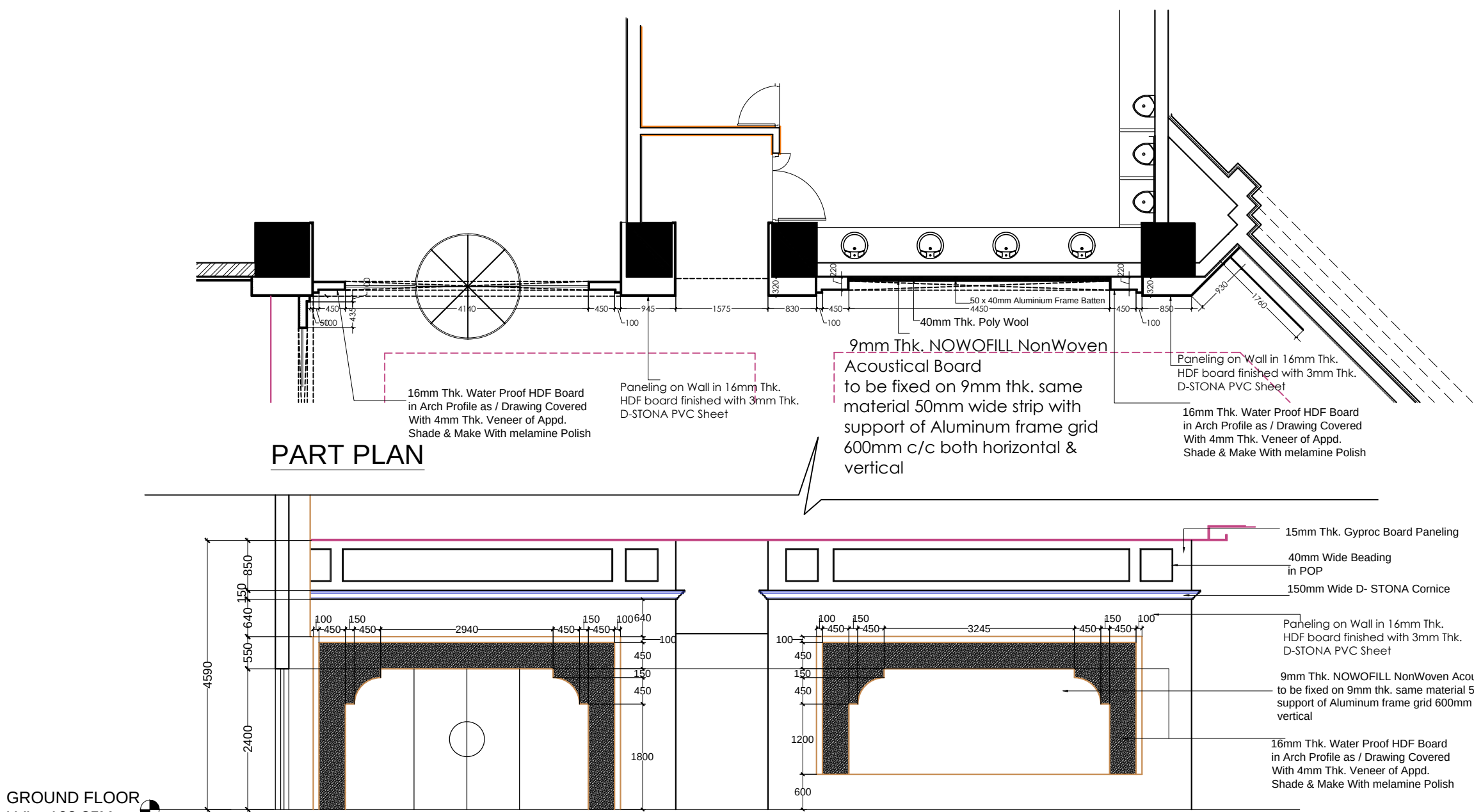
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DETAIL AT - 'A'

REVISION		
REVISION	DATE	DESCRIPTION

DRG. NO. RIC / INT / WD / 03 / 153

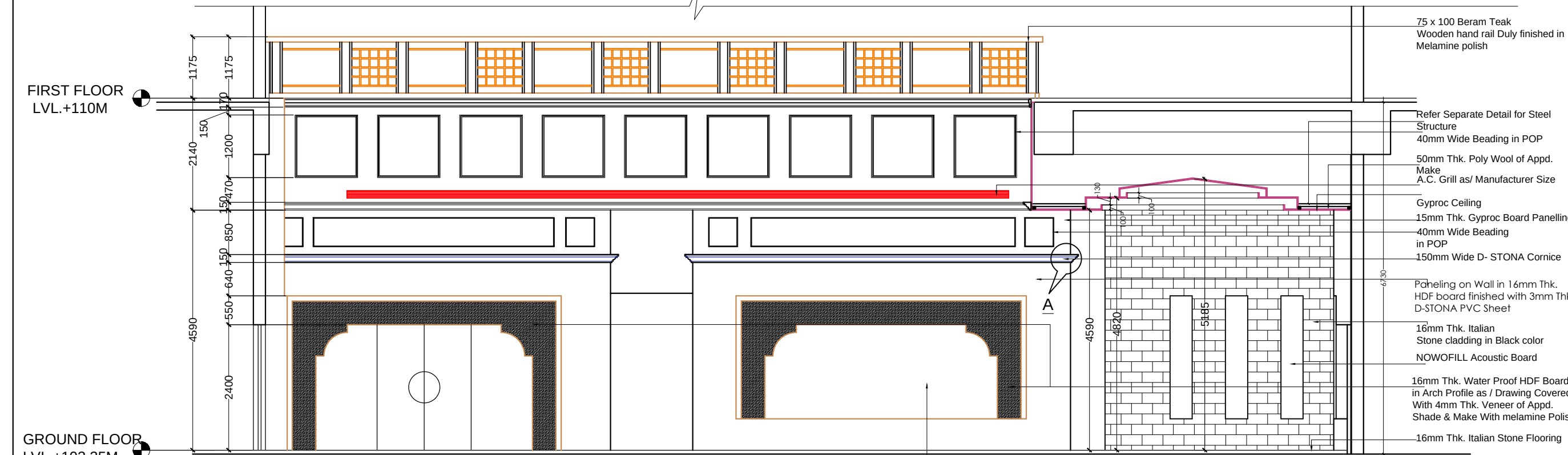
SECTIONAL DETAIL SHEET
CENTRAL LOBBY GROUND FLOOR PLAN

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

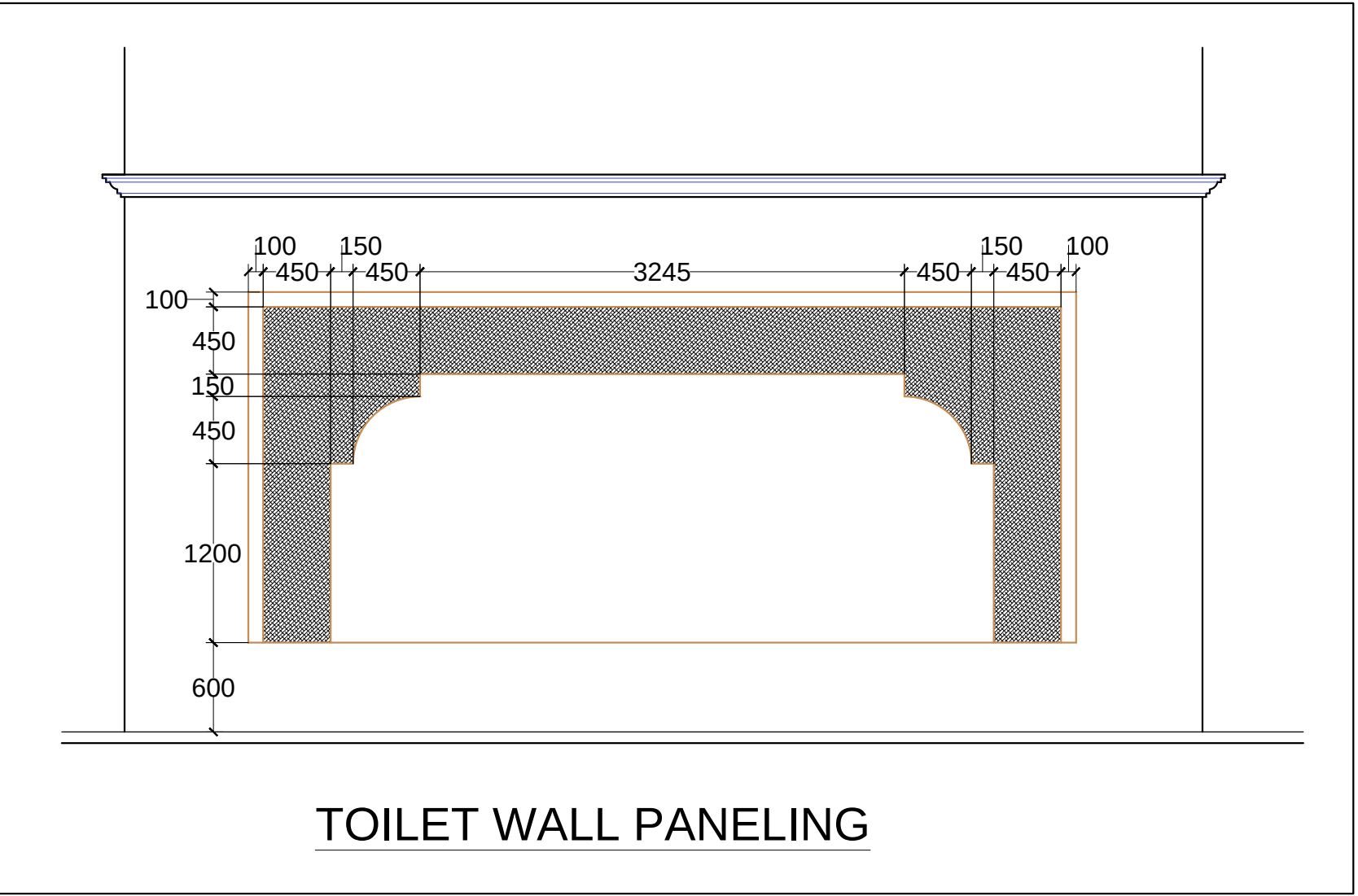
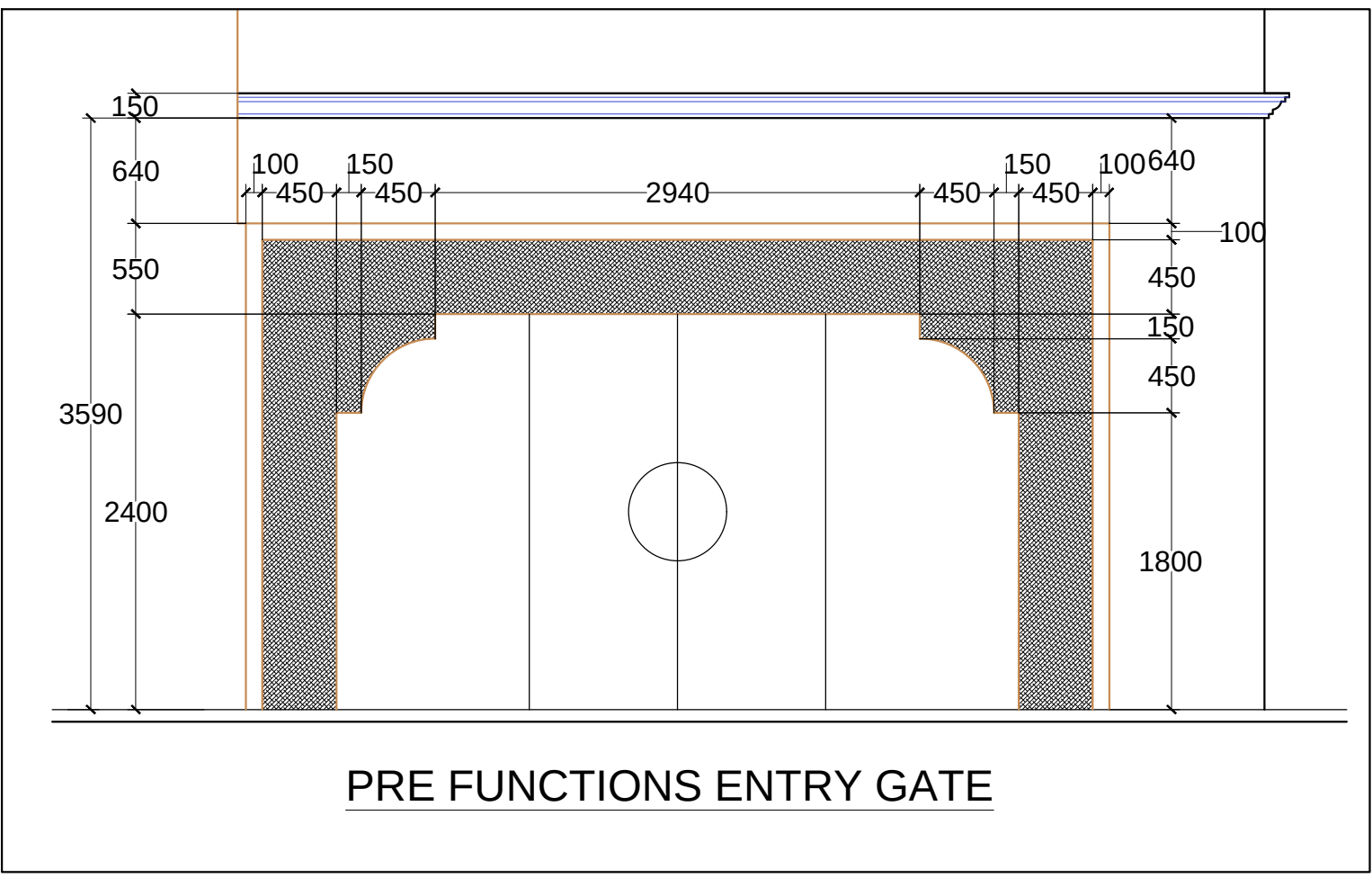
PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

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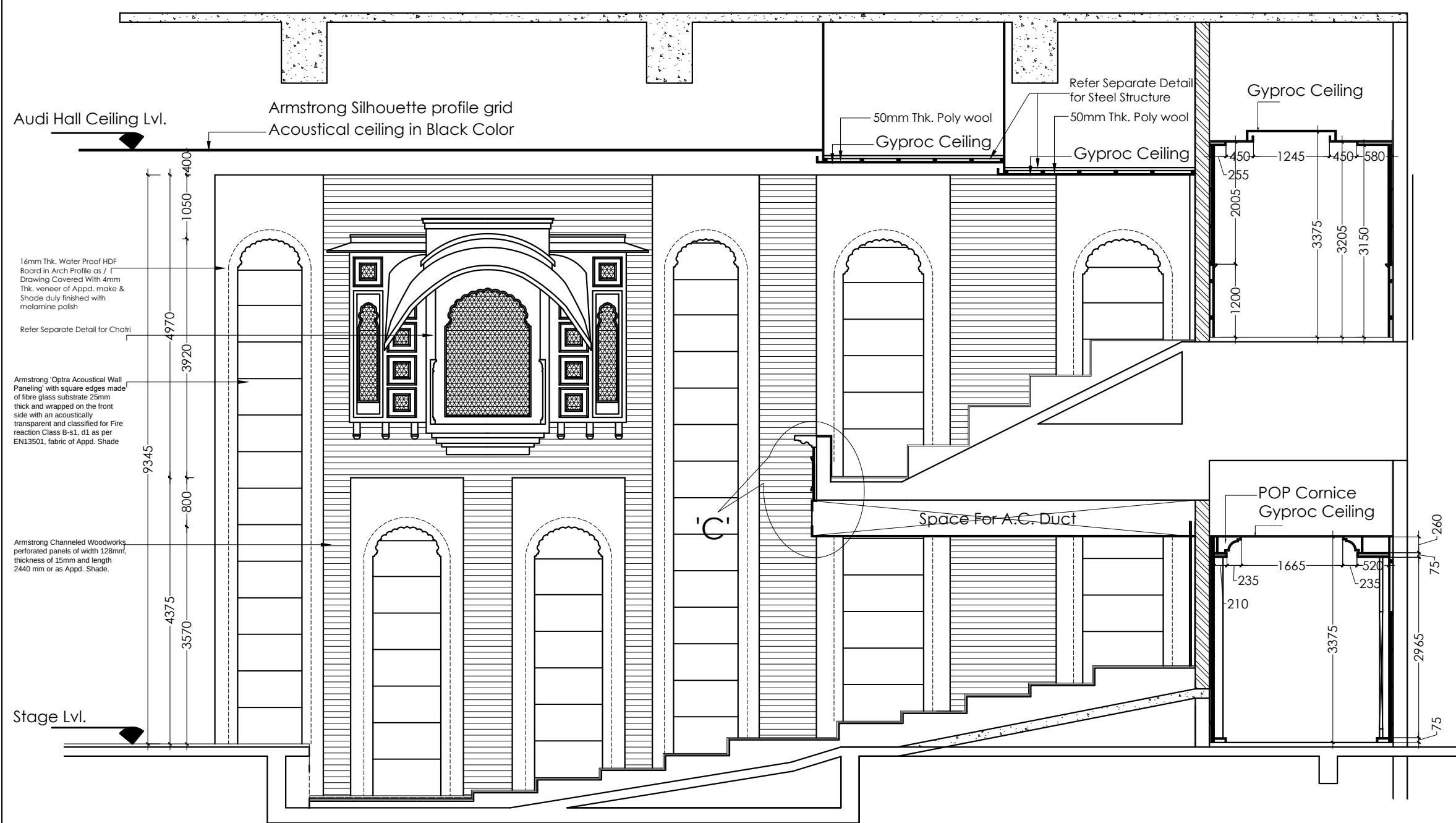


STAIR LOBBY CROSS SECTION - '2'

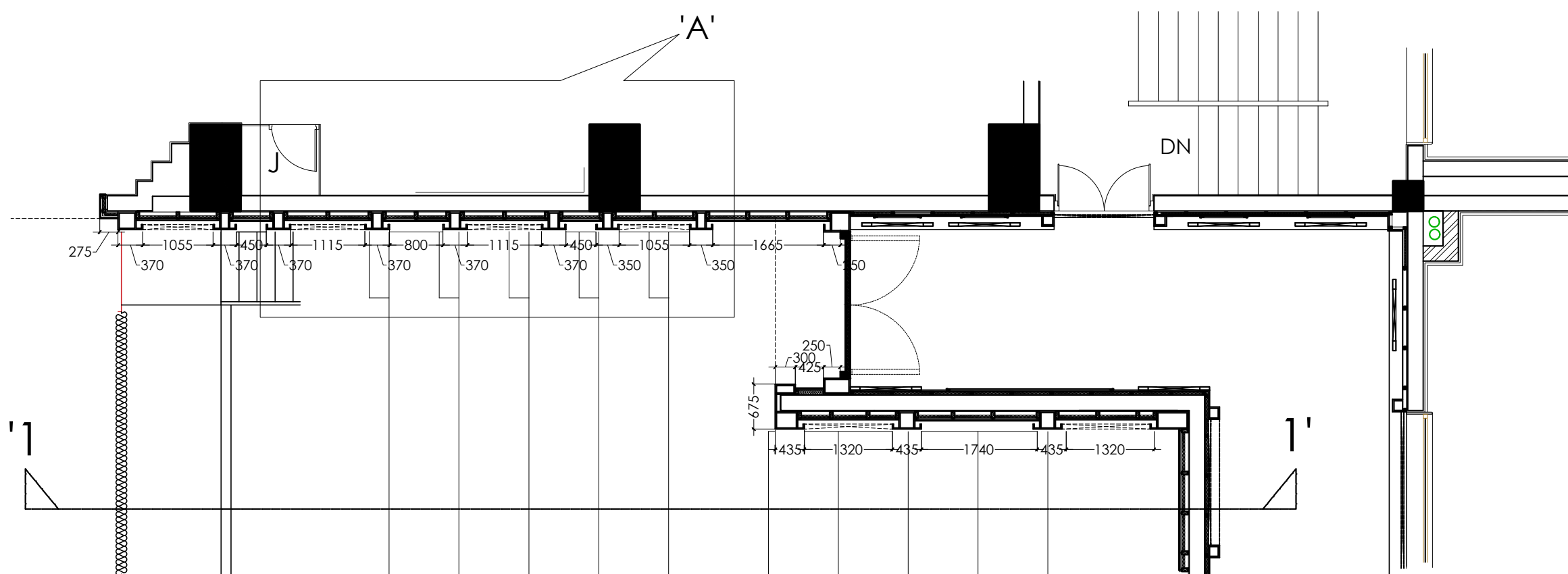


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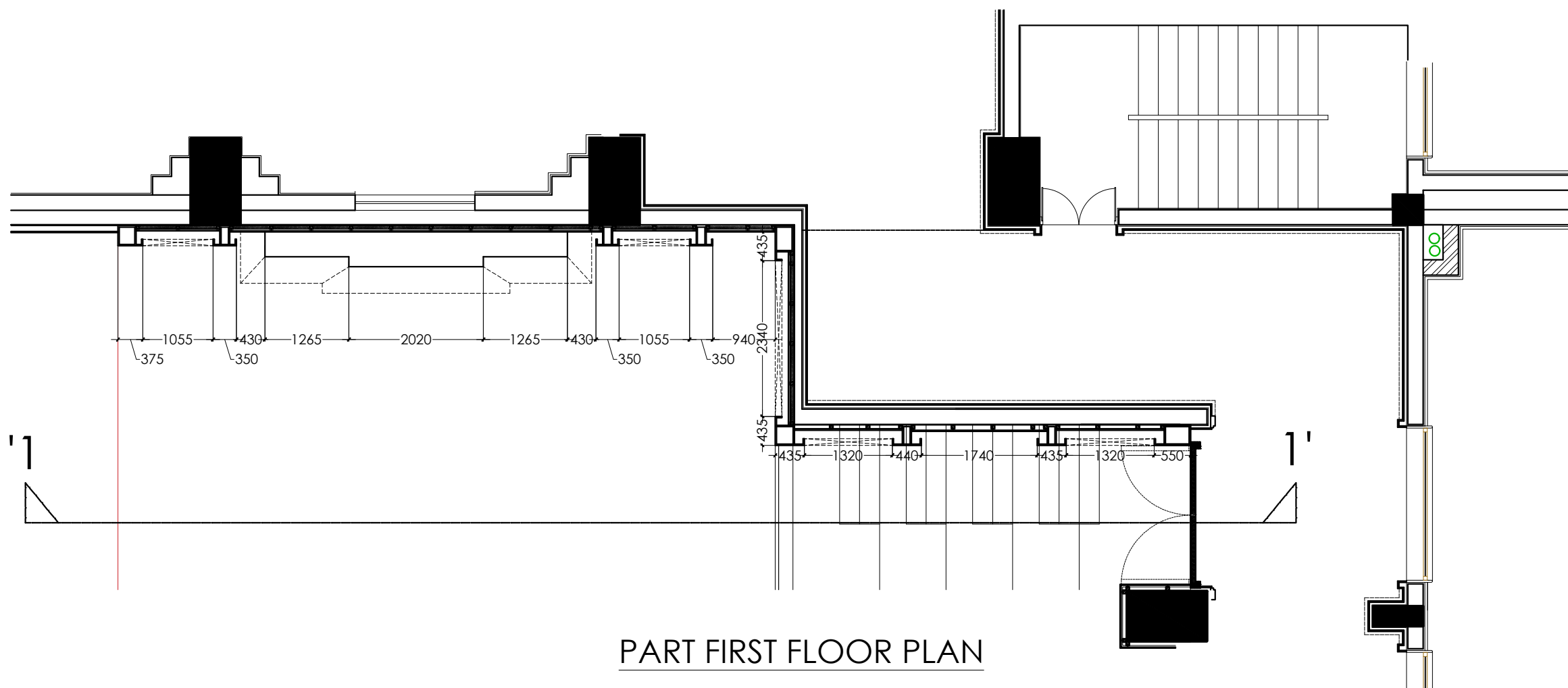
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SECTIONAL ELEVATION FROM - 'I'



PART GROUND FLOOR PLAN

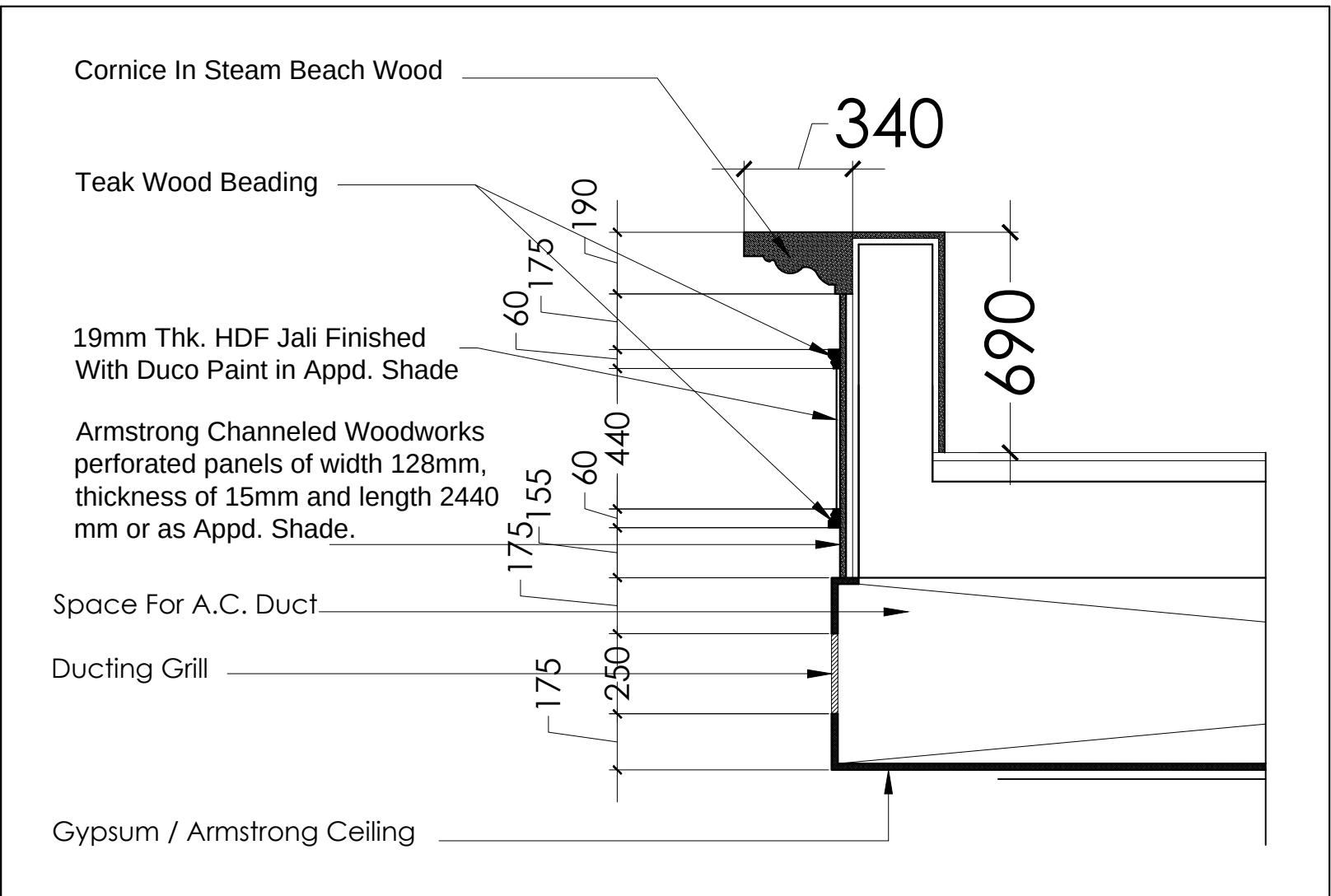


PART FIRST FLOOR PLAN

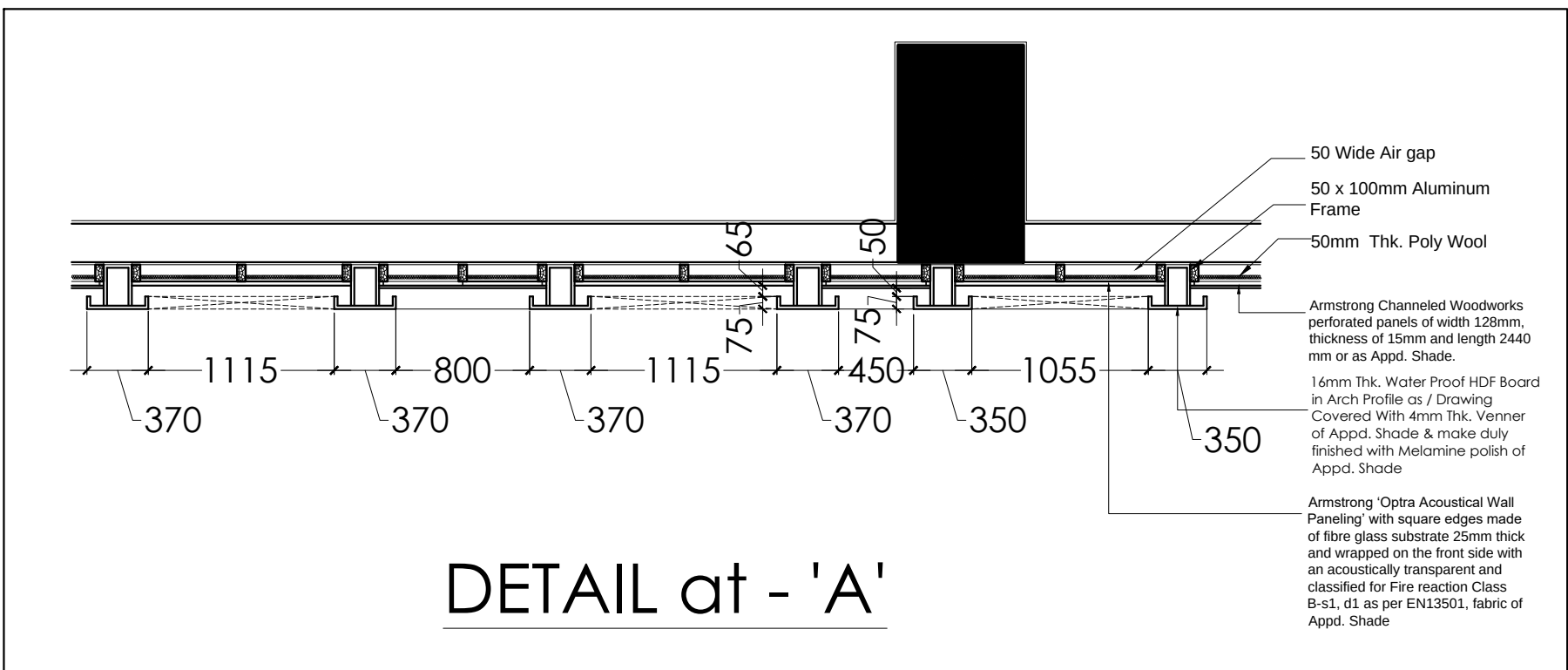
Second Floor Lvl. +115.50

First Floor Lvl. +110.00

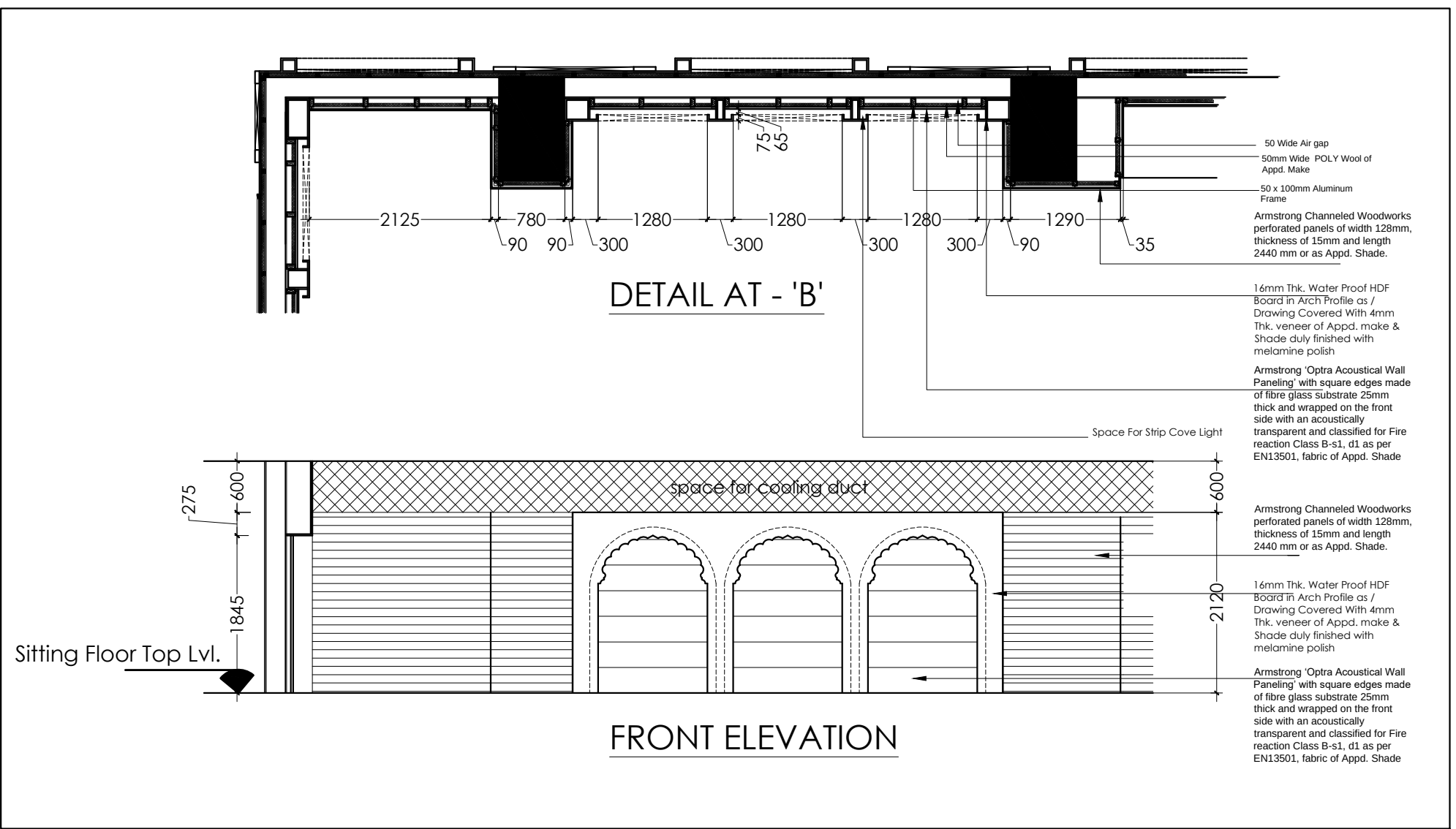
Ground Floor Lvl. +103.43



BALCONY DETAIL AT - 'C'



DETAIL at - 'A'



FRONT ELEVATION

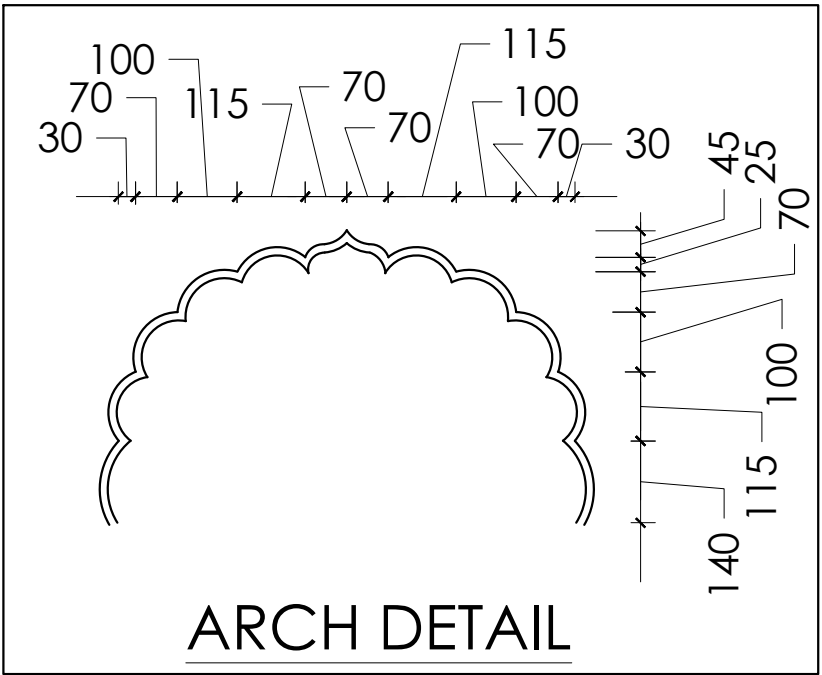
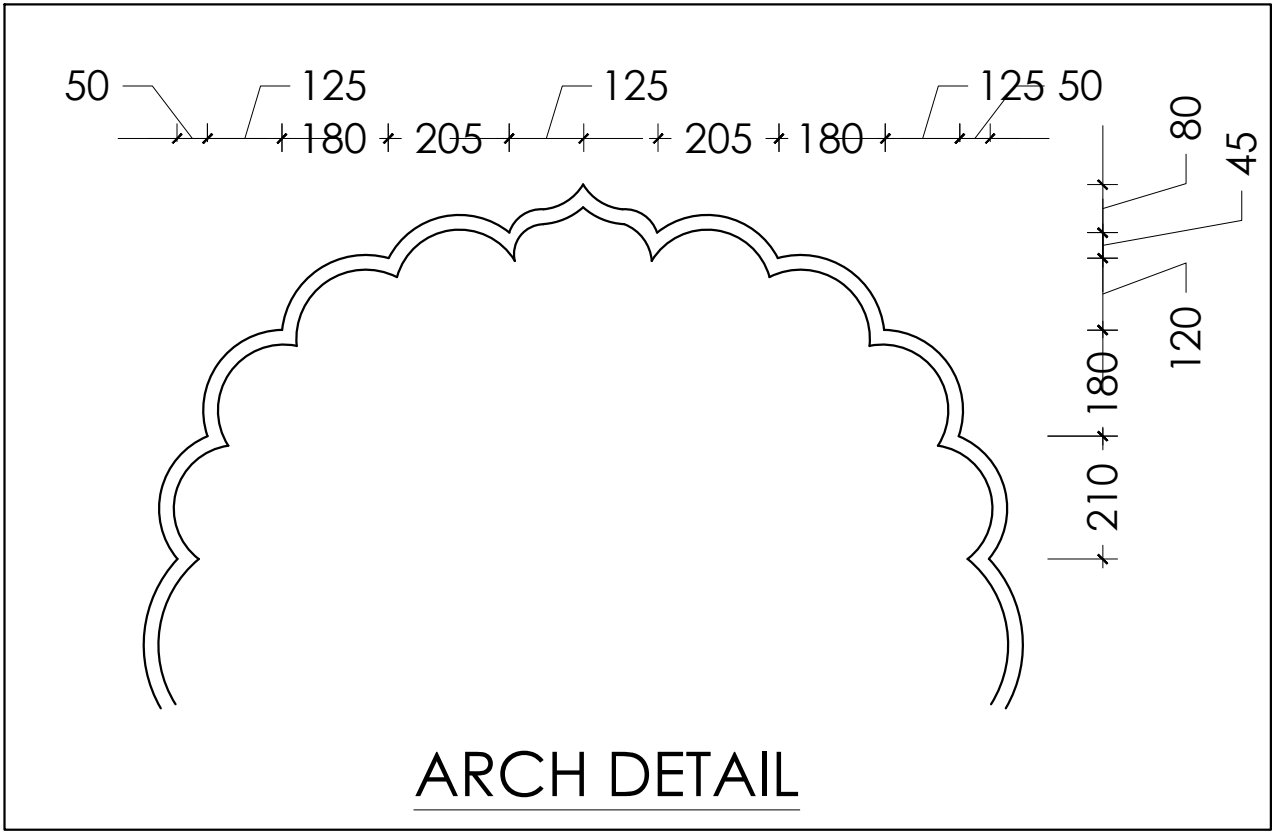
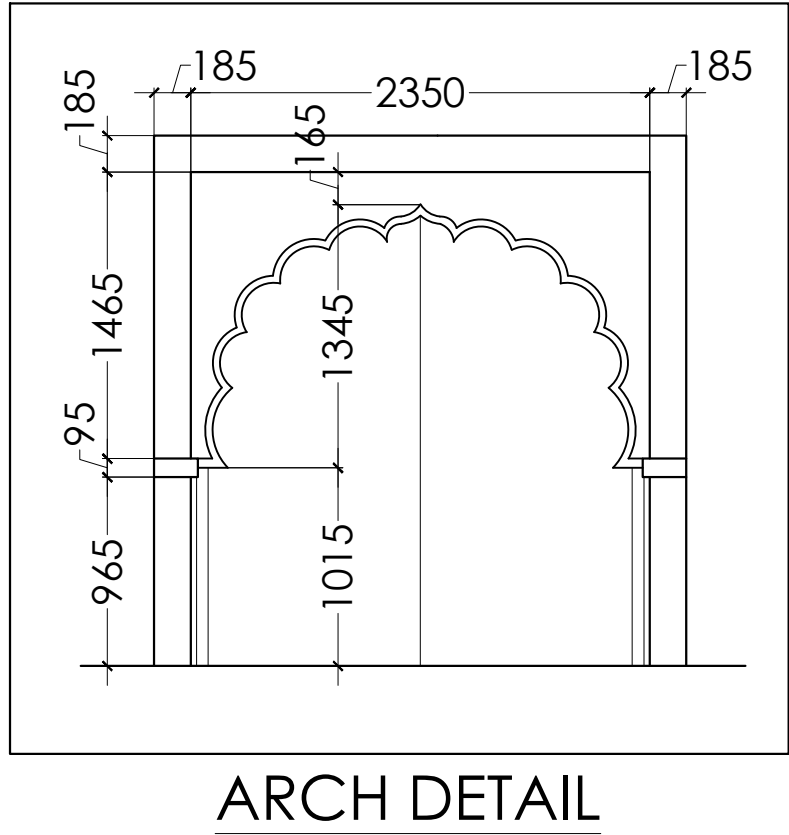
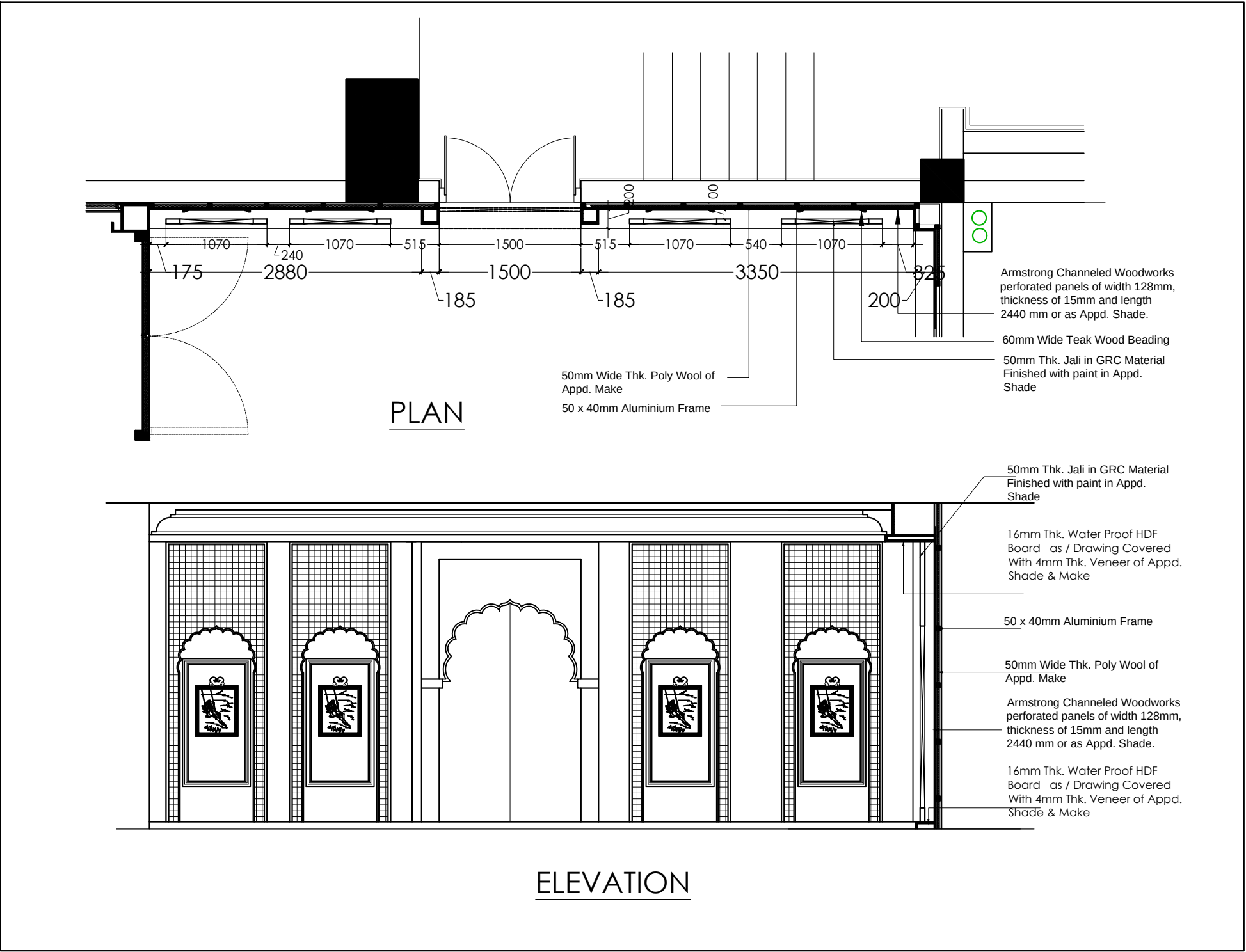
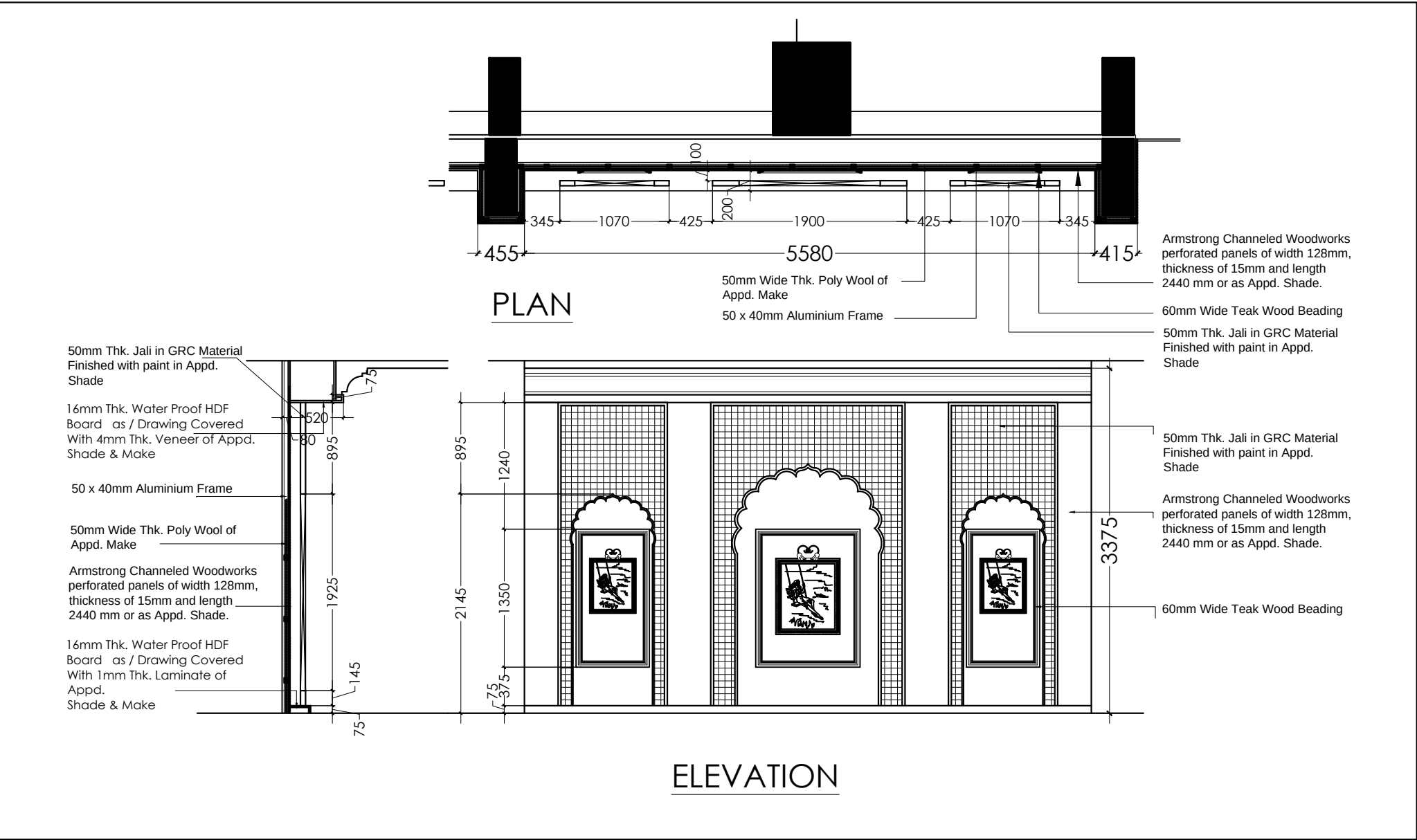
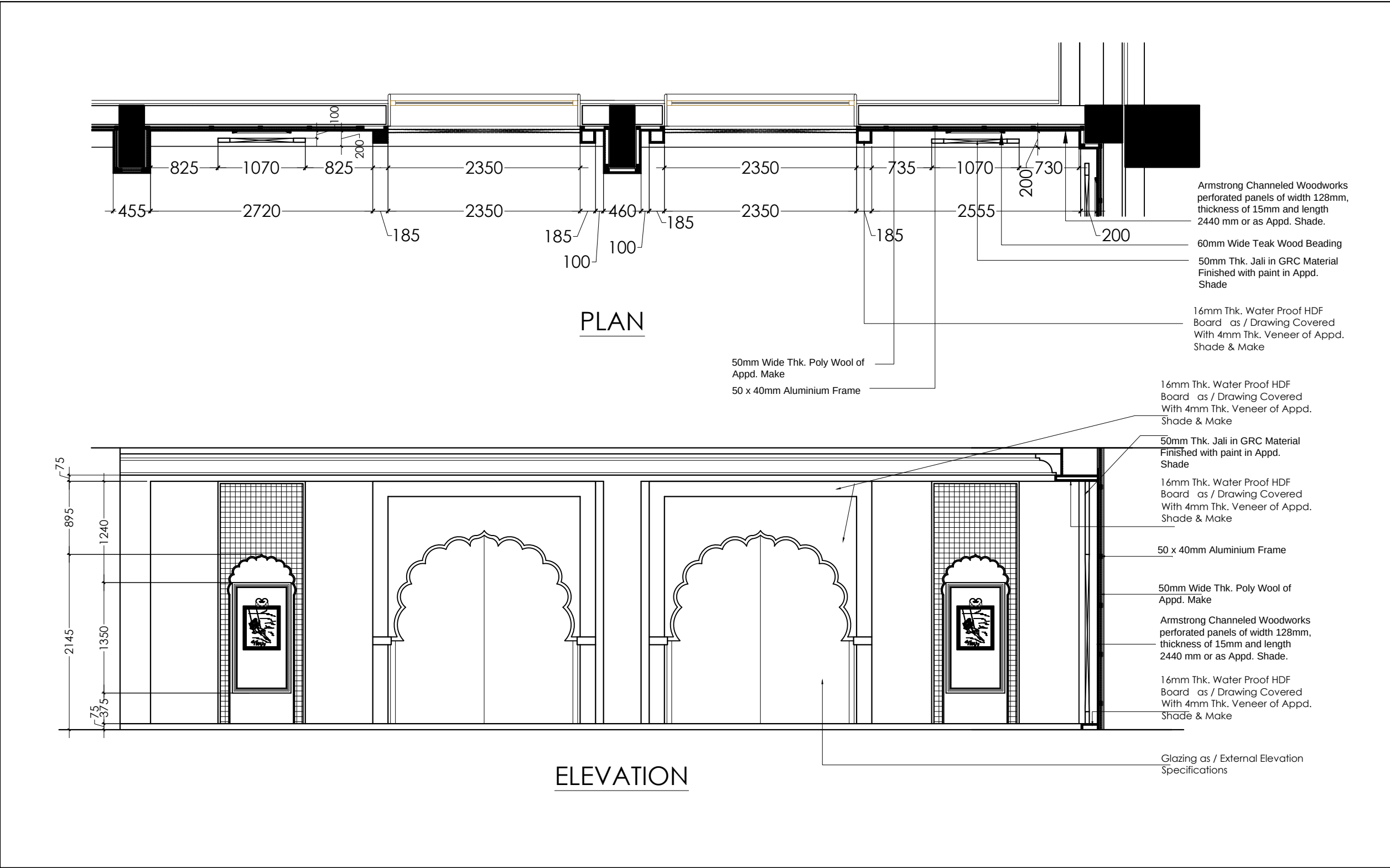
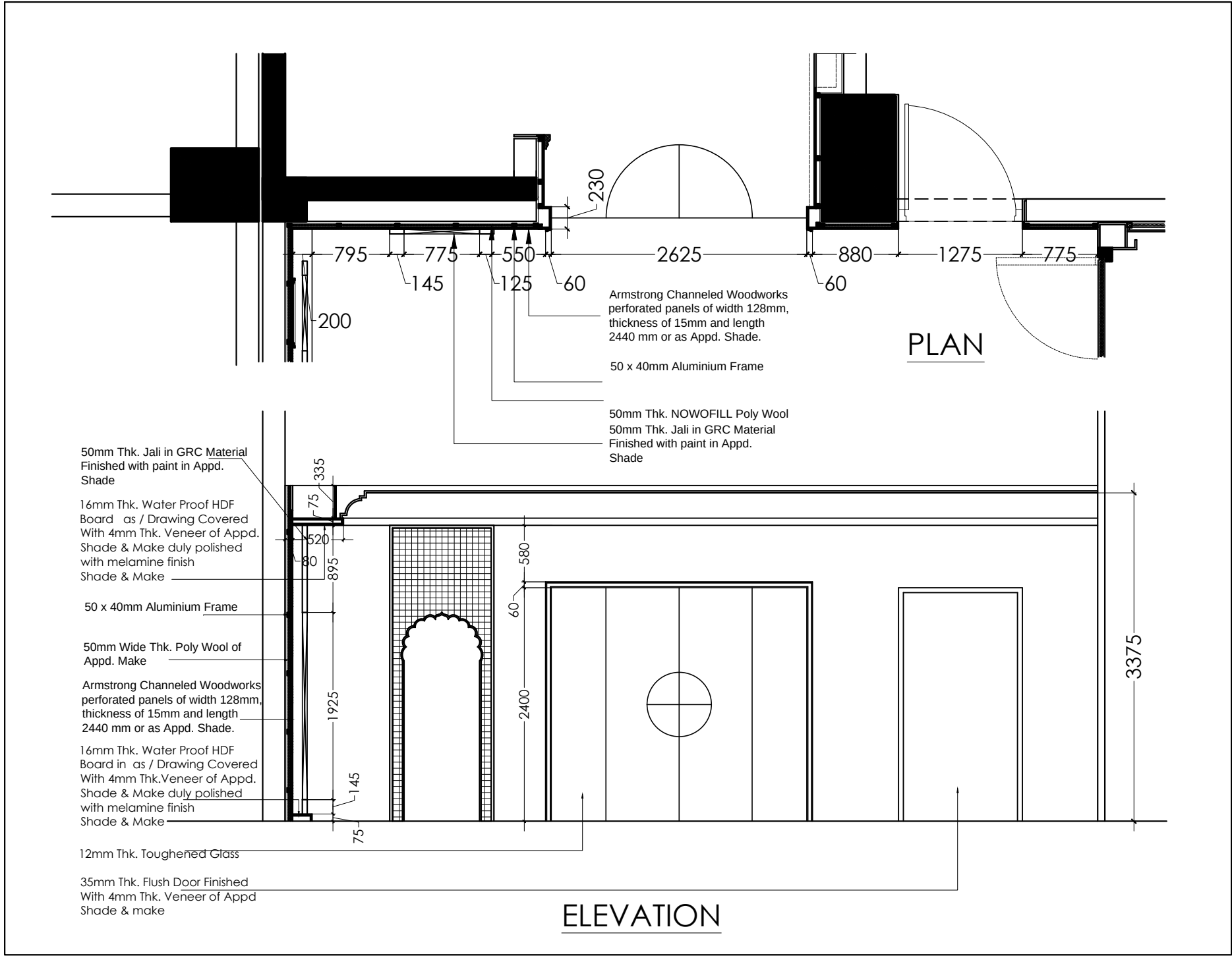
REVISION		
REVISION	DATE	DESCRIPTION
DRG. NO.		
RIC / INT / WD / 04 / 154		
WALL PANELING (acoustical) WORKING DETAILS		
AUDITORIUM GROUND FLOOR PLAN		
PROPOSED RJASTHAN INTEWRNATIONAL CENTER		
AT OTS, JAIPUR.		
PRAMOD JAIN & ASSOCIATES		
ARCHITECTS.PLANNERS.INTERIOR&		
INDUSTRIAL DESIGNERS		
	COUNCIL OF ARCHITECTURE	DATE
	REGISTRATION NO. CA/80/5681	23 / 06 / 2020
	C-6,MOTI MARG,BAPU NAGAR	
	JAIPUR 302015	
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	E-MAIL : arkitectpj@gmail.com	DONE BY
		MANISH
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REVISION		
REVISION	DATE	DESCRIPTION

DRG. NO.
RIC / INT / WD / 05 / 155

WALL PANELING (ACOUSTICAL) DETAILS (SHEET - 01)
AUDITORIUM GROUND FLOOR LOBBY

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

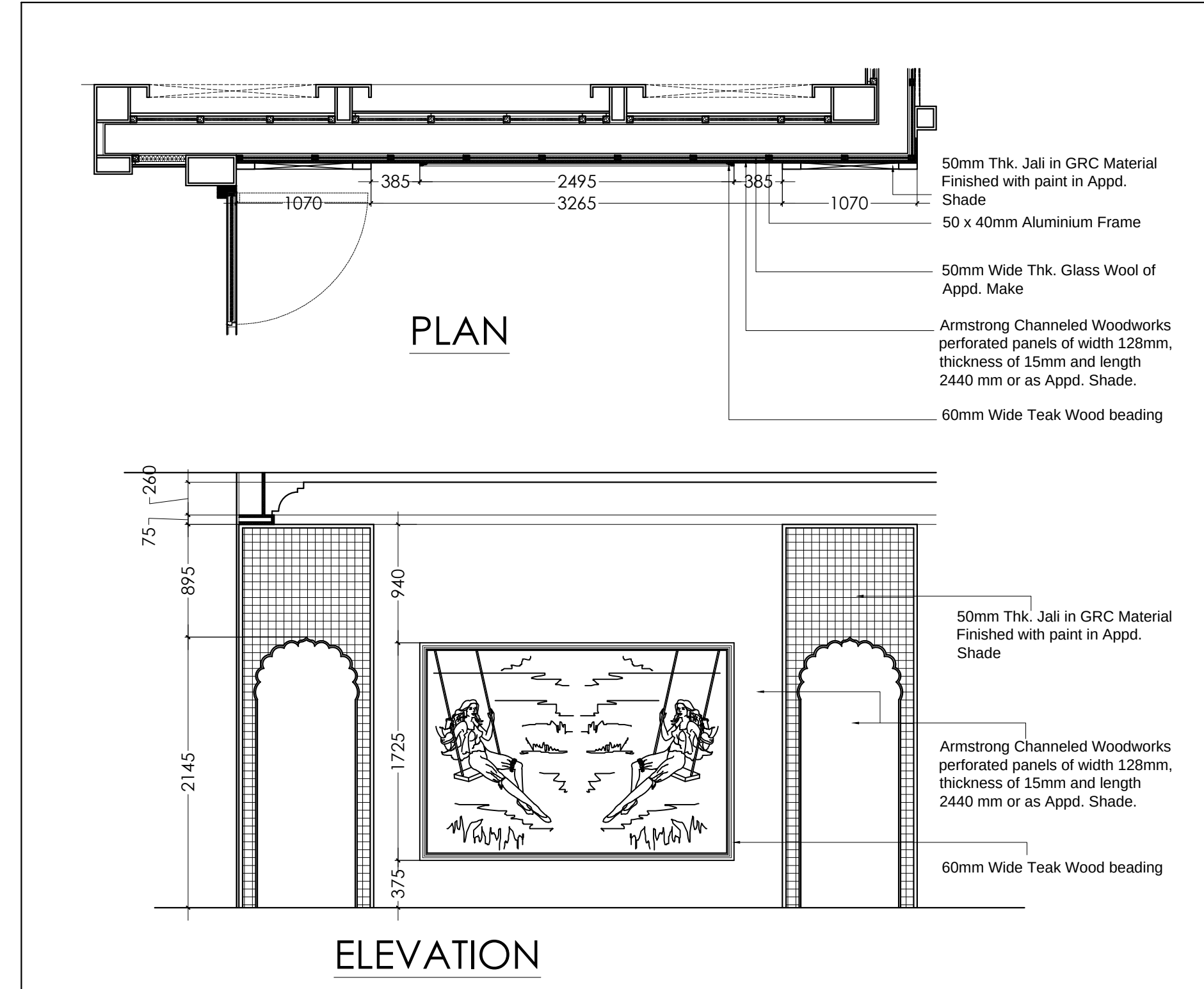
PRAMOD JAIN & ASSOCIATES
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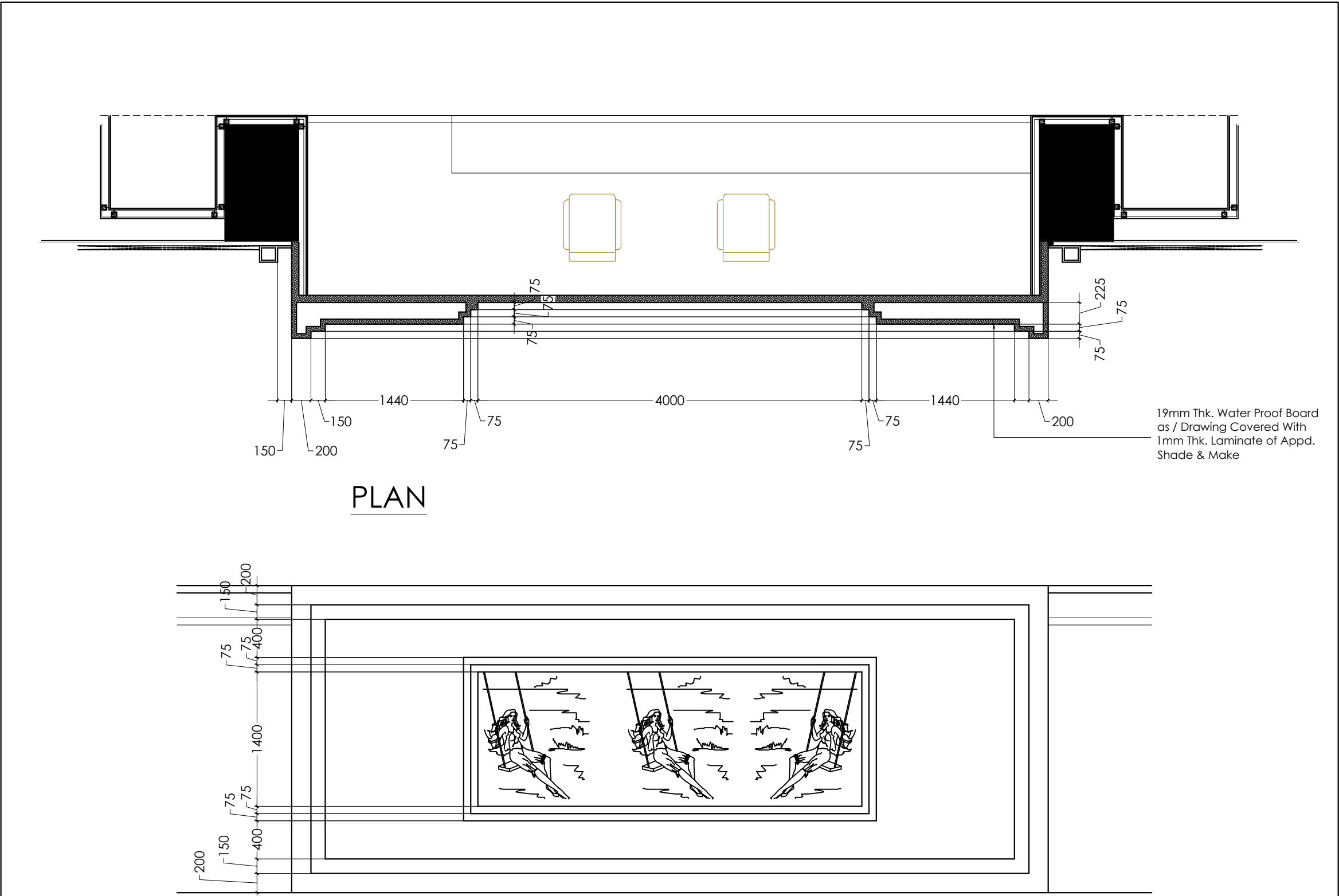
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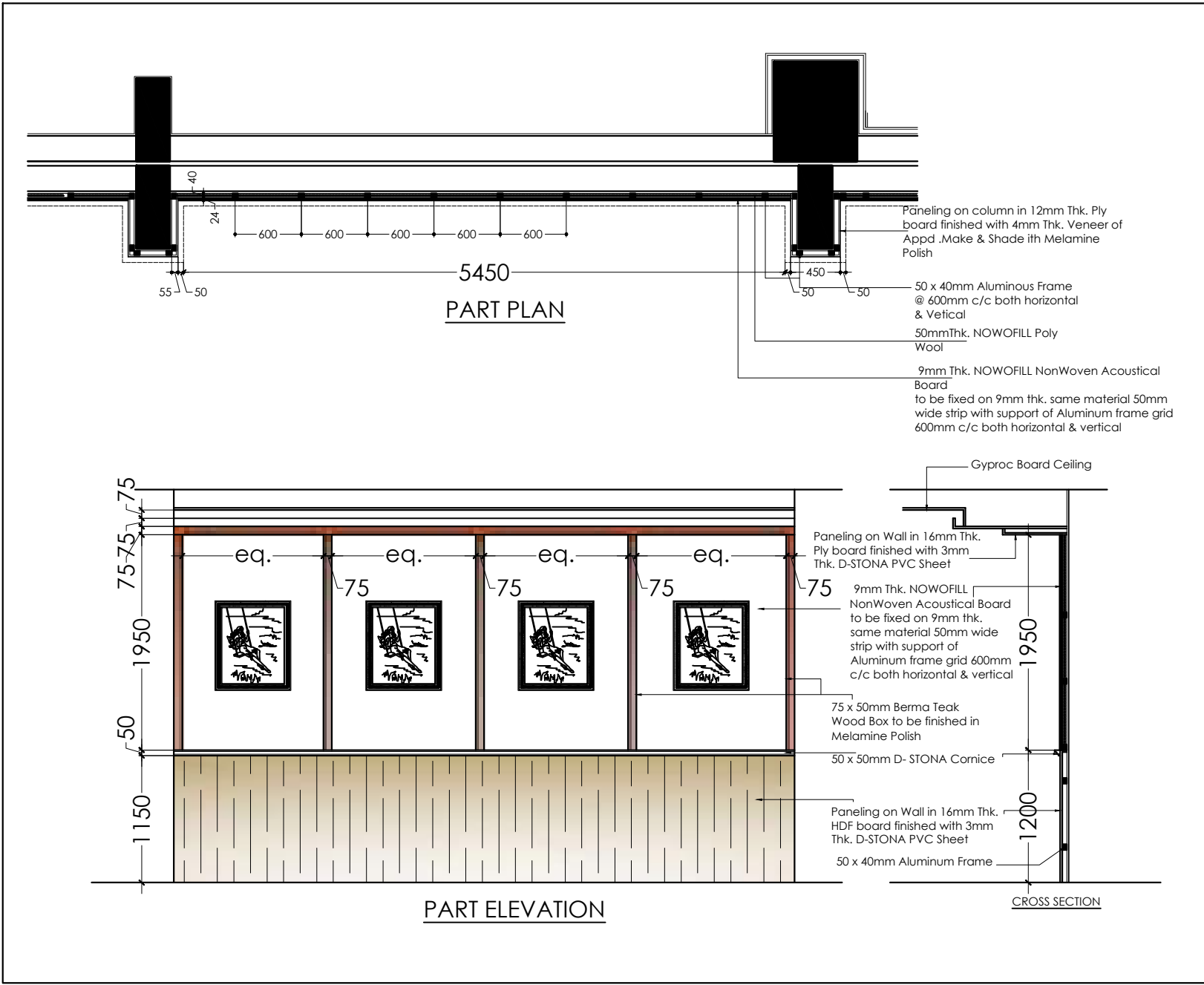
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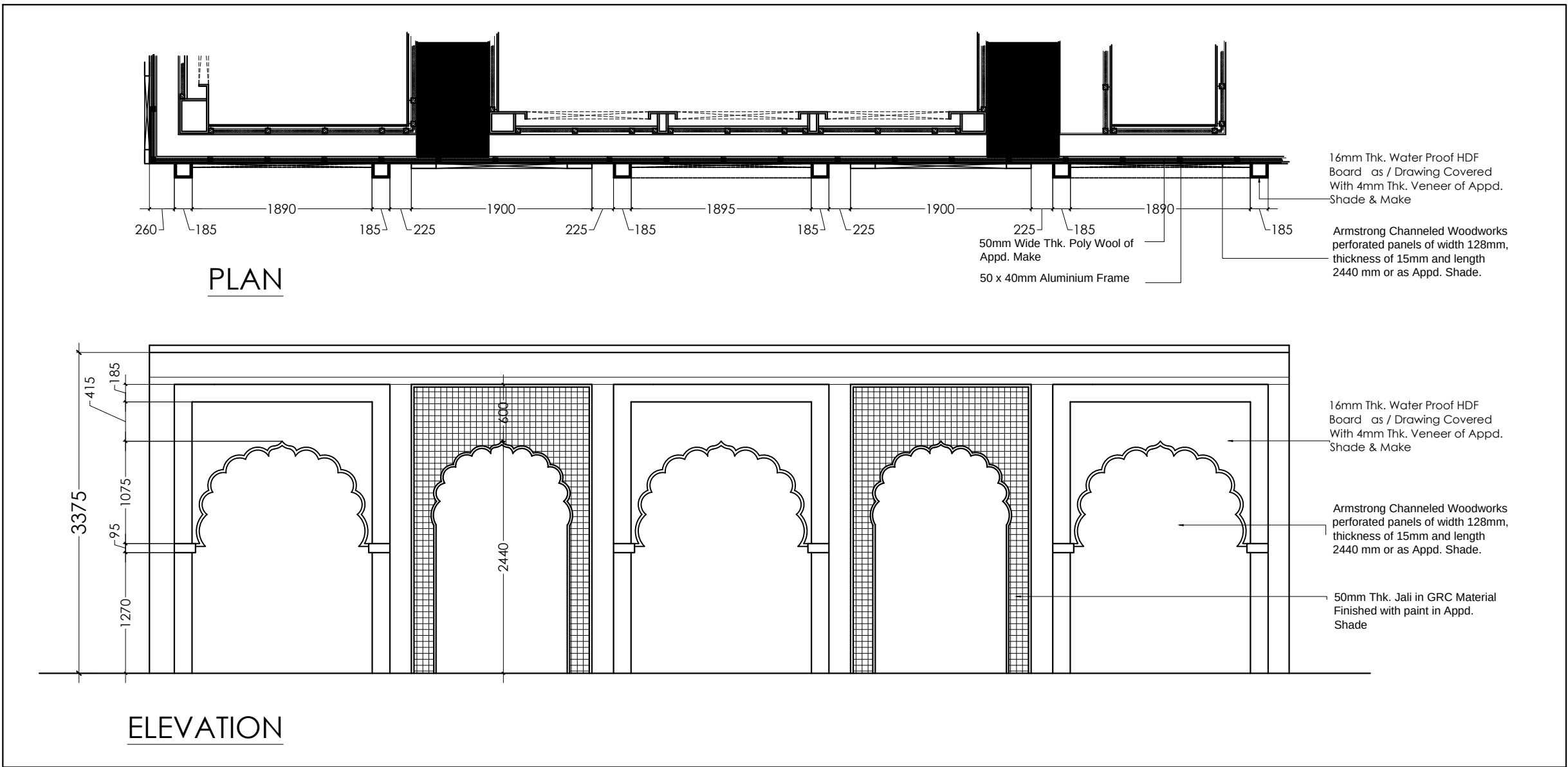
WALL ELEVATION FROM - 'T'



WALL ELEVATION FROM - 'V'

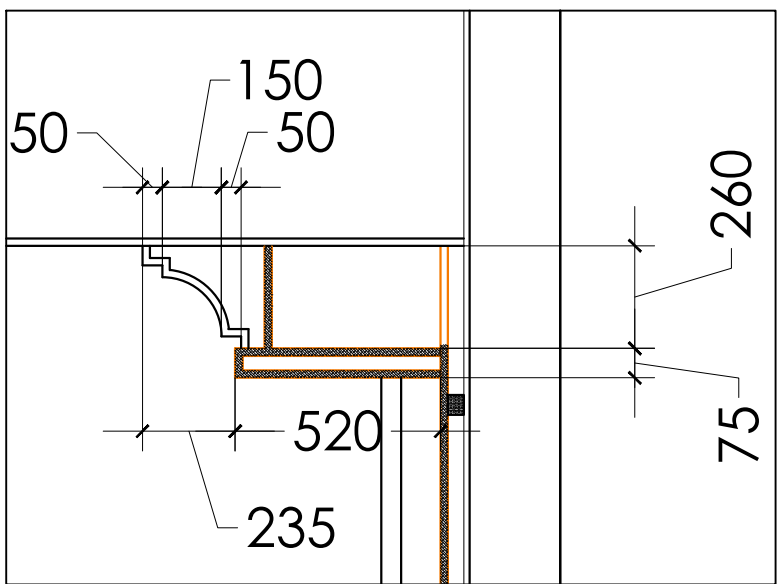
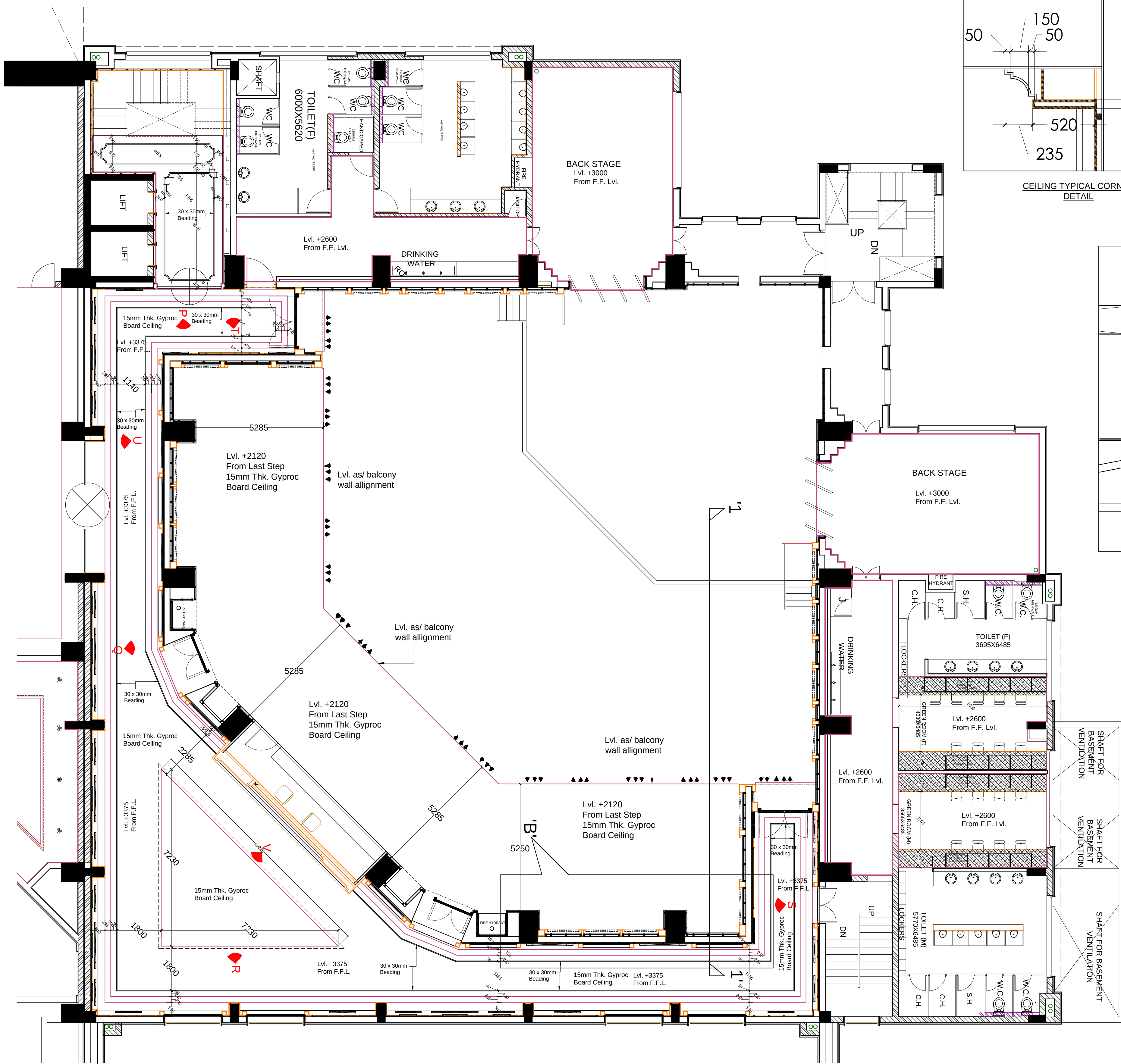


FIRST FLOOR LOBBY WALL PANELING TYPICAL DETAIL

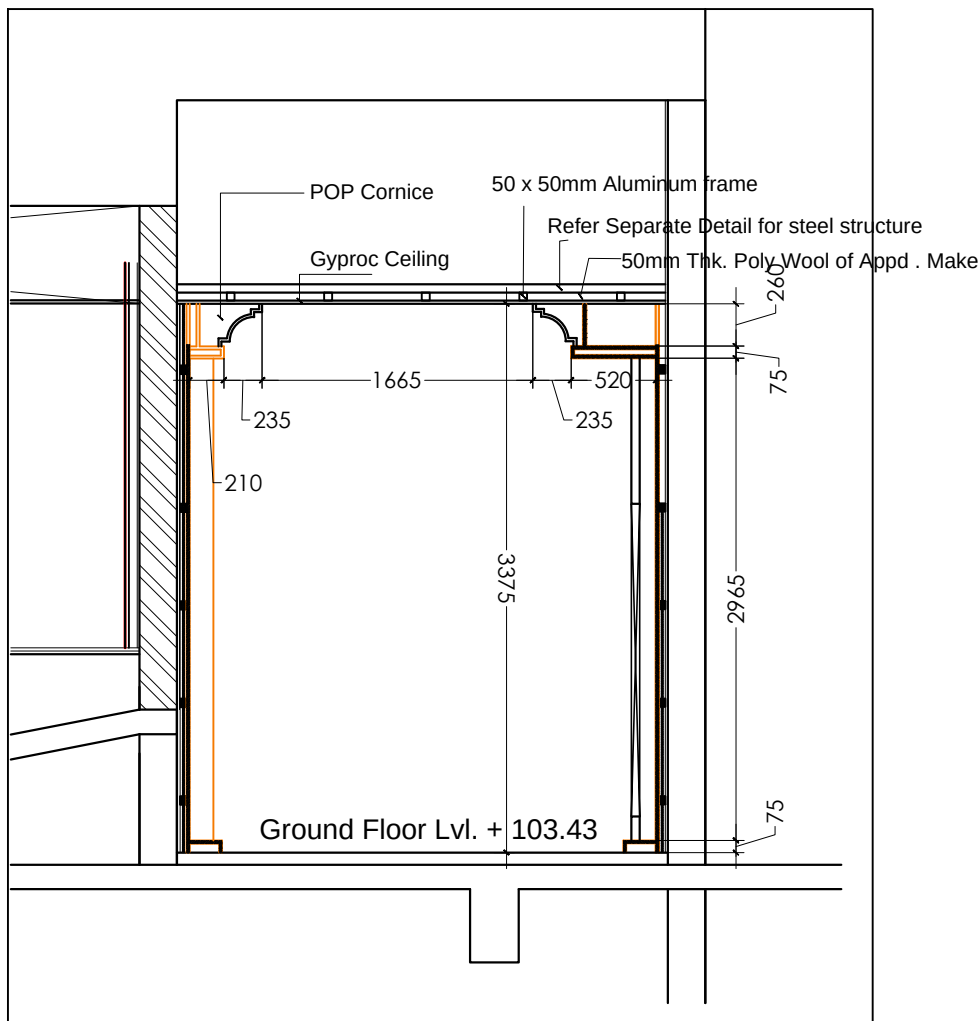


WALL ELEVATION FROM - 'U'

REVISION		
REVISION	DATE	DESCRIPTION
DRG. NO.		
RIC / INT / WD / 06 / 156		
WALL PANELING (ACOUSTICAL) DETAILS (SHEET - 02) AUDITORIUM GROUND & FIRST FLOOR LOBBY		
PROPOSED RJASTHAN INTEWRNATIONAL CENTER AT OTS, JAIPUR.		
PRAMOD JAIN & ASSOCIATES ARCHITECTS, PLANNERS, INTERIOR & INDUSTRIAL DESIGNERS		
	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/80/5681	DATE 23 / 06 / 2020
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CEILING TYPICAL CORNER
DETAIL



CORRIDOR CEILING SECTIONAL
DETAIL

**RIC
JAIPUR DEVELOPMENT AUTHORITY**

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REVISION

REVISION	DATE	DESCRIPTION

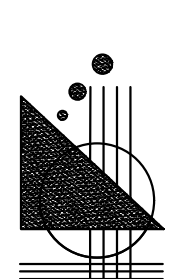
DRG. NO.

RIC / INT / WD / 07 / 157

REFLECTED CEILING (ACOUSTICAL) WORKING
PLAN AUDITORIUM AND WAITING LOBBY GROUND FLOOR

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
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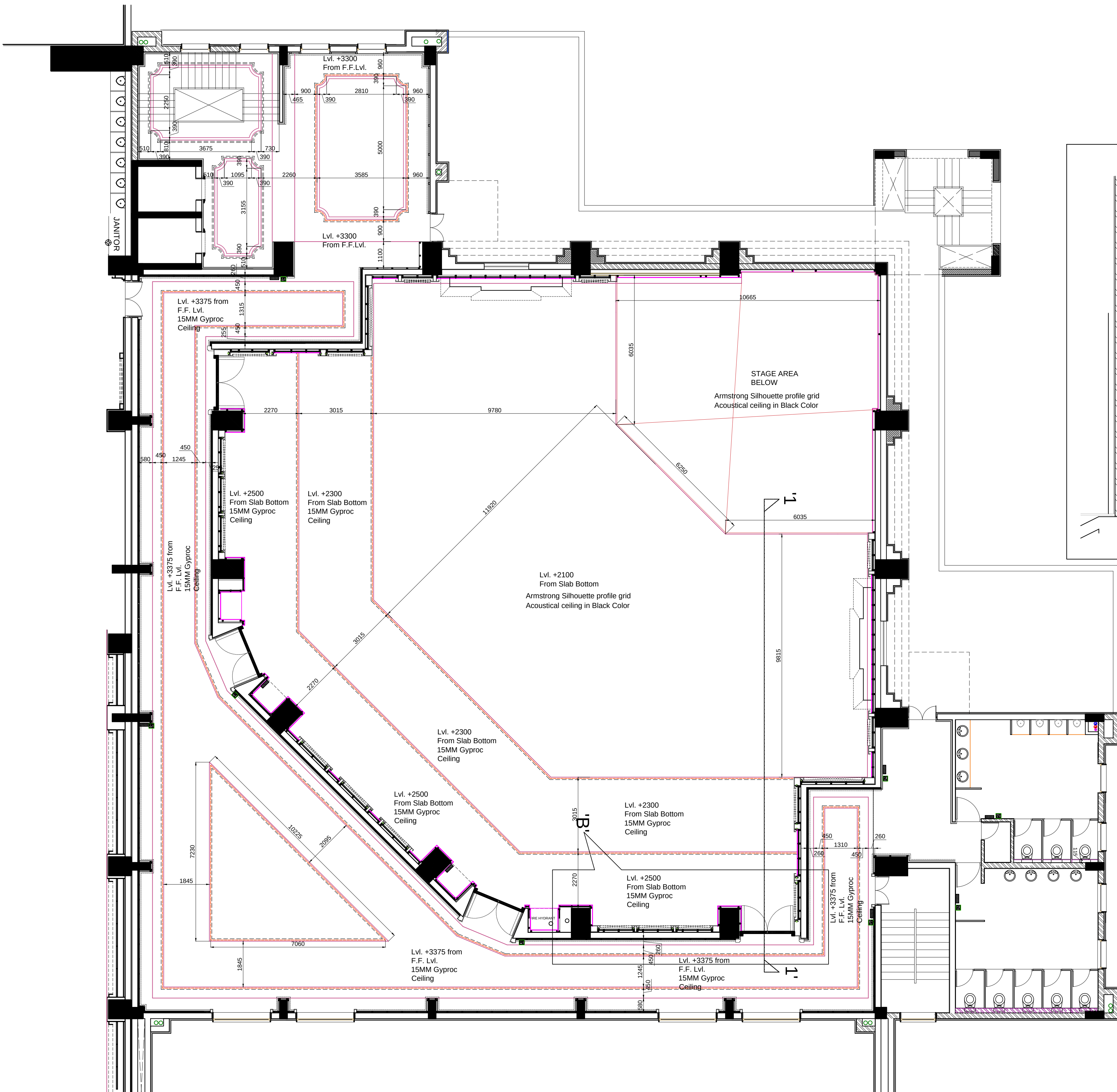
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REGISTRATION NO. CA/80/5681
C-6, MOTI MARG, BAPU NAGAR
JAIPUR 302015
PH. NO: 0141 - 2 719 022 / 23
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E-MAIL : arkitectpj@gmail.com

DATE
24 / 06 / 2020

DONE BY
MANISH

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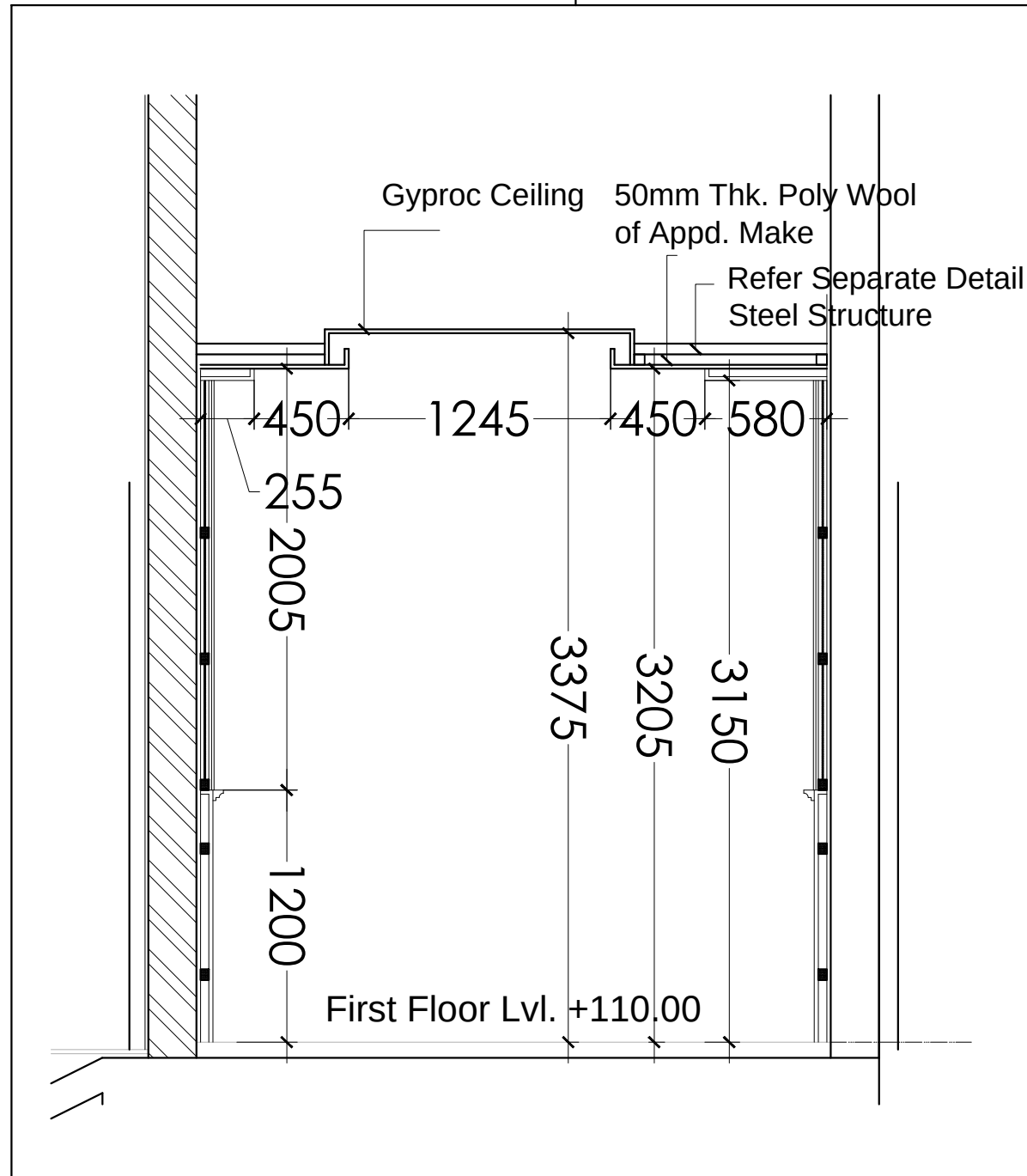
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CORRIDOR CEILING SECTIONAL
DETAIL

REVISION		
REVISION	DATE	DESCRIPTION

DRG. NO. RIC / INT / WD / 08 / 158

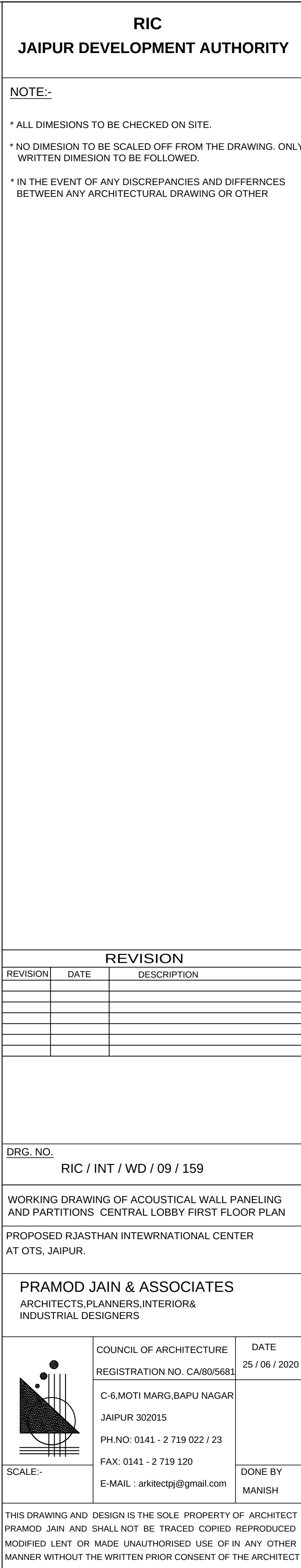
REFLECTED CEILING (ACOUSTICAL) WORKING
PLAN AUDITORIUM AND WAITING LOBBY FIRST FLOOR

PROPOSED RJASTHAN INTEWNRNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE	DATE
	REGISTRATION NO. CA/80/5681	24 / 06 / 2020
	C-6, MOTI MARG, BAPU NAGAR JAIPUR 302015	
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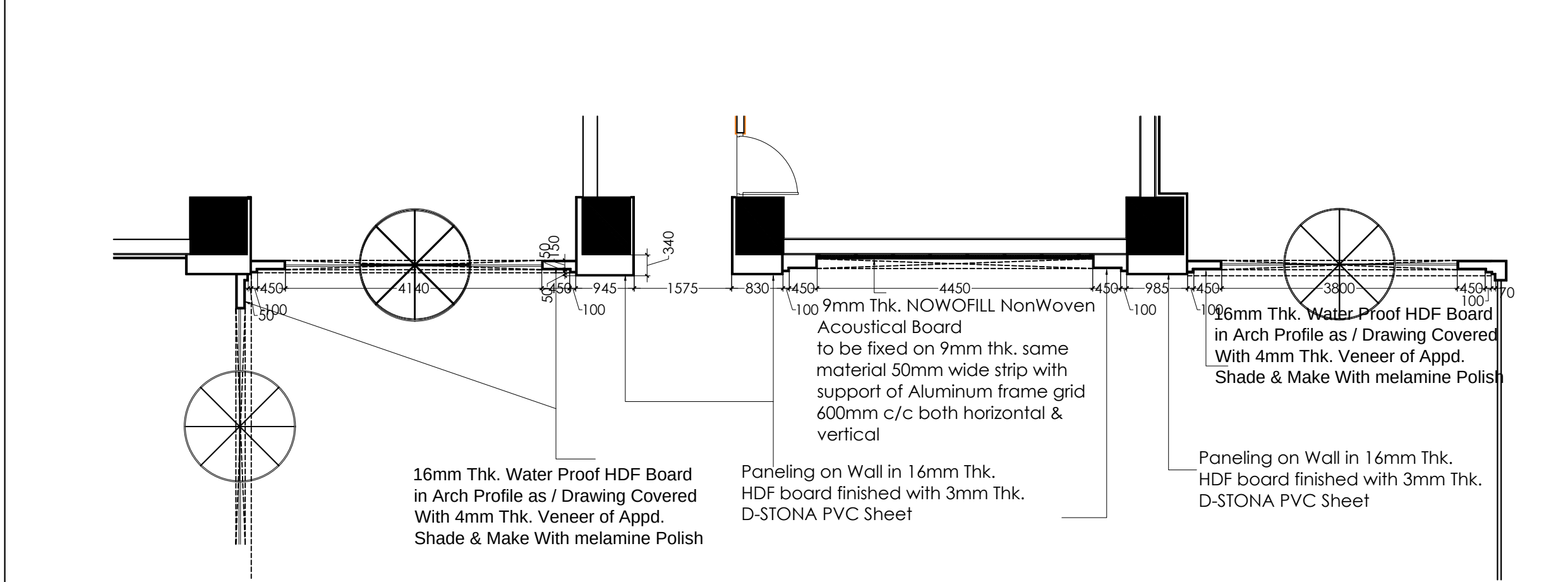
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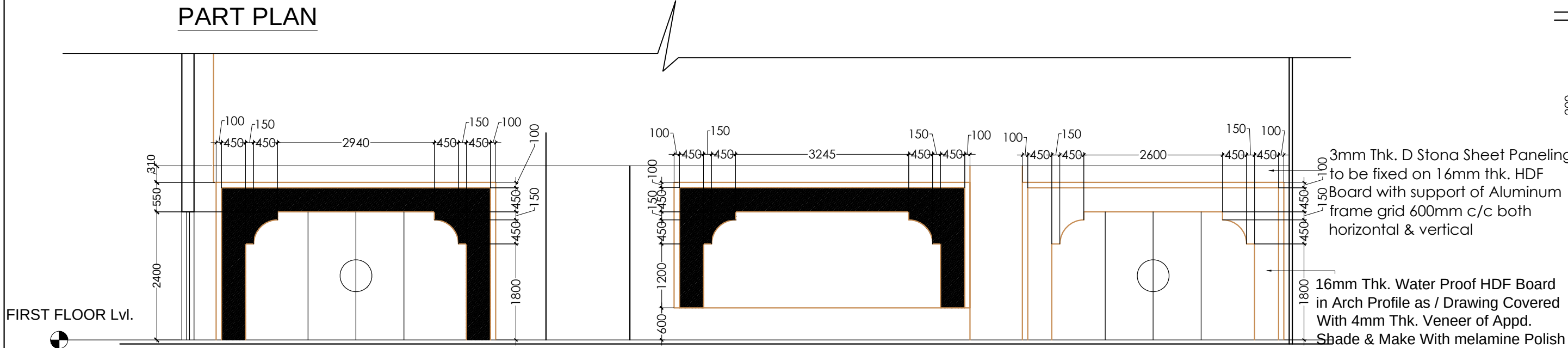
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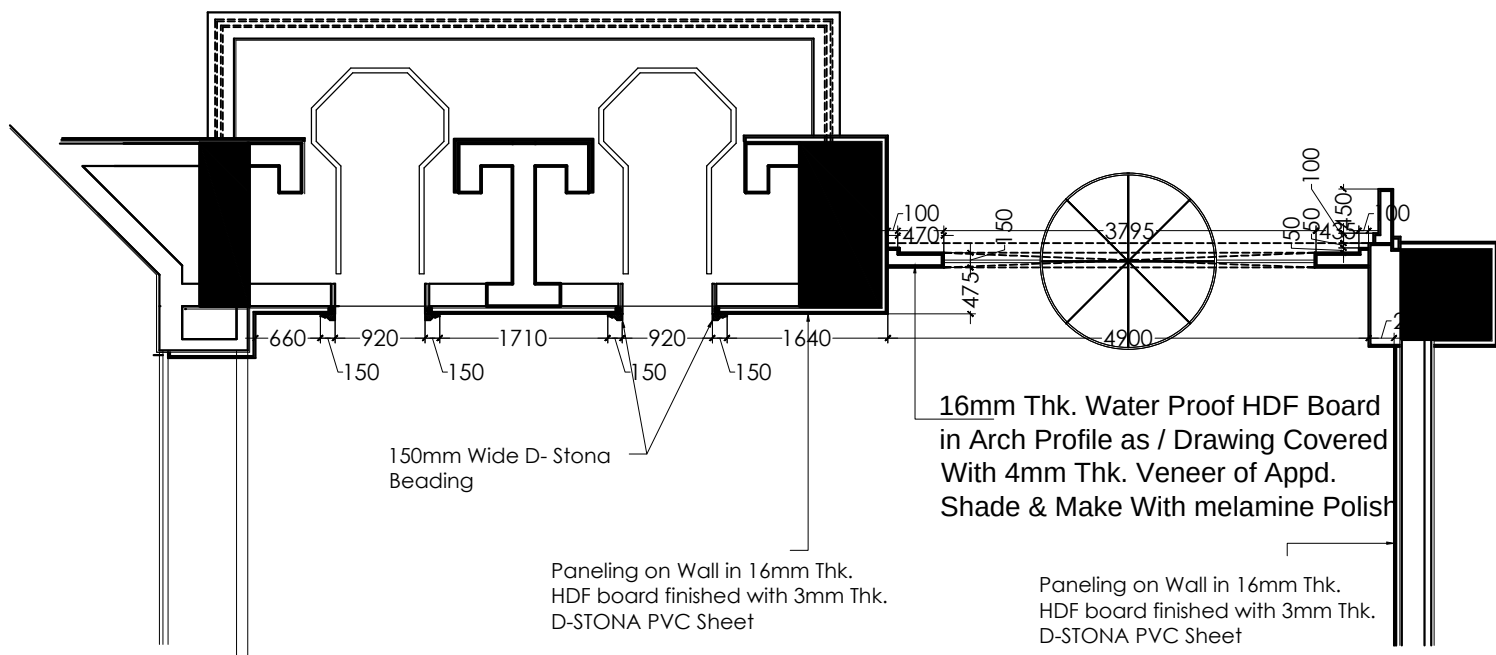
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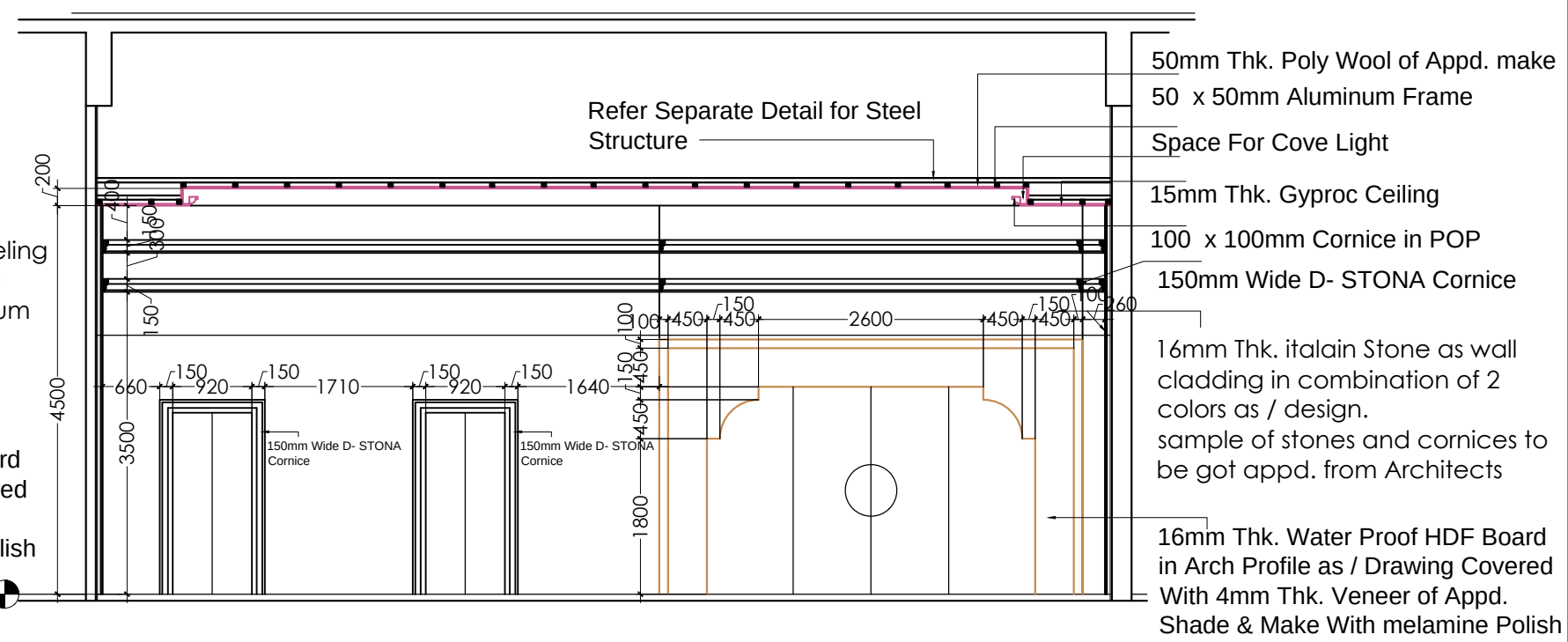
PART PLAN



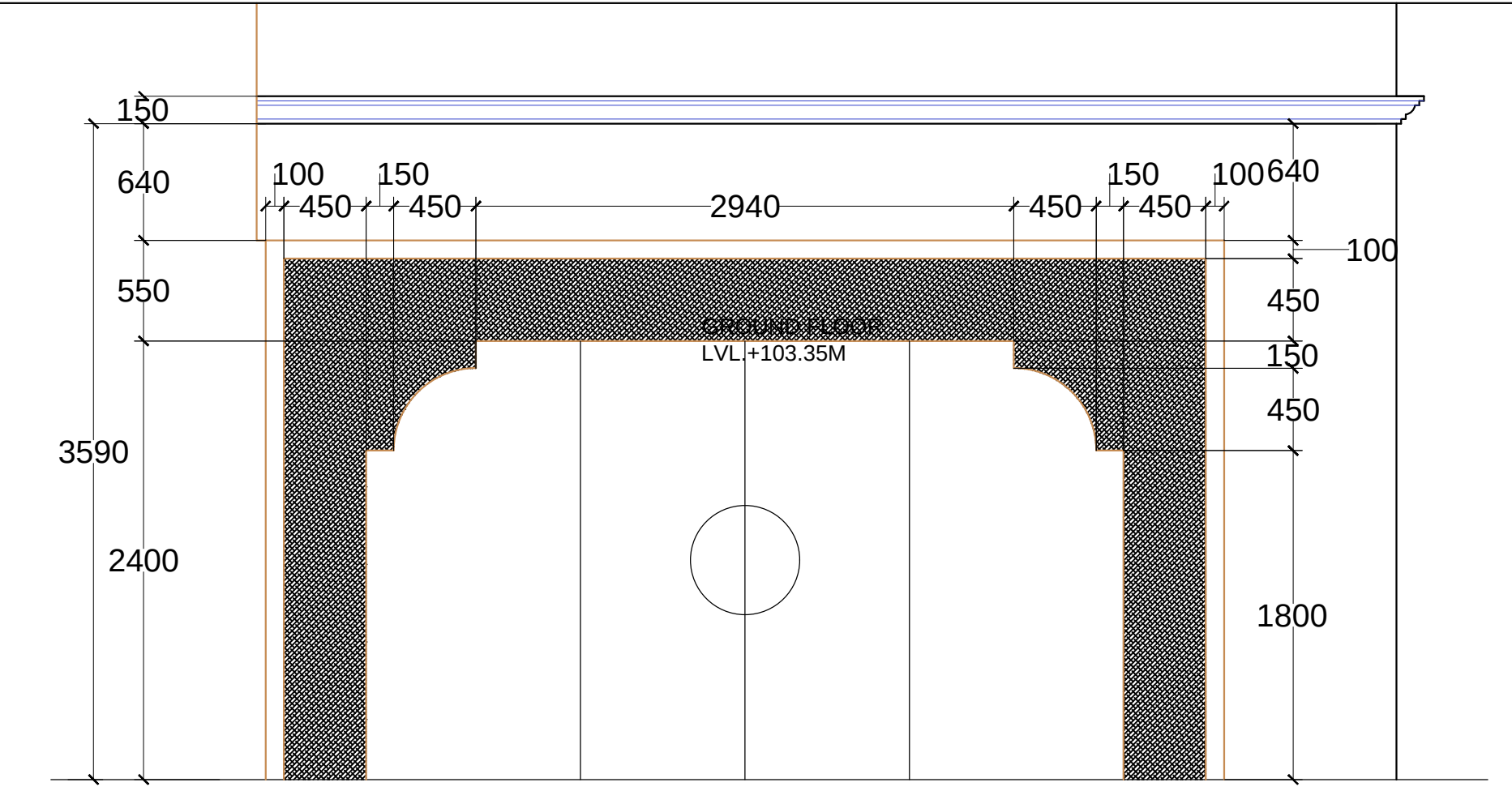
WALL ELEVATION



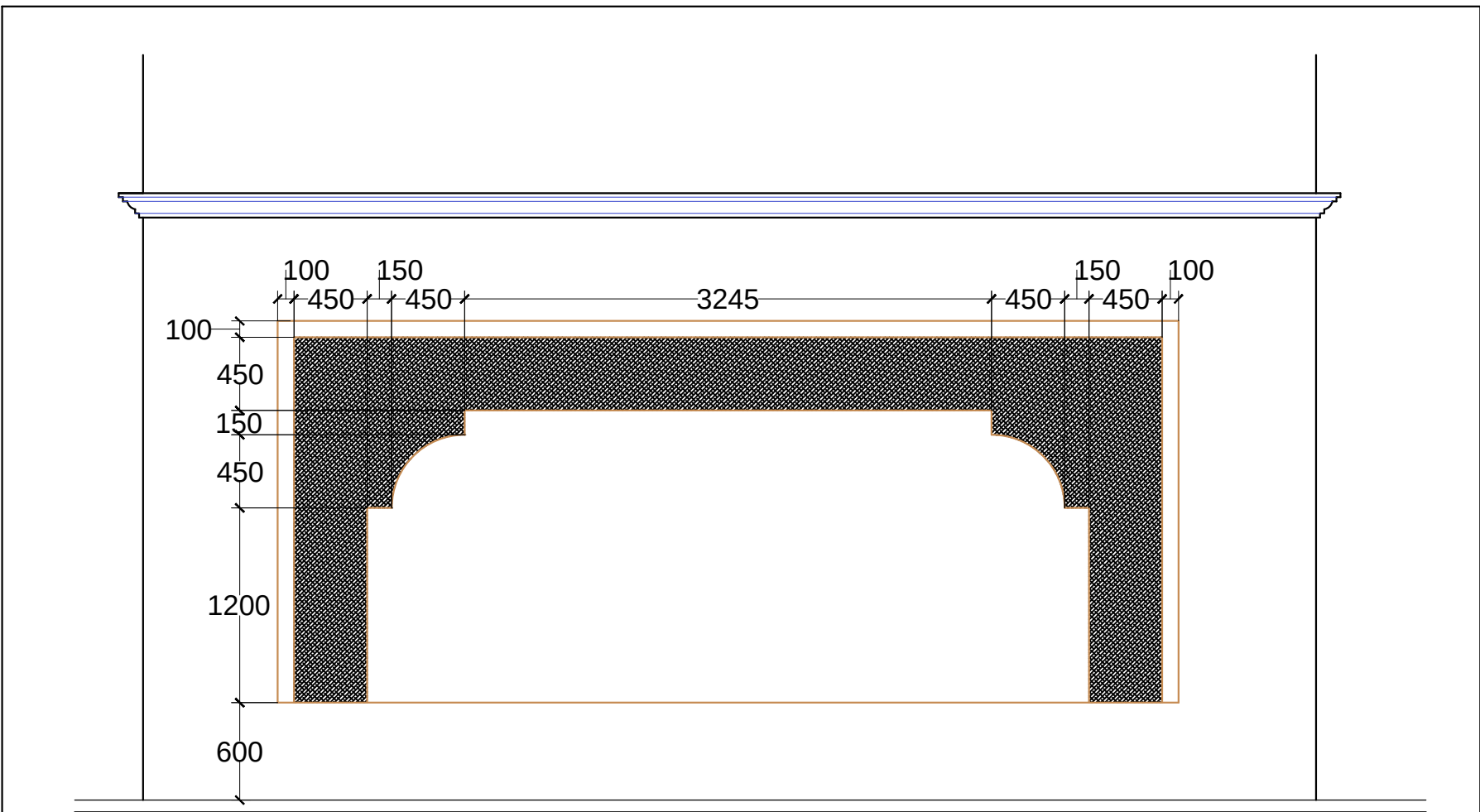
PART PLAN STAIRCASE LOBBY



STAIR LOBBY CROSS SECTION - '2'



PRE FUNCTIONS ENTRY GATE



TOILET WALL PANELING

REVISION

REVISION	DATE	DESCRIPTION

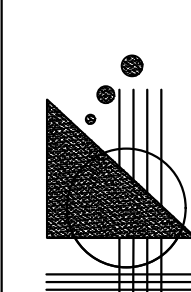
DRG. NO.

RIC / INT / WD / 10 / 160

SECTIONAL DETAIL SHEET
CENTRAL LOBBY FIRST FLOOR

PROPOSED RJASTHAN INTERNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/80/5681	DATE 25 / 06 / 2020
	C-6, MOTI MARG, BAPU NAGAR JAIPUR 302015 PH. NO: 0141 - 2 719 022 / 23 FAX: 0141 - 2 719 120 E-MAIL: arkitectpj@gmail.com	DONE BY MANISH

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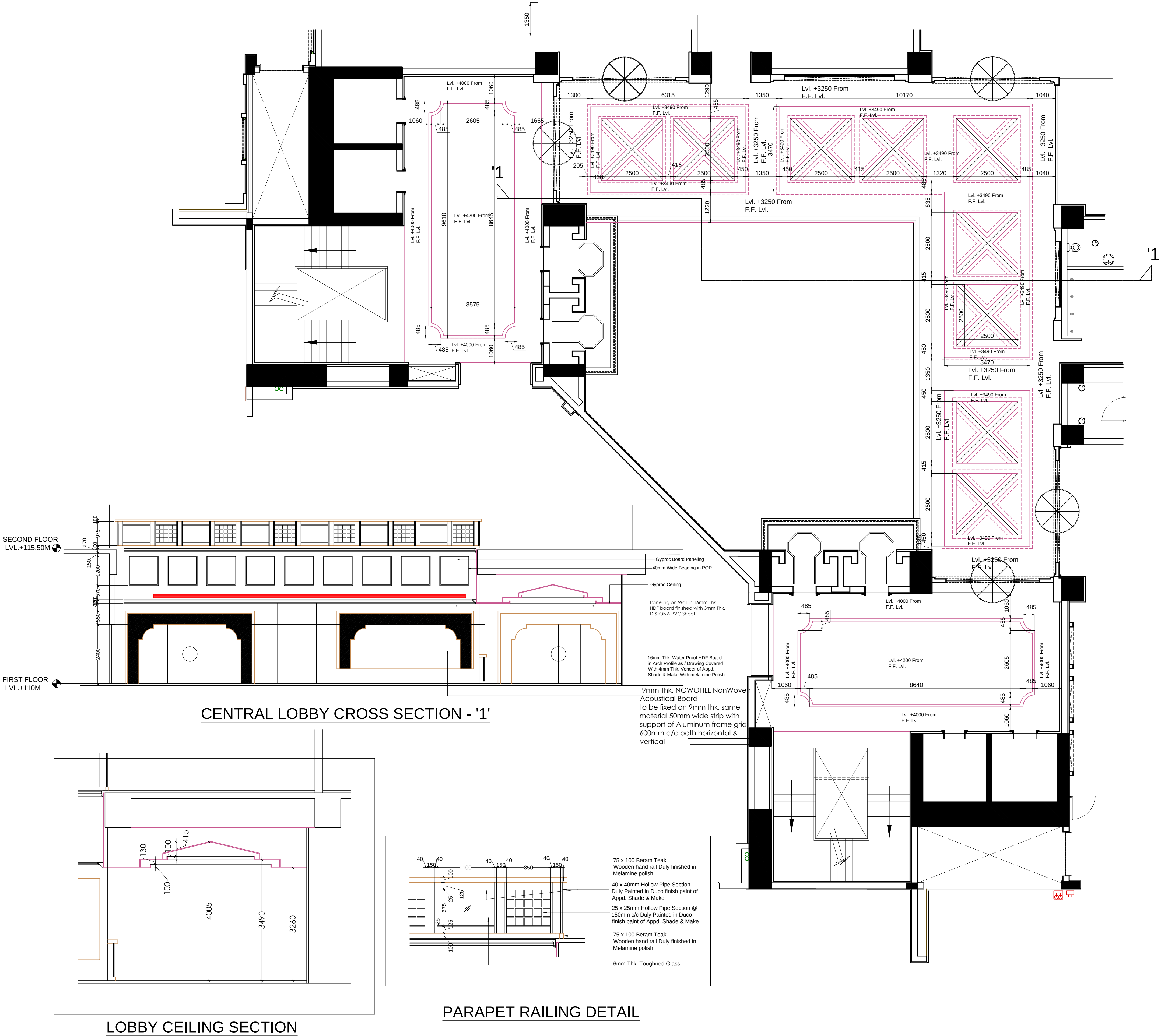
REVISION		
REVISION	DATE	DESCRIPTION

DRG. NO.
RIC / INT / WD / 11 / 161
WORKING DRAWING FOR REFLECTED
CEILING (ACOUSTICAL) PLAN
CENTRAL LOBBY FIRST FLOOR PLAN
PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE	DATE
	REGISTRATION NO. CA/80/5681	25 / 06 / 2020
	C-6, MOTI MARG, BAPU NAGAR JAIPUR 302015	
	PH. NO: 0141 - 2 719 022 / 23 FAX: 0141 - 2 719 120 E-MAIL : arkitectpj@gmail.com	DONE BY MANISH

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Wall Paneling Layout Plan

[illegible]

RIC / INT / WD / 12 / 162

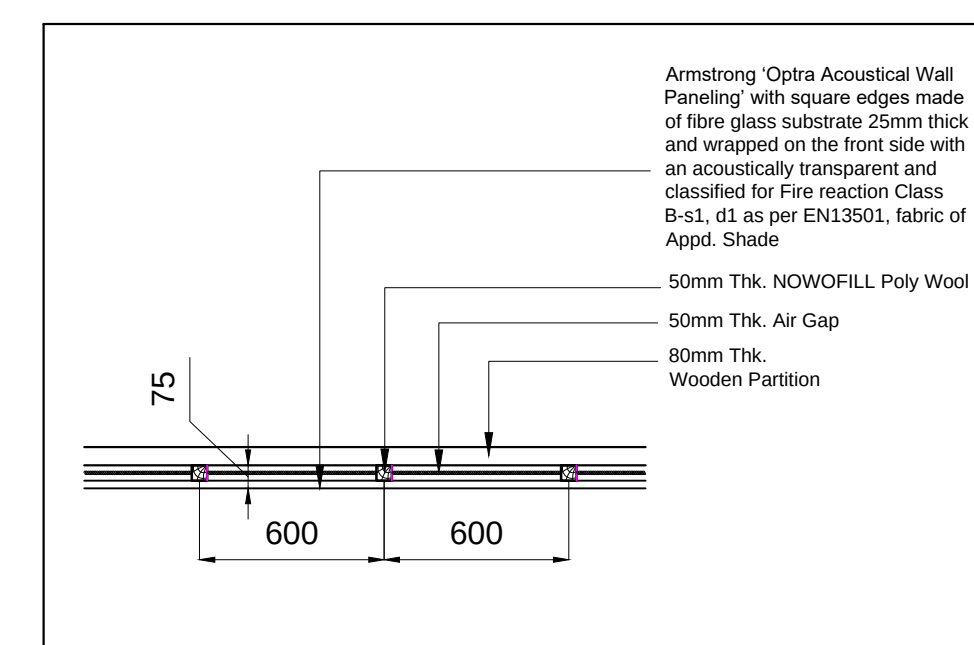
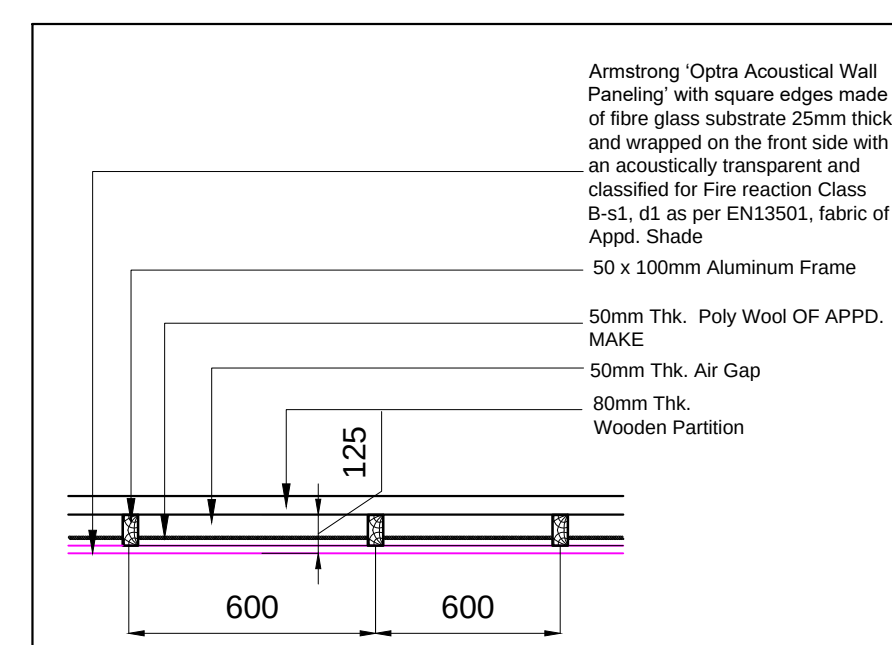
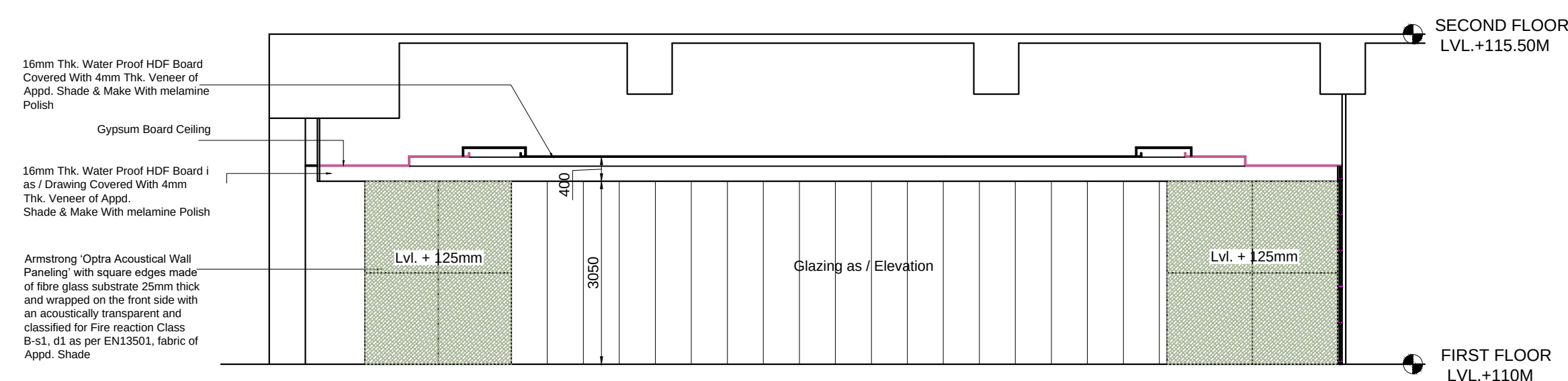
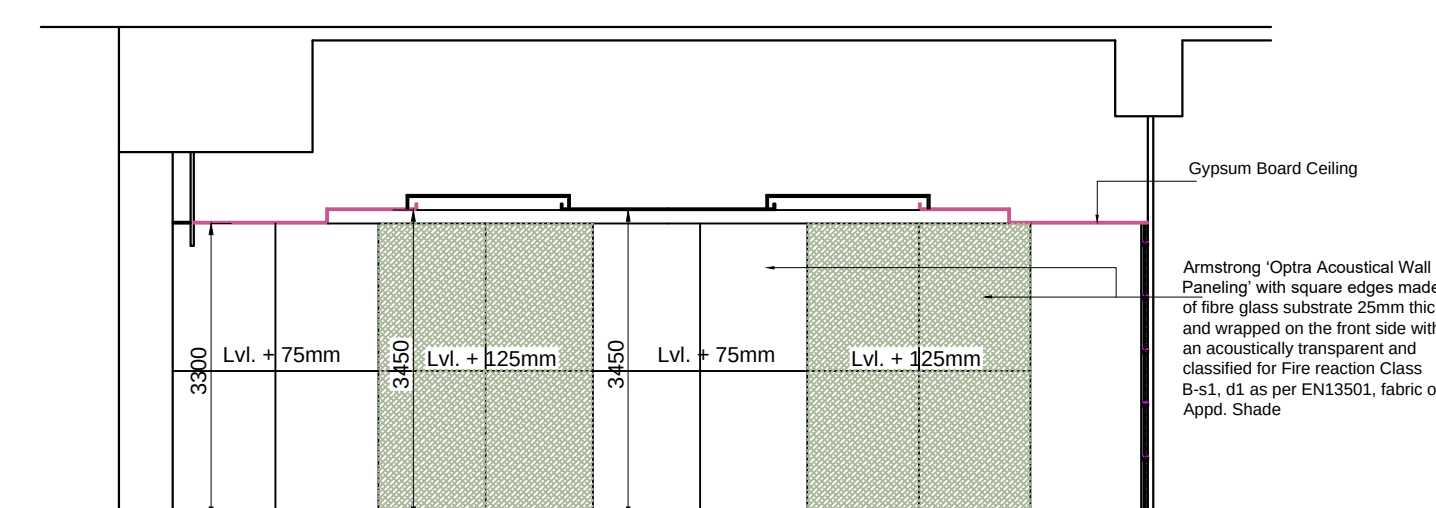
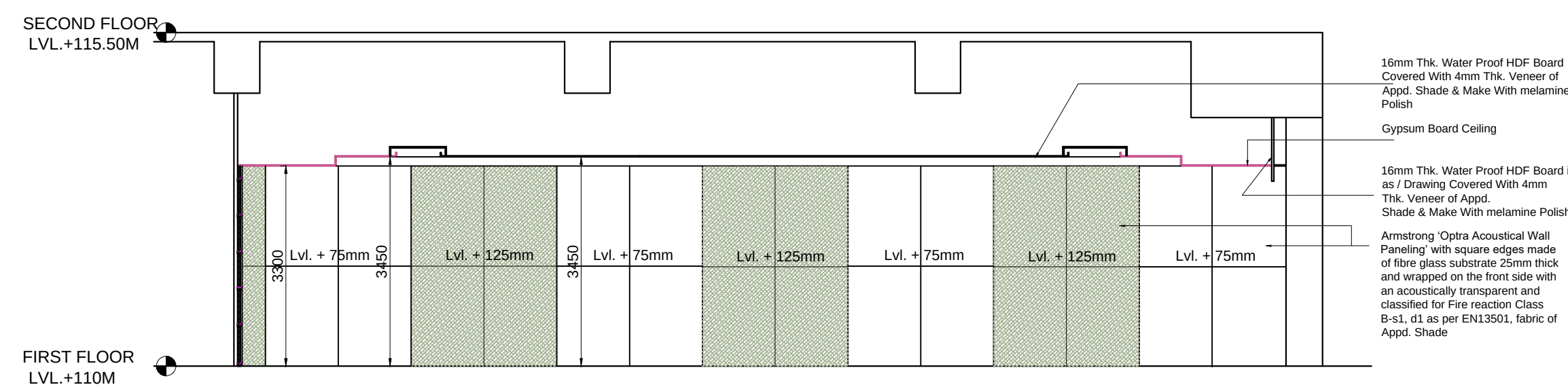
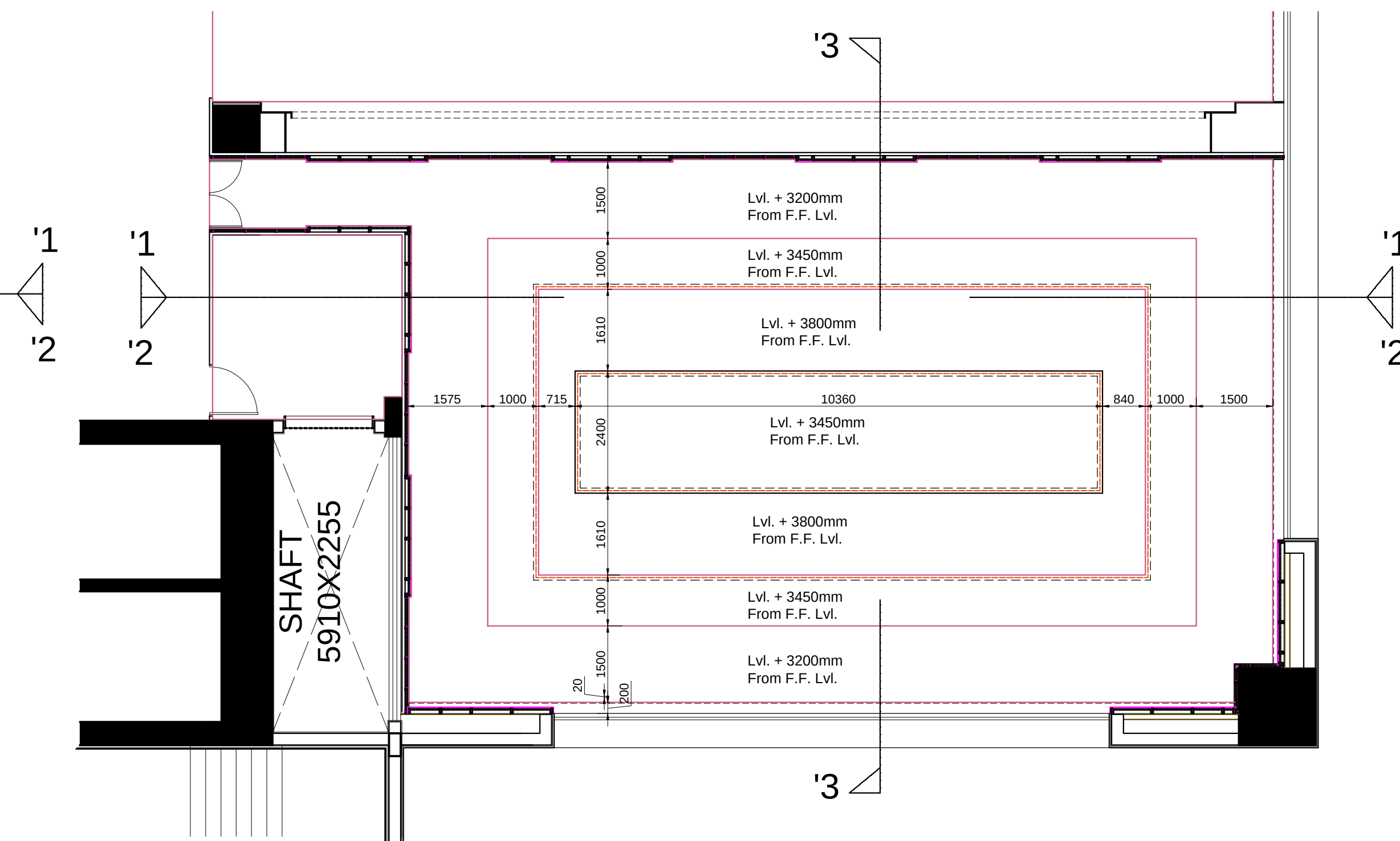
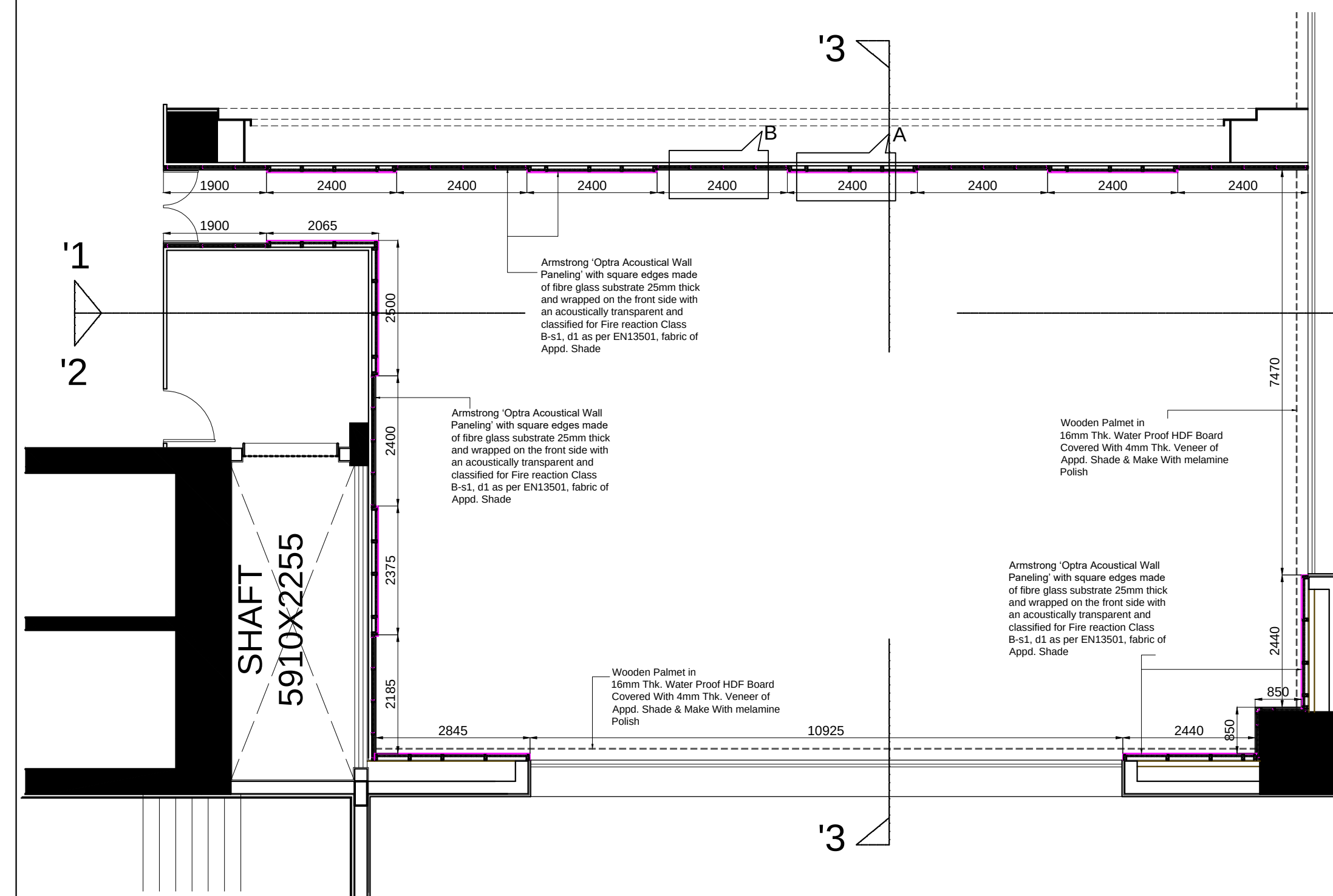
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AT OTS, JAIPUR.

FAX: 0141 2310120

26 / 06 / 2020

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MANISH

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RIC
JAIPUR DEVELOPMENT AUTHORITY

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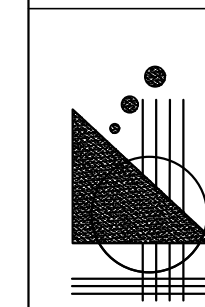
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DRG. NO. RIC / INT / WD / 13 / 163

WORKING DRAWING FOR PARTITION,
PANELING AND CEILING (ACOUSTICAL)DETAIL
CONFERENCE ROOM FIRST FLOOR PLAN

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

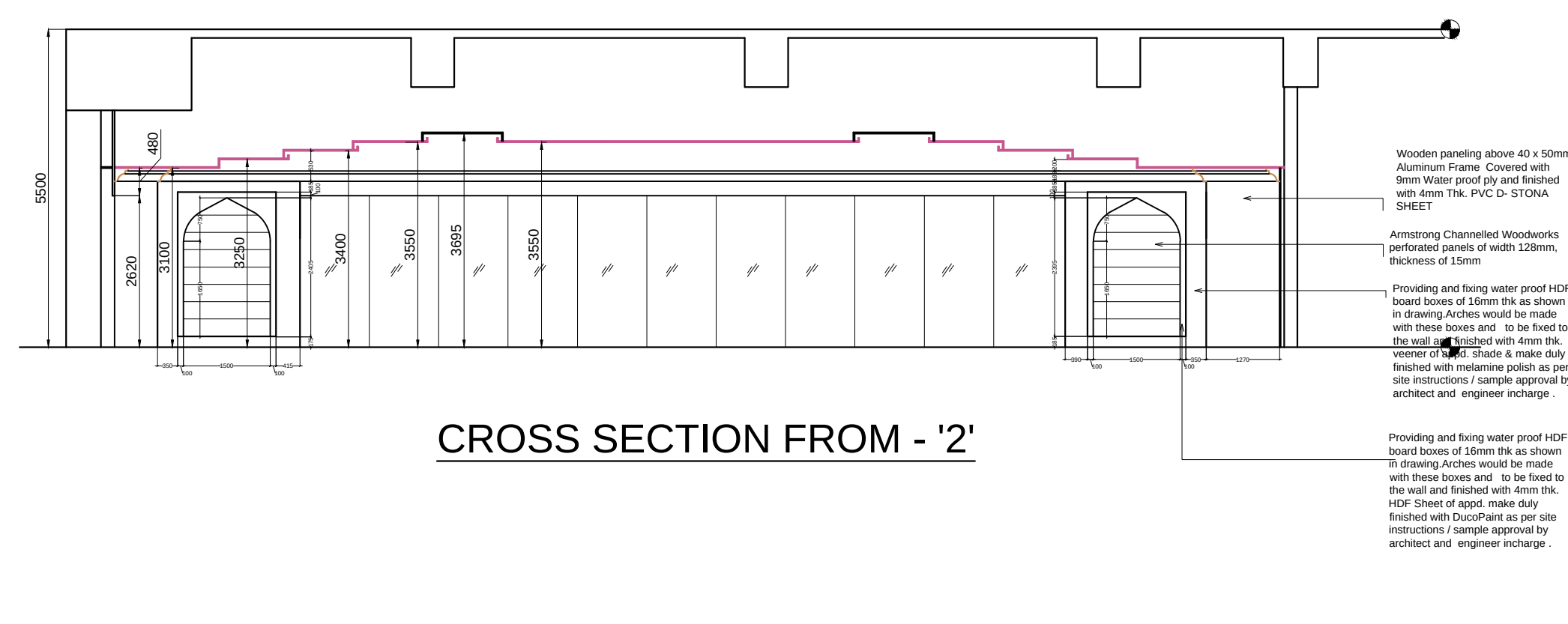
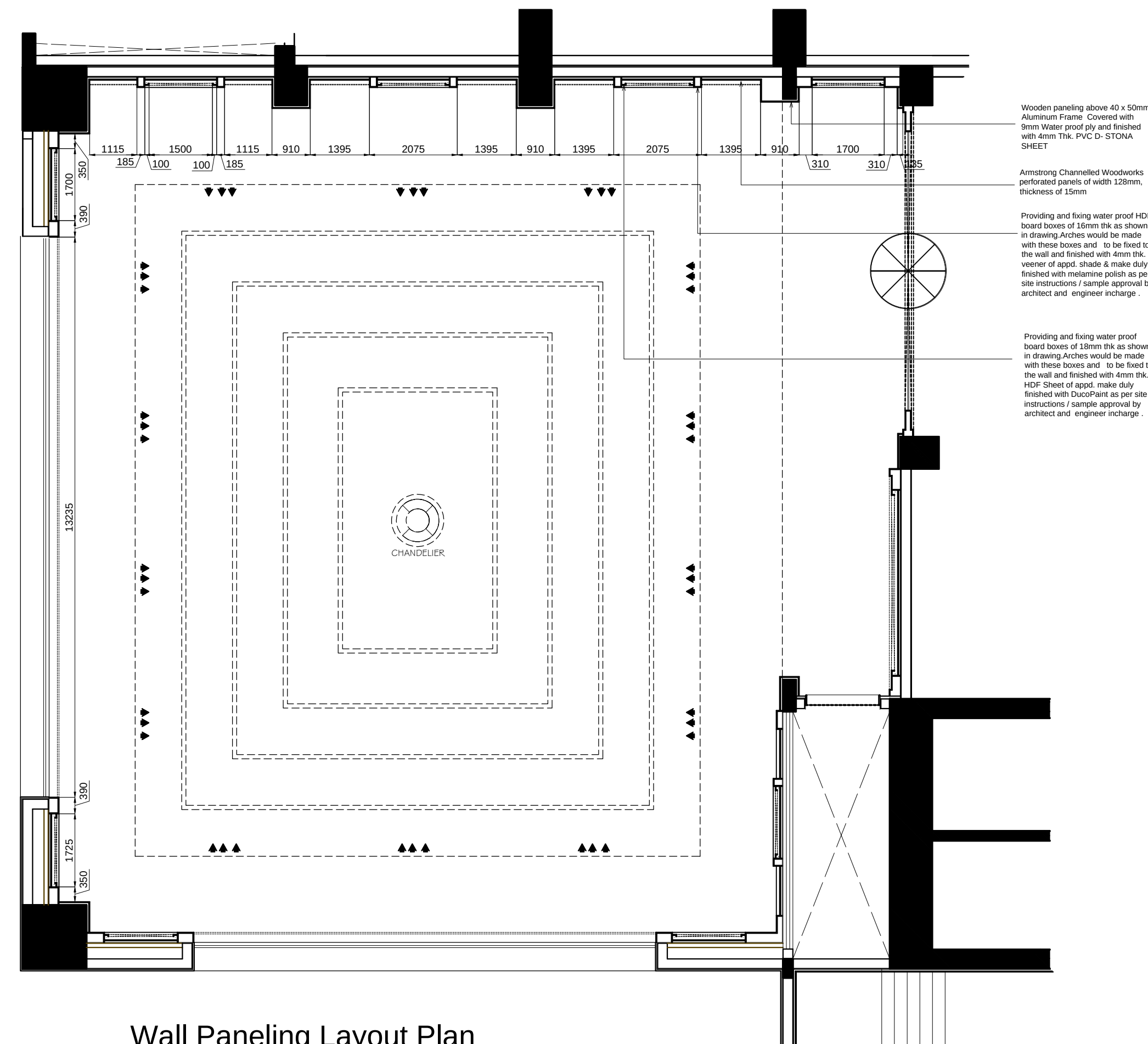
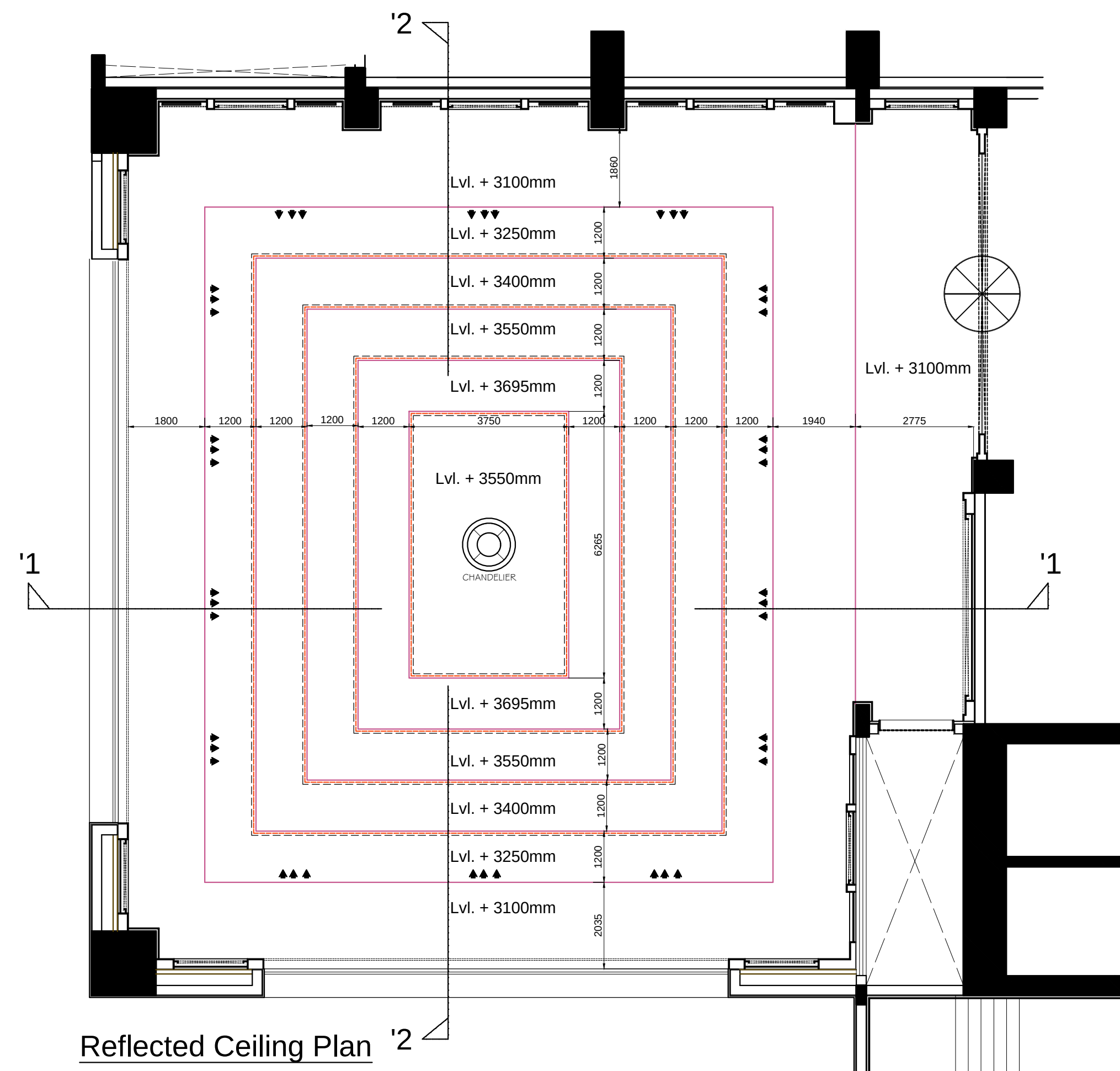
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[illegible]

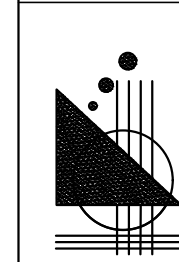
DRG. NO.	

RIC / INT / WD / 14 / 164

WORKING DETAIL OF PARTITION, PANELING AND
CEILING (ACOUSTICAL) DETAIL
MULTI PURPOSE HALL FIRST FLOOR PLAN

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

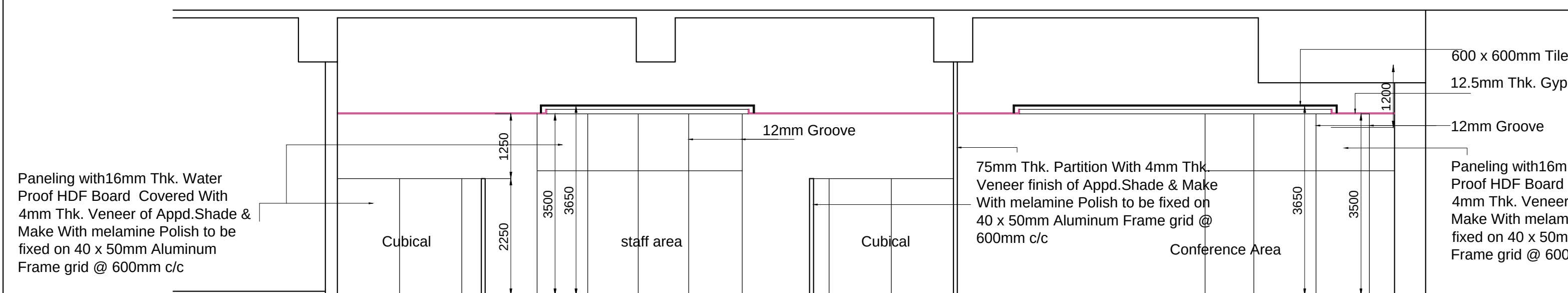
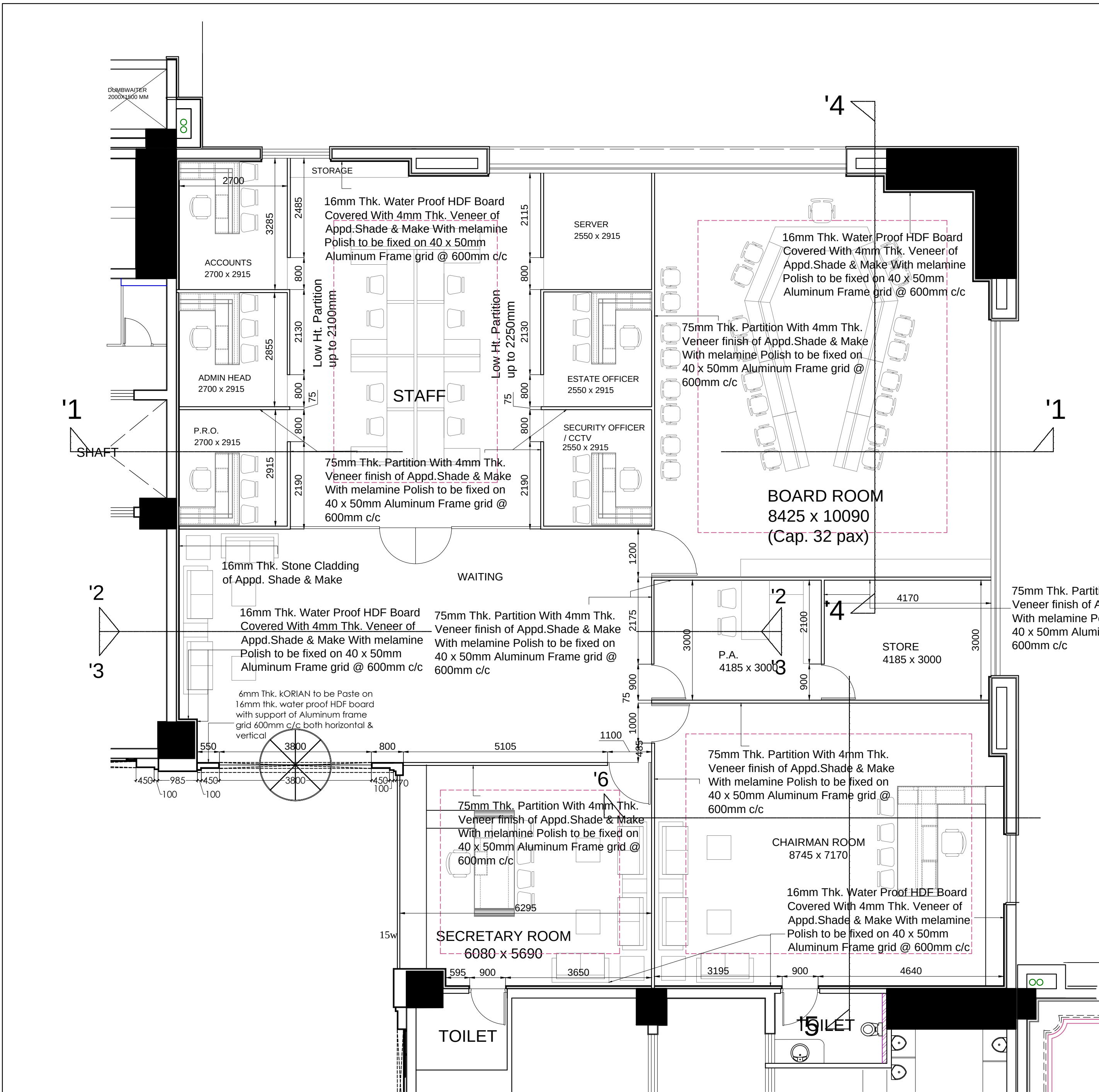
PRAMOD JAIN & ASSOCIATES
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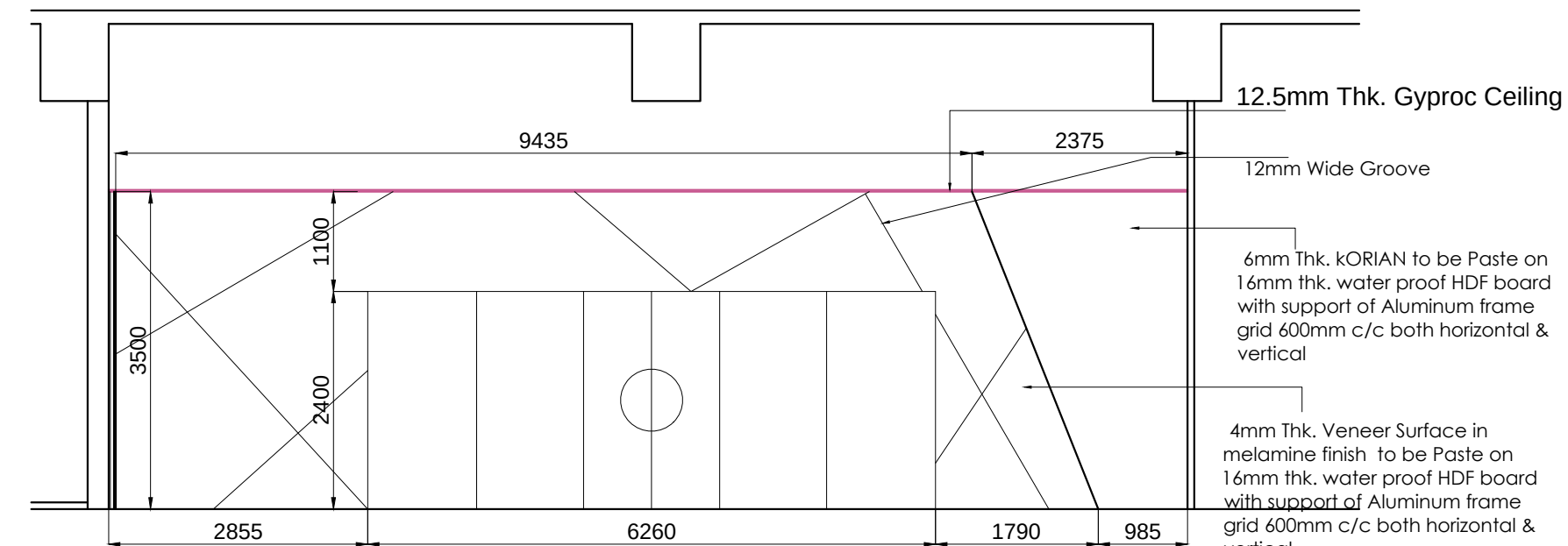
DATE
26 / 06 / 2020

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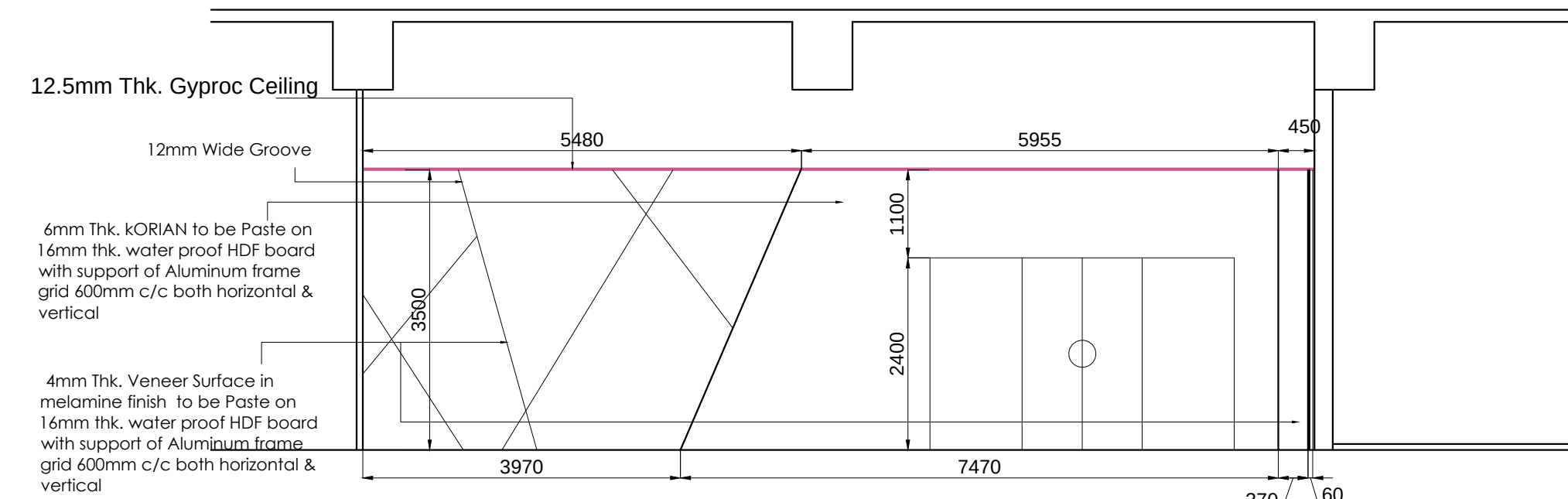
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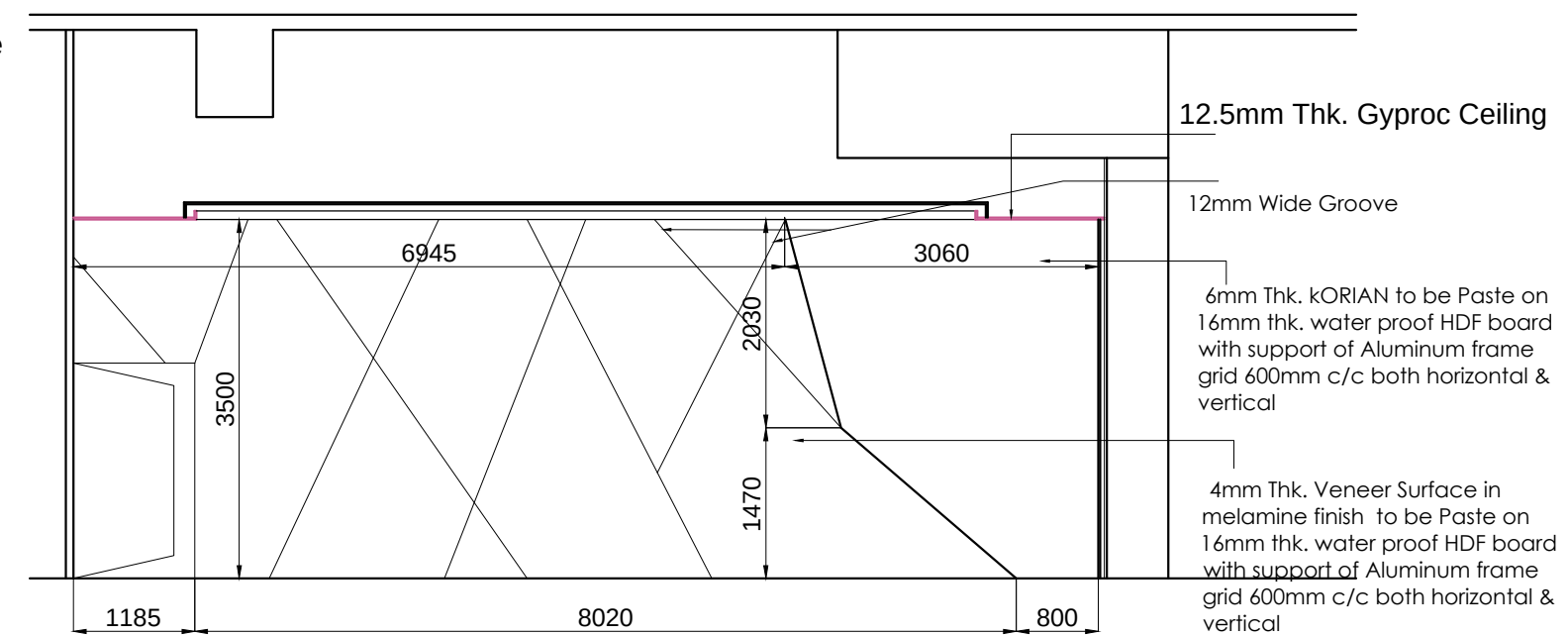
SECTIONAL ELEVATION AT - '1-1'



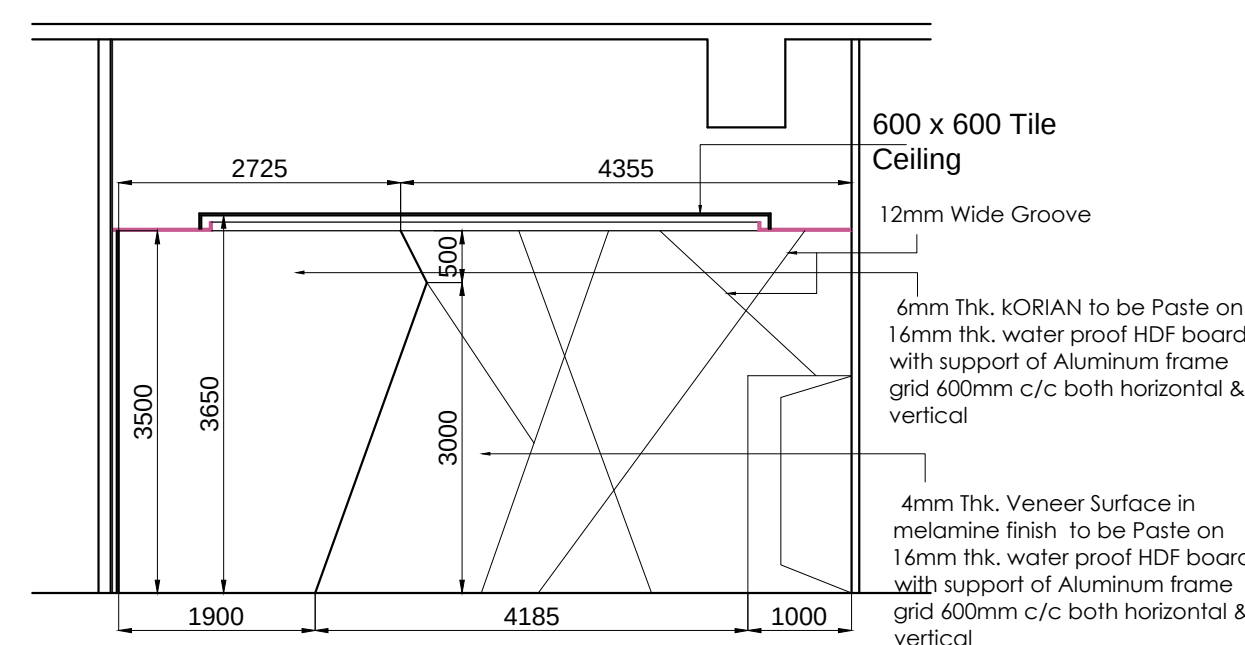
SECTIONAL ELEVATION AT - '2-2'



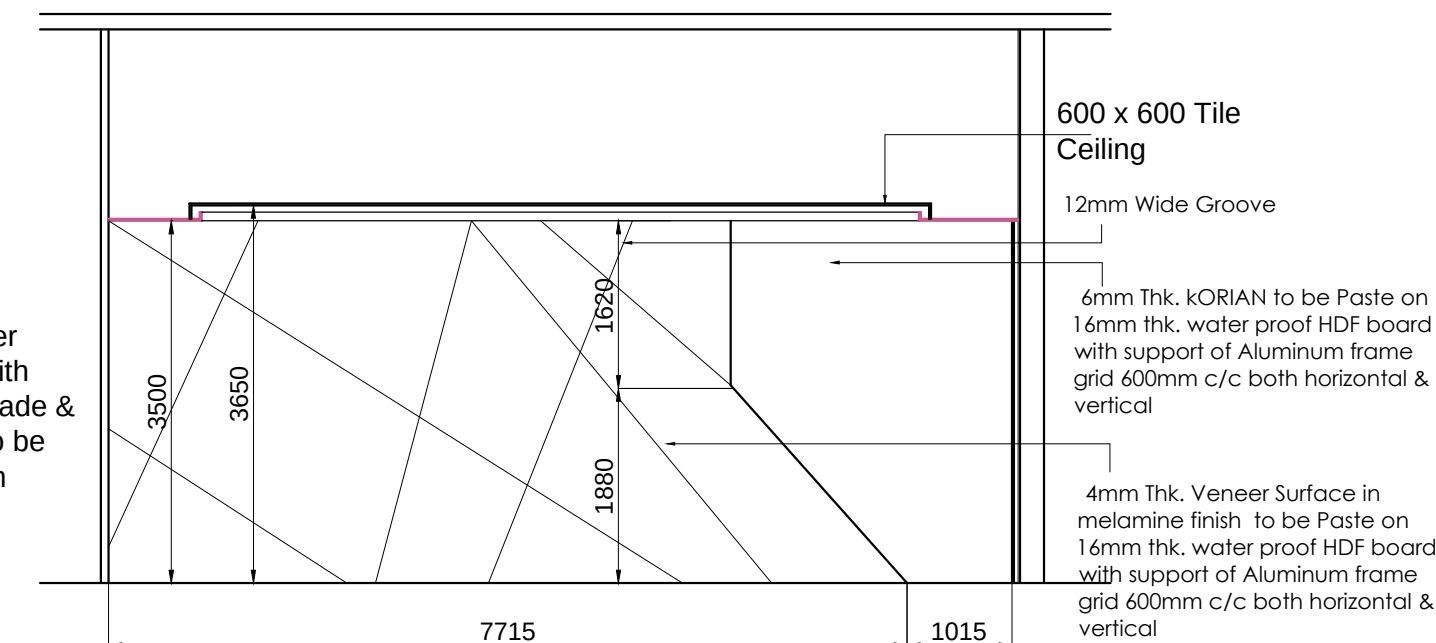
SECTIONAL ELEVATION AT - '3-3'



SECTIONAL ELEVATION AT - '4-4'



SECTIONAL ELEVATION AT - '5'



SECTIONAL ELEVATION AT - '6'

RIC
JAIPUR DEVELOPMENT AUTHORITY

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REVISION

REVISION	DATE	DESCRIPTION

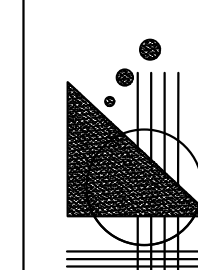
DRG. NO.

RIC / INT / WD / 15 / 165

ADMINISTRATIVE BLOCK FIRST FLOOR
WORKING DRAWING PARTITION AND
PANELING (ACOUSTICAL) DETAIL

PROPOSED RJASTHAN INTEWRNATIONAL CENTER
AT OTS, JAIPUR.

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/80/5681	DATE 26 / 06 / 2020
	C-6 MOTI MARG, BAPU NAGAR JAIPUR 302015 PH. NO: 0141 - 2 719 022 / 23 FAX: 0141 - 2 719 120 E-MAIL : arkitectpj@gmail.com	DRAWN BY MANISH

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This architectural floor plan depicts a complex of interconnected buildings, possibly a school or institutional facility. The plan is oriented with a north arrow pointing towards the top right. Key features include:

- Top Left Building:** A large rectangular structure with a grid of rooms. Labeled areas include "DRIVER'S LOUNGE" and "UNDERPASS".
- Central Building:** A smaller structure with a "LOBBY" and "BICYCLE PARKING" area.
- Bottom Right Building:** A large, multi-story structure with a "2 WHEELER PARKING" area and a "BICYCLE PARKING" area.
- Outdoor Spaces:** Several outdoor areas are shown, including a "COURTYARD" and a "PARKING LOT".
- Annotations:** The plan includes numerous dimensions, room numbers, and descriptive labels for various spaces and features.

Handwritten notes in the bottom right corner include "1000" and "1000", likely indicating dimensions or scale.

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Wiring Angle	Symbol	DESCRIPTION
CEILING		SMOKE DETECTOR
1/2"		SWITCH BOARD
+ 24-00		1/4" POWER SOCKET WITH 1 EA. SWITCH
- 7/2		Light CB.
1100"	—	1/8
- 7/2		Carry JB
ceiling	—	Light Crown 2.2.5 x 1.1 1/2" Diameter
ceiling	—	Weld Crown 2.2.5 x 1.1 1/2" Diameter
ceiling	—	Peak Welding 3.1 1/2" x 1.1 1/2" x 1.1 1/2"
ceiling	—	4.1 1/2" x 1.1 1/2" x 1.1 1/2" x 1.1 1/2"
ceiling	—	4.1 1/2" x 1.1 1/2" x 1.1 1/2" x 1.1 1/2"

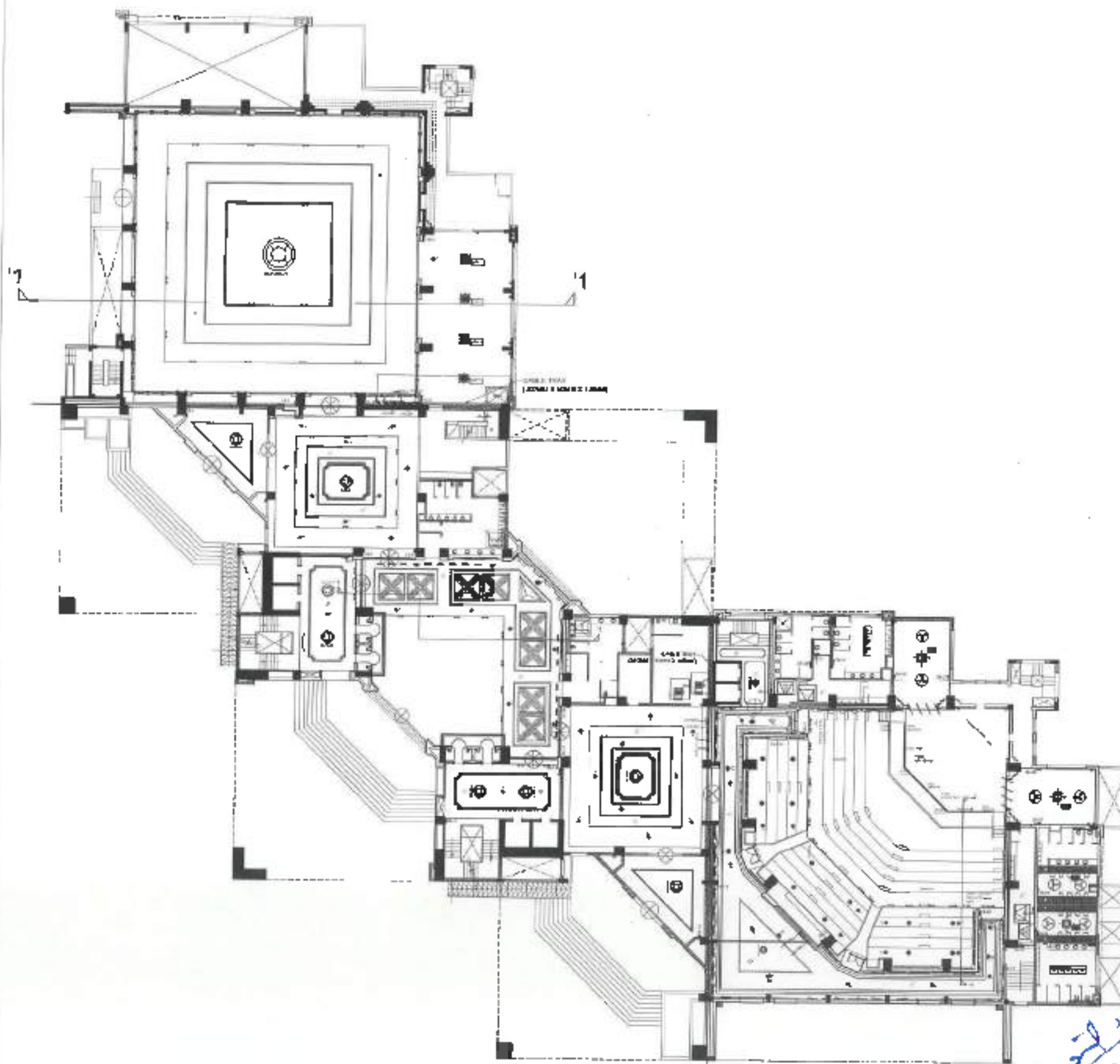
REV	DATE	DESCRIPTION

SMOKE DETECTOR PLAN
LOWER GROUND FLOOR

CURRENT INFRAPROJECTS PVT LTD
A-27, Bhakra Village, Vaikath Mangi Wadi Road, Indore - 462016, Rajasthan
T-066, Gurgaon, India
E-mail: info@currentinfra.com

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/REG/661	DATE - 21-07-2020
	CH. MOD NUNG SANG NAGAR, JAIPUR-302013 PHONE 0141 - 2 711022 / 13 PAN 041 - 2719 120 E-MAIL : chamodnung@gmail.com	NOTED - DRAWN BY - ABHINAV

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RAJASTHAN INTERNATIONAL CENTER, JAIPUR.

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LEGEND

Symbol No.	Symbol	Description
CE 100		100mm dia. Conduit
CE 150		150mm dia. Conduit
CE 200		200mm dia. Conduit
CE 250		250mm dia. Conduit
CE 300		300mm dia. Conduit
CE 350		350mm dia. Conduit
CE 400		400mm dia. Conduit
CE 450		450mm dia. Conduit
CE 500		500mm dia. Conduit
CE 550		550mm dia. Conduit
CE 600		600mm dia. Conduit
CE 650		650mm dia. Conduit
CE 700		700mm dia. Conduit
CE 750		750mm dia. Conduit
CE 800		800mm dia. Conduit
CE 850		850mm dia. Conduit
CE 900		900mm dia. Conduit
CE 950		950mm dia. Conduit
CE 1000		1000mm dia. Conduit
CE 1050		1050mm dia. Conduit
CE 1100		1100mm dia. Conduit
CE 1150		1150mm dia. Conduit
CE 1200		1200mm dia. Conduit
CE 1250		1250mm dia. Conduit
CE 1300		1300mm dia. Conduit
CE 1350		1350mm dia. Conduit
CE 1400		1400mm dia. Conduit
CE 1450		1450mm dia. Conduit
CE 1500		1500mm dia. Conduit
CE 1550		1550mm dia. Conduit
CE 1600		1600mm dia. Conduit
CE 1650		1650mm dia. Conduit
CE 1700		1700mm dia. Conduit
CE 1750		1750mm dia. Conduit
CE 1800		1800mm dia. Conduit
CE 1850		1850mm dia. Conduit
CE 1900		1900mm dia. Conduit
CE 1950		1950mm dia. Conduit
CE 2000		2000mm dia. Conduit

DRG NO.

RIC / FI / WD / 23 / 266

CABLE TRAY PLAN
UPPER GROUND FLOOR

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT JHALANA, JAIPUR

CURRENT INFRAPROJECTS PVT LTD
A-27, Sector 10, Gurgaon, Haryana, India. Phone: 012-941-XXXX
Toll Free: 1800-123-XXXX
Email: info@infraprojects.com

PREPARED BY
PRAMOD JAIN & ASSOCIATES
ARCHITECTS PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	BOARD OF ARCHITECTURE REGISTRATION NO. CA-000001	DATE: 21-08-2018
	C-4 NOTHANGPUR JAIPUR, RAJASTHAN	SCALE: 1:100
	FOR THE YEAR: 2018-2019	DRAWN BY: ARSHIT
	FOR THE YEAR: 2018-2019	CHECKED BY: ARSHIT

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This is a detailed architectural floor plan of a building. The plan shows a complex layout with multiple rooms, corridors, and a large central hall. Key features include:

- Rooms and Spaces:** There are several rooms of varying sizes, including a large central hall, a smaller room with a circular feature, and a room with a large window. The plan also shows a series of rooms along the right side, possibly a wing or a section of the building.
- Corridors and Entrances:** The plan shows a network of corridors and entrances, with some areas marked with 'X' symbols, possibly indicating doors or windows.
- Structural Elements:** The plan includes various structural elements such as walls, columns, and beams, represented by different line styles and symbols.
- Scale and Orientation:** A scale bar is located in the bottom right corner, and a north arrow is positioned in the top right corner.
- Handwritten Notes:** There are some handwritten notes and markings on the plan, including the number '1' in the top right corner and some text in the bottom right corner.

The plan is drawn in a technical style, using precise lines and symbols to represent the building's layout and features.

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RELATED FOR CONSTRUCTION.

LEGEND:		
Meaning/Range	Symbol	DESCRIPTION
1/4" B.C.		BRIDGE CONNECTION
+4.2"		PATCH PLATE
+1.2" to 4.5"		1.5" SQUARE SOCKET WITH 1.5" TYPICAL
+7.2"		1.5" x 7.2"
+10.2"		1.5"
+7.2"		2.0" x 7.2"
casting		Left Column 22.5" x 1.5" Slag and steel
casting		Right Column 22.5" x 1.5" Slag and steel
rod/pipe		Post Along 2nd Slag and Column
decking		22.5" x 1.5" Slag and 3rd Slag and Column
rod/pipe		Post Along 22.5" x 1.5" Slag and Column

REV.	DATE	DESCRIPTION

RIG / EL / WD / 26 / 267

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR IDA AT JHALANA, JAIPUR

CURRENT INFRAPROJECTS PVT LTD
A-27, Rajpoot Vihar, Vardoli, Wagle Road, Pune, Maharashtra - 411 004, India
Tel: +91 20 42424243
E-mail: info@currentinfra.com

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIORS &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTS REGISTRATION NO. C-106161	DATE: 21/03/2014
	C-4, KOTTAMANGALAM VADAI, KUPPUR KOTTA PUNJICODI - 627942 (T.N.) FAX: 0441 - 2119120	NORTH -
SCALE: NTS	EMAIL: info@capgovern.com	DRAWN BY: ABHINAV

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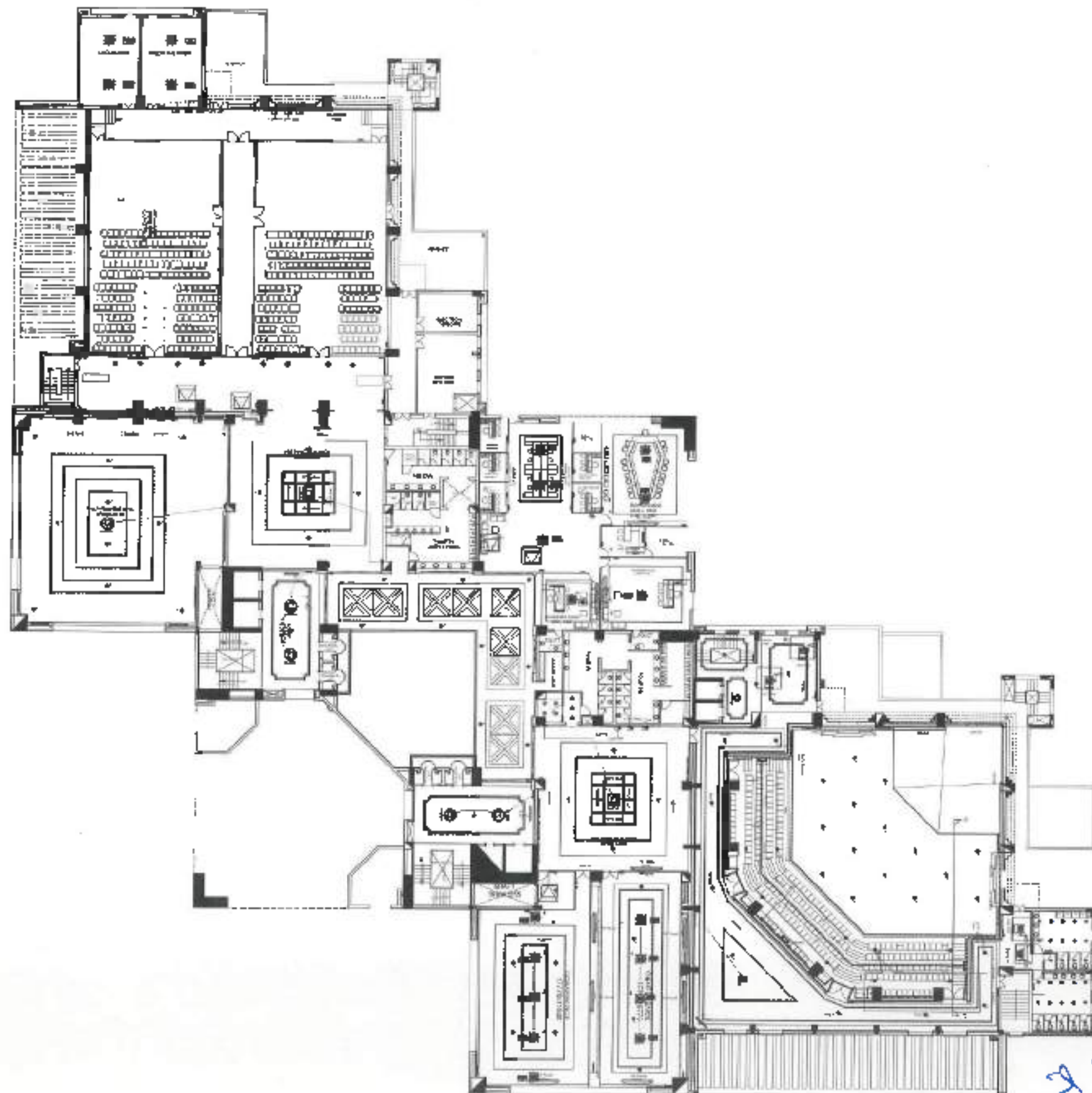
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RIC / EL / WD / 17 / 268

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT JHALANA, JAIPUR
STATE/CT/PROJECT/TITLE
CURRENT INFRAPROJECTS PVT LTD
A-27, Pongre Vihar, Vidhaya Marg, Jaipur, Rajasthan, India - 302002, Rajasthan
Tel: 0141-2614111
Email: info@infraprojects.com

	CONTRACT OF ARCHITECTURE RESTRICTION NO. 00000001 14, 19000 N. 14000 N. 14000 N. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N. 14000 N.	DATE: 14-00000001 SCALE: 1/4" = 1'-0" DRAWN BY: 14000 N. 14000 N. 14000 N.

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RAJASTHAN INTERNATIONAL CENTER, JAIPUR.

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LEGEND:-

Meaning Height	Symbol	Description
CEILING	⊙	SMOKE DETECTOR
+4.2"	■	SWITCH BOARD
+1.27-4.5"	■	1 GANG POWER SOCKET WITH 20 AMPER
-7.2"	■	Light DB
+4.02"	—	T.S
+7.2"	■	Bracing DB
ceiling	—	Light Circuit 220-240 V 15 amp
ceiling	—	Brk. Circuit 220-240 V 15 amp
ceiling	—	Power Wiring 220 V 15 amp
ceiling	—	Brk. Power Wiring 220 V 15 amp
ceiling	—	Power Circuit 220 V 15 amp

REVISION

REV.	DATE	DESCRIPTION

DRG. NO.

RC / EL / WD / 29 / 371

SMOKE DETECTOR PLAN FIRST FLOOR

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT JHALANA, JAIPUR

CURRENT INFRAPROJECTS PVT LTD
A-17, B-17, C-17, D-17, E-17, F-17, G-17, H-17, I-17, J-17, K-17, L-17, M-17, N-17, O-17, P-17, Q-17, R-17, S-17, T-17, U-17, V-17, W-17, X-17, Y-17, Z-17, AA-17, AB-17, AC-17, AD-17, AE-17, AF-17, AG-17, AH-17, AI-17, AJ-17, AK-17, AL-17, AM-17, AN-17, AO-17, AP-17, AQ-17, AR-17, AS-17, AT-17, AU-17, AV-17, AW-17, AX-17, AY-17, AZ-17, BA-17, BB-17, BC-17, BD-17, BE-17, BF-17, BG-17, BH-17, BI-17, BJ-17, BK-17, BL-17, BM-17, BN-17, BO-17, BP-17, BQ-17, BR-17, BS-17, BT-17, BU-17, BV-17, BW-17, BX-17, BY-17, BZ-17, CA-17, CB-17, CC-17, CD-17, CE-17, CF-17, CG-17, CH-17, CI-17, CJ-17, CK-17, CL-17, CM-17, CN-17, CO-17, CP-17, CQ-17, CR-17, CS-17, CT-17, CU-17, CV-17, CW-17, CX-17, CY-17, CZ-17, DA-17, DB-17, DC-17, DD-17, DE-17, DF-17, DG-17, DH-17, DI-17, DJ-17, DK-17, DL-17, DM-17, DN-17, DO-17, DP-17, DQ-17, DR-17, DS-17, DT-17, DU-17, DV-17, DW-17, DX-17, DY-17, DZ-17, EA-17, EB-17, EC-17, ED-17, EE-17, EF-17, EG-17, EH-17, EI-17, EJ-17, EK-17, EL-17, EM-17, EN-17, EO-17, EP-17, EQ-17, ER-17, ES-17, ET-17, EU-17, EV-17, EW-17, EX-17, EY-17, EZ-17, FA-17, FB-17, FC-17, FD-17, FE-17, FF-17, FG-17, FH-17, FI-17, FJ-17, FK-17, FL-17, FM-17, FN-17, FO-17, FP-17, FQ-17, FR-17, FS-17, FT-17, FU-17, FV-17, FW-17, FX-17, FY-17, FZ-17, GA-17, GB-17, GC-17, GD-17, GE-17, GF-17, GG-17, GH-17, GI-17, GJ-17, GK-17, GL-17, GM-17, GN-17, GO-17, GP-17, GQ-17, GR-17, GS-17, GT-17, GU-17, GV-17, GW-17, GX-17, GY-17, GZ-17, HA-17, HB-17, HC-17, HD-17, HE-17, HF-17, HG-17, HH-17, HI-17, HJ-17, HK-17, HL-17, HM-17, HN-17, HO-17, HP-17, HQ-17, HR-17, HS-17, HT-17, HU-17, HV-17, HW-17, HX-17, HY-17, HZ-17, IA-17, IB-17, IC-17, ID-17, IE-17, IF-17, IG-17, IH-17, II-17, IJ-17, IK-17, IL-17, IM-17, IN-17, IO-17, IP-17, IQ-17, IR-17, IS-17, IT-17, IU-17, IV-17, IW-17, IX-17, IY-17, IZ-17, JA-17, JB-17, JC-17, JD-17, JE-17, JF-17, JG-17, JH-17, JI-17, JJ-17, JK-17, JL-17, JM-17, JN-17, JO-17, JP-17, JQ-17, JR-17, JS-17, JT-17, JU-17, JV-17, JW-17, JX-17, JY-17, JZ-17, KA-17, KB-17, KC-17, KD-17, KE-17, KF-17, KG-17, KH-17, KI-17, KJ-17, KK-17, KL-17, KM-17, KN-17, KO-17, KP-17, KQ-17, KR-17, KS-17, KT-17, KU-17, KV-17, KW-17, KX-17, KY-17, KZ-17, LA-17, LB-17, LC-17, LD-17, LE-17, LF-17, LG-17, LH-17, LI-17, LJ-17, LK-17, LL-17, LM-17, LN-17, LO-17, LP-17, LQ-17, LR-17, LS-17, LT-17, LU-17, LV-17, LW-17, LX-17, LY-17, LZ-17, MA-17, MB-17, MC-17, MD-17, ME-17, MF-17, MG-17, MH-17, MI-17, MJ-17, MK-17, ML-17, MM-17, MN-17, MO-17, MP-17, MQ-17, MR-17, MS-17, MT-17, MU-17, MV-17, MW-17, MX-17, MY-17, MZ-17, NA-17, NB-17, NC-17, ND-17, NE-17, NF-17, NG-17, NH-17, NI-17, NJ-17, NK-17, NL-17, NM-17, NO-17, NP-17, NQ-17, NR-17, NS-17, NT-17, NU-17, NV-17, NW-17, NX-17, NY-17, NZ-17, OA-17, OB-17, OC-17, OD-17, OE-17, OF-17, OG-17, OH-17, OI-17, OJ-17, OK-17, OL-17, OM-17, ON-17, OO-17, OP-17, OQ-17, OR-17, OS-17, OT-17, OU-17, OV-17, OW-17, OX-17, OY-17, OZ-17, PA-17, PB-17, PC-17, PD-17, PE-17, PF-17, PG-17, PH-17, PI-17, PJ-17, PK-17, PL-17, PM-17, PN-17, PO-17, PP-17, PQ-17, PR-17, PS-17, PT-17, PU-17, PV-17, PW-17, PX-17, PY-17, PZ-17, QA-17, QB-17, QC-17, QD-17, QE-17, QF-17, QG-17, QH-17, QI-17, QJ-17, QK-17, QL-17, QM-17, QN-17, QO-17, QP-17, QQ-17, QR-17, QS-17, QT-17, QU-17, QV-17, QW-17, QX-17, QY-17, QZ-17, RA-17, RB-17, RC-17, RD-17, RE-17, RF-17, RG-17, RH-17, RI-17, RJ-17, RK-17, RL-17, RM-17, RN-17, RO-17, RP-17, RQ-17, RR-17, RS-17, RT-17, RU-17, RV-17, RW-17, RX-17, RY-17, RZ-17, SA-17, SB-17, SC-17, SD-17, SE-17, SF-17, SG-17, SH-17, SI-17, SJ-17, SK-17, SL-17, SM-17, SN-17, SO-17, SP-17, SQ-17, SR-17, SS-17, ST-17, SU-17, SV-17, SW-17, SX-17, SY-17, SZ-17, TA-17, TB-17, TC-17, TD-17, TE-17, TF-17, TG-17, TH-17, TI-17, TJ-17, TK-17, TL-17, TM-17, TN-17, TO-17, TP-17, TQ-17, TR-17, TS-17, TT-17, TU-17, TV-17, TW-17, TX-17, TY-17, TZ-17, UA-17, UB-17, UC-17, UD-17, UE-17, UF-17, UG-17, UH-17, UI-17, UJ-17, UK-17, UL-17, UM-17, UN-17, UO-17, UP-17, UQ-17, UR-17, US-17, UT-17, UY-17, UZ-17, VA-17, VB-17, VC-17, VD-17, VE-17, VF-17, VG-17, VH-17, VI-17, VJ-17, VK-17, VL-17, VM-17, VN-17, VO-17, VP-17, VQ-17, VR-17, VS-17, VT-17, VU-17, VV-17, VW-17, VX-17, VY-17, VZ-17, WA-17, WB-17, WC-17, WD-17, WE-17, WF-17, WG-17, WH-17, WI-17, WJ-17, WK-17, WL-17, WM-17, WN-17, WO-17, WP-17, WQ-17, WR-17, WS-17, WT-17, WU-17, WV-17, WW-17, WX-17, WY-17, WZ-17, XA-17, XB-17, XC-17, XD-17, XE-17, XF-17, XG-17, XH-17, XI-17, XJ-17, XK-17, XL-17, XM-17, XN-17, XO-17, XP-17, XQ-17, XR-17, XS-17, XT-17, XU-17, XV-17, XW-17, XX-17, XY-17, XZ-17, YA-17, YB-17, YC-17, YD-17, YE-17, YF-17, YG-17, YH-17, YI-17, YJ-17, YK-17, YL-17, YM-17, YN-17, YO-17, YP-17, YQ-17, YR-17, YS-17, YT-17, YU-17, YV-17, YW-17, YX-17, YY-17, YZ-17, ZA-17, ZB-17, ZC-17, ZD-17, ZE-17, ZF-17, ZG-17, ZH-17, ZI-17, ZJ-17, ZK-17, ZL-17, ZM-17, ZN-17, ZO-17, ZP-17, ZQ-17, ZR-17, ZS-17, ZT-17, ZU-17, ZV-17, ZW-17, ZX-17, ZY-17, ZZ-17

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIORS
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/2001	DATE:- 11-07-2011
	C-6, MORE MARKET NAGAR, JAIPUR 302015	NORTH:-
	PHDQ B-41 - 571422 / 15	
	EAX B-41 - 271422 / 15	
SCALE:- 1/10	B-TAIL: 100mm (3.937 inch)	DRAWN BY:- A. BHATT

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[illegible]CART TRAY PLAN
SECOND FLOOR

CURRENT INFRAPROJECTS PVT LTD
A/C, Bhubar Moha, Wazirpur Marg West, Chandigarh - 160014, India
Tel No - 0174-2841231
Email - info@currentinfra.com

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CAA/0001	DATE:- 21-07-2024
	C. G. KOTI NARAYANU NARAYAN APPURU THALLA PHONE NO:- 93 875 07 113 EMAIL NO:- C. G. K. 130 EMAIL ADDRESS: c.g.k.130@gmail.com	SUBJECT:-

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This is a detailed architectural floor plan of the 1st floor of a building. The plan shows a complex layout of rooms, corridors, and structural elements. Key areas include:

- RECEIVING AREA:** Located in the upper left, featuring a large open space and a reception desk.
- OFFICE:** Several smaller rooms, some labeled 'OFFICE' and others 'STORAGE', are distributed throughout the plan.
- STORAGE:** Multiple storage areas are indicated, including a large 'STORAGE' area in the lower right.
- RESTROOM:** A restroom is located in the lower right corner.
- Structural Elements:** The plan includes labels for 'ROOF LINE', 'FLOOR LINE', and 'WALL LINE', indicating the building's footprint and internal divisions.
- Orientation:** A north arrow is located in the upper right corner, pointing towards the top of the page.

The plan is oriented with North at the top. The drawing is a technical architectural representation, showing walls, doors, windows, and furniture placement. The overall layout is rectangular, with various rooms and corridors filling the space.

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Mounting Hole	Symbol	DESCRIPTION
1/16"		SMOKE DETECTOR
1/32"		SWITCH BOARD
1/25 x 1/8"		16A POWER SOCKET WITH 16A SWITCH
1/2"		Light OB
1/32"		Fire
1/2"		Emergency OB
1/16"	_____	Light Green 2-2 1/2 x 1/2 Single Outlet
1/16"	_____	Black Green 2-2 1/2 x 1/2 Single Outlet
1/16"	_____	Red Wiring 2-2 1/2 x 1/2 and Ground
1/16"	_____	Black Wiring 2-2 1/2 x 1/2 and Ground
1/16"	_____	Power Cable 22AWG 1-2 Single Conductor

REV	DATE	DESCRIPTION

RIC / EL / WVD / 32 / 274

**PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT JHALANA, JAIPUR**
BIDDING DOCUMENT
CURRENT INFRAPROJECTS PVT LTD
A-27, Second Floor, Vardaan Nagar, Panchsheel, Jaipur - 302014, Rajasthan
Tel: 0141-2982123
E-mail: info@currentinfra.com

	CONTACT OF AIRPORTS FOR REGISTRATION NO. C-06-1281	DATE: 21-07-2009
	C-6, MOTT MARO, BANGALURU NAGAR, TAPELUR 100015 PHONE: 011-27194022, 27194023 FAX: 011-27191120	SIGNATURE:
NAME: HSB	E-MAIL: airports@hsb.com	THRUWAY INC.: AIRPORT

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Current Infraproject Pvt Ltd

A-27, Basant Vihar, Valshali Marg West
Panchaywala, Jaipur - 302034, Rajasthan
E-mail - info@currentinfo.com
Tel Ph - 0141-2988231

REV.	DATE	DESCRIPTION

RIC/EL/WD:33/275

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT HALANA, JAIPUR

ARCHITECT
PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

1-1	1-2	2B1	2B2	2B3	2B4
ON	ON	OFF	OFF	OFF	ON
ON	OFF	OFF	OFF	OFF	ON
OFF	ON	ON	OFF	OFF	ON
OFF	OFF	ON	ON	ON	ON
OFF	OFF	OFF	ON	ON	ON
ON	OFF	ON	ON	OFF	OFF

COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/RG/608	DALLA 21-7-2029
G+ MODI MARGABAU NAGARJAMPUR 530015 PH.NO Dist - 817902; JJ FAX 0141 2329120 E-MAIL : modimargabau@gmail.com	NORTH - DRAWING - DEEPAK

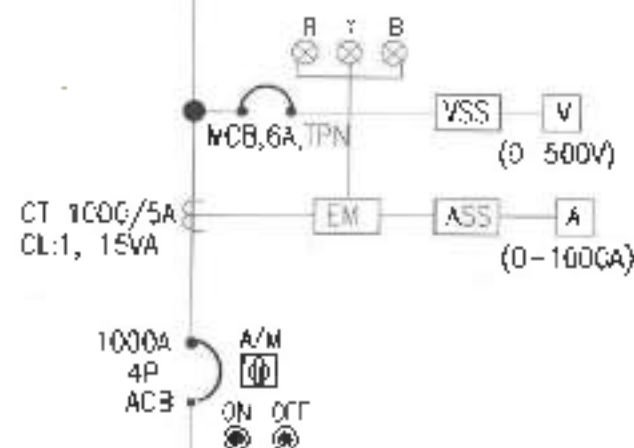
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APFC PANEL

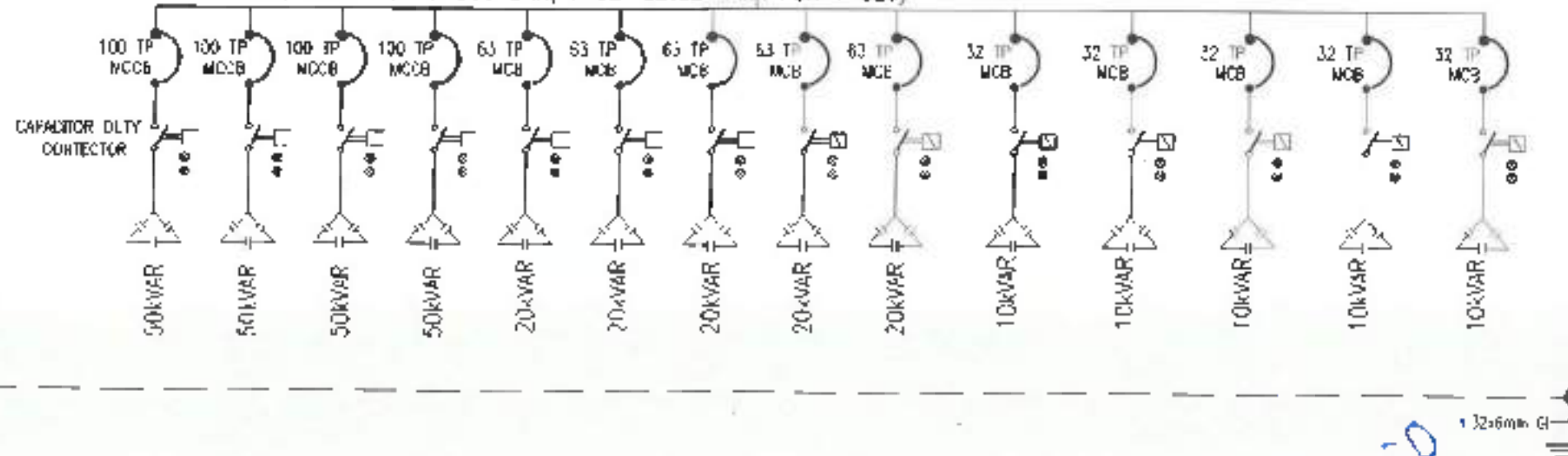
I/C FROM MAIN
MV PANEL

2R x 1.5x400 Sqmm
XLP: Al. Ar. Cable

APFC PANEL 1 & 2
350KVAR



415V, 1000A TPN AL. BUS BAR (FAULT LEVEL 50KA FOR 1 SEC)



RAJASTHAN INTERNATIONAL CENTER, JAIPUR.

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SERVICES CONSULTANT :

Current Infraproject Pvt Ltd

A-27, Basant Vihar, Vaishali Marg West
Panchaywala, Jaipur - 302034, Rajasthan
Email - info@currentinfraproject.com
Tel Ph - 0141-2988231

REVISION

REV.	DATE	DESCRIPTION

DRG NO.

RIC/EL/WD/34/276

APFC PANEL

PROPOSED

RAJASTHAN INTERNATIONAL CENTER
FOR ICA AT JHALANA, JAIPUR

ARCHITECT

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

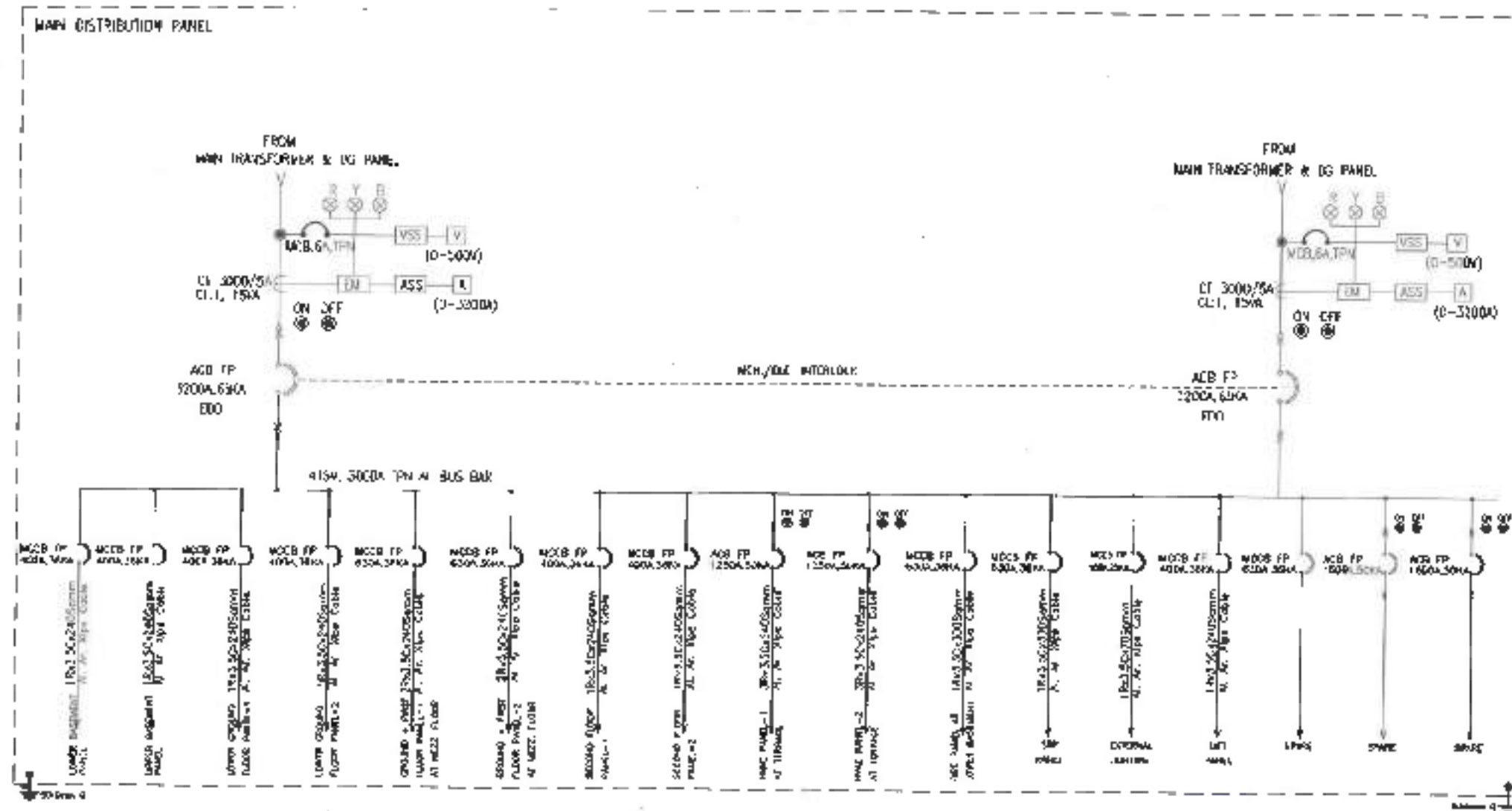


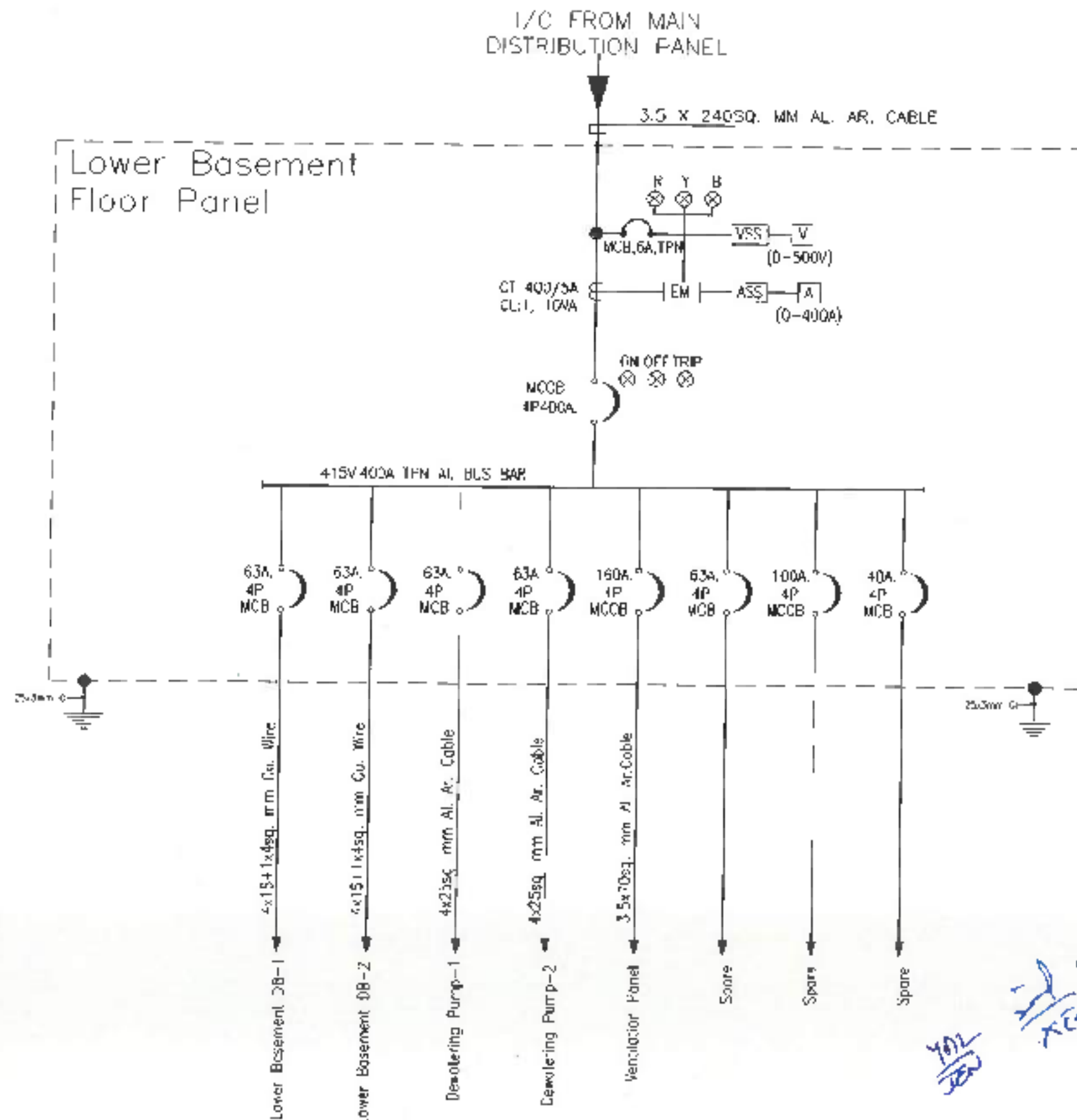
OFFICE OF ARCHITECTURE REGISTRATION NO. CA/20/5613	DATE: 21-07-2020
C/o. MOTI HANSHU NAGAR JAIPUR 302015	NORTH
PHONE: 0141 - 2719 823 / 27	SCALE: 1:200
FAX: 0141 - 2719 823	DRAWN BY: DEEPAK
E-MAIL: info@currentinfraproject.com	CHECKED BY: DEEPAK

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402
Jain
30
x 30

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RAJASTHAN INTERNATIONAL CENTER, JAIPUR.

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E-mail - info@currentinfra.com
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REVISION

REV.	DATE	DESCRIPTION

DWG. NO.

RIC / EL / WD / 36 / 278

Lower Basement Floor Panel

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR IDA AT JHALANA, JAIPUR

ARCHITECT

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE	DATE:-
	REGISTRATION NO. CA-610-001	21-07-2020
	CA, MOTI MARG, BAPU	REG. NO.:-
	NAGAR, JAIPUR 302015	
	TEL NO. 0141 - 279022 / 23	
	FAX: 0141 - 2799120	
	E-MAIL: info@pjain.com	DRAWN BY:-
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Current Infraproject Pvt Ltd

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Panchaywala, Jaipur - 302034, Rajasthan
E-mail - info@currentinfra.com
Tel Ph - 0141-2386231

REVISION

REV.	DATE	DESCRIPTION

DRG. NO.

RIC/EL/WD/37/279

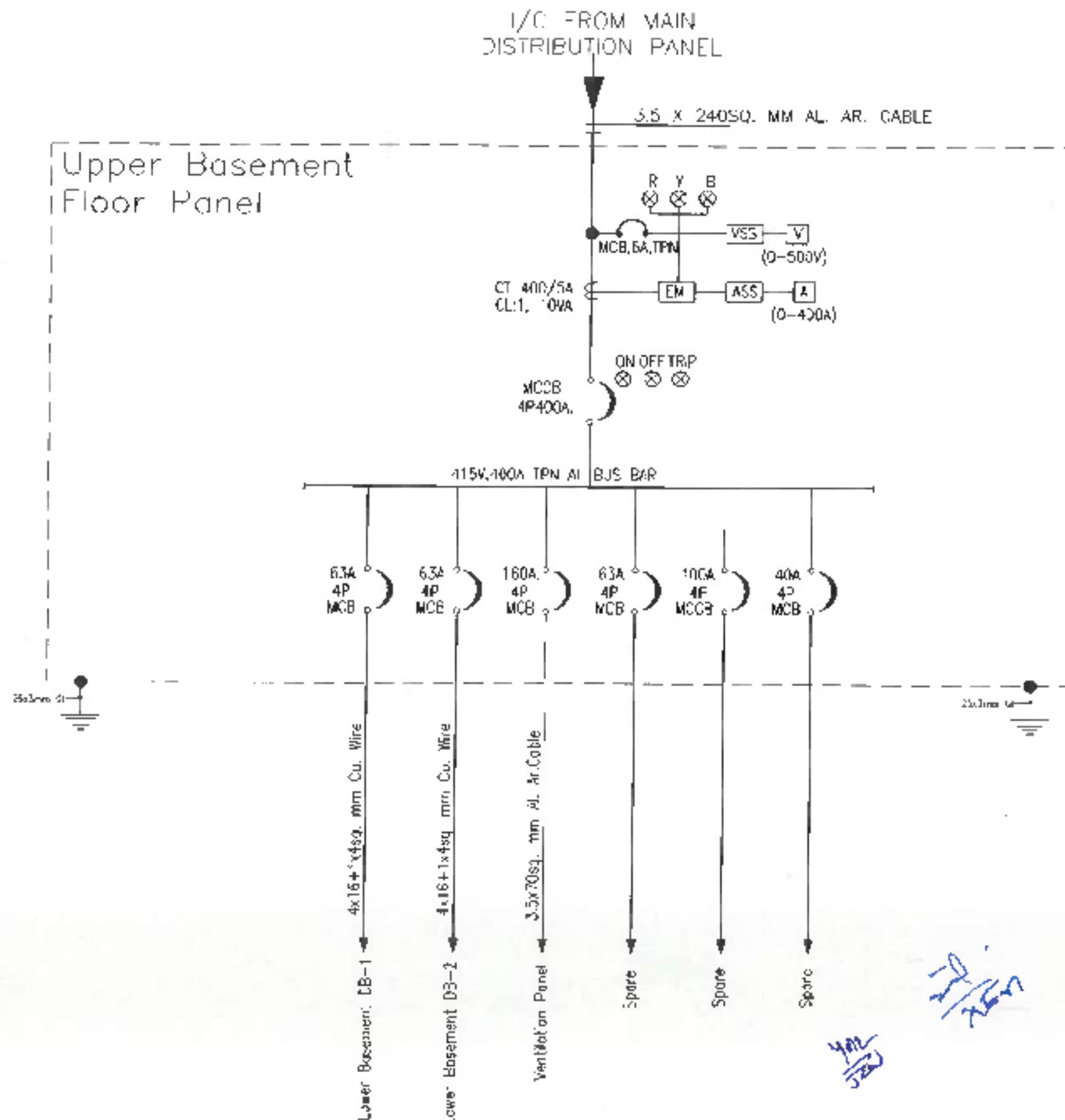
Upper Basement Floor Panel

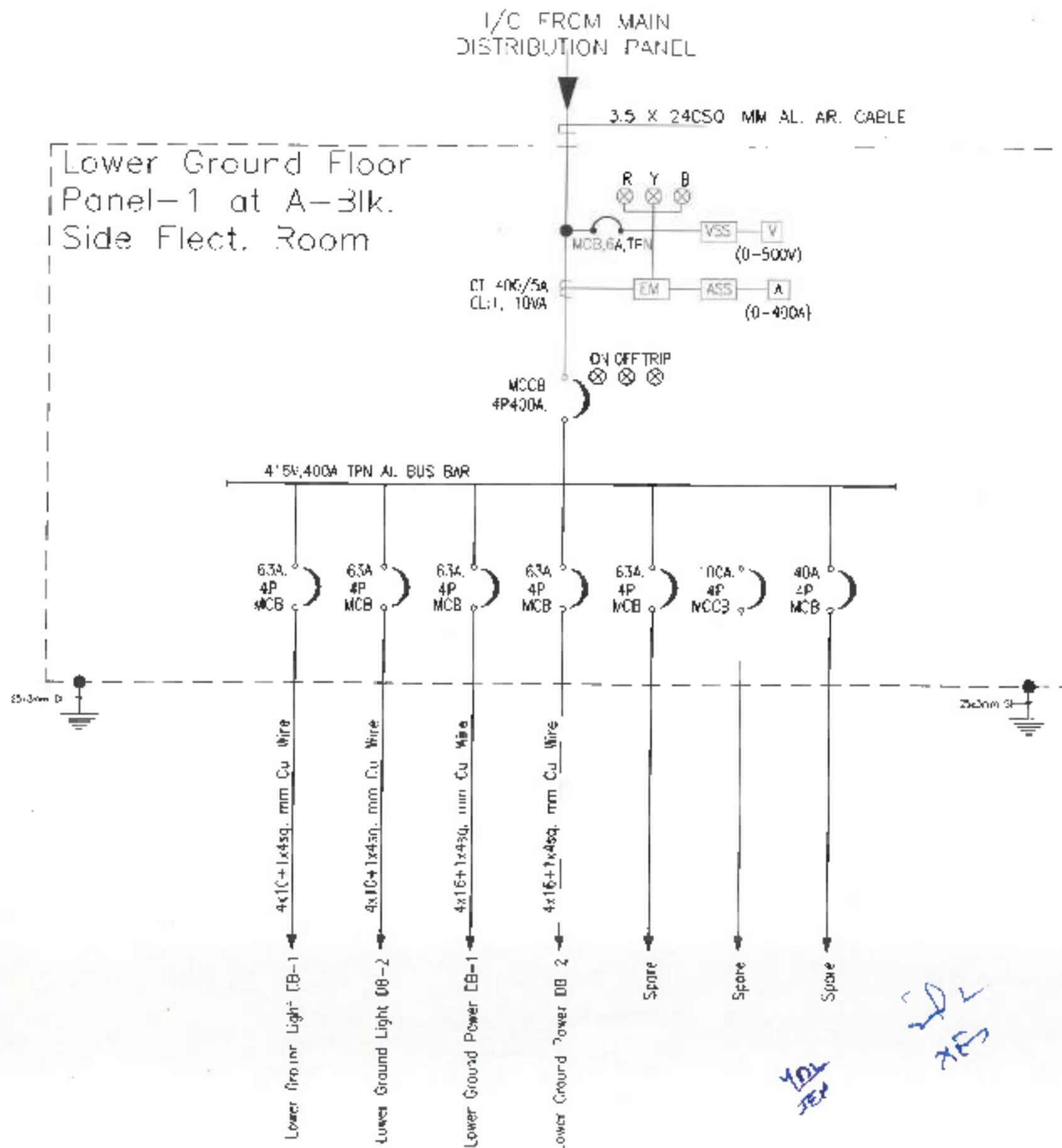
PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR IDA AT JHALANA, JAIPUR

ARCHITECT:
PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIORS &
INDUSTRIAL DESIGNERS

	COUNCIL OF ARCHITECTURE REGISTRATION NO. CA/203681	DATE: 31-07-2020
	C-4, MOTI HANGBANI NAGAR, JAIPUR 302015	NOTED:
	PHONE: 0141 - 2719052/53	
	FAX: 0141 - 2719120	
SCALE: N.S.	E-MAIL: prjainco@gmail.com	DRAWN BY: DEEPAK

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RAJASTHAN INTERNATIONAL CENTER, JAIPUR.

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* NO DIMENSION TO BE SCALED OFF FROM THE DRAWING. ONLY WRITTEN DIMENSION TO BE FOLLOWED.

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SERVICES CONSULTANT :

Current Infraproject Pvt Ltd

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Panchaywala, Jaipur - 302034, Rajasthan
Email - info@currentinfra.com
Tel Ph - 0141-2988231

REVISION

REV.	DATE	DESCRIPTION

DRG. NO.

RIC / EL / WD / 35 / 280

Lower Ground Floor Panel-1 at A-Blk.
Side Elect. Room

PROPOSED
RAJASTHAN INTERNATIONAL CENTER
FOR JDA AT JHALANA, JAIPUR

ARCHITECT

PRAMOD JAIN & ASSOCIATES
ARCHITECTS, PLANNERS, INTERIOR &
INDUSTRIAL DESIGNERS



COUNCIL OF ARCHITECTURE
REGISTERED NO. CARR/2015

CH. BHOTI MARG, RAJASTHAN
RAJASTHAN, RAJASTHAN

PHONE NO. - 0141-2988231

FAX NO. - 0141-2988231

E-MAIL - info@currentinfra.com

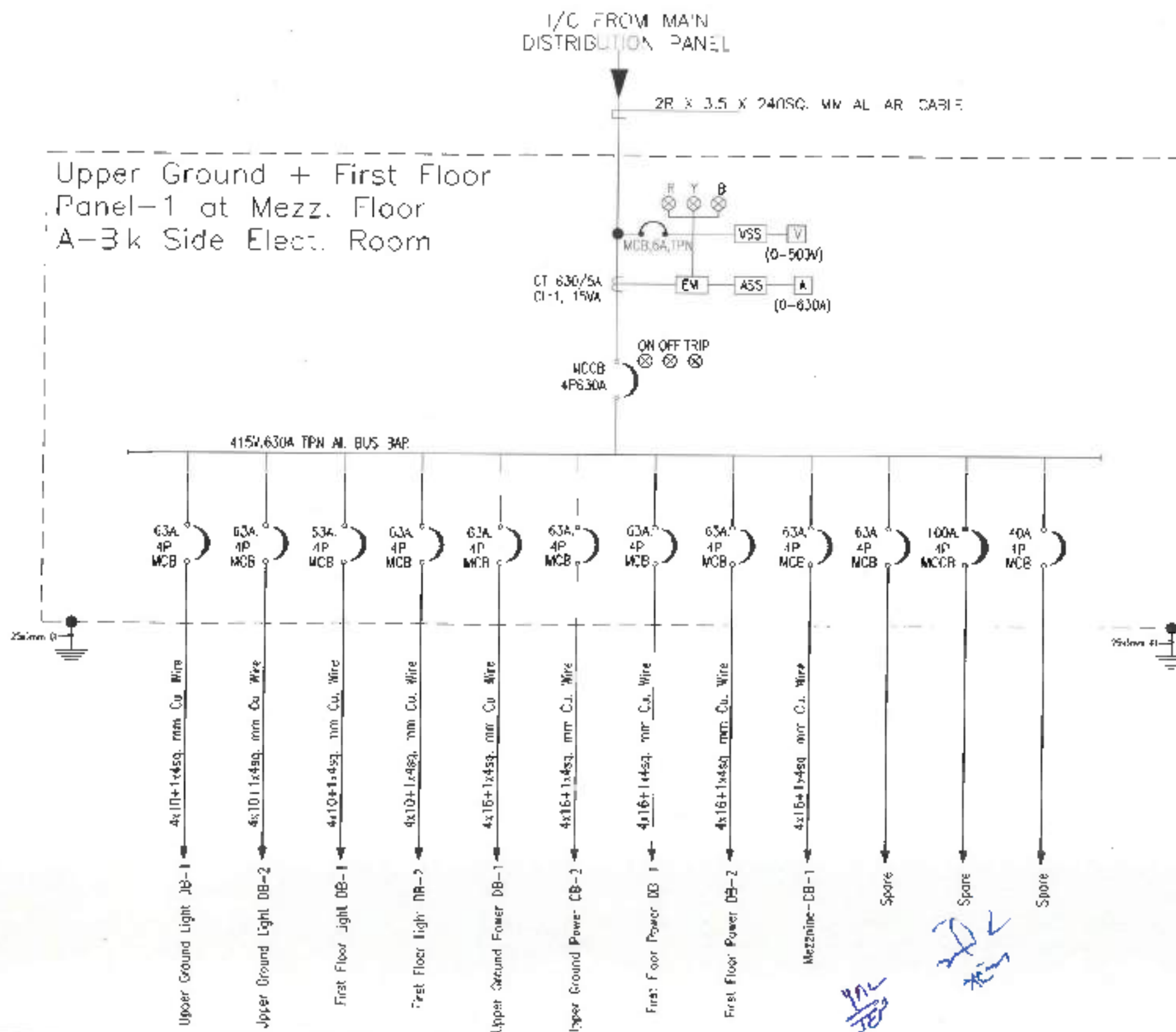
DATE:
21.07.2021

NOTED:-

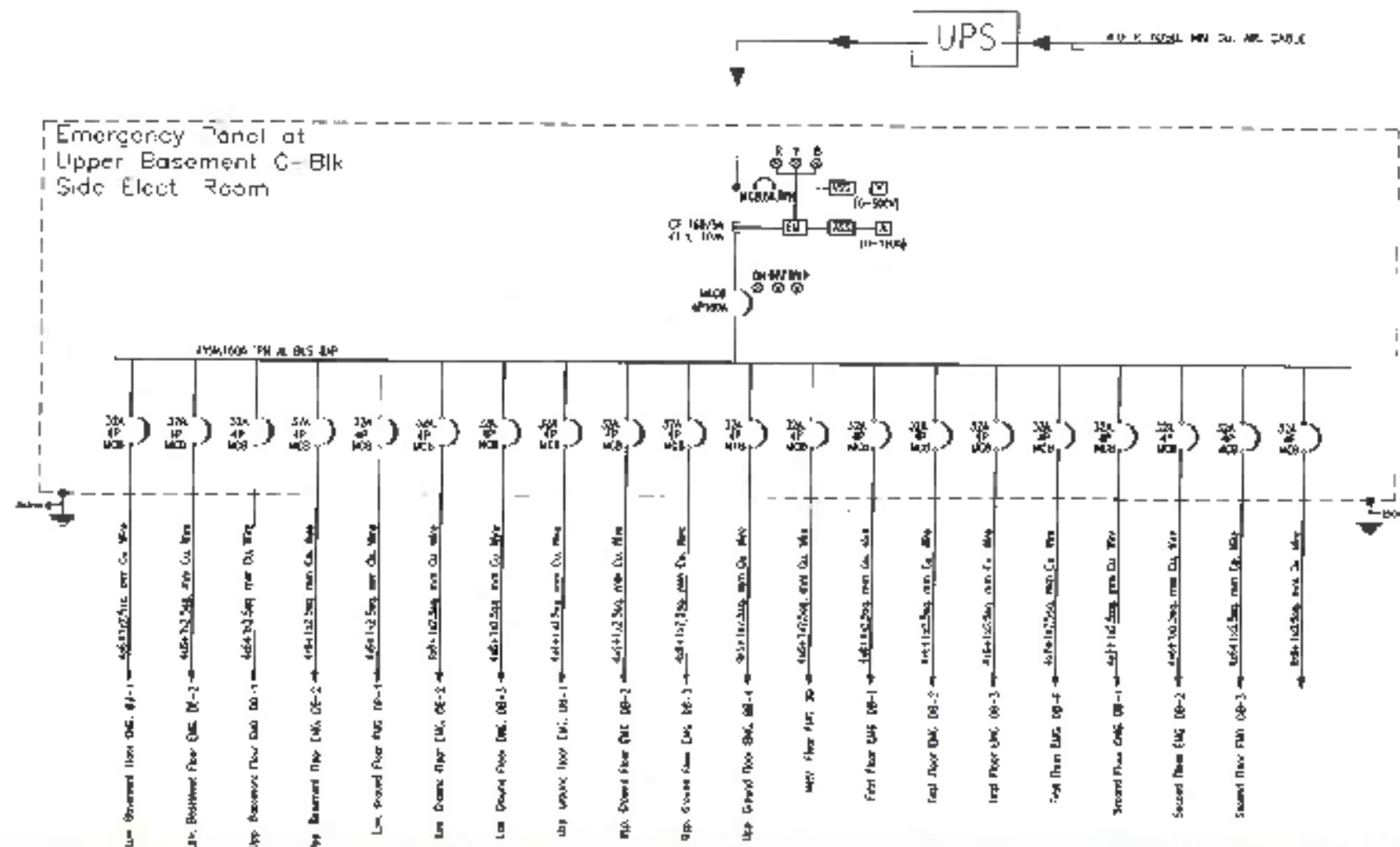
DRAWN BY:
HREPAK

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WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.

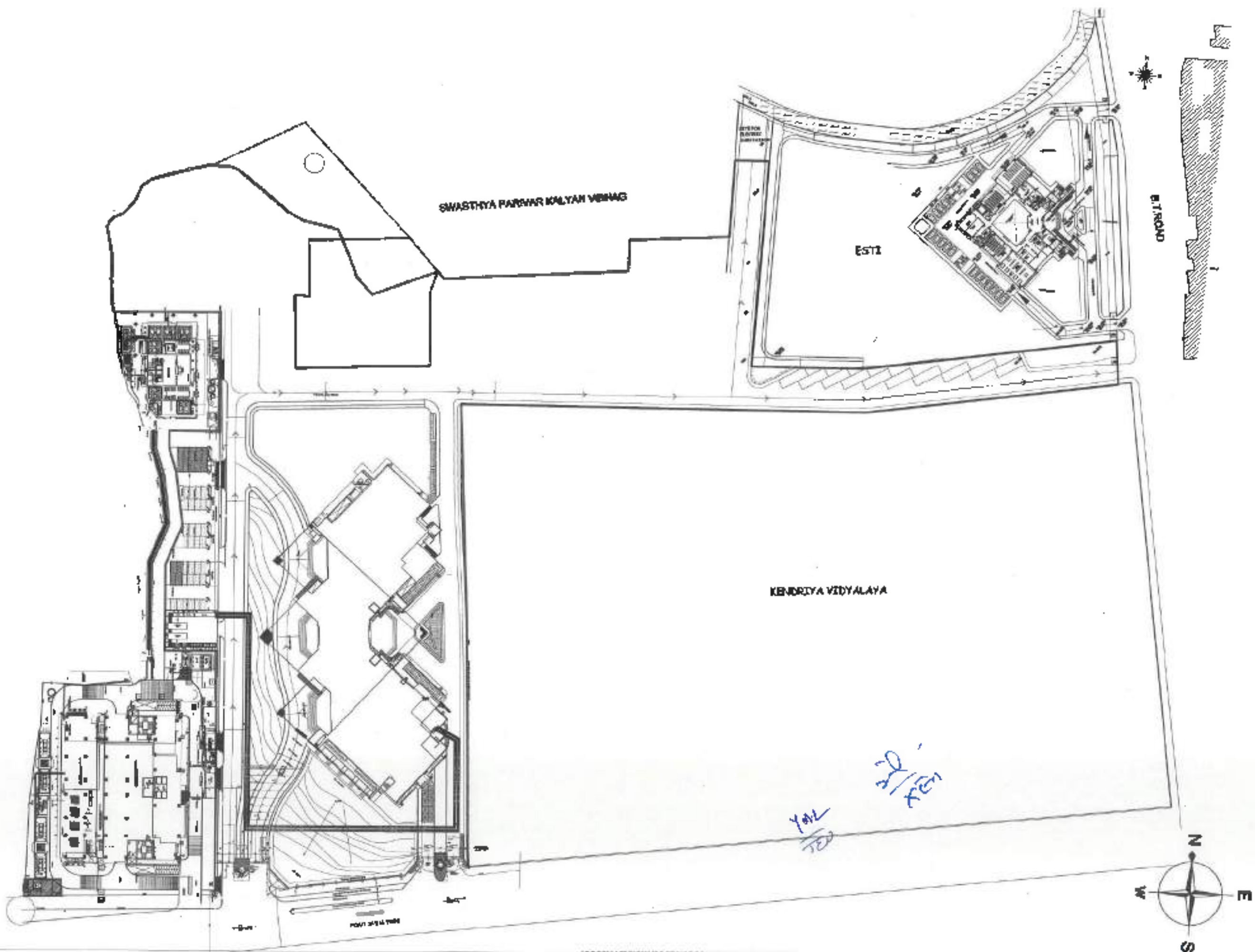


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KALASTHAN INTERNATIONAL CENTER JAIPUR

DATE: 12/10/2000
 PROJECT: KALASTHAN INTERNATIONAL CENTER
 LOCATION: JAIPUR, RAJASTHAN
 SCALE: 1:1000
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]



REV.	DATE	DESCRIPTION

DATE: 12/10/2000
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

NO.	DESCRIPTION	DATE
1	EXTERNAL FENCE AND GATE	12/10/2000
2	ROAD	12/10/2000
3	LANDSCAPE	12/10/2000
4	PLANTING	12/10/2000
5	SEWERAGE	12/10/2000
6	WATER SUPPLY	12/10/2000
7	ELECTRICITY	12/10/2000
8	TELEPHONE	12/10/2000
9	POSTAL	12/10/2000
10	RAILWAY	12/10/2000

VOLUME II

FINANCIAL BID

**Interior works (Civil, Electrical, HVAC,
Light & Sound, Fire Fighting etc.) in
Rajasthan International Centre,
Jhalana Doongri, Jaipur**

Validate

Print

Help

Item Rate BoQ

Tender Inviting Authority: JAIPUR DEVELOPMENT AUTHORITY, JAIPUR

Name of Work: Interior works (Civil, Electrical, HVAC, Light & Sound, Fire Fighting etc.) in Rajasthan International Centre, Jhalana Doongri, Jaipur

Contract No: JDA/EE/Project-2/2021-22/NIB

Bidder Name :						
PRICE SCHEDULE						
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)						
NUMBER	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT	TOTAL AMOUNT In Words
1	2	3	4	5	6	7
1	(A) Interior and Furnishing Works Interior and furnishing works in Rajasthan International Centre, Jhalana Doongri, Jaipur including acoustical works, flooring, Murals, Wood work, Aluminium works, Providing and fixing/placing all furniture items etc as per inventory and detailed specifications complete as per tendered drawings and terms and conditions mentioned in bid document.	1.00	Each		0.0000	INR Zero Only
2	(B) Electrification work Electrification works Rajasthan International Centre, Jhalana Doongri, Jaipur including Internal Electrification, Sound And PA System, Audio System With Wireless Mics, Digital Flush Mount Conference System, Fire Fighting Work, HVAC And Ventilation, etc complete as per tendered drawings and terms and conditions mentioned in bid document.	1.00	Each		0.0000	INR Zero Only
3.0	All duties, taxes and other levies payable by the Bidder under the contract, or for any other cause, shall be included in the rates and prices, and the total Bid Price submitted by the Bidder.					
Total in Figures					0.0000	INR Zero Only
Quoted Rate in Words		INR Zero Only				

**Interior works (Civil, Electrical, HVAC, Light &
Sound, Fire Fighting etc.) in Rajasthan
International Centre, Jhalana Doongri, Jaipur**

(Indicative Quantities for Reference purpose only)

For Civil Work

S.N.	ITEM	UNIT	QUANTITY
1	Providing & Fixing of Armstrong Fibre Glass Acoustical (Color Black or white as / drawing) Suspended Ceiling System with 15mm thick Microlook 90 Edge Tiles with 15mm Black Color Bolt Slot exposed grid. The tiles shall have smooth laminated visual with Humidity Resistance (RH) of 95%, NRC 0.85 – 0.95 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, , Light Reflectance ≥85% as per ASTM E-1477, Colour Black, Fire Performance of Class 0/1 as per BS 476 Part 6/7 with 15mm Microlook 90' edge and 8mm drop in module size of 600 x 600mm. It shall be suitable for Green Building application, with Recycled content of 66% (GW)/ 74% (RW). SUSPENSION: The tile shall be laid on grid system with 15mm black flanges incorporating a 6mm central reveal in black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour black. Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 10 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate.INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure.SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).	Sqm	467.820
2	Providing & fixing Armstrong horizontal level suspended ceiling comprising of Vertical Linear Baffle Ceiling made out of Aluminum Extrusion in Aluminum alloy grade 6063 T5 On Centre Spacing 100mm. The baffle blade shall be in size of 100x25x3600mm in powder coated to Woodgrain/Plain finish (Red Oak, Cherry, White RAL 9010). The baffle shall be electrostatically polyester powder coated to a coating thickness of 60-80 micron. The powder coating shall pass Salt Spray Test for 750 Hours as per ASTM B117, QUV –A Test for 1000hours as per ASTM G-154 – (Cycle – 1) and Humidity test for 1000hours as per DIN 50017. The powder coating shall have an adhesion of GT0 as per EN ISO 2409. The shade variation within a manufacturing batch shall be delta E<1 using Excite/BYK Gardner instrument and gloss level 25±5 at 60° as per ASTM D523 (Not applicable of Wood Grain Shade). The baffle blade shall be suspended using Slotted U-profile of 20 x 30 x 3700mm (Thk-1.5mm) having slots in module of 25mm to keep baffles at an on-center spacing in multiples of 25mm. Longer lengths of Baffle to be connected by Baffle Joiner and the ends to be fixed with End caps.SUSPENSION: Shall be hanged using baffle hanger from U-profile made of mild steel with powder coating thickness of 60-80 micron. The U – profile to comprise of alternate square & rectangular slots of 6.5x6.5mm & 28x6.5mm respectively on the web for locking the baffle hanger using plugin clip to secure the hanger in perfect position and achieve uniform spacing between baffles. The overall dimension of the U – profile is 20(W) x 30(H) x 3750(L) mm and is rolled form from 1.5mm thick mild steel with a powder coating thickness of 60-80micron. U- Profile to be connected to each other using U –Profile Splice. The U- profile shall be hanged from the true ceiling using threaded rod using a U- Profile hanger. The Baffle along with suspension system used together shall carry a 10 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The supply shall be backed by a Manufacturing Test Certificate.Suspension System Details Base Material : Mild Steel with powder coating thickness of 60-80micronConstruction Method : Roll formed U- Profile Dimensions : 3700(L) x 30(H) x 20(W) mm- Thickness 1.5mmHanger-Rod : Galvanized M6 Threaded rod (By Other) Accessories : U-Profile Hanger, U- Profile Splice, Baffle HangerINSTALLATION: Installation of U-Grid:The U profile to be suspended at every 1200mm center to center using 6mm threaded rod from the structural soffit using U-profile hanger. U-profile splice to be used to join more than one U profiles of length 3.7M. 1st U-	Sqm	682.470

	Grid Channel must be no more than 400mm from the perimeter. Installation of Baffles: Locate the slot for Baffle Hangers in U Profile section at 1200mm centers. Hangers are inserted into the slot, then rotated 90° and fixed into position by tightening the grub screw. Baffle to be lifted into position and hangers engage over lip of U-Grid Channel. Each Hanger to be secured into position by inserting the Locking Clip. When doing continuous installation, Baffles blades are to be connected at ends with Baffle Joiner, which are inserted into the top and bottom slots of the Baffle closed profile for alignment only. The bottom Joiner to be located first and fastened on one side only. The top Joiner to be fitted then and secured with grub screws on one side. Then the two Baffle sections shall be joined and the top Joiner is screw fastened on the 2nd Baffle profile. End Caps to be located by pushing the End Cap tongues into open Baffle slots. Installation should be carried out as per Manufacturer recommended procedure.		
3	Providing & Fixing of Armstrong Mineral Fibre Acoustical Suspended Ceiling System with 19mm thick Microlook 90 Edge Tiles with 15mm Bolt Slot exposed grid. The tiles shall have smooth bright laminated visual with Humidity Resistance (RH) of 99%, NRC 0.75 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 36db as per ASTM E1414, Light Reflectance ≥85% as per ASTM E-1477, Thermal Conductivity k = 0.045 - 0.048 W/mK, Colour Global White, Fire Performance of Class 0/1 as per BS 476 Part6/7 and Class A as per ASTM E 84 with 19mm Square Tegular/Microlook 90° edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable, soil and scratch resistant and having superior scrub-ability (Gardner Test). The tiles shall be classified as ISO 14644-1 cleanroom class 5. The tile shall have a rating of 8 or above for tests conducted for Resistance to growth of Mold in accordance to ASTM D3273. It shall be suitable for Green Building application, with Recycled content of 36%. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product. SUSPENSION: The tile shall be laid on grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color). Grid shall have double stroke rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m² (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of OT bending capability. The Tile & Grid system used together shall carry a 30 year warranty against manufacturing defect and manufacturer shall provide a warranty certificate. The Tile & Grid shall have the manufacturers name embossed/printed on it. The supply shall be backed by a Manufacturing Test Certificate. INSTALLATION: To comprise main runner spaced at 1200mm securely fixed to the structural soffit using suspension system (specifications below) at 1200mm maximum. The First/Last suspension system at the end of each main runner shall not be greater than 450mm from the adjacent wall along with the first and the last main beam shall be at less than 600mm from the wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls using screws at 450mm centre to centre maximum. Installation shall be carried out as per Manufacturer recommended procedure. SUSPENSION SYSTEM accessories supplied by Manufacturer consisting of M6 Anchor Fasteners with hanger hole, pre-straightened hanger wire of dia – 2.5 mm of 1.80 m length having a tensile strength of 344-413 MPa and a minimum loading strength of 110 kgs. (Optionally, adjustable hook clips made of 0.7mm thick Grade 1 C55 galvanized spring steel of dimension 100 x 20mm and 4 mm aquiline wire to be used for level adjustment during installation purpose in main runners).	Sqm	1873.42

4	Providing and Fixing of Armstrong Acoustical Wall Panel with square edges made of fibre glass substrate 25mm thick, wrapped on the front side with an acoustically transparent fabric as per the approved shade (Husk, Copper, Sangria, Sesame, Coffee, Charcoal, Titanium, Flame, Peanut and Shell). The panel shall be classified for Fire Class A, as per ASTM E-84. The Acoustical Wall Panel shall be of sizes 600x300mm (Nominal), 600x600mm (Nominal), 600x1200mm (Nominal) and 600x1800mm (Nominal) and shall achieve an NRC of 0.85 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) with 50mm airgap as per ASTM C423 to be fixed to wall on a framework of aluminium and using Wall panel Impalers (supplied by the manufacturer) or by using construction adhesives (as per the instructions laid down by the manufacturer). The fibre glass substrate shall have a recycle content of 85%. An appropriate vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install aluminium grid (provided by others) of section 100x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface. The Impalers shall be fixed to the battens using self-tapping screws, 3 nos. in case of 600x300, 600x600mm, and 4 nos. in case of 600x1200mm and 600 x 1800mm Silica based construction adhesive (by others) to be dabbed on to the projecting elements (spikes) of the Impalers. Wall Panels shall be pierced through the spikes of the Impalers ensuring the line and level of the panels are maintained.	Sqm	725.610
5	Providing and fixing Granite stone slab mirror polished and machine edge cut in walls , pillars, steps, shelves, sills, counters, floor etc. laid on 12mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the granite slab including grinding, rubbing and polishing complete. Beaver Granite or equivalent(As per approved by engineer in charge in combination with different shades) Above 3600 cm2 slab area Based on JDA BSR 2016 item no. 7.7.3	Sqm	6954.25
6	Add Extra For Design Strip	R.Mt.	3165.74
7	Add Extra for Motifs	Nos.	10.00
8	Add Extra For Staircase Moldings	R.Mt.	112.50
9	Add Extra for 150mm Wide Cornice/ Beading	R.Mt.	366.61
10	Providing and Fixing of Flocked textile floor covering of Nylon 6.6 face fiber with 100% Nylon and completely water proof resilient backing. The flooring should be Anti static with thickness of 4.3 mm and approximate weight of 1.8 k.g./sqm of roll form. The carpet should be completely stain resistant and of a density approx. 80 million fibers/sq.mtr (70 million fiber/sq.yd) in the width of 2 mtr .The floor covering should have Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8, Friction Slip Resistance Test EN 14041 Class DS, SANITISED anti-microbial treatment, with resilient waterproof backing, anti allergic which is certified by British allergy foundation, with ten year limited warranty etc.complete in all respect to the entire satisfaction of engineer-in-charge/Architect. .The work should be carried out by the authorized installer of the Company in India. (Note: The Contractor to submit Manufacturing Test Certifate)	Sq.Mt.	2342.18
11	Providing and fixing water proof HDF board boxes of 16mm thk with cove as shown in drawing.Arches would be made with these boxes and to be fixed to the wall as per site instructions with anti-termite treatment . All exposed Surface to be finish with 4mm thk. veneer of appd make and shade duly finished in mealmaine polish. Thickness of the arch to be made with t.w.(Berma Teak) leeping of 75 x 15mm finished in melamine polish matching to veneer polish.(Sample to be got approved by architects)	Sq.Mt.	3829.95
12	DUCO PAINT ON EXPOSED SURFACE :-Providing and fixing 4mm thk. MDF of approved make on 18mm thk.water proof board (duly treted with anitermite chemical) to be made in the shape of an arch as per drawing and Finished with Duco Paint	Sq.Mt.	2046.00
13	Providing and Fixing Armstrong Channelled perforated panels of width 192mm, thickness of 15mm and length 2400 mm, made of a Moisture resistant fibre board substrate with a laminated facing as per the approved shade (Portland Maple, Sea Beech, Siam Wood & Mystique Walnut, Interior White, Alumina Pearl) and a melamine balancing layer on the reverse side. The boards shall have a special perforation pattern where the reverse surface has a "Helmholtz" fluted perforation with consecutive 3mm wide groove followed by 13mm of visible pane. The edges of the panel shall be "tongue-and-grooved" to fix special clips for installation and seamless visual. The back of the perforated panel shall have sound absorbing non-woven Soundtex acoustical fleece hot pressed to achieve NRC of 0.6. (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 and Humidity Resistance (RH) of 70% with camber limit less than 1mm/1000mm and bow less than 1mm/300mm.The panels shall be mounted on special aluminium splines (keel) using inside clips provided by Manufacturer and approved by the Architect/ Engineer-in-Charge. The panel shall be mounted by tongue and groove mechanism using inside clip on aluminium extruded keel made of Grade 6063-T5 having dimensions 3000(L) x 24(H) x 15.5(W).The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. The Panel, Keel system used together shall carry a 1 year warranty against manufacturing defect and Manufacturer shall provide a warranty certificate. The supply shall be backed by a Manufacturing Test Certificate.INSTALLATION: An appropriate	Sq.Mt.	2901.23

	vapour barrier (by others) shall be applied/installed on the vertical surface before the installation to properly seal against entry of any moisture. Vapour barrier (by others) shall be installed as per Manufacturer's recommendation. Install wooden batten grid (provided by others) of section 50x50mm or as approved by the Architect on the solid wall/partition to provide level and plumb surface for fixing Keel. Install Keel vertically using screws and plugs at spacing of not more than 600mm centre-to-centre. The first and last keel should not be more than 150mm from the ends. Trim the tongue of the first bottom panel and install using headless nail with groove side upward. Subsequent panels are installed with tongue side downward by engaging with each other using tongue and groove mechanism and secured by inside clip. Continue this process until required height is achieved. Shorter butt edges need to be joined using industrial/wood glue. The keel shall also be used for transition of the butt end of adjacent panel at every 7.2m. Install the Skirting (provided by others) of width 50mm or more as required by the Architect/ Engineer-in-Charge. Finish off the edges using wooden moulding of matching colour (by others). Installation should be carried out as per Manufacturer recommended procedure.		
14	Providing and fixing fully panelled ornamental double leaf shutter for Auditorium doors. Having a overall opening size of 2.0 x 2.40mt. as per approved design and drawings with approved ornamental brass fittings such as brass flat 40mm wide, nobs and rings etc. and hardware such as aldrops -18", towerbolt -18" and hinges etc. The paneled door would be made of 75 x 40mm and intermediates frame of 200 x 40mm in seasoned and treated beram teak wood. The panels are made of 12mm thk. ply covered with 4mm thk. veneer od appd., shade & Make including teak wood beading of size 19mm x 12mm on front face. The inner face of the door to be acoustically covered with perforated laminated wooden panel od appd. make & Shade. Acoustical Drop seal to be provided as per appd make.	Sq.Mt.	57.30
15	ADD EXTRA FOR BRASS ITEMS AND HARDWARES	Each	16.00
16	Providing & Fixing 4MM THK. VENEER panelling placed on 16 mm thk. water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects	Sq.Mt.	129.90
17	Providing and fixing Nigeria / Ghana /Ivory Coast Teak wood grade-I mouldings and beadings 50x20 mm	R.Mt.	178.59
18	50mm Thk. Arches in GRC Material	Sq.Mt.	50.77
19	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects	Sq.Mt.	678.04
20	For D-stona PVC sheet panelling placed on 9mm thick water proof HDF board Add Extra for 75mm Wide Cornice/ Beading	R.Mt.	98.56
21	Providing & fixing D-stona PVC Cornice 150mm	R.Mt.	456.61
22	Providing & Fixing 1mm thk. Laminate panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thk Aluminium frame. sample to be got approved by Architects	Sq.Mt.	526.17
23	Wall painting with Asian Velvet Touch, Royal, etc Plastic Emulsion paint of approved brand and manufacturer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect	Sq.Mt.	7820.76
24	Berma Teak wood grade I railing with toughened glass : Supply and fixing of railing of height 1100 mm. Balusters : 75X50mm in Ivory coast wood grade I . Handrail : 75X62.5mm in polished Berma Teak wood grade I. Glass : 12mm thick toughened glass panel with frosted design as / drawing Complete finish with Melamine polish on teak wood work, necessary fittings, etc all complete as per direction of EIC.	R.Mt.	206.68
25	High density fibre board Jali in approved Pattern through CNC cutting technique on a board of 19mm thick, The jali painted with deco paint with approved shade .	Sq.Mt.	167.83
26	SOUND & HEAT NOWOFILL INSULATION ECOPEACE / IB-2000_Acoustics/Sound Proofing_ HSN Number : 3925 IB-2000 Acoustic Board in 9MM thickness. Size 8 x 4 per sheet. Density: 180-200kg /m3 OEKOTEX Certified / Fire Retardant /	Sq.Mt.	988.31
27	For 12.5 mm thick tapered edge gypsum board false ceiling Add Extra For 40mm Wide Beading	R.Mt.	482.40
28	For 12.5 mm thick tapered edge gypsum board false ceiling Add Extra For Cornice	R.Mt.	636.47
29	Basalt Bushed Hammered with River Washed Stone 40mm Thk.	Sq.Mt.	200.30
30	Basalt Bushed Hammered with River Washed Stone 20mm Thk.	Sq.Mt.	100.15
31	Providing & Fixing Armstrong horizontal level suspended ceiling comprising of GI Microlook Lay-in Standard Perforated metal ceiling consisting of 600x1200mm (Nominal Size) Lay-in tiles of 120 gsm galvanized steel as per IS 277 (2003) suitable for architectural finishes in 0.5 mm thickness as per IS:513 (1994) in Global white color with Microlook 90° edge having 8mm drop. Tile shall have perforation having hole diameter 2.5mm and open area 16% with linear and diagonal pitch of 5.5mm and 7.7mm respectively and a border of	Sq.Mt.	3300.72

	10mm. The difference between the 2 diagonal dimensions of the tile to be less than 1mm. Tiles shall be flattened by precision leveller to minimize sag to less than 1/400mm. The tile shall be electrostatically polyester powder coated using RoHS compliant powder having coating thickness ranging from 60-80 microns. The powder coating shall pass Salt Spray Test for 750 Hours as per ASTM B117, QUV –A Test for 1000 hours as per ASTM G-154 – (Cycle – 1) and Humidity test for 1000 hours as per DIN 50017. The powder coating shall have an adhesion of GT0 as per EN ISO 2409. The shade variation across batches shall be delta E<1 using Excite/BYK Gardner instrument and gloss level 25±5% at 60° as per ASTM D523. The tile shall have a Light Reflectance of ≥ 63% in accordance to ASTM 1477-98. Back side of the tile will have Soundtex fleece hot pressed mechanically for uniform bonding to achieve NRC up to 0.7 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C-423 and Fire Performance of Class 0/1 as per BS 476 Part 6 & 7 in module size of 600x600mm. All border cut tiles shall be laid, using lay-in end cap for installation to have a Microlook effect on perimeters.		
32	NOWOFILL INSULATION_Polyester Wadding_HL Series HSN Number : 5603 HL-1000 Polyester Soundsynth Material. Thickness 50MM / Density 20kg/m3 OEKOTEX Certified /Fire Retardant / White Colors	Sq.Mt.	13244.90
33	The thickness of POP ceiling shall be maximum 12mm & will include all the curves, coves, etc as per architectural design. The frame work shall be treated with one coat of primer of zinc coating of grade 350 as per IS 277 and shall be true to planers or slopes as specified. The joints in the expanded metal shall be provided only under the main steel frame work. The plaster of Paris shall be of calcium sulphate semi-hydrate variety, its fineness shall be such that when sieved through a sieve of IS sieve designations 0.05mm for 5 min after drying the residue left on it shall not be more than 1% by weight. It shall not be too quick setting. Initial setting time shall not be less than 13 min. The average compressive strength of material determined by testing 5 cm cubes after removal from mould. After 24 hours and drying in an oven at 40 c till weight of the cubes is constant, Shall not be less than 84 Kg/sq.m. The material will be mixed with water to a workable consistency; plaster of Paris shall be applied to the underside of expanded metal in suitably sized panels and finished to a smooth surface by steel trowels. The finished surface shall be smooth and true to planed slopes or curved as required.	Sq.Mt.	1812.01
34	Providing & Fixing D- Stona PVC sheet panelling placed on 9 mm thick water proof HDF board with the help of 40mm x 50mm thick Aluminium frame. sample to be got approved by Architects	Sq.Mt.	81.38
35	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on one side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing. Care may be taken to match the grains of the veneer ply's to be used.	Sq.Mt.	660.11
36	Supply and fixing of partitions upto ceiling height/or upto height specified as the case may be 25 x 50 1.5mm Aluminium frame (sample to be got approved) be used, placed at 2' (600mm) c/c both ways with 9mm Water Proof ply on either side, covered with 4mm veneer duly polished in melamine finish of appd. shade and make as / drawing and 6mm thick. Corrain on other side as / drawing. Care may be taken to match the grains of the veneer ply's to be used.	Sq.Mt.	81.65
37	Providing and fixing both side veneer partition with 6mm wide groove using 50x40 mm aluminium frame 600 mm c/c on both directions, door opening as per drawing with steel fittings antitermite treatment complete as per specifications using :	Sq.Mt.	501.31
38	Providing and fixing water proof board CEILING of 16mm thick with as shown in drawing. Board to be fixed to the Ceiling as per site instructions / sample approval by architect and engineer in charge .	Sq.Mt.	260.21
39	Providing and fixing 5mm Thick. Plain Glass with 30mm wide Bevelled edge.	Sq.Mt.	61.66
40	Providing and fixing external grade board solid core single leaf 30MM flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly Finished with 4mm Thick. Veneer with melamine polish both side	Sq.Mt.	154.63
41	Providing and fixing external grade board solid core single leaf 30MM flush door shutters ISI 2202-67 marked using Phenol formal dehyderesin in glue both sides with approved steel fittings complete. Duly Finished with 1mm Thick. Laminate both side	Sq.Mt.	28.20
42	Providing & Laying autoclave aerated blocks masonry with 100mm thick AAC Blocks of Grade-I Conforming to IS:2185 Part:III in superstructure above plinth level with cement mortar 1:4 (1 cement: 4 coarse sand) .The rates includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at every third course of masonry.	Cu.Mt.	262.31
43	Providing and Fixing of Flocked textile plank floor covering of Nylon 6.6 face fiber with 100% Nylon and completely water proof resilient backing. The flooring should be Anti static with thickness of 5.3 mm and approximate weight of 5.4 k.g./sqm of tile . .The floor covering should have Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8, Friction Slip Resistance Test EN 14041 Class DS, SANITISED anti-microbial treatment, with resilient waterproof backing, anti allergic which is certified by British allergy foundation, with ten year limited warranty etc.complete in all respect to the entire satisfaction of	Sq.Mt.	111.72

	engineer-in-charge/Architect. .The work should be carried out by the authorized installer of the Company in India. (Note: The Contractor to submit Manufacturing Test Certificate)		
44	Wall painting with Asian Velvet Touch, Royal, etc Plastic Emulsion paint in Trowel finish of approved brand and manufacturer to give an even shadeTwo or more coats on new work including preparation of base with primer, putty, lippy complete in all respect	Sq.Mt.	46.20
45	S & A K-13 Standard Grade, sound absorbing cellulose-base acoustic plaster, organic in nature, free of asbestos, fiberglass, or manmade mineral fibers and treated with fire resistant chemicals, sprayed with high pressure equipment to the substrate in WHITECOLOR,in 18mm thickness having 0.70 NRC, construction material Class B1 according to DIN 4102, including protection cover for surfaces that are not to be sprayed. Clips, hangers, supports, sleeves and other attachments to substrate shall be fixed by other agencies prior to spray plaster activity whereas ducts, piping and other suspended equipment shall be placed / fixed after the spray activity. All materials shall be supplied in unopened containers bearing the name of manufacturer, product identification and reference to UL& FM testing. The manufacturer or the applicator shall provide photocopies of material compliance with ASTM E-84 / U. L. 723, tested at a minimum of 5" thk Class I, Class A, Flame Spread: 5, Smoke Development: 5, ASTM E-1042, Non corrosive per UMB-80, Thermal Conductivity K-Value 0.036 w/m*k as per ASTM C-518, FM Approved, UL GreenguardGOLD Certified for VERY LOW VOC Content as per latest CDPH Standards (VOC Content < 1g/l), LEED V.4 & WELL Certification Available, Bond Deflection per ASTM E-759: 6" deflection in 10' span – no spalling or delamination, certified as Class O by passing BS 476 Part 6 & Part 7, Weight Per Sqmtr less than 1.30 kg/sqmtr. The applicator / manufacturer shall provide with test data that the acoustical plaster gives absorption co-efficient NRC 0.75 at 20mm thickness and meet the individual absorption coefficient at 125hz=0.16, at 250hz=0.34, at 500hz=0.74, at 1khz=0.95, at 2khz=0.97 at complete octave band and gives absorption coefficient NRC 0.65 at 15mm thickness and meet the individual absorption coefficient at 125hz=0.17, at 250hz=0.26, at 500hz=0.63, at 1khz=0.85, at 2khz=0.93 at complete octave band.The plaster shall be cured with natural ventilation.	Sq.Mt.	4025.19
46	ANIMAR FINISH STONE CLADDING: Supply & fixing of 18mm thickanimar finished jaislmer stone with Cement mortar 1:3 (20 to 50mm) on existing brick wall, joints to be filled up with white cement & pigment to match the colour of stone. Sample to be got approved from the Architect. (To be secured to the backing by means of cramps which shall be paid separately)	Sq.Mt.	126.95
47	SAND STONE CLADDING: Supply & fixing of 18mm thick SAND stone with Cement mortar 1:3 (20 to 50mm) on existing brick wall, joints to be filled up with white cement & pigment to match the colour of stone. Sample to be got approved from the Architect. (To be secured to the backing by means of cramps which shall be paid separately)	Sq.Mt.	1226.07
48	50X50X3.6 MM MS PIPE APPLIED WITH PRIMER THAT CONTAINS A RUST INHIBITOR FINISHED WITH DUCO PAINT IN BLACK COLOUR(TWO COATS)	K.G.	17244.69
49	Providing and installing at site a Mural with traditional architecture made of arches, chajjas, jali's , jharokha's etc as per drawing. The mural grc cladding other local materials. The work is to executed mainly in precast but wherever required the cast in situ work will be allowed. The cost to include all supplies, labour for fixing, civil work, all material including the material, scaffolding, freight, loading, unloading, cost of molds wherever required. The site is at Jaipur and is to be executed inside the building. Paint not included.Dimensions are in meters.4.8m X 3.5m	Sq.Mt.	33.60
50	Providing and installing at site a Mural of 13.715mtr x 4.615mtr. as per the space available at site with traditional architecture made of arches, chajjas, jali's , jharokha's etc in Jaislmer stone as per drawing and architect instructions. The mural to be smooth finished in stone. The cost to include molds wherever required.	Sq.Mt.	63.29
51	Providing and installing at site a Mural of 4.225mtr x 3.270mtr. as per the space available at site with traditional architecture made of arches, chajjas, jali's , jharokha's etc in Jodhpur stone (Soor Sagar) as per drawing and architect instructions. The mural to be smooth finished in stone. The cost to include molds wherever required.	Nos.	1.00
52	Providing and installing at site a Corner stone chatrri in local sand stone of Jaipur style as per drawings and Architects instructions.	Nos.	1.00
53	Providing and installing at site a Traditional fort wall in local sand stone of Jaipur style as per drawings and Architects instructions.	Sqm.	22.15
54	Providing and installing at site a Mural with traditional architecture made of arches, chajjas, jali's , jharokha's etc as per drawing. The muralto be smooth finished in cement concrete and other local materials. The work is to executed mainly in precast but wherever required the cast in situ work will be allowed. The cost to include all supplies, labour for fixing, civil work, all material including the material, scaffolding, freight, loading, unloading, cost of molds wherever required. The site is at Jaipur and is to be executed inside the building. Paint not included. Dimensions are not in meters. 13.87m X 4.7m	Sq.Mt.	65.19
55	PROVIDING AND FIXING TUBLAR SUPPORTING STRUCTURE FOR LAYING SERVICES SUCH AS HVAC LOW SIDE WORK , FIRE AND ELECTRICAL CABLE TRAY ETC. FOR FABRICATION WORK REFER STRUCTURAL DRAWING.	Sq.Mt.	8327.86

56	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection > 0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including rubbing and polishing of the surface upto 3 cuts complete, including providing skirting upto 150 mm height along the parapet walls in the same manner.	Sq.Mt.	4900.00
57	Slider High Back W/o Desklet with Wooden Arm top Azure Blue Main ICFS CHEMICAL ANCHOR STUD M10X195 ICFS CHEMICAL 345 VESF - Chemical tube Godrej - MARS HB Auditorium Chair - SEAT ASSEMBLY: The seat assembly is made of polyurethane foam moulded with M.S. tubular frame insert which is upholstered with fabric. The insert is tubular frame made of 01.9 ±0.02cm x 0.16 ±0.013cm thk MS. E.R.W round tube with flexible support straps running across the length and width of the frame. The Seat has an auto-tipup feature making it stay in upright position when not in use enabling clear row passage.* Approx. Seat Size : 45.5cm (W) x 46.5cm (D). BACKREST ASSEMBLY: The back assembly has a flexi back mechanism. It is made of polyurethane foam moulded with M.S. tubular frame insert, upholstered with fabric and has a plastic back cover. The insert is a tubular frame made of 01.9 ±0.02cm x 0.16 ±0.013cm thk M.S.E.R.VV round tube with flexible support straps running across the length and width of the frame.* Approx. Back Size : High Back- 45.5cm (W) x 82.4cm (H).	Each	1120.00
58	Supplying and fixing of karauli stone cladding of 20-30 mm thick stone on prestress beams surface with back support of mild steel frame made by MS angles (50mm x 50mm x 6mm) and plates(30mm x 5mm) , with using stainless steel fastner and fix complete stone frame with floor slab by using proper Stainless steel fastner etc with taking all safety measures. Approved by Engineer-in-charge.	Each	1558.00
59	Providing supplying fiber glass planters, 900mm, height with 375 dia base in a jar shape as appd. Design and shape	Each	15.00
60	Providing supplying fiber glass planters, 600mm, height with 375 dia base in a jar shape as appd. Design and shape	Each	15.00
61	Providing and fixing 600mm wide and 850mm length counters of 18mm thk. Commercial board covered with 1.00mm thk. Laminate of appd. Shade and make. 75mm high two drawer units to be provided with 12mm thk. Ply base and front cover with finger grip detail fixed on telescopic channel. Counter side to be made of 18mm thk. commercial board covered with 1.00mm thk. laminates of both sides with 35mm x 15mm steam beach lipping. Necessary foot rest to be provided as / design. 675mm wide and 1050mm high mirror with beveled edge to be provided fixed on 9mm thk. ply.	Each	34.00
62	Providing and fixing 600mm wide AND 600MM LONG counters of 18mm thk. Commercial board covered with 1.00mm thk. Laminate of appd. Shade and make. 100mm high two drawer units to be provided with 12mm thk. Ply base and front cover with finger grip detail fixed on telescopic channel. Counter side to be made of 18mm thk. commercial board covered with 1.00mm thk. laminates of both sides with 35mm x 15mm steam beach lipping. Necessary foot rest to be provided as / design.	Each	1.00
63	providing & fixing a conference table having a perimeter length of 33 meter for a seating capacity of 50 persons on the table. table structure made of 19 mm thick commercial board having table top and vertical supports. the table top is provided with korean finish of 6mm thick in approved shade & make. all vertical supports are to be covered with 4mm thick veneer of approved make and finish with in melamine polish of approved shade. front elevation of the table inside the well would be as per drawing. the table top would have a teak wood moulding (burma teak) of 50 mm x 6 mm and all vertical supports would have lipping of 40 x 6 mm thick (burma teak). the moulding and lipping to be finished in melamine polish of approved shade. provision to be made for all electrical connections and pop up boxes for mics. the entire work to be completed as per drawing and to the satisfaction of the consultant architect.	Rmt	101.17
64	providing & fixing 4.98 (APPROX. 5 MT) LONG RECEPTION COUNTER TO BE MADE IN 19 MM THICK COMMERCIAL BOARD STRUCTURE HAVING 1200 MM HEIGHT FROM VISITORS SIDE AND 750 MM HEIGHT FROM STAFF SIDE. THE ENTIRE COUNTER TO BE MADE FOR 4 SEATS . EACH SEAT IS DIVIDED BY 400 MM WIDE DRAWER UNITS. TWO ADDITIONAL DRAWER CUM FILE UNITS ARE PROVIDED AT THE TWO ENDS OF THE COUNTER FORMING AND ENCLOUSER AS PER DRAWING. THE ENTIRE COUNTER IS FINISHED WITH KOREAN TOP, FRONT AND SIDES AS SHOWN IN DESIGN. THE SIDE UNITS ARE TO BE ALSO PROVIDED WITH KOREAN TOP AND SIDES. THE SHADE AND MAKE OF THE ENTIRE KOREAN SURFACE IS AS PER ARCHITECTS APPROVAL. THE DRAWER UNITS AND ALL INTERNAL SURFACE OF THE COUNTER INCLUDING SIDE TABLES ARE FINISHED WITH 1 MM THICK LAMINATE AS PER APPROVED SHADES. HIGH CLASS HARDWARE, DRAWER CHANNELS ETC. ARE TO BE AS PER ARCHITECTS APPROVAL.	Rmt	16.55
65	providing & fixing OFFICE TABLE OF SIZE 1800 X 675 X 750 MM. AND A SIDE UNIT OF 450 X 900 X 750 MM . THE ENTIRE STRUCTURE TO BE MADE OF 19 MM THICK COMMERCIAL BOARD. THE TOP, FRONT AND SIDES TO BE COVERED WITH 4MM THICK VENEER FINISHED IN MELAMINE POLISH AND COATED WITH PU OF APPROVED SHADE . THE DRAWER UNIT TO BE MADE OF 12MM THICK PLY. THE HARDWARE AND DRAWER CHANNEL ETC. TO BE HIGH CLASS OF APPROVED MAKE. ONLY FINGER GRIP DETAIL TO BE USED. NO KNOBES ARE PROVIDED. STORAGE CUM DISPLAY UNIT OF 450 MM WIDE AND 5600 MM LONG HAVING 900	Each	10.00

	MM HEIGHT TO BE ALSO PROVIDED WITH STRUCTURE IN 19 MM PLYBOARD AND FINISHED WITH 4MM THICK VENEER PLY IN MELAMINE POLISH.		
66	Providing and fixing fully panelled/partly panelled/double leaf shutter frame for doors as per approved design and drawings with approved Dorma or equivalent stainless steel fittings and width of styles and top rails of 150mm and lock rails width of 150mm and bottom rails of 200 mm width with melamine polish including teak wood beading of size 19mmx 12mm and toughened glass of thickness 12mm complete.	Sqm.	147.84
67	:Laying 50 mm thick IPS flooring in cement concrete 1:2:4 grade using 12mm and down graded approved stone aggregates laid in alternate panels not exceeding 9 sq.mt. area to required levels and slope including consolidation of base, smooth finishing, curing etc. complete at all levels as per drawings and specifications and as directed by the engineer.	Sq.Mt.	3117.46
68	Anodised aluminum (anodised transparent 81 dyed to required shade according to IS : 1868. (Minimum anodic coating of grade AC 15, Anodizing to be got done from approved Anodizer)	Kg	102969.57
69	Providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS 2095-Part I at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.	Sqm.	4296.40
70	Providing and applying Melamine polish on wood work of approved brand and manufacture to give an even shade with two or more coats by compressor including sand papering, wood filler coat etc complete in all respect:	Sq.Mt.	3927.23
71	Extra for providing external lipping with 2nd class teak wood battens 6 mm minimum depth on all edges of shutters (over all area of door shutter to be measured)	Sq.Mt.	182.83
72	PROVIDING AND FIXING MS CABLE TRAY OF 200 M WIDTH AND 2 MM THICK ,SUPPORTED ON MS TUBLER SECTION OF 50 X 50 MM SECTION AS PER DRAWING. HEIGHT OF FLANGE OF U CHANNEL TO BE 40 MM	R.Mt.	1233.07
73	P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different si size 600 mm X 600 mm	Sqm.	1221.99
74	size 900mm X 900 mm	Sqm.	3079.93
75	Kota stone slab flooring 25 mm thick over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand)	Sq.Mt.	1755.96
76	Providing & Laying POP moulding & beading in ceiling including nailing & scaffolding etc. complete of size :		
	25mm x 12mm	R.Mt.	274.20
77	25mm x 25mm	R.Mt.	125.00
78	Providing & Laying POP Cornice of required design & pattern in ceiling including nailing & scaffolding etc. complete with fine finishing of size:		
	75mm x 75mm	R.Mt.	226.34
79	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	Sq.Mt.	234.69
80	Providing and fixing stainless steel cramps of required size and shape for anchoring stone wall lining to the backing or securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making the necessary chases in stone and holes in walls wherever required	Kg.	1300.00
81	Providing and fixing of wooden battens of section 37.5mmx75mm or as approved by the Architect on the floor using screws and plugs at spacing of 600mm centre-to-centre.12mm thick ply should be fixed with screws and plugs at spacing of 600mm centre to centre on the wooden battens.12mm thick ply should be fixed in a staggered layers with screws and plugs at spacing of 600mm centre to centre on the wooden battens.	Cu.Mt	181.29

82	Providing & fixing door, window, chowkhats and other frames, including antitermite treatment, M.S. flat, hold fasts of size 250 x 40 x 3mm fixed with M.S. bolt 5mm dia 50mm long duly embedded in cement concrete M-15 grade :		
	Ivory coast wood Grade I	Sqm.	158.40
83	Providing and laying in position Ready mix concrete manufactured in fully automatic Batching Plant and transported to site in transit mixer for having continuous agitated mixer, manufactured as per approved mix design of specified grade of RCC work including pumping of R.M.C. from transit mixer to site of laying , excluding the cost of centering, shuttering and reinforcement with all lead and lift including cost of admixtures in recommended portion as per IS 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer in charge. All works upto floor V floor M20 grade Design Mix by using min 400 Kg of cement per cum of concrete	cum	80.00
84	Add extra for providing richer mixes respectively at all floor levels Providing M-25 grade concrete by using min 410 kg of cement per cum instead of M-20 grade design mix.	cum	80.00
85	Centering & shuttering with plywood or steel sheets including strutting, propping bracing both ways with steel props and removal of formwork for upto floor five level for :		
	Suspended floors, roofs, landings, staircases, balconies, girders, cantilevers, bands, coping bed plates, anchor blocks, sills, chhajjas, lintel, beam, plinth beam etc.	sqm.	250.00
86	Columns, pillars, posts and struts etc.	sqm.	100.00
87	Providing and fabricating reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding (including cost of binding wire) all complete up to floor five level.		
	Thermo-mechanically Treated bars (Conforming of relevant IS code)	Kg.	6240.00
88	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level upto floor V level in all shapes and sizes in :		
	Cement mortar 1 : 6 (1 cement : 6 coarse sand)	cum	100.00
89	Half brick masonry in Superstructure , above plinth level upto floor V level using bricks of designation 75		
	Cement mortar 1 : 6 (1 cement : 6 coarse sand)	sqm.	150.00
90	Plaster on new surface on walls in cement sand mortar 1:6 including racking of joint etc. complete fine finish :		
	20mm thick.	sqm.	2000.00
91	6 mm thick cement plaster to ceiling of mix 1:3 (1cement : 3-fine sand)	sqm.	2000.00
92	Providing and fixing Marble stone flooring table rubbed, 15-18 mm thick over 20mm (Av.) thick base of CM 1:4 (1 cement : 4 coarse sand) jointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete. OR Providing and fixing stone slabs table rubbed, 15-18 mm thick in Walls, Steps, Pillars, Counters, Jambs, Shelves, Sills etc. laid on 12mm (Av.) thick base of CM 1:3 (1 cement : 3 coarse sand) jointing with white cement mortar 1:2 (1white cement : 2 marble dust) with pigment to match the shade of the marble slab including grinding, rubbing and polishing complete.		
	Rajnagar 1st quality/Ageria with light spots.		
	Above 3601 Cm ² Slabs	SQM.	720.83
93	Extra for Mirror polishing on marble work where ever required to give high gloss finish complete.	SQM.	720.83
94	Providing and laying wooden flooring with a direct laminated surface treated with aluminum oxide on top of a high-density fiber board with a density of 850 Kg./per Mtr. having a click system tongue and groove joint to secure a long lasting joint. The planks are or termite resistant and water protected with both side lamination Wooden flooring Planks of size 1208 x 194 x 8 mm / 1215x294x8 mm (8mm thick laminated floor class of use 23/31 having a wear resistance level of AC-3 , impact resistance > 9mm, moisture resistance 3-10% as per (EN-424, EN – 438 EN – 425 EN – 417 – 2)or PREN 3329 complete in all respect as per direction of EI	SQM.	1316.75

Note : 1. The above quantities are indicative and are only for reference purpose. Quantities may vary.
2. The bidder has to evaluate the quantities as per enclosed drawings.

FOR ELECTRICAL WORK

FIRE FIGHTING & FIRE PROTECTION WORK

S. No.	Description	Unit	Quantity
	PA System		
1	Supply, installation , testing & commissioning of UL Listed Integrated 8 channel Digital Voice Evacuation and 2 way Communication Fire Fighters System capable to supervision of all the speaker circuits complete the system with console panel complete with 2 Nos of mike and necessary network cards. The system is integrated with main fire alarm panel and is of same make as of main fire alarm panel complete as per technical specification. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI	Each	1
2	Addressable 50 watt digital amplifier with in-built 4 addressable audio zone & 1 addressable fire fighter telephone zone. Required for below given speakers. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI	Each	5
3	Fire panel supervised 70db-84db wall Mounted Speakers with back box. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI	Each	40
4	2 way communication Fire Fighter's Telephone Jack with back box. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI	Each	28
5	2 way communication Fire Fighter's Handset with mounting arrangement. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI.	Each	5
6	Addressable control modules with back box for Fire Fighters Telephone circuit. Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI	Each	28
7	Providing and fixing of MS conduit including all necessary supports, clamps, jointing pieces etc. for cable from roof slab to detector as required. The item to be ISI mark. Make: BEC / AKG		
a)	25 mm Ø	Mtr	5000
8	SITC OF HIGH FIDELITY FALSE CEILING SPEAKER WITH CONTEMPORARY GRILL. FREQ RANGE: 60Hz-18KHz DRIVER ,CAPACITY: 6-20WATTS,IMPEDENCE:8of High-,FREQ RANGE : 60Hz – 18 KHz,DRIVER CAPACITY :6 - 20 Watts IMPEDANCE : 8 Ohms TRANSFORMER TAPS: 100&70 V DIMENSIONS : Dia 206 mm, DEPTH:89mm,CUT OUT :175mm NET WEIGHT:1.2 Kg MAKE :‘JBL’ CONTROL 8124	Each	150
9	SITC OF of 70/100V , 240 WATTS INSTALLATION AMPLIFER FREQ RANGE: 50 Hz – 20 KHz POWER OUTPUT : 240 Watts IMPEDANCE : 4, 8 Ohms TRANSFORMER TAPS: 100&70 V DIMENSIONS: STANDARD 19" RACK MOUNT (100, 430, 270 mm H, L, B WEIGHT : 10.5 Kg ‘BOSCH’ LBD 1916	Each	3
10	SITC OF BACK END VOLUME CONTROLS PROGAMMABLE Make : ‘DBX’ ZC 8	Each	3
11	SITC of MP3, MP4 PLAYERS FOR PLAYING CONTINUOUS MUSIC	Each	3
12	SITC OF CHAIRMAN UNIT: RATED POWER SUPPLY:12-24 VDC/CURRENT CONSUMPTION:< 60 Ma/ FREQUENCY RESPONSE: 200-12500Hz/ RATED POWER OUTPUT: 300Mw MAKE: ‘BOSCH’ OR EQUIVALENT	Each	3
13	SITC OF STEEL RACK TO HOUSE THE EQUIPMENT	Each	3
14	Wiring to speakers in existing conduit. 24 / 0.20 mm PVC insulated twin twisted flexible annealed tinned copper wire.	RM	5000
	SAFETY SIGNAGE		
15	Supply of Safety signs Auto-Glo, (list of design attached), based on acrylic, single sided wall pasted size 12" x 6"	Each	150
Notes :	The above quantities are as per BOQ estimated based on preliminary design. The final BOQ will be based on jointly measured executed quantities at site.		

MAIN AUDITORIUM SOUND WORK

S. No	Ground Floor - Main Auditorium	UNIT	Qty.
1	SITC of permanent install ,flying mount , wooden enclosure biamp 15" two way loudspeaker with following specifications or better : Freq.range: 40 Hz to 19 kHz , LF driver : 15 " or better , HF driver : compression driver 1.4" or higher ,Power handling : LF - 1000W at 8 ohm , HF : 150W at 8 ohm (prog),Sensitivity : 104dB , Max SPL (peak) : 130dB,coverage angle (rotatable) : 90 deg x 60 deg, integrated 10 or more M10 flying points. Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	3
2	SITC of OE manufactured mounting bracket/ flying mount for Above speakers with M10 bolts, Eye hook etc Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	3
3	SITC of wooden enclosure ,flying mount ,permanent install dual 15" subwoofer speaker with following specifications or better: ,freq range: 35 Hz – 140Hz , coverage : omnidirectional , Max Output: 137 dB Peak, Drivers: LF - 2 x 18" , Sensitivity (1W/1m): 103 dB ,Power Handling: 2500W program @ 4 ohms Finish: Black painted , dual-layer powder-coated steel grille ,mounting .10 x M10 threaded rigging fittings Approved makes : Community, d&b audio, Renkus Heinz or equivalent make.	Each	2
4	SITC of OE manufactured mounting bracket / flying mount for Above Sub woofer with M10 bolts, Eye hook etc Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	2
5	SITC of permanent install ,flying mount , wooden enclosure 8" two way loudspeaker for Front Fill/Bacony with following specifications or better : Freq.range: 55 Hz to 19 kHz , LF driver : 8 " or better , HF driver : compression driver 1" or higher ,Power handling : 500W at 8 ohm prog),Sensitivity : 93dB , Max SPL (peak) : 124dB,coverage angle (rotatable) : 100 deg x 50 deg, integrated M10 flying points ,complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	8
6	SITC of 10" compact coaxial Two-Way stage monitor speaker with following specifications or better : Freq.range: 75 Hz to 18 kHz , LF driver : 10 " or better , HF driver : 1.25" or higher ,Power handling : 400W at 8 ohm prog),Sensitivity : 98dB , Max SPL (peak) : 127dB,coverage angle : 90 deg x 90 deg, flying points ,complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	2
7	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 2 , number of output channels : 2 , power output per channel : 2200 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 6000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.	Each	1
8	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 1400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 3000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.	Each	1
9	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.	Each	2
10	SITC of OE manufactured mounting bracket (Mounting Bracket for Front Fill)with accessories, Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	8
11	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.I routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make.	Each	1
12	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make.	Each	1

13	SITC of digital mixer 48 channels with following specifications or better :number of input :32 mic/line (XLR/TRS combo) + 2 stereo line (RCA pin),number of output channels : 16 or more xlr ,8 Effects , 10 GEQ,sample frequency rate: 48kHz,dynamic range : 110 dB typ., DA Converter, 107 dB typ., INPUT to OMNI OUT, Input Gain=Min,Recording 34 tracks, Playback 34 tracks Approved makes : Yamaha , Digico, Allen & Heath, Sound Craft or equivalent make.	Each	1
14	Supplying, installation, testing and commissioning of shielded CAT 5 cable in 25mm PVC conduit (Not More than 3 wires in each conduit) etc as required Approved make: Beldon,Dlink,Kramer or equivalent make.	Mtr	50
15	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.	Mtr	800
16	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.	Mtr	500
17	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make.	Each	8
18	SITC of 18" podium mic with flexible gooseneck at both base and top of shaft. Requires 9-52V phantom power. shall have RFI Immunity, Pre-Polarized Condenser Frequency Response 40 Hz - 18 kHz, Polar Pattern Cardioid, Output Impedance 150 ohms, shall include Heavy duty shock absorbent table stand with latching on/off LED switch and XLR connector Approved makes : Shure, DPA, Audix or equivalent make.	Each	2
19	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.	Each	2
20	SITC of Wireless UHF microphone set: (Set shall include 1x Receiver, 1 x Headworn mic with transmitter)Headworn Microphone: Pre-Polarized Condenser, Frequency Response 50 Hz - 15 kHz, Polar Pattern superCardioid, Sensitivity 4 mV / Pa @ 1k, Equivalent Noise Level <26 dB (A- weighted), Signal to Noise Ratio >68 dB, Maximum SPL ≥140 dBBodypack Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours Minimum, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.	Each	2
21	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories or equivalent make.	Each	12
22	SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make.	Each	1
23	SITC of connectors UL Listed for connectivity with accessories or equivalent make.	Lot	2
24	Supply,Installation,testing and commissioning of Microphone stand(Long): Light weight tripod alluminium Microphone stand with LongArm,boom type& chrome plating complete with standard accessories or equivalent make..	Each	6
25	SITC of Front lockable door, ventialed, 16U Equipment Rack or equivalent make.	Each	1

First Floor - Mini Auditorium 1 &2

1	SITC of FOH SPEAKERS, wooden enclosure , permanent install , flying mount , 15" LF three way loudspeaker system with following specifications or better : frequency range : 60 Hz to 18 kHz ,Sensitivity : 99dB or more ,Max SPL : 127dB (peak),coverage angle : 60-90 deg(H) x40-90 deg (V) with rotatable horn,drivers : LF -15", MF- 4" ,HF- 1" ,power handling:500W or more ,mounting suspension points on enclosuer Approved makes : Community,d&b audio,Renkus Heinz or equivalent make.	Each	4
2	SITC of FOH SUB WOOFER, wooden enclosure, flying mount, permanent install dual 15" subwoofer speaker with following specifications or better: , freq range: 38 Hz – 140Hz, coverage : omnidirectional, Max Output: 128 dB Peak, Drivers: LF - 2 x 15", Sensitivity (1W/1m): 97 dB, Power Handling: 900W program @ 4 ohms Finish: Black painted , dual-layer powder-coated steel grille, mounting 6 x M10 threaded rigging fittings Approved makes : Community, d&b audio, Renkus Heinz or equivalent make.	Each	4
	SITC of Front Fill, wooden enclosure , permanent install , flying mount , 8" LF two way loudspeaker system with following specifications or better : frequency range : 75 Hz to 18 kHz ,Sensitivity : 91dB or more ,Max SPL : 119dB (peak),coverage angle : 60-90 deg(H)x60-90(V) rotatable ,power handling : 350W (prog) or more ,drivers: LF 8" , HF 1" ,mounting suspension points , complete with OE mounting bracket Approved makes : Community,d&b audio,Renkus Heinz or equivalent make.	Each	4
3	SITC of 10" compact coaxial Two-Way stage monitor speaker with following specifications or better : Freq.range: 75 Hz to 18 kHz , LF driver : 10 " or better , HF driver : 1.25" or higher ,Power handling : 400W at 8 ohm prog),Sensitivity : 98dB , Max SPL (peak) : 127dB,coverage angle : 90 deg x 90 deg, flying points ,complete with mounting bracket Approved makes : Community ,D&B Audio ,Renkus Heinz or equivalent make.	Each	4
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.	Each	2
	SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 1400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 3000 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make.	Each	2
4	SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.I routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make.	Each	2
	SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multuple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make.	Each	2
	Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make.	Mtr	100
5	Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.	Mtr	600
6	Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make.	Mtr	600
7	SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc Alloy Approved makes : Shure, DPA, Audix or equivalent make.	Each	12
8	SITC of 18" podium mic with flexible gooseneck at both base and top of shaft. Requires 9-52V phantom power. shall have RFI Immunity, Pre- Polarized Condenser Frequency Response 40 Hz - 18 kHz, Polar Pattern Cardioid, Output Impedance 150 ohms, shall include Heavy duty shock absorbent table stand with latching on/off LED switch and XLR connector Approved makes : Shure, DPA, Audix or equivalent make.	Each	4

9	SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.	Each	2
	SITC of Wireless UHF microphone set: (Set shall include 1x Receiver, 1 x Headworn mic with transmitter)Headworn Microphone: Pre-Polarized Condenser, Frequency Response 50 Hz - 15 kHz, Polar Pattern superCardioid, Sensitivity 4 mV / Pa @ 1k, Equivalent Noise Level <26 dB (A- weighted), Signal to Noise Ratio >68 dB, Maximum SPL ≥140 dBBodypack Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours Minimum, Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make.	Each	2
	Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity) with 2 Point XLR Inputs Connector complete with standard accessories or equivalent make or equivalent make.	Each	16
	SITC of connectors UL Listed for connectivity with accessories or equivalent make.	Lot	4
10	Supply,Installation,testing and commissioning of Microphone stand(Long): Light weight tripod alluminium Microphone stand with LongArm,boom type& chrome plating complete with standard accessories or equivalent make.	Each	2
11	SITC of Front lockable door , ventialed ,16U Equipment Rack or equivalent make.	Each	2

P.A. SYSTEM SOUND WORK

S.N.	Area	Description	Unit	Qty
	ZONE 1	Lower Ground Floor - Restaurant		
1		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make	Each	6
2		SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
3		SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
4		SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make	Each	1
5		SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make	Each	1
6		Supplying, installation, testing and commissioning of shielded CAT 5 cable in 25mmPVC conduit (Not More than 3 wire in 1 conduit) etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	20
7		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	150
8		SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make	Each	1
	ZONE 2	Lower Ground Floor - Event Hall / EXHIBITION HALL		
9		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make	Each	20
10		SITC of multichannel Class D amplifier ,number of line level inputs : 4 , number of output channels : 4 , power output per channel : 240 Watts at 70V/100 V/ 4 Ohms) , bridge mode: 2 x 480 Watts : 70V/100 /8 Ohms, combined convection and fan cooling, 2 U, 19" rackmount, channel separation > 68 dB @ 1 kHz, frequency response (in Hz) :50 - 20 kHz Approved makes : Biamp ,Cloud Audio ,Stewart Audio or equivalent make	Each	1
11		SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make	Each	1

12		SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetri or equivalent make	Each	1
13		SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make	Each	1
14		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	400
15		SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make	each	2
16		SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make	each	2
17		Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories .(Wall Plate for Mic Connectivity) or equivalent make	each	2
18		SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make	each	1
	Zone 6	Lower Ground Floor - Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2		
19		SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better-frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio, CSC or equivalent make	Each	16
20		SITC of Dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make	Each	1
21		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	300
22		SITC of Front lockable door , ventiated ,16U Equipment Rack or equivalent make	Each	1
		BACKEND EQUIPMENT in EQUIPMENT ROOM AT LOWER GROUND FLOOR		

23	For BGM/P A ANNO UNCE MENT /EMER GENCY Annou nceme nt to ZONE 1 & 2 ,in their Local area equipm ent rack	SITC of networked audio output expansion device with 4 line-level output channels.The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol . It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for linelevel audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover,local non-volatile storage of Emergency Messages,dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control OutputsThe audio output device shall provide local digital audio signal processing and local storage of configuration data,signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panelApproved makes : Biamp, ASL,Mediamatrix or equivalent make	Each	2
24		Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	200
25		SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make	Each	1
26		SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make or equivalent make	Each	1
	Zone 4	Ground Floor - Convention Centre		
27		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make	Each	20
28		SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio ,Cloud Audio ,Stewart Audio or equivalent make	Each	1
29		SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make	Each	1
30		SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multuple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix , or equivalent make	Each	1
31		Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	50
32		Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	200
33		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	500
34		SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make	Each	2

35		SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB. Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBµV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make	Each	2
36		Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make	Each	10
37		SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make	Each	1
38		SITC of Antenna distribution system. Combines 4 - two channel systems (a total of 8 channels) with one set of antennas and power supply. Includes all BNC and jumper cables. Unit shall include Wide-band active directional antennas for improved reception (522-865 MHz). May be used with standard coaxial cable with BNC connectors. Features include 13dB of amplified gain to make up for signal loss over distance. Ideal for use with ADS 48 antenna distribution system. Approved makes : Shure, DPA, Audix or equivalent make	Each	1
39		SITC of connectors UL Listed for connectivity with accessories or equivalent make	Lot	2
40		SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make	Each	1
	To be included with Zone 3 & Zone 4	Ground Floor - Prefunction Area 1 & 2/Lobby 1 & 2/ Toilet Ladies 1 & 2/Toilet Gents 1 & 2		
41		SITC of 6.5" two-way ceiling loudspeaker 2-way design, 1 inch tweeter or better-frequency response 60 - 20K Hz ,SPL 1W/1m :86 dB ,dispersion angle : 170 deg ,multiple taps of at least 20 - 10 - 5 watts at 100v/70v, dynamic power of at least 60 watts, low impedance load of 16 ohms, grille main material of steel /aluminium Approved makes : Apart Audio, Cloud Audio, Aimline Audio or equivalent make	Each	26
42		SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio`or equivalent make	Each	2
43		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	250
44		SITC of Front lockable door , ventiated ,16U Equipment Rack. or equivalent make	Each	1
		BACKEND EQUIPMENT in EQUIPMENT ROOM AT GROUND FLOOR		

45	For BGM/PA ANNOUNCEMENT/EMERGENCY Announcement to ZONE 3 TO 4	SITC of networked audio output expansion device with 4 line-level output channels. The audio output device shall be designed in such a manner that provide audio and control by Layer-2 protocol. It shall have Local storage of Emergency Messages in non-volatile memory, receive Power over Ethernet (PoE) utilizing a single (CAT5) network cable to a rear panel RJ45 connector. The output device shall provide four removable terminal block connectors for line-level audio outputs, four control inputs, and four control outputs. It shall have channel-to-channel and device-to-device failover, local non-volatile storage of Emergency Messages, dual PoE capable with alternate powering from auxiliary 24V DC supply (dual inputs), Page Active Relays, Control Inputs, and Control Outputs. The audio output device shall provide local digital audio signal processing and local storage of configuration data, signal processing including volume control, filters, compressor/limiting, delay, speaker equalization. The audio output device shall indicate signal and clip with LEDs on the front panel. Approved makes: Biamp, ASL, Mediamatrix or equivalent make	Each	2
46		SITC of desktop networked paging station. The desktop paging station shall provide paging audio and control data via networked based Layer-2 or above protocol and receive Power over Ethernet (PoE), utilizing a single (CAT5) network cable to a rear panel RJ-45 connector. Minimum Ten buttons shall be provided on the front panel for recalling page codes with optional preambles. Up to 999 user-configurable page codes. Four software configurable priority paging levels shall be available. The desktop paging station shall include override, store and forward, and lock-out capabilities. Each desktop paging station shall provide local digital audio signal processing, local storage of configuration data and preambles. Desktop paging stations shall have a backlit LCD screen, PIN code accessibility and a gooseneck cardioid microphone. The desktop paging station shall be CE marked and shall be compliant with the RoHS directive. Frequency Response (100Hz ~ 20kHz): +0, -1dB, THD+N (100Hz ~ 8kHz): <0.05%, Effective Input Headroom: 30dB, System Headroom: 18dB, Input Impedance: 3kΩ, Maximum Input: 125dB SPL, Balanced Line In: -10dB, Nominal Mic Type: Dynamic microphone with dual transducer (monitored), Mic Pattern: Cardioid, Mic Frequency Response: 100Hz-10kHz, Mic Gooseneck Length: 12.5 inches (317.5mm) Approved makes: Biamp, ASL or equivalent make	Each	1
47		SITC of 16 port Network Switch Layer 2, Gbps managed, PoE suitable for audio dsp network devices Approved makes: Cisco, Netgear or equivalent make	Each	1
48		Supplying, installation, testing and commissioning of shielded CAT 5e/6 cable with connectors etc as required Approved make: Belden, Dlink, Kramer or equivalent make	Mtr	1
49		SITC of Front lockable door, ventialed, 16U Equipment Rack. or equivalent make	Each	1
	Zone 7	First Floor - Multipurpose Hall		
50		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker, 1 x ¾-inch exit compression driver, coverage: 120° conical (1 kHz to 6 kHz), Sensitivity (1W/1m): 91 dB SPL, Max spl: 114 dB SPL (peak), Power handling: 150W program at 8ohm, Corrosion-resistant zinc plated steel enclosure with steel grille, UL 94V-0 rated ABS, rating NFPA 70, NFPA 90, UL1480 Approved makes: Community, Martin Audio, Renkus-Heinz or equivalent make	Each	9
51		SITC of dual channel power amplifier with following specifications or better: number of inputs: 2, power output per channel: 2 x 240 watts at 100v/4 ohm, bridge output: 480 watts, frequency response: 40 - 20kHz, cooling system: fan priority input (per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes: Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
52		SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs, configurable USB audio, VoIP interface, POTS interface, Gigabit Ethernet port, RS-232 serial port, GPIO, OLED display, ethernet based control and monitoring, Signal processing e.g. I routing, mixing, equalization, filtering, and delay Approved makes: Biamp, Symmetrix or equivalent make	Each	1
53		SITC of wall mounted remote control panel for DSP control, flush-mount, network connect via standard CAT-5e/6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources. Multiple functions source control, volume control, mute etc, Front Panel OLED Approved makes: BIAMP, Symmetrix, or equivalent make	Each	1
54		Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Belden, Dlink, Kramer or equivalent make	Mtr	50
55		Supply, Installation, testing and commissioning of Speaker Cable: 2 core 2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mm PVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Belden, Krystal, Kramer or equivalent make	Mtr	200

56		SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make	Each	2
57		SITC of connectors UL Listed for connectivity with accessories or equivalent make	Lot	2
58		SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make	Each	1
	Zone 10	Second Floor - Lecture Hall 1		
59		SITC of Two-Way Compact Column Loudspeaker with directivity controlled vertical dispersion with following specification or better ,frequency Range: 110 Hz - 20 kHz , Max Output: 127 dB Peak , Transducers: LF - 10 x3" , HF - 12 Power Handling: 650W prog. @ 8 ohms, coverage angle (H x V): 130° x 15-20° ,Sensitivity (1W/1m): 95 dB ,complete with pan-tilt mounting bracket include. Approved makes : Community,d&b audio,Renkus heinz or equivalent make	Each	2
60		Universal mounting kit for above loudspeaker or equivalent make	Each	2
61		SITC of multichannel digital amplifier with inbuilt DSP and Dante ,having following specifications or better: number of line level inputs : 4 , number of output channels : 4 , power output per channel : 400 Watts at 70V/100 V/ 4 Ohms) , bridge mode power : 800 Watts at 4 ohms, THD+N: < 0.1% , Sample Rate Converter 24-bit @ 44.1 kHz to 192 kHz,Dynamic Range - 0.0001 % THD+N,Memory/Presets Delay ,Equalizer ,Raised-cosine, custom FIR, parametric IIR,Crossover, Limiters: RMS voltage, RMS current, Peak limiter ,Damping Control ,Impedance measurement Approved makes : Community,d&b audio,Renkus heinz or equivalent make	Each	1
62		SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.l routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make	Each	1
63		SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make	Each	1
64		Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	50
65		Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	50
66		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	100
67		SITC of Wireless UHF Handheld microphone set: (Set shall include 1x Receiver, 1 x Handheld microphones with transmitter)Handheld Microphone: All purpose professional vocal mic, Transducer Type Dynamic Frequency Response 50 Hz - 16 kHz, Polar Pattern Hypercardioid, Sensitivity 1.6 mV / Pa @ 1k, Maximum SPL ≥140 dB.Transmitter: RF Power Output 10 mW, 40 mW (Selectable) Current Consumption 110 mA typical, Battery Life 14 hours,Diversity Receiver: Frequency Range 522 MHz – 586 MHz, Bandwidth 32 MHz, Switchable Frequencies 106 Pre-coordinated frequencies, Frequency Response 45 Hz – 18 kHz, Pilot Tone 32 kHz, Signal-to-Noise Ratio 105 db at 30 kHz deviation (A-weighted), Total Harmonic Distortion ≤0.7% (33 kHz deviation at 1 kHz), Sensitivity 5 dBμV (S/N 60 dB at 25 kHz deviation, A-weighted),Approved makes : Shure, DPA, Audix or equivalent make	Each	2
68		Supply,Installation,testingand commissioning of Junction Box (Junction Box For Mic Connectivity)with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make	Each	1
69		SITC of connectors UL Listed for connectivity with accessories or equivalent make	Lot	2
70		SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make	Each	1

	Zone 13	Second Floor - Restaurant		
71		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make	Each	6
72		SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
73		SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
74		SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix or equivalent make	Each	1
75		Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	20
76		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	150
77		SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make	Each	1
78		SITC of Front lockable door , ventiated ,16U Equipment Rack.or equivalent make	Each	1
	Zone 14	Second Floor - Terrace Restaurant		
79		SITC of 6.5" two-way coaxial surface mount loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480,complete with mounting bracket Approved makes : Community,d&b Audio ,Renkus-Heinz or equivalent make	Each	4
80		SITC of Class D , 240W amplifier ,19-inch equipment rack with high impedance dynamic output power of at least 240 watts and low impedance dynamic output power of at least 240 watts at 4 ohms and include output connectivity at 70 - 100 volts - 4 ohms frequency response of 60 - 20 kHz with inputs of 2 mic with 48v phantom power, 4 line, 1 paging input and 1 emergency input , paging input with chime and a 24vdc priority output to override local volume controls ,e 4 levels of priority, selectable auto standby function with power consumption reduces to 0.5 watts after 10 minutes without input signals. Front panel led indications ,mic selection, volume , source, labelling section,line level output, pre and post main level output control Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
81		SITC of Local Input Panel with balanced mic & unbalanced line input having individual volume control with 24V phantom power. Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
82		SITC of Dynamic Vocal mic with Frequency Response 50 Hz - 16 kHz, Polar Pattern Cardioid Output Impedance 250 ohms, Sensitivity 1.8 mV / Pa @ 1k, Off Axis Rejection >20 dB, Maximum SPL ≥138 dB, Connector 3-pin XLRm Materials / Finish Zinc AlloyApproved makes : Shure, DPA, Audix` or equivalent make	Each	1
83		Supplying, installation, testing and commissioning of shielded CAT 5 cable with connectors etc as required Approved make: Beldon,Dlink,Kramer or equivalent make	Mtr	20
84		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	150

85		SITC of professional multisource CD/USB/SD-card music player with unbalanced outputs 2 x RCA + COMBI RCA, integrated FM RDS and tuner with RS232 control, IR remote included, rack mountable. Approved make: Samsung ,Sony ,Apart or equivalent make	Each	1
86		SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make	Each	1
	Zone 15	Second Floor - Conference Room		
87		SITC of 6.5" two-way coaxial loudspeakers with compression drivers loudspeaker ,1 x ¾-inch exit compression driver,coverage: 120° conical (1 kHz to 6 kHz),Sensitivity (1W/1m): 91 dB SPL,Max spl : 114 dB SPL (peak) ,Power handling : 150W program at 8ohm,Corrosion-resistant zinc plated steel enclosure with steel grille,UL 94V-0 rated ABS , rating NFPA 70 , NFPA 90,UL1480 Approved makes : Community, Martin Audio,Renkus-Heinz or equivalent make	Each	8
88		SITC of dual channel power amplifier with following specifications or better : number of inputs : 2 , power output per channel: 2 x 240 watts at100v/4 ohm , bridge output : 480 watts , frequency response: 40 - 20kHz,cooling system : fan priority input(per channel), 24V priority output, tone control, 230V AC - 24V DC Approved makes : Apart Audio, Cloud Audio, Stewart Audio or equivalent make	Each	1
89		SITC of DSP with 12 or more AEC analog inputs and 6 or more analog outputs,configurable USB audio, VoIP interface, POTS interface ,Gigabit Ethernet port,RS-232 serial port, GPIO,OLED display ,ethernet based control and monitoring ,Signal processinge.g.I routing, mixing, equalization, filtering, and delay Approved makes :Biamp,Symmetrix or equivalent make	Each	1
90		SITC of wall mounted remote control panel for DSP control ,flush-mount ,network connect via standard CAT-5e /6 cabling and is powered over Ethernet, eliminating the need for custom cabling and local power sources.Multiple functions source control ,volume control ,mute etc, Front Panel OLED Approved makes : BIAMP , Symmetrix ,or equivalent make	Each	1
91		SITC of Digital conference system Chairman unit ,it shall include a unidirectional condenser microphone, talk and delegate mute button. The chairman microphones system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make	Each	1
92		SITC of Digital conference system Delegate unit system. The delegate unit shall include a unidirectional condenser microphone and talk button.The system shall be connected in a daisy form using CAT5 cable with the interface connected at the end of the chain Approved makes : Shure ,Apart ,Beyerdynamic or equivalent make	Each	16
93		SITC of Digital conference system master processor for Main Control Unit ,It shall include digital connector for audio in and audio out as line level audio signal to an external amplification and loudspeaker systemApproved makes : Shure ,Apart ,Beyerdynamic or equivalent make	Each	1
94		Supply,Installation,testing and commissioning of Microphone Cable:2core PVC insulated Cu conductor sheilded microphone cable in 25mm PVC conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	20
95		Supply,Installation,testing and commissioning of Speaker Cable:2core2.5sqmm PVC insulated Copper conductor loud speaker cable in 25mmPVC Conduit as required (Not more than 4 wires in one conduit) Approved make: Beldon,Krystal,Kramer or equivalent make	Mtr	500
96		Supply,Installation,testingand commissioning of Junction Box with 2 Point XLR Inputs Connector complete with standard accessories . or equivalent make	Each	12
97		SITC of connectors UL Listed for connectivity with accessories or equivalent make	Lot	2
98		SITC of networked messaging processor. The Playing live & Pre-recorded server shall networked based & to be rack mountable in one rack space (1RU) and shall support advanced paging functionalities such as recorded message storage and playback, system configuration storage, event scheduling, time server support, storage of logged system data, VoIP triggered paging, email notification, and remote third party control capability. The processor shall feature a status LED and separate ports for TCP/IP Control and networked based Layer-2 or above protocol . The message Server shall be CE marked and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL,Mediamatrix,MediamatrixMediamatrix or equivalent make	Each	1

99	For Integrating with Fire Alarm System	SITC of network based fire interface panel .The fire panels interface shall provide a networked emergency interface. It shall have redundant power supply and network connections. The fire panels interface shall be powered from a certified 24V DC power source or over Ethernet (PoE) via either of two network ports. The fire panel interface shall have eight monitored I/O and eight control inputs. The fire panel interface shall offer up to 20 discrete emergency inputs, 16 of which shall be programmable to play an emergency message, enable a zone reset or zone silence. The fire panels interface shall provide up to 10 inputs per emergency zone. The life safety interface shall be EN 54-16 certified, shall be CE marked, and shall be compliant with the RoHS directive. Approved makes : Biamp, ASL,Mediamatrix,MediamatrixMediamatrix or equivalent make	Each	1
100		SITC of 16 port Network Switch Layer 2 ,Gbps managed ,PoE suitable for audio dsp network devices Approved makes :Cisco,Netgear or equivalent make	Each	1
101		SITC of Front lockable door , ventialed ,16U Equipment Rack. or equivalent make	Each	1
102		PC Operating System: Windows 10., Processor: Intel Core i5-6600K @ 3.5 GHz. Memory: 8 GB RAM., Graphics: NVIDIA GeForce GTX 1070 8GB., Hard Drive: 1TB (SSD or HDD) for VOCIA Software Monitoring with software installed or equivalent make	Each	1

INTERNAL ELECTRICAL WORKS

Description	Unit	A - Block	B - Block	C - Block	Total Qty.
POINT WIRING					
Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles, Hot Dipped Galvanized Modular Box with earth terminal, 6 A Modular switch, Modular plate with grid plate, screws, making connections, testing etc. as required.					
Short point (up to 3 mtr.)	P. point	300	450	250	1000
Medium point (up to 6 mtr.)	P. point	555	832	463	1850
Long point (up to 10 mtr..)	P. point	504	756	420	1680
Wiring of twin control light point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles, Hot Dipped Galvanized M.S Modular box of 20 SWG with earth terminal, 6 A two way Modular switch, Modular plate with grid plate, screws, making connections, testing etc. as required.					
Long point (up to 10 mtr..)	P. point	15	22	13	50
Wiring of 3 pin 5 amp. Light plug point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, Hot Dipped Galvanized M.S Modular box of 20 SWG with earth terminal, 6 A modular switch, 6 A modular socket, Modular plate with grid plate, screws, making connections, testing etc. as required.					
On board	P. point	66	99	55	220
Medium point (up to 6 mtr.)	P. point	8	12	5	25
Long point (up to 10 mtr..)	P. point	9	14	7	30
Supplying and fixing of power plug point Modular accessories on hot dipped galvanized modular on surface or in recessed with suitable size of grid plate with cover plate including cost of modular 16 amp. Switch and socket outlet, making connection, testing, etc. as required.	Each	57	84	49	190
S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall, covering conduit with Wire mesh and making good the same as required.					
20 mm	R. mtr.	1200	1800	1000	4000
25 mm	R. mtr.	3300	4950	2750	11000
32 mm	R. mtr.	600	900	500	2000
Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS:694) of 1.1 kV grade and approved make in existing surface or recessed conduit/casing capping including making connections etc. as required.					
3x1.5sqmm	Mtr.	300	450	250	1000
2 x 2.5 sq. mm. + 1x1.5sqmm	Mtr.	2940	4410	2450	9800
2 x 4.0 sq. mm. + 1 x 2.5 sq. mm.	Mtr.	2250	3375	1875	7500
2 x 6.0 sq. mm. + 1 x 2.5 sq. mm.	Mtr.	225	338	187	750
4 x 10.0 sq.mm	Mtr.	165	247	138	550
4 x 16.0 sq.mm	Mtr.	285	427	238	950
1 x 4.0 sq.mm	Mtr.	450	675	375	1500
P & F following modular accessories made out of unbreakable and fire retardant poly carbonate with silver contacts including making connections testing etc. as required					
5 step fan regulator 2 Module	Each	11	16	8	35
TOTAL OF POINT WIRING					

DB & MCB					
P&F Recessed/ Surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/ powder painted complete with suitable rating insulated copper bus bar, shorting link , neutral link, earth link and din bar,masking sheet, conforming to IS13032 & IS8623 including making internal DB terminations with copper lugs , testing etc. as required.					
Double door (Three phase)					
8 Way	Each	12	16	10	38
6Way	Each	6	9	5	20
Double door (single phase)					
12 Way	Each	1	3	1	5
P&F recessed/ surface mounting heavy duty Vertical type 16 SWG sheet steel Distribution board with provision of incomer suitable for MCCB and SP / TP MCB as outgoing , phophatised ,powder painted complete with insulated suitable rating copper bus bar , neutral link, earth link and din bar, masking sheet & conforming to IS13032 & IS8623 including making internal DB terminations with copper lugs , testing etc. as required.					
Double door with Provision of Incomer MCCB 100 / 125 A Rating					
8 Way	Each			1	1
P&F 240/415 V AC MCB with positive isolation of breaking capacity not less than 10 KA (B/ C/ D tripping characteristic) ISI marked IS 8828(1996)]/ conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc. as required.					
Single pole MCB					
6 A to 32 A rating	Each	300	450	248	998
Double pole MCB					
6 A to 32 A rating	Each	2	2	1	5
Triple pole MCB					
6 A to 32 A rating	Each	2	3	1	6
Four pole MCB					
6 A to 32 A rating	Each	6	9	5	20
40 A 63 A rating	Each	11	18	9	38
P&F 240/415 V Residual current circuit breaker conforming to IS:12640:1988/ IEC 61008 on existing board/sheet including making connections with lugs, testing etc. as required					
Two pole 100/300mA sensitivity					
25 A rating	Each	1	3	1	5
40 A rating	Each	18	27	15	60
63 A rating	Each	34	51	29	114
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 125 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each			1	1
TOTAL OF DB & MCB					
TELEPHONE, DATA WIRING AND ACCESSORIES					
RJ-11 telephone jack single two line	Each	8	22	10	40
P & F following size mounting grid plates with cover plates					
1/2 Module	Each	8	22	10	40

P & F following size hot dip galvanized M.S. box of 20 SWG with earthing terminal in recess/ surface suitable for modular accessories as required.					
1-2 Module	Each	26	72	32	130
Supplying and drawing PVC/ Polythene insulated and PVC sheathed unarmoured/ armoured telephone cable with 0.5 mm dia. Tinned / annealed copper conductor taped & confirming to ITD specification S/WS -113C of approved make in existing surface or recessed conduit/casing capping.					
Unarmoured Telephone cable in existing surface or recessed conduit/casing capping.					
4 pair	Mtr.	600	1650	750	3000
Jelly filled armoured (PIJF) Armoured telephone cable including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, 11nd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.					
100 pair	Mtr.	60	165	75	300
P & F Krone module with base frame in the recess / surface made out of 16 SWG sheet steel box, front openable, having locking arrangements duly powder painted., including dressing, ferruling and punching of telephone cable with krone tool etc. as required.					
20 Pairs	Each	2	6	2	10
100 Pairs	Each		1		1
S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required.					
20 mm	R. mtr.	700	1925	875	3500
25 mm	R. mtr.	600	1650	750	3000
Supply , Drawing and Testing of 4 pair, 24 AWG UTP Cat 6 Cable as per latest ammendments of TIA /EIA 568 B.2-1 Specifications in existing MS/PVC Conduits including making connections to Information outlets and Patch Panels with ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing required.	R. mtr.	700	1925	875	3500
Supply and Installation of Information outlets made of high impact plastic body ABS FR Grade with spring loaded collapsible shutters in jack Recess, suitable for Cat 6 application complying to latest ammendments EIA/ TIA 568 B.2-1 Specifications in existing modular /MS Boxes along with necessary connections as required.	Each	18	50	22	90
Supply & fixing of Faceplate for Flush / Surface Mount Information Outlets Single Aperture with screw hole covers & Icon Tree Size 86mmX86mm	Each	18	50	22	90
Single Aperture					
Supply , Installation, Testing and Comissioning of Rack mounted 19", Cat 6 UTP, 1.5-1.6 MM CRS chasis , powder coated Modular Patch Panels with collapsible shutters on jacks to support latest ammendments of TIA / EIA Cat 6 Specifications in Existing Communication Rack along with necessary connections of Cat 6 UTP Cables, With Rear Cable management trays and clamps.					
24 Ports	Each	1	2	1	4
Supply , Installation and Testing of 4 pair , 100 Ohm, 24 AWG , Cat 6 UTP, flexible , Double ended Patch Cords along with 2 No of RJ 45 connectors with strain relief boots as per TIA /EIA 568 B.2-1 Specifications.					
1 Mtr/3 ft	Each	18	50	22	90
Supply , Installation, Testing and Comissioning of Floor Standing Server / Communication rack with width 800 MM, Depth 1000 MM, front glass door, rear MS door, side openable panels, min 10 socket Vertical Cable manager -02 no, two nos Vertical Cable managers, 05 nos Horizontal Cable managers, Keyboard tray-01, 720 mm heavy duty shelf-03 (for mounting servers & components), swing handles, lock on both doors, Top and Bottom Cable entries with gland plates, Coastor with brakes, 1 no Fan tray with 2 x 230 Volt fans, Equipment mounting hardware.					
42 U Floor Standing Rack	Each		1		1

SITC of 10/100 MBPS Unmanaged Switch					
24 Port	Each	1	2	1	4
TOTAL OF TELEPHONE, DATA WIRING AND ACCESSORIES					
LIGHT FIXTURES & FAN					
P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required.					
1200 mm Sweep 5 Star rated	Each	11	15	9	35
P & F 18 swg M.S. Recessed fan box, hexagonal/ round of size 130 mm dia, depth 75mm, 12 mm dia rod fan hook with 100 mm length extended on each side .	Each	12	18	10	40
P&F of Double ball bearing, capacitor start single phase metallic blade fresh air fan, in existing opening including cost of hardware , flexible copper conductor ,making connections, testing etc. as required.					
225 mm sweep	Each	6	9	6	21
P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,ISI:2312 marked in existing opening including making connections testing etc. as required.					
300 mm sweep(900/1400 RPM)	Each	1	2	1	4
P & F ISI:371 marked 6 amp surface type ceiling rose including making connection testing etc. as required.	Each	9	14	7	30
Fixing of fresh air fan/exhaust fan up to size of 300 mm on ply/ poly board of 6.0 mm in existing window frame including cutting of hole in ply. Nut bolts etc. as required.	Each	7	12	6	25
P & F of IP 65 protected LED cabinet luminaire with 600mm length housing made of aluminium with unit boards of 6X 2W/ 12X1.1W LEDs, supply accessories(220 V, 50 HZ/ 24 V DC) complete in all respect. Available with 2 color options – white, warm white.	Each	210	315	175	700
P & F of IP20 LED Recessed / Surface Mounted, Round / Square Non-Dimmable Downlight with die-cast aluminum housing & Heat Sink for heat dissipation, high purity reflector with external driver having efficiency > 85% and in compliance to IEC standards. Power Consumption of ≤ 7W/ 10W / 15W / 18W with ~ 500 / 750 / 1100 / 1250 lumens, System Lumen efficacy of 70 lm / watt output suitable to replace 1x18W / 2x18W / 2x 26W CFL Downlights, life time of 50000 Burning Hours with 70% of initial Lumen maintained. CCT 3000°K , 4000°K & 6000°K. Fixture shall be CE compliance.					
Recessed Mounting					
LED Downlight 6/7W	Each	96	145	80	321
LED Downlight 9/10W	Each	8	14	7	29
LED Downlight 14/15W	Each	400	600	331	1331
LED Downlight 18/20W	Each	96	144	80	320
P & F of IP20 LED Recessed / Surface Mounted Round / Square Dimmable Downlight with die-cast aluminum housing & Heat Sink for heat dissipation, high purity reflector with external driver having efficiency > 85% and in compliance to IEC standards. Power Consumption of ≤ 15W / 20Wwith ~1100 / 1400 lumens, System Lumen efficacy of 70 lm/Watt output Downlights, life time of 50000 Burning Hours with 70% of initial Lumen maintained. CCT 3000°K , 4000°K & 6000°K. Fixture shall be CE compliance.					
Recessed Mounting					
LED Downlight 14/15W	Each	111	167	94	372
LED Downlight 18/20W	Each	100	151	85	336
P & F of IP20 LED ceiling / recessed / suspended mounting light fixture made from CRCA sheet steel housing, high purity / transmissivity diffuser for uniform light distribution. High efficiency driver electronics having efficiency > 85% and in compliance to IEC standards (Integral with light fixture). Power Consumption of 40W / 50W / 60W ~ 3000/3300/4200 lumens, System lumen efficacy of 70 - 80 lm/Watt output suitable for 2x36WFTL / 2x36W CFL / 3x36W CFL light fixtures,					

life time of 50,000 burning hours with 70% initial lumens maintained. CCT 3000°K, 4000°K & 6000°K. Fixtures shall be CE compliance.					
Recessed Mounting					
36W LED light fixture 2'x2' with acrylic / prismatic front cover.	Each	28	40	23	91
Surface Mounting					
36W LED light fixture 2'x2' with acrylic / prismatic front cover.	Each	38	57	32	127
P & F of IP20 LED batten type light fixture made from CRCA sheet steel housing suitable for mounting LED tube system (integral driver), Power Consumption of 18W / 36W 1500-3000 lumens, system lumen efficiency 80 lm/Watt output, life time of 50,000 burning hours with 70% initial lumen maintained. CCT 3000°K, 4000°K & 6000°K.					
4' LED Tube shape fixture 18W	Each	15	22	13	50
4' LED Tube shape fixture 2x18W	Each	27	40	23	90
TOTAL OF LIGHT FIXTURES & FAN					
ELECTRICAL PANELS					
MAIN LT PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				70
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				270
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				26
Blue colour	Each				4
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				4
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				90
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1.0 accuracy	Each				18
0.5 A to 4 A rating (Protection MCB)	Each				20
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				4
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				4

SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				4
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				4
INCOMING					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
1600 A Rating ,50 / 65kA	Each				2
1250 A Rating ,50kA	Each				2
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
BUS CUPPLER					
Draw out type (Motorised charging type)					
3200 A Rating ,65 kA	Each				1
1600 A Rating ,50 / 65kA	Each				2
Outgoings					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
3200 A Rating ,65 kA	Each				2
1000 A Rating , 50kA	Each				2
Supply and fixing of following accessories for Air circuit breakers.					
Mechanical Interlocking kit	Each				7.0
APFC PANEL (2 NOS. 350 KVAR)					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				50
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				80

SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				36
Blue colour	Each				2
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				10
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1.0 accuracy	Each				6
0.5 A to 4 A rating (Protection MCB)	Each				10
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				2
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				2
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				2
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				2
P & F Cam operated rotary switches on existing panel with 2 way and off position					
Three pole					
63 A	Each				2
INCOMING					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec) , Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
1000 A Rating , 50kA	Each				2
OUTGOINGS					
SITC of quick make and quick break 3 pole current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip , earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				8
P&F 240/415 V AC MCB with positive isolation of breaking capacity not less than 10 KA (B/ C/ D tripping characteristic) ISI marked IS 8828(1996)]/ conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc. as required.					
Triple pole MCB					
6 A to 32 A rating					10

40 A 63 A rating					10
P & F of 440 Volt 3 pole capacitor (AC 6 B) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping resistors/ reactors to limit the inrush current , conforming to IS:13947-4-1/IEC:947-4-1, Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank.					
7 to 10 KVAR	Each				10
11 to 20 KVAR	Each				10
50 KVAR	Each				8
SITC of microprocessor based three phase sensing power factor correction relay having following sensing capacity secondary current , self analysing auto c/k setting according to targeted power factor setting, the relay shall have digit display unit for display of real power factor, targeted power factor, lag/lead capacitor switching status, alarm output for under current, over current, insufficient compensation, indication of switching on units, auto/manual status, and shall have over load protection, no volt release , having multi parameter like KW, KVA, KVAR, metering facility as required.					
12 to 14 stage					
sensitivity up to 50 milli Amp	Each				2
P & F of ac operated heavy duty 230 /440 Volt power contactor conforming to IS:13947-4-1/IEC:947-4-1 having provision of mechanical interlocking, auxiliary contacts, Din rail mounting type including making connections, testing etc. as required.					
3 pole Power contactors with following AC 3 Rating					
32 Amp.	Each				10
70 Amp	Each				10
140 Amp	Each				8
P & F push button actuators and integral contact block of dia. 22.5 mm including making connection etc. as required.					
Luminous type Red , Yellow, Green, Amber	Each				60
MAIN DISTRIBUTION PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				65
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				250
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				16
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				2

S & F of Electrical insulating rubber mats confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				60
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 2000 / 5 to 3200/5 Ratio , 15 VA , class 1.0 accuracy	Each				6
0.5 A to 4 A rating (Protection MCB)	Each				10
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				2
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				2
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				2
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				2
INCOMING					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
3200 A Rating ,65 kA	Each				2
Supply and fixing of following accessories for Air circuit breakers.					
Mechanical Interlocking kit	Each				1.0
Outgoings					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
1600 A Rating ,50 / 65kA	Each				2
1250 A Rating ,50kA	Each				2
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				7.0

400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				5.0
160 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1.0
Supply and fixing of following accessories for MCCB					
Shunt Trip Release	Each				13.0
Under Voltage Release	Each				13.0
Earth Fault Release	Each				13.0
Extended Rotary Handle	Each				13.0
Motor mechanism for 400A MCCB (240V, 50Hz)	Each				5.0
Motor mechanism for 630A MCCB (240V, 50Hz)	Each				7.0
LIFT PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				28
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				15
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1

SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1.0
OUTGOINGS					
Four pole MCB					
6 A to 32 A rating	Each				7
40 A 63 A rating	Each				15.0
PUMP ROOM PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				30
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				40
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				9
Blue colour	Each				3
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				6
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				8
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1

SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp ,35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1.0
OUTGOINGS					
Four pole MCB					
6 A to 32 A rating	Each				10
40 A 63 A rating	Each				10
STP PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				30
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				25
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5

SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1.0
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				5
Four pole MCB					
6 A to 32 A rating	Each				10
40 A 63 A rating	Each				10
HVAC PANEL - 2 Nos.					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				55
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				115

SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				8
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				2
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				10
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy	Each				6
0.5 A to 4 A rating (Protection MCB)	Each				10
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				2
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				2
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				2
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				2
INCOMING					
SITC of Fixed / Draw out type 4 pole Air Circuit Breaker conforming to IS 60947 P - 2 in existing LT panel suitable for LT installation 440 V, 50 Hz and having adjustable over load short-circuit, earth fault and microprocessor based release with separate LED indication for each type of fault ,LCD display , Thermal memory at least 4NO & 4NC auxiliary contacts safety shutter and fault position acknowledgement mechanism . type ACB shall have separate indication for service, test, isolation, maintenance position, Breaking capacity Icu = Ics = Icw (1 sec), Uimp - 12 KV, including making connections etc. as required.					
Draw out type (Motorised charging type)					
1250 A Rating ,50kA	Each				2
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				2
Four pole MCB					
6 A to 32 A rating	Each				20
40 A 63 A rating	Each				55
Lower Basement Floor Panel					

SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				4
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at					

440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				6
Upper Basement Floor Panel					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				4
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1

SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				4
LOWER GROUND FLOOR PANEL -1					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				4
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5

SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				6
LOWER GROUND FLOOR PANEL -2					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1

S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				4
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				2
Four pole MCB					
40 A 63 A rating	Each				6
UPPER GROUND + FIRST FLOOR PANEL-1 AT MEZZ. FLOOR					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10

Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				11
UPPER GROUND + FIRST FLOOR PANEL-2 AT MEZZ. FLOOR					

SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 500 / 5 to 1600/5 Ratio , 15 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Above 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
630 Amp , 35/50 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					

SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR, shunt trip, earth fault trip, push (test) to trip, including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				13
SECOND FLOOR PANEL -1					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet, required hardware, duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade. The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness, separate detachable gland plate M.S. base channel, hinged door with locking arrangement for equipment/switchgear. Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending, cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer, with all necessary support in existing panel including connection etc. as required.					
from 200 / 5 to 400/5 Ratio, 10 VA, class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required.	Each				1

SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				6
SECOND FLOOR PANEL -2					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20
SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					

from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
400 Amp , 35 kA, adjustable O/L & adjustable S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
up to 100 Amp , 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
Four pole MCB					
40 A 63 A rating	Each				5
EMERGENCY PANEL					
SITC of wall/ free standing floor mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors with / without detachable extension type structure. (only outer area on all sides shall be measured & panel to be fabricated from CPRI approved fabricator)	SQ.Mtr.				10
Supplying and fixing of Aluminium / Copper bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves.					
Electrolytic grade Aluminium bus bar	Kg.				20

SF of 110/220 V, LED (22.5 mm dia) Indicating lamp with integral circuit, terminal block, including connection etc. as required.					
Red/yellow/Green colour	Each				6
Blue colour	Each				2
P & F of Multy function meter with LCD/ LED display capable of measuring electrical parameters like V, I, F, PF, KW, Kva, Kvar, Kwh, Kvah, Kvarh display with 1A/5A CT input for LV/ HV network, RS 485 communication port etc. complete in all respect.	Each				1
S & F of Electrical insulating rubber matts confirming to IS: 15652 / 2006 with one side anti skid abberation marks and pasting the mat with synthetic rubber adhesive as required.					
11 KV, 2.5 mm thick with proof voltage 22 KV / 3 min. and Break Down Voltage 45 KV	SQ.Mtr.				5
SF of Current Transformer , with all necessary support in existing panel including connection etc. as required .					
from 200 / 5 to 400/5 Ratio , 10 VA , class 1 accuracy	Each				3
0.5 A to 4 A rating (Protection MCB)	Each				5
SF of CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type					
Below 500 A	Each				1
SF of (0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.					
Digital type	Each				1
SF of selector switch of 10 A for voltmeter (4 position) including making connection etc. as required .	Each				1
SF of CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required .	Each				1
INCOMING					
SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 60947-2 / IEC 60947-2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders, etc. as required.					
With Thermal Magnetic release					
160 Amp, 25 kA, adjustable O/L & fixed S/C setting, Ics = 100 % Icu	Each				1
OUTGOINGS					
Four pole MCB					
6 A to 32 A rating	Each				20
LT CABLES, TERMINATIONS & CABLE TRAYS					
P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size. Armoured					
6.0 Sq.mm					
4 core	Mtr.				4500.0
10.0 Sq.mm					
4 core	Mtr.				1800.0

16.0 Sq.mm					
4 core	Mtr.				700.0
25.0 Sq.mm					
3.5 core	Mtr.				200.0
4 core	Mtr.				200.0
35.0 Sq.mm					
3.5 core	Mtr.				200.0
50.0 Sq.mm					
3.5 core	Mtr.				50.0
70.0 Sq.mm					
3.5 core	Mtr.				300.0
185.0 Sq.mm					
3.5 core	Mtr.				400.0
240.0 Sq.mm					
3.5 core	Mtr.				2500.0
300.0 Sq.mm					
3.5 core	Mtr.				500.0
400.0 Sq.mm					
3.5 core	Mtr.				5800.0
P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Copper conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.					
6.0 Sq.mm					
4 core	Mtr.				200.0
10.0 Sq.mm					
4 core	Mtr.				425.0
Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.					
4 x 6.0 sq.mm	Set				150.0
4 x 10.0 sq.mm	Set				50.0
4 x 16.0 sq.mm	Set				20.0
4 x 25.0 sq.mm	Set				10.0
3.5 x 25.0 sq.mm	Set				10.0
3.5 x 35.0 sq.mm	Set				16.0
3.5 x 50.0 sq.mm	Set				4.0
3.5 x 70.0 sq.mm	Set				4.0
3.5 x 185.0 sq.mm	Set				4.0
3.5 x 240.0 sq.mm	Set				24.0
3.5 x 300.0 sq.mm	Set				4.0
3.5 x 400.0 sq.mm	Set				72.0
Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty Copper lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.					
4 x 6.0 sq.mm	Set				20.0
4 x 10.0 sq.mm	Set				50.0

Supply, Fabricating & installing following sizes of powder coated perforated M.S. cable trays including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders, fasteners, supports etc. as required.					
150mm x 50mm x 1.6mm	Mtr.				150.0
300mm x 50mm x 1.6mm	Mtr.				900.0
450mm x 62.5mm x 2.0mm	Mtr.				100.0
600mm x 62.5mm x 2.0mm	Mtr.				200.0
Supply, Fabricating & installing following sizes of powder coated ladder type M.S. cable trays with rungs at span of 250mm including horizontal and vertical bends, reducers tees, cross members and other accessories as required and duly suspended from the ceiling/wall with M.S. suspenders etc. as required.					
450mm x 62.5mm x 2.0mm	Mtr.				50.0
600mm x 62.5mm x 2.0mm	Mtr.				100.0
EARTHING					
Maintenance free Gel Earthing with Pipe in pipe / Pipe in strip technology filled with anti corrosive conductive compound (CPRI Tested) below the ground in 150 - 200 mm dia. earth pit & surrounding filled with required mineral filling compound (MFC should have hygroscopic property to retain the moisture for long time to create low resistance zone) and C.C. finished chamber covered with hinged type with locking arrangement C.I. Cover, C.I. Frame of size 300mm x 300mm complete testing of earth resistance as required. of following sizes.					
With Pipe in Pipe Technology (Inner pipe dia. / Outer pipe dia.) 80 - 100 micron GI Coating					
GI pipe 2000 mm long, 50 / 25mm, Terminal 12 mm GI Strip	Set				60.0
GI pipe 3000 mm long, 80 / 40 mm, Terminal 14 mm GI Strip	Set				20.0
With Strip in Pipe Technology with 80 - 100 micron GI Coating					
GI pipe 3000 mm long ,63 / 80mm, Inner strip 50 mm x 3 mm copper	Set				20.0
S & Laying following size earth wire/strip in horizontal or vertical run in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.					
8 SWG G.I. (Hot Dipped) Wire	Mtr.				2000.0
32mm x 6mm copper strip	Mtr.				500.0
32mm x 6mm G.I. (Hot Dipped) Strip	Mtr.				500.0
50mm x 6mm G.I. (Hot Dipped) Strip	Mtr.				350.0
CCTV SYSTEM					
S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required.					
25 mm	R. mtr.	1050	1575	875	3500
Supply , Drawing and Testing of 4 pair, 24 AWG UTP Cat 6 Cable as per latest amendments of TIA /EIA 568 B.2-1 Specifications in existing MS/PVC Conduits including making connections to Information outlets and Patch Panels with ferruling at both ends for identification with necessary tools for punching, stripping, crimping and testing required.	R. mtr.	1140	1710	950	3800
Supply and Installation of Information outlets made of high impact plastic body ABS FR Grade with spring loaded collapsible shutters in jack Recess, suitable for Cat 6 application complying to latest amendments EIA/ TIA 568 B.2-1 Specifications in existing modular /MS Boxes along with necessary connections as required.	Each	42	63	35	140
Supply & fixing of Faceplate for Flush / Surface Mount Information Outlets Single Aperture with screw hole covers & Icon Tree Size 86mmX86mm					
Single Aperture	Each	42	63	35	140

Supply , Installation, Testing and Comissioning of Rack mounted 19", Cat 6 UTP,1.5-1.6 MM CRS chasis , powder coated Modular Patch Panels with collapsible shutters on jacks to support latest ammendments of TIA / EIA Cat 6 Specifications in Existing Communication Rack along with necessary connections of Cat 6 UTP Cables, With Rear Cable management trays and clamps.					
24 Ports	Each	1	1	1	3
Supply , Installation and Testing of 4 pair , 100 Ohm, 24 AWG , Cat 6 UTP, flexible , Double ended Patch Cords along with 2 No of RJ 45 connectors with strain relief boots as per TIA /EIA 568 B.2-1 Specifications.					
1 Mtr/3 ft	Each	52	80	43	175
Supply , Installation, Testing and Comissioning of Wall mounted Communication rack with glass doors, handles ,lock , Top and Bottom Cable entries, Supports for mounting rack on wall , Cable managers, one Fan, Equipment mounting hardware, power supply box for supplying power to switches, fans etc along with earth continuity kit, Mcb, indicator, moulded power supply cable					
12 U(44 mm) wall mounted	Each		1		1
SITC of 10/100 MBPS Unmanaged Switch					
24 Port	Each	1	1	1	3

FIRE FIGHTING & FIRE PROTECTION WORK

S. No.	Description	Unit	Block-A	Block-B	Block-C	External/ Common	Total Quantity
PUMPS & ACCESSORIES							
1	Supplying, Installation, Testing & Commissioning of Local Fire authority approved Electric Driven Main fire pump for Sprinkler / Hydrant applications suitable for automatic operation and consisting of following details given as A, B, C, D, E, F and G . (A) Horizontal Single / Multi stage Centrifugal End suction, back pull type pump complete for delivery of below mentioned discharge , with necessary Butterfly valve on the suction side (all items to be matching with the suction side dia of the pump) and pressure gauge ,Butterfly valve and non return valve on the delivery side side (all items to be matching with the delivery side dia of the pump) and including bypass arrangement for Testing of pump (B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal (C) Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head (D) Squirrel cage induction motor suitable for 3 phase, 415 V, 50 HZ, Ac supply 2900 / 1450 RPM T.E.F.C confirming to IP:55 , of required HP suitable for the above pump ,along with flexible coupling , coupling guard complete in all respect . (E) Common bed plate fabricated from mild steel channel for installation of pump and Motor (F) Pump is to be inspected by third party like RITES / PDIL at manufacturer's premises and inspection report is to be submitted. (G) Suitable cement concreat foundation duly plastered with anti vibration pads. 2280 LPM suitable for 88 Mtr Head, multi stage, 1500 RPM	Each				1	1
2	SITC of Local fire authority approved Diesel Engine driven Pump suitable for automatic operation as per discharge defined beolw consisting of the following details given as A, B, C, D, E and F . (A) Horizontal Single / Multi stage Centrifugal End suction, back pull type pump complete for delivery of below mentioned discharge complete with necessary flexible pipe, Butterfly valve on the suction side (all items to be matching with the suction side dia of the pump) and pressure gauge ,Butterfly valve and non return valve on the delivery side side (all items to be matching with the delivery side dia of the pump) and including bypass arrangement for Testing of pump (B) Material of construction : Pump Casing - Cast Iron, Impellor - Bronze, Shaft - SS 410, Packing - Mechanical Seal (C) Pump shall be capable of furnishing not less than 150 % of rated capacity at a head not less than 65 % of the rated head. The shut off head shall not exceed 120 % of rated head						

	(D) Radiator cooled Diesel Engine developing suitable BHP for the below mentioned discharge at 1500 / 1800 RPM, flexible coupling and coupling guard with the Pump, common bed plate for mounting of the Engine and Pump, Antivibration damping arrangement by cushy foot, Diesel Engine starting Panel for starting of the engine automatically if the Normal electrical supply fails with a unit of battery bank of 12/24v, 180 Ah, Lead Acid Battery with Boost / Trickle charger as required for operation of Diesel engine, Exhaust Pipe of suitable diameter minimum 10 M length, with muffler, day oil tank of 300 lts capacity with first charge and hand operated oil pumping set, (E) Pump is to be inspected by third party like RITES / PDIL at manufacturer's premises and inspection report is to be submitted. (F) Suitable cement concrete foundation duly plastered with anti vibration pads. 2280 LPM suitable for 88 Mtr Head, multi stage, 1500 RPM	Each				1	1
3	SITC of Local fire authority approved Vertical multistage Jockey pump with SS Body, SS impeller, SS shaft, mechanical seal coupled with Squirrel cage induction motor for automatic operation suitable for three phase, 415 V, 50 Hz AC supply with synchronous speed of 2900 RPM, T.E.F.C type confirming to IP:55 with flexible coupling and coupling guard with the pump, Common bed plate fabricated from mild steel channel, Suitable cement concrete foundation duly plastered with anti vibration pads. 180 LPM suitable for 88 Mtr	Each				1	1
4	SITC of Local fire authority approved single stage Centrifugal End suction, back pull type Terrace pump with Bronze impeller, SS shaft, mechanical seal coupled with Squirrel cage induction motor for automatic operation suitable for three phase, 415 V, 50 Hz AC supply, T.E.F.C type confirming to IP:55 with flexible coupling and coupling guard with the pump, Common bed plate fabricated from mild steel channel, Suitable cement concrete foundation duly plastered with anti vibration pads along with suitable rating Control panel as per rating of Motor including 4 pole MCCB, automatic star delta starter, Single phase Preventor, overload protection relay, contactors, MCBs, interlocking wiring, ferruling etc complete in all respect.						
	900 LPM with 35 mtr head	Each				1	1
5	SITC of pressure switches for Main, Jockey, Terrace pump and standby Diesel pumps, including necessary wiring upto control panel and Ball valve.	Each				4	4
6	Supplying and fixing air vessel of continuous welded construction for pump room made of 450 mm dia, fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, 2000 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gun Metal wheel valve, with required accessories, pressure gauge and painting with two coats of Red Oxide and two coat of post office red enamel paint as required.	Each				4	4
7	Providing, installation, testing and commissioning of stainless steel strainer of dia given below fabricated out of 1.6 mm. thick stainless steel sheet with 3 mm. dia holes with stainless steel flange of following sizes.						
	150 mm dia	Each				5	5
	200 mm dia	Each				2	2

8	Supplying and fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze /gun metal seat ISI marked complete with nuts, bolts, washers, gaskets, conforming to IS 780 of following sizes as required.					
	150 mm dia	Each			5	5
	200 mm dia	Each			2	2
9	SITC of floor mounted dust and vermin proof compartmentalised cubical type main fire pump house panel made out of CRCA sheet , required hardware ,duly treated for derusting in 7 tank process with dephosphating and with powder coating on both side of panel in desired shade The panel having PU/ Neoprene rubber gasket of not less than 3mm thickness , separate detachable gland plate M.S. base channel ,hinged door with locking arrangement for equipment/switchgear . Thickness of sheet shall not be less than 1.6 mm up to 600 mm length / width of any compartment and be of 2.0 mm above 600 mm. Load bearing structure shall be of 2.0 mm thick sheet supported by base M.S. channel if required . Side walls and cable alley compartments having bolted type doors and having accessories (Group -I) as below: Incomer 320 Amp. TPN MCCB (adj.O/L) with Extended ROM, 35 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches,CT, Indicating Lamps, 400 Amps Alum. Bus bar with with heat shrinkable sleeves. Out going (a) 200 Amp. TPN MCCB(adj.O/L) with Extended ROM, 35 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches,CT, Indicating Lamps for 'ON', 'OFF', 'TRIP' 1 no. star Delta Starter of 75 HP with thermal over load relay, timer, push buttons, Auto / Manual selector switch, Single phase preventor - 2 Sets (b) 63 Amp. TPN MCCB (adj.O/L) with Extended ROM, 25 kA, with Thermal magnetic release, Digital Ammeter, Voltmeter, Selector switches, CT, Indicating Lamps for 'ON', 'OFF', 'TRIP' 1 no. Star Delta / DOL Starter of 5 - 15 HP with thermal over load relay, timer, push buttons, Auto / Manual selector switch, Single phase preventor - 1 Set © One no. Diesel Engine Auto Starting kit with Auto . Manual selector switch & 3 attempt starting device, timers, relays, Indicating lamp for High / Low Lub. Oil pressure, High water temperature and engine ON indication, Battery charger, suitable for 12 V / 24 V DC with trickle / boost selector switch, DC ammeter & voltmeter (d) System controller to control Operation Main Electric pumps, Diesel pump, jockey pump in sequence as per specs. Consisting of relays, timers, sensors, annuciation window for fault indication.	Each			1	1
10	Providing/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand,11nd class bricks covering, refilling earth,compaction of earth, making necessary connection, testing etc. as required of size.					
	a) 3.5C x 25.0 Sq.mm	Mtrs.			75	75
	b) 3.5C x 120.0 Sq.mm	Mtrs.			150	150

11	S & Laying following size earth wire/strip in horizontal or vertical run in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.						
a)	8 SWG GI Wire	Mtrs.				200	200
12	Supplying, Installation, Testing & Commissioning submersible type dewatering pump of stainless steel / Noryl casing & impellor of discharge and head given below complete with base plate and all accessories suitable for operation on 230 V, single phase/415 V /3 phase, 50 Hz. AC supply complete with starter for automatic operation including water level sensing device / float switch inter connection with submersible cable etc. as required.						
	180 LPM with 10 mtr head	Each				1	1

HYDRANT SYSTEM

1	Supplying and fixing Gun metal single headed Internal / external yard hydrant valve with 1 No. 63 mm dia instantaneous Gun metal coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal cap and chain as required.	Each	5	12	5	6	28
2	Supplying and fixing of Hose Cabinet of size 750 mm x 600 mm x 250 mm made of 1.6 mm thick MS sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate external hydrant with butterfly valve, 2 Nos 15 Mtr. Long Hose pipe, 1 No. branch pipe, mounted on wall OR raised brick platform & duly painted with post office red externally and white internally with synthetic enamel paint complete in all respect, for external hydrant, as required.	Each				6	6
3	Supplying and fixing of Hose Cabinet of size 2100 mm x 900 mm x 715 mm made of 1.6 mm thick MS sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate Internal hydrant with butterfly valve, 2 Nos 15 Mtr. Long Hose pipe, 1 No. branch pipe, first aid hose reel drum etc. & mounted on wall OR raised brick platform & duly painted with post office red externally and white internally with synthetic enamel paint complete in all respect, for external hydrant, as required.	Each	5	12	5		22
4	Supplying and fixing Fire Brigade Connection of CI body with Gun Metal male instantaneous inlet couplings complete with cap and chain as required for 150mm dia MS pipe connection, conforming to IS 904 as required of following way :						
a)	2 Way (for Drawout)	Each				1	1
b)	4 Way (for Inlet)	Each				1	1
5	Providing and fixing of 4 way suction coupling for fire brigade withdrawal of water from fire tank with 150mm dia pipe and foot valve.	Each				1	1
6	Supplying and fixing 63 mm dia, 15 mtr. Long RRL hose pipe with 63 mm dia male and female Gun metal couplings duly binded with GI wire, rivets etc. conforming to IS 636 (type-A) as required.	Each	10	24	10	12	56
7	Supplying & fixing 63 mm dia Gun metal branch pipe with 20 mm (nominal internal diameter) size nozzle conforming to IS 903, suitable for instantaneous connection to interconnect hose pipe coupling as required	Each	5	12	5	6	28
8	Providing & fixing 100mm dia bourden type, Stainless steel dial type pressure Gauge (0 - 16 Kg) range, 3 / 8 " BSP bottom entry on Pump Delivery Line complete with Ball valve	Each				20	20

9	Supplying and fixing first -Aid hose reel wall mounted swinging type with MS construction spray painted in post office Red, conforming to IS 884 with upto date amendments, complete with the following as required.(A) 30 m long 20 mm (nominal internal) dia water hose Thermoplastic (Textile reinforced) Type -2 as per IS: 12585 (B)20 mm (nominal internal) dia gun metal globe valve & nozzle.(C)Drum and brackets for fixing the equipments on wall.(D) Connections from riser with 40 mm dia stop valve (gun metal) & M.S. pipe	Each	5	12	5		22
10	Supply & Fixing of Fire Man's Axe with heavy Insulated rubber tested up to 20 KV and confirming to IS ;926	Each	5	12	5		22
11	Providing, laying, testing & Commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 / 1239 for hydrent and sprinkler applications including fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. fixing the pipe on the wall/ceiling with suitable clamps and including painting of two coats of Red Oxide , painting with two or more coats of synthetic enamel paint of Post office red shade complete as required.The installation includes all civil openings ,breakages and making good the same.						
i	25 mm dia	Mtrs.	1000	1500	1100	400	4000
ii	32 mm dia	Mtrs.	190	300	200	35	725
iii	40 mm dia	Mtrs.	125	225	130	40	520
iv	50 mm dia	Mtrs.	80	130	85	20	315
v	65 mm dia	Mtrs.	75	125	80	10	290
vi	80 mm dia	Mtrs.	70	110	70	10	260
vii	100 mm dia	Mtrs.	255	430	270	20	975
viii	150 mm dia	Mtrs.	195	330	200	15	740
ix	200 mm dia, 6.0 mm thick	Mtrs.				20	20
x	250 mm dia, 6.35 mm thick	Mtr.				10	10
12	Providing, laying, testing & Commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 and 1239 for hydrent and sprinkler underground rings including all accessories such as screwed/ welded flanges, tees, reducers etc. Conforming to IS : 1239/3589 complete including , welding, jointing with compressed asbestos gaskets, nuts, bolts etc. as required. with cleaning,wrapping and coating of the pipe with 4 mm thick tar based plymaric corrosion protection tape or equivalent including applying uniform coat of cold pipekot primer as per IS; 10221 for protection against corsion suitable for all kind of soil at 1.0 M depth including excavation and making good the same as required at site .						
i	80 mm dia	Mtrs.				80	80
ii	150 mm dia	Mtrs.				500	500
13	Providing, installation, testing and commissioning of dual plate non-return valve of following sizes confirming to IS:5312 complete with rubber gasket, G I bolts, nuts, washers etc. as required.						
i	150 mm dia	Each				10	10

14	Supplying, fixing, testing commissioning of butterfly valve PN 1.6, with Bronze/ Gunmetal seat duly ISI marked complete with Nuts, Bolts, washers, gaskets, conforming to IS 13095, of following sizes as required.						
a)	80 mm dia	Each				1	1
b)	100 mm dia	Each				1	1
c)	150 mm dia	Each				22	22
15	Providing, installation, testing and commissioning of Brass ball valves of following sizes as required.						
	25 mm dia.	Each				20	20
16	Providing, fixing, testing & commissioning of 15 mm dia size ,quartzoid bulb sprinkler heads suitable for 68 degree centigrade rating of the following type :						
i	Pendant type	Each	585	970	595		2150
ii	Upright type	Each	90	170	90		350
iii	Sidewall Sprinklers (ordinary)	Each			20		20

FIRE ALARM SYSTEM

1a	SITC of microprocessor based loop UL/ EN54 Addressable Fire Alarm Control Panel as per NFPA 72 approval. The Panel shall be able to give pin point location of addressable units via the address code for each unit. The Panel shall also be able to automatically switch off all control switches when-ever any Alarm is triggered. . The Panel shall have built in buzzer, SMF batteries for min. 24 Hrs.back up, battery charger, rectifier. Loop interface cards, communication module, LCD unit to indicate Fire / Fault Signal of individual unit, option for external printer, to log all incoming data etc complete in all respect. The Approved Make: Notifier / Johnson Control / Honeywell XLS 3000 / Gamewell FCI						
	3 - Loop	Each		1			1
	Add extra for per loop expansion beyond three loop	Each		9			9
1b	SITC of Repeater Panel for Fire Alarm System with piezo sounder, LCD alpha numeric character display with accept / reset buttons for alarm address of any sensor / field device. The Repeater Panel shall only provide field device address with room number. Analogue Output is not required. The Panel shall be connected to the Fire Alarm Panel.	Each		2			2
2	SITC of Addressable type manual fire alarm boxes (MCP/Pull Station) shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. Manual fire alarm boxes shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger. etc. as required.	Each		15			15
3	SITC of Hooter suitable for addressable type fire alarm system with storb light with minimum 85 db audible etc. as required.	Each		15			15
4	S&F following sizes (dia.) of ISI marked (IS:9537 P - II) rigid steel conduit along with accessories in surface / recessed using saddles, clamps, fastener pvc bushes, check nuts, as required including cutting the wall and making good the same as required.						
	25 mm	Mtrs.	1400	2100	1500		5000

5	Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS:694) of 1.1 kV grade and approved make in existing surface or recessed conduit/casing capping including making connections etc. as required.						
	2 x 1.5 sq.mm	Mtrs.	1100	1700	1200		4000
6	SITC Addressable analogue Optical type Smoke Detector with mounting base, two LED's etc. as required.	Each	85	125	80		290
7	SITC of Rate of Rise cum fixed temperature thermister type Heat Detectors with LED, mounting base etc. as required.	Each	59	100	76		235
8	SITC of Addressable analogue Beam detectors suitable for range upto 10-100 meters including transmitter and receiver units, mounting kits , complete as required.	Each			3		3

FIRE EXTINGUISHERS

1	Supply & Fixing ISI marked (IS : 15683) Poratable Fire Exitnguisher,Trolley mounted Mech. Foam type capacity 09 ltrs with gun-metal cap and nozzle and complete respects in all respects including initial fill and wall suspension.	Each		12			12
2	Supply & Fixing ISI marked (IS : 15683) Portable Fire Exitnguisher, ABC type,finished externally with red enamel paint, complete in all respects including initial fill and wall suspension of following capacity.						
	6 kg	Each	4	23	4		31

LIGHTS & CAMERA AT RIC BUILDING

S.No.	DESCRIPTION	Unit	Qty
1.3	P&F of Recesslowglare UGR<19 tunable & dimmable LED 2X2 ft fitting made of CRCA Housingwith high transmittivity>85% PS diffuser.Fixtureshould have minimum efficacy at System level (Not Chip Level) >=100lumens/watt and a minimum system lumen output of 3600 lumens and maximum system wattage of 36W. Luminaire should have Life of 50000hrs@L70B50 Lumen maintenance, CCT change from 3000-6500K (SDCM < 5), CRI >80, PF >0.90 and an operating VoltageRange of 140 - 270 Internal Surge Protection 2.5KV having DALI 209 Dual chanel Tunable system ready driver.The fixture should comply with the parameters as per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009for Harmonics, IEC61347-2 -13, 2006 in Conjunction with IEC61347-1 ed.2.0, 2007 for Electrical Safety, IEC62384 ed.1.1, 2011 for performanceand IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have inhouse lab approved by NABL or ministry of science of govt of India. LM 79 and LM80 reportsneed to be submitted from a NABL/UL accrAAC, Image format JPEG/BMP/TIF/PNG/GIF,Image resolution 480P/720P/1080PuttonTouch panel status LED: flashes green during charglng, steady green for fully charged, red for camera on POWER INPUTS Power over Ethernet(complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit power The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
1.3.1	2x2 PANEL 36 W RECESS / SURFACE	Each	30
2.4	P&F of Suspended tunable & dimmable low wildth 60mm LED channel fitng made of Extruded Aluminlum Housling with high transmittivity >85% PC diffuser. Fixture should have minimum efficacy at System level (Not Chip Level) >100lumens/watt and a minimum system lumen output of 2300 lumens and maximum system wattage of 23W, Luminalre should have Life of 50000hrs@L70B50 Lumen malntenance, CCT change from 3000-6500K (SDCM5), CRI >80, PF 0.90 and an operatlng Voltage Range of 140- 270 Internal Surge Protection 2.5KV having DALI 209 Dual chanel Tunable system ready driver. The fixture should comply wth the parametersas per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009 for Harmonics,IEC61347 -2 -13, 2006 In Conjunction with IEC61347-1 ed.2.0, 2007 for Electrclal Safety, IEC62384 ed.1.1, 2011 for performance and IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have Inhouse lab approved by NABL or ministry of sclence of govt of India. LM 79 and reports need to be submltted fraAC, Image format JPEG/BMP/TIFF/PNG/GIF, Image resolution 480P/720P/1080Putton Touch panel status LED: flashes green durlng chargln8,steady green for fully charged, red for camera on PoWER INPUTs Power over Ethernet (complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit POWER CONSUMPTION SV DC . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
2.4.1	23 watt Linear Light (Extruded)	Each	40
3.5	P& F of Recessed mounted dali dimmable Direct-indirect lighting LED Panel complying to UGR<19, made of CRCA housing with high efficiency Single Piece inner side walls mounted PC Diffuser.fixture to be hollow from center& should have the possibility of customising the ceiling tile to be placed on the top of panel with different graphics/prints, LED USSed shall be SMD type and fixture should have minimum efficacy at System level >=90lumens/watt with Minimum system Lumens 3000, Life of fixture 50000 burning Hrs. L70B50 Lumen maintenance,4000K(SDCM<=5), CRI Ra >=80, PF >0.95, an operating Voltage Range of 140 270 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliancewith flicker free operationsripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shal provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips Dyaspac RC740B LED30S/840 W60L60 PSD WH or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya	Each	50
4.6	&F of Recessed mounted LED panel, made of CRCA housing with high efficiency PS Diffuser. LED Used shall be SMD type and fixture should have minimum efficacy at System level >=125 lumens/watt with Minimum system Lumens 3000, Lfe of fixture :50000 burning Hrs. @L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80, PF >0.95, an operating VoltageRange of 140 270 VAC.MinimumInternal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flickerfree operations ripple <5%, BIS certificationis 6 Each 10 required for LED Driver & Luminaire,Luminairemanufactureshall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips RC380B LED30S-4000 G5 L6OWso PSU OD LED Panel or equivalent in Surya Roshni Ltd . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
4.6.1	2x2 panel 36 watt Recess/ surface	Each	10

5.7	P & F of Recesslow glare UGR<19 tunable & dimmable Deep Recessed LED downlighter fitting made of pressure die cast aluminum Housing with high efficiency multifaceted aluminum reflector . Fixture should have minimum efficacy at System level! (Not Chip Level) >=100lumens/watt and a minimum system lumen output of 1200 lumens and maximum system wattage of 12W. Luminaire should have Life of 50000hrs@L70B50 Lumen maintenance, CCT change from 3000-6500K (SDCM<5), CRI >80, PF 0.90 and an operating Voltage Range of 140 270 Internal Surge Protection 2.5KV having DALI 209 Dual chanel Tunable system ready driver. The fixture should comply with the parameters as per IS10322. The LED driver should comply to IEC61000-3-2 ed.3.2, 2009 for Harmonics,IEC61347-2-13, 2006 Conjunctionwith 1EC61347-1 ed.2.0, 2007 for Electrical Safety, 1EC62384 ed.1.1, 201i for performance and IEC61547 ed.2.0, 2009, CISPR-15 for EMI. Manufacturer shall have inhouse lab approved by NABL or ministry of science of govt of India. LM 79 and operation CONTROLS Hidden Reset button, power button (ON/OFF), volume up button Touch panel status LED: flashes green during charging, steady green for fully charged, red for camera on POWER INPUTS Power over Ethernet (complies with IEEE802.3af and IEEE802.3at PoE standards), power supply unit POWER CONSUMPTION 5V DC, 3A . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
5.7.1	DOWN LIGHTER 12 W SURFACE / RECESS	Each	115
6.8	P & F of 78mm cutout Glare free deep recessed LED Downlighter UGR <19, made of Albumin ADCi2 housing with high efficiency clear surface dark aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level >=70lumens/watt with Minimum system Lumens 750 & Max 11W, Life of fixture: 50k hours L80B50 @25C Ta Lumen maintenance, CCT of 4000K (SDCM<=5), CRI >=90 with lght Beam angle of 50Deg, PF >0.90, an operating Voltage- Range of 140 270 Each 8 310 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC / EMI complfance with flicker free operations ripple <5%, BIS certification Is required for LED Driver & Luminaire, Luminalre manufacture shall provide LM79reportfrom NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS RS378B P11 940 WB M55+R\$378Z M55 D78 R-R FX D 11W 50Deg or equivalent in Surya Roshni Ltd .The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
6.8.1	DOWN LIGHTER 10 W SURFACE / RECESS	Each	310
7.9	P & F of 78mm cutout Glare free deep recessed LED Downlighter UGR <19, made of AlbuminADCi2 housingwith high efficiency clear surfacedark aluminumreflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level >=70lumens/watt with Minimumsystem Lumens 1050 &Max 15w, Life of fixture : 50k hours L80B50 @2sc Ta Lumen maintenance, CCT of 4000K (SDCM<=5), CRI >=90 with light Beam angle of 50Deg, PF >0.90, an operating Voltage Range of 140 -270 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab & LM800 report issued by LED manufacturer. Simllar to PHILIPS R\$378B P15 940 WB M55+R\$378Z M55 D78 R-R FX D 11W 50Deg or equivalent In Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
7.9.1	DOWN LIGHTER 15 W SURFACE / RECESS	Each	130
8.10	P & F of 78mm cutout Glare free deep recessed LED LED Wall Washer UGR 19, made of Albumin ADC12 housing with high efficiency clear surface aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level =70 lumens/watt with Minimum system Lumens 390, Life of fixture: 50k hours L80BSO @25C Ta Lumen maintenance, CCT of 4000K (SDCM<=5), CRI >=90 with light Beam angleof 24Deg, PF >0.90, an operating Voltage Range of 140 270 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <59%, BIs certification is required for LED Driver & Luminalre,Luminairemanufactureshall provide LM79report from NABL accredited lab 8 LMB0 report issued by LED manufacturer. Similar to PHILIPS RS378B P6 930 WB M55+RS3782 M55 D78 R-RAJ D 24Deg or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
8.10.1	DOWN LIGHTER 6 W SURFACE / RECESS	Each	180
9.11	P&F of Glare free recess LED Downlighter UGR «19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reffector & ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 750 & Max wattage 6W, Lfe of fixture 50000 burning Hrs. @ L70B50 Lumen maintenance, CCT of 3000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed' ahehd angle of 38Deg, PF >0.95 &THD<15% , an operating Voltage Range of 140 270 VAC.Minimum Internal Surge Protection 2.5KV &, The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BI certification Is required for LED Driver & Luminaire, Luminalre manufacture shall provide LM79report from NABL acredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS9OB M LED65-3000 PSU wH WB or equivalent in Surya Roshni Ltd .The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
9.11.1	DOWN LIGHTER 6 W SURFACE / RECESS	Each	220

10.12	P&F of Glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture: 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD<15%, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DN590B M LED15S-4000 PSU WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
10.12.1	DOWN LIGHTER 15 W SURFACE / RECESS	Each	80
11.13	P & F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD 10%, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED15S-4000 PSD WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
11.13.1	DOWN LIGHTER 15 W SURFACE / RECESS	Each	260
12.14	P & F of Glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout efficacy at System level >=120lumens/watt with nominal system lumens 1500, Life of fixture : 50000 burning Hrs. @ L70B50 Lumen maintenance CCT of 3000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD<10%, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS908 M LED15S-3000 PSU WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
12.14.1	DOWN LIGHTER 15 W SURFACE / RECESS	Each	200
13.15	P & F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 2000, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 3000K (SDCM<=5), CRI Ra >=80; R9 >= 0 with beam angle of 60/65 Deg and max allowed shield angle of 38Deg, PF >0.95 & THD 10%, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI Compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DN590B M LED20S-3000 PSD WH WB or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
13.15.1	DOWN LIGHTER 20 W SURFACE / RECESS	Each	85
14.16	P&F of Glare free recess dall dimmable LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency multi faceted clear surface aluminum reflector & Ø125mm cutout, fixture should have minimum efficacy at System level >=120lumens/watt with nominal system lumens 2000, Life of fixture : 50000 burning Hrs. L70B50 Lumen maintenance , CCT of 4000K (SDCM<=5), CRI Ra >=80; R9 >=0 with beam angle of 60/65 Deg and max allowed shield angle of 38 Deg, PF >0.95 & THD 10%, an operating Voltage Range of 140 - 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to PHILIPS DNS90B M LED20S-4000 PSD WH WB or 330 equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
14.16.1	DOWN LIGHTER 20 W SURFACE / RECESS	Each	330

15.17	P&F of LED lights with textile fabric based diffuser to create a white light ceiling surface for daylight experience that hides the source of light completely. The light output should be at least 3200lm/sq mt. The CCT should be 3000k or 4000k. The CRI of the luminaire should be not less than 85. The luminaire should have life of 50k hrs for L70. The luminaire diffuser should have acoustics properties of max 0.6 class C EN 11654, also the noise Each 35 17 reduction co-efficient of NRC 0.6 ASTM C423 99. The luminaire driver should be compatible for DALI or 0-10V. The luminaire should be compatible for ambient temp of 5 to 35 C. Approved for fire rating of fabric by (EN 13501) B-s1, d0 and panel at (EN 13501) B-s2, d0. CE certified luminaire. Similar to Philips One Space or equivalent in Zumtobel & Cooledge. Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	35
16.18	P & F of Slim 50mm width recessed mounted 4ft LED Channel suitable for end to end fixing. Fixture to be made of extrusion Aluminum housing in anodised finish with high efficiency polycarbonate diffuser. LED Used shall be SMD type with Minimum system Lumens 2200 & efficacy 100lm/W, fixture Life of : 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM=5), CRI >80 for high quality light output. power factor >0.95 an operating Voltage Range of 140 -277 VAC. Minimum Internal Surge Protection 2.0Kv. The fixture design should comply with EMC/EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips RC780 50mm or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
16.18.1	4 feet Channel AL 22 watt	Each	10
17.19	P& F of Low depth 40mm glare free recess LED Downlighter UGR <19, made of pressure die cast aluminum housing with high efficiency prismatic diffuser, fixture should have minimum efficacy at System level >=100lumens/watt with nominal system lumens 1200, Life of fixture 50000 burning Hrs. @ L70B50 Lumen maintenance, CCT of 4000K (SDCM=5), CRI Ra >=80; with diffused beam angle, PF >0.95 & THD 10%, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC/EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79 report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Philips DN2968 LED125 PSU WH or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
17.19.1	DOWN LIGHTER 12 WATT SURFACE / RECESS	Each	50
18.20	P& F of DALI dimmable LED strip light, Strip should have minimum efficacy at System level >=90lumens/watt with nominal system lumens 800/mtr, Life of strip with driver 30000 burning Hrs. (at 25 C) @ L70B50 Lumen maintenance, CCT of 2400K (SDCM=4), CRI Ra >=80, an operating Voltage Range of 140 270 VAC. Minimum Internal Surge Protection 2.0KV & Supply Voltage of 24VDC. The fixture design should comply with CB report, LM79, 1P test, thermal test. Similar to Philips Flex Cove G4 or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
18.20.1	LED STRIP 800 LUMEN / METER (DIMABLE)	Each	1500
19.21	P&F of LED strip light, Strip should have minimum efficacy at System level =90lumens/watt with nominal system lumens 800/mtr, Life of strip with driver 30000 burning Hrs. @ (at 25 C) @ L70B50 Lumen maintenance, CCT of 2400K (SDCM=4), CRI Ra >=80, an operating Voltage Range of 140-270 VAC. Minimum Internal Surge Protection 2.0KV & Supply Voltage of 24VDC. The fixture design should comply with CB report, LM79, IP test, thermal test. Similar to Philips Flex Cove G4 or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
19.21.1	LED STRIP 800 LUMEN	Each	1100
20.22	P & F of LED based Recessed mounted step light having power consumption not more than 2W. Fixture made up of aluminum having white finish body. Similar to Philips Step Recessed or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
20.22.1	2/3W STEP LIGHT	Each	50
21.23	P & F of 4ft LED wall washing / wall grazing luminaires with dedicated optics. It should have a Beam angles of 28 x 84. Luminaire should have Maximum wattage of 20W with Lumen output not less than 1000 lumen. Luminaire should be capable of operating at 100-240 V AC. Luminaire has Extruded aluminium housing with dark grey anodized housing and tempered glass lens. Luminaire should have built in daisy chain connector. Lifetime should be at least 60,000 burning hours at L70 at 25 degree centigrade with total IP66 protection. Fixture shall be equipped with mechanical Impact of IK06. Luminaire should have UL/cUL/FCC Class A, CE, CB certifications. Bidder to submit relevant beam angles LM-79 (from third party lab or BIS approved lab), LM-80. Similar to Philips Vaya linear LP or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
21.23.1	4 feet wall washer 20 W	Each	20

22.24	P & F of Track mounted sleek size 60mm X 130mm dali dimmable LED luminaire, fixture with Magnetic hinge mounting solution for Accent luminaire made of pressure die cast aluminum housing in white RAL9003 finish with high efficiency Optical cover/lens type parameterized high punch Lens ensuring Wide Beam Angle: 31. intensity, fixture should have minimum efficacy at System level >60lumens/watt with nominal system lumens 1800, Life of fixture 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 300oK (SDCM=3), CRI Ra >90, PF >0.95, an operating Voltage Range of 140 -270 VAC.Minimum Internal Surge Protection 2.5KV & Operating Temperature range of -15 C 35°C, The CCC/CB/CE/EMC/ EMI compliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to Phillips Style State ST916T or equivalent in Surya Roshni Ltd. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
22.24.1	TRACK LIGHT 18 W DIMMABLE	Each	915
23.25	P & F of Single circuit, 220-240V aluminum based tracks suitable for 36' & Imax: 2906 cd/klm 24 Each 915 fixture design should comply with Each 300 25 mounting of LED Based track lights . The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
23.25.1	DALI TRACK	Each	300
24.26	P& F of Recess bottom maintained LED 600x600X120mm fitting made of white CRCA Housing having Acrylic, DME 70 type diffuser with IP65 (From front) /IK07 protection. LED Used shall be SMD type and fixture shouldhave minimum efficacy at System level >=110 lumens/watt, Life 50K Hrs. L70B50 Lumen maintenance, CCT 4000 (SDCM 5), CoRfl f>ix8t0u, reP f>0.95 &THD<10%, an operating Voltage Range of 140 270 V. Minimuminternal Surge Protection 4KV with Insulation Class I protection. The fixturedesign should comply with IS 10322 (Part 5/sec 1) -1985 & Must be EMC/EMI compliance maintaining driver leakage current as per as per IEC IEC60598 along with IS 15885/ IEC61347 (Part 2/sec 13) -1985 &CISPR15(9Khz-30mHz) Compliance. Minimum system Lumens 3600 and total power consumption not more than 32W. Operating voltage of 140-270V with Over Voltage protection @320V cut-off with auto-restart. LM 79 and LM80 reports need to be submitted from a NABL/UL accredited lab to verify above parameters along with IEC/EC 6AAC, Image format JPEG/BMP/TIFF/PNG/GIF, Image resolution 480P/720P/1080 PuttonTouch panel status LED : The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
24.26	32/36 WATT 2X2 PANEL RECESS/SURFACE	Each	20
25.27	P& F of Cylindrical suface mounted LED downlighter, made of pressure die cast aluminum housing with high efficiency clear surface aluminum reflector, LED Used shall be SMD type and fixture should have minimum efficacy at System level >=100lumens/watt with Minimum system Lumens 2000, Life of fixture 50000 burning Hrs. L70B50 Lumen maintenance, CCT of 4000K (SDCM<=5), CRI Ra >=80; with light Beam angle of 36/60/90Deg, PF >0.95 & THD<10%, an operating Voltage Range of 140 - 270 VAC.Minimum Internal Surge Protection 2.5KV & , The fixture design should comply with EMC / EMI cômpliance with flicker free operations ripple <5%, BIS certification is required for LED Driver & Luminaire, Luminaire manufacture shall provide LM79report from NABL accredited lab &LM80 report issued by LED manufacturer. Similar to Philips GreenSpace Surface SM293 or Equivalent in Surya The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
25.27.1	DALI TRACK	Each	175
26.28	P & F of Surface mounted with IP65 LED batten mnade of virgin PC housing high efficiency diffuser, LED Used shall be SMD type and fixture should have minimum efficacy at System level (Not Chip Level) >=100lumens/watt with Minimum system Lumens 2000, Life of fixture (Including Driver) 50000 burning Hrs. @ L70B50 Lumen maintenance, 6500K (SDCM=4) CCT of 6500K , CRI >80, PF >0.95 & THD<10%, flicker free operation with ripple <5% an operating Voltage Range of 140 Surge - 270 VAC. Minimum Internal Protection 4KV. The fixture design should comply with EMC / EMI compliance along with BIS certification for LED Driver & Luminaire. luminair manufacture shall provide LM79report from NABL accredited lab & LM80 report issued by LED manufacturer. Similar to WT201LED44S IP65 Closed type or equivalent in Surya. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
26.28.1	20 WATT AL BATTEN	Each	40
27.29	P&F of decorative round/square shape wall/ceiling mounted LED Spot Light in furniture or interior work as per Architectural interior plan with powder coated finish and toughened glass diffuser, supply accessories(220 V, 50 HZ/ 12 V DC) complete in all respect. Available with 5 color option The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes : Philips , Surya		
27.29.1	SPOT LIGHT	Each	80

28.30	Supply, Installation, frequency testing & commissioning of 3 Channel DALI high DALI ballasts controller. Each DALI outputs allowing it to control up to 192 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes Dynalite/Creston/Schneider	Each	20
29.31	Supply, Installation, testing & commissioning of 1 Channel DALI high frequency DALI Ballast controller. Each DALI outputs allowing it to control up to 64 DALI devices. The DALI control signals can be programmed to operate automatically isolate the power circuit when all associated DALI channels are at 0%. The device is DIN-rail mountable integral DALI bus power supply, removing the need for an additional external device. Device on 209 protocol for tuneable lights. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes - Dynalite/Creston/Schneider	Each	2
30.32	Supply, installation, testing and commissioning of Antumbra 6 Button keypad with Proximate Feautre with IP 22 degree protection. Makes Dynalite/Creston/Schneider / SURYA The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	16
31.33	Supply, installation, testing and commissioning of Antumbra 6 Button Display keypad with Proximate Feautre, 8 Pages, with IP 22 degree protection. The rates are inclusive of Taxes , contract profit , FOR Jaipur site Makes- Dynalite/Creston/Schnèider/SURYA	Each	4
32.34	Supply, installation, testing and commissioning of Ceiling Mount 360 degree Multi Sensor with PIR, LUX and IR Function inbuilt, having range of 7.5 x5.4 meter at a height of 2.5-3 meter The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	26
33.35	Supply, Testing & Commissioning of Power Supply 15V-1.5A Din Rail The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	2
34.36	Supply, Testing& Commissioning of IP Gateway with Time Clock The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	1
35.37	Supply of Automation Panel with Incoming protection Devices like MCB, DP ELCB, Surge Arrestorwith CableAlley, Netural/Earth Link The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	6
36.38	Supply of Cat 6 Cable to connect LMS Components ike Sensor, Keypad, Controller The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	1000
37.39	Supply of 2 x 1.5 sq mm wire for DALI Connection The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	6000
III	CCTV SYSTEM		
46.48	SITC of Double CCD coloured cameras, 1/3 inch 530 TV lines, 0.3 lux with3.6 mm Fixed Board lens or equivalent complete as required in mini dome shape fixed type for Recess Mounting In False Ceiling or Side mounting on wall complete as required. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	100
47.49	SITC of Double CCD coloured cameras, 1/3 inch 530 TV lines, 0.1 lux with Varifocal Lens 4-9mm or equivalent complete as required in mini dome shape fixed type for Recess Mounting in False Ceiling or Side mounting on wall completeas required. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	20
48.50	SITC ofinfra Red IR Bullet Color Camera, 1/3" SONY CCD, 420TVL, OLux/F1.2 (IR ON), 36 IR LED 12VDC,, Fixed Board lens F=8mm or equivalent complete as required in fixed type for Side mounting on wall completeas required. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	15
49.51	SITC of Water & Dust Resistant IP66 CCD coloured cameras, 1/3 inch or 1/4 inch 540 TV lines, auto iris lens. High speed dome, with Video pan view of 360 degree continuous & Video tilt view of 0 degree to 90 degree and zoom function (16x) & built In telemetry receiver, complete as required with housing brackets etc. for Side mounting on wall complete The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	10
50.52	SITC of PTZ controller with joystick. LED' display, for set individually or collectively controlling the cameras mentioned in item above complete as required	Each	2
51.53	SITC of 64 channel colour Digital Video Mgmt system with built in multiplexer digital video recorder. Video motion detection system, with external alarm inputs & outputs TCP/IP network feature & server software monitor output 2 x HDD slots with 1 TB Seagate Hard Disk Drive to be able to achieve recording in SVHS quality @ 24 hour time lapse mode complete as per required and as per specification. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	3
52.54	P&F of 43" Smart LED monitor with HDMI cable, remote complete. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	2

	Total of CCTV SYSTEM		

IV	UPS		
53.55	Supply, erection, testing and commissioning of: i) Micro processor based 30 KVA Online Double Conversion modular UPS System using 25 KVA / 30 KVA module with surge protection suitable for unbalanced, 3 Phase input and 3 phase 415 V output, suitable for operating in parallel and each comprising SNMP MODBUS for monitoring as per technical specification complete as required. ii) Lead Acid sealed maintenance free batteries for 30 KVA UPS system, for providing 15 minutes back up to 30 KVA UPS. Each bank of batteries shall comprise required Nos. of SMF batteries etc as per specifications complete as required. Minimum VAh with each UPS System shall be 19152. ii) Rack to house SMF batteries for 30 KVA UPS system along with interconnecting links and /c S/F MCCB, all accessories complete as required. The rates are inclusive of Taxes , contract profit , FOR Jaipur site	Each	1

STAGE LIGHTING MINI AUDITORIUM -

Sr.No.	Description	Unit	Qty
1	SITC of 200 W LED FRESNEL LIGHT Features: 200W cool white LED, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak) ? 29-degrees; Soft Light (1/10 peak), 97-degrees, Manual zoom, Color Temperature: 5000K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer,Housing: High-intensity die-casting aluminum, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Nos.	6
2	SITC of LED PROFILE SPOT LIGHT 200W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Nos.	2
3	SITC of 280W Beam Moving Head with Input Voltage: AC110/240V, 50-60Hz, Lamp: 10R 280W, Power: 400W, Average Lifespan: 2000 H, Color Temperature: 8000K, Channel: 16CH, Pan: 540° (16bit), Tilt: 270° (16bit), Color: 14 colors + white, Gobo: 17 fixed gobos + white, Prism: rotation 8-face prism + frost + shake, Lens: high precision optical lens, Focus: 0-100% linear adjustment, Dimmer: 0-100% linear adjustment, Strobe: Double lens strobe (0-13 times/ second), Dimmer: 0%-100% linear adjustment, Beam angle: 0°-30° parallel beam angle, Control Mode: Standard DMX512, Master / slave mode, IP Rate: IP20. Make: Sholite / OSRAM / ADB / Claypaky / PR Lighting or equilant make.	Nos.	2
4	SITC of LED PAR: 54 x 3W, 15°/30°/45°/60° RGBW LED PAR of IP 20 rating, delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light program. Make: Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.	Nos.	20
5	SITC of CE Certified 4X100W 3200K LED Blinder Light with RDM protocol including Identification name plate as per the technical specification as required. Make:- Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.	Each	4
6	SITC of RDM Compatible DMX Splitter 1 Inputs and 6 Optically isolated output for DMX network as per the technical specification as required. Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Each	1
7	SITC of 12 Channel x 4KW Digital Dimmer with 19" Rack Mount, 3U high, DMX input via 5 pin XLR IN/THRU at front panel, Flexible DMX patch method, LED function menu, Dimmer condition display: Volt/Amp/DMX, Individual MCB protection, LED indicator for individual channel level, 5 fade curves selection, Min. load per channel: 40W. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Nos.	1
8	SITC of CE Certified RDM Enabled 1 universe 512 channel DMX Lighting Console, 96 individual lighting fixture control for RDM/DMX network with 7" Multi touch screen for easy navigation as per the technical specification as required. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Each	1
9	SITC of FRLS 3 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	800
10	SITC of FRLS 7 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	30
11	SITC of FRLS 4 Core 4 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	15
12	SITC of FR DMX signal Cable with CE Mark per the technical specification as required. Make:-Polyvab / Havells / RR Kable / Falcon / Beldon or equilant make.	Meters	200
13	SITC of die casted aluminium C - Clamp with rotatable spud with key lock as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Nos.	123

14	SITC of 4-leaf barndoor made up of Aluminium sheet with brand name ebossed as per the technical specification as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Each	26
15	SITC of Safety bond with lock clip as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Each	34
16	SITC of 2 Way 10A IEC Socket for lights in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	34
17	SITC of 2 Way 10A IEC Socket with DPST Rocker switch to supply power to splitter and console in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	3
18	SITC of 1 Way 5 Pin DMX Signal IN Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4
19	SITC of 1 Way 5 Pin DMX Signal OUT Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4
20	SITC of MS Fabricated DMX Signal Loop cable with 5/3 Pin DMX connectors Socket with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti or equilant make.	Each	4
21	SITC of MS Fabricated Auxilliary Marshalling Boxes for Light bars with required connectors, black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4
22	SITC of MS Fabricated Direct Lighting Distribution Board with 63A TPN Incomer for power network connectors, Grey epoxy polyester powder coated per the technical specification as required. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.	Each	1
23	SITC of 5 Pin XLR Male / Female cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.	Each	36
24	SITC of 5 Pin XLR Termination Plug cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.	Each	8
25	SITC of Following size of Perforated Hot/cold Dipped Galvanised Iron cable tray with lid with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. Make : Sholite / Mec / Premier / Support or equilant make.		
25.1	75 mm width X 50 mm depth X 1.6 mm thickness	Meters	60
25.2	150 mm width X 50 mm depth X 1.6 mm thickness	Meters	30
26	SITC of Hardwares required for the system and Black valcro tape for cable dressing as per the technical specification as required. Make :-CUSTOM	JOB	1

STAGE LIGHTING MINI AUDITORIUM -02

Sr. No.	Description	Unit	Qty
1	SITC of 200 W LED FRESNEL LIGHT Features: 200W cool white LED, Life: More than 30000 hrs, Field Angle: Spot Light (1/10 peak) ? 29-degrees; Soft Light (1/10 peak), 97-degrees, Manual zoom, Color Temperature: 5000K, Color Rendering Index: Ra=84, Dimmer: 0-100% linearly adjustable, Channel: 1 channel for dimmer,Housing: High-intensity die-casting aluminum, IP20 Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Nos.	6
2	SITC of LED PROFILE SPOT LIGHT 200W LED Profile Spot Light, Power Supply: AC100V-240V, 50-60 Hz, Power Consumption: Max. 260W, LED: 200W 2 in 1 Cool White & Warm white Color, LED Life time: over 50,000 hours, high quality optical system, Light Angel: 19°/26°/36°/50°, Control Mode: DMX, Auto run and Master/Slave, DMX Channels: 2/5CH, Housing: Plastic, Color: Black, IP Rating: IP20, Net weight: 6 kgs, gross weight: 8 kgs, dimensions: 660x285x295mm. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Nos.	2
3	SITC of 280W Beam Moving Head with Input Voltage: AC110/240V, 50-60Hz, Lamp: 10R 280W, Power: 400W, Average Lifespan: 2000 H, Color Temperature: 8000K, Channel: 16CH, Pan: 540° (16bit), Tilt: 270° (16bit), Color: 14 colors + white, Gobo: 17 fixed gobos + white, Prism: rotation 8-face prism + frost + shake, Lens: high precision optical lens, Focus: 0-100% linear adjustment, Dimmer: 0-100% linear adjustment, Strobe: Double lens strobe (0-13 times/ second), Dimmer: 0%-100% linear adjustment, Beam angle: 0°-30° parallel beam angle, Control Mode: Standard DMX512, Master / slave mode, IP Rate: IP20. Make: Sholite / OSRAM / ADB / Claypaky / PR Lighting or equilant make.	Nos.	2
4	SITC of LED PAR: 54 x 3W, 15°/30°/45°/60° RGBW LED PAR of IP 20 rating, delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light program. Make: Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.	Nos.	20
5	SITC of CE Certified 4X100W 3200K LED Blinder Light with RDM protocol including Identification name plate as per the technical specification as required. Make:- Sholite / OSRAM / ADB / Claypaky / Chauvat or equilant make.	Each	4
6	SITC of RDM Compatible DMX Splitter 1 Inputs and 6 Optically isolated output for DMX network as per the technical specification as required. Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Each	1
7	SITC of 12 Channel x 4KW Digital Dimmer with 19" Rack Mount, 3U high, DMX input via 5 pin XLR IN/THRU at front panel, Flexible DMX patch method, LED function menu, Dimmer condition display: Volt/Amp/DMX, Individual MCB protection, LED indicator for individual channel level, 5 fade curves selection, Min. load per channel: 40W. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Nos.	1
8	SITC of CE Certified RDM Enabled 1 universe 512 channel DMX Lighting Console, 96 indivigual lighting fixture control for RDM/DMX network with 7" Multi touch screen for easy navigation as per the technical specification as required. Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Each	1
9	SITC of FRLS 3 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	800
10	SITC of FRLS 7 Core 1.5 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	30
11	SITC of FRLS 4 Core 4 SQMM Cable with ISI Mark per the technical specification as required. Make:- Polycab / Havells / RR Kable or equilant make.	Meters	15
12	SITC of FR DMX signal Cable with CE Mark per the technical specification as required. Make:-Polyvab / Havells / RR Kable / Falcon / Beldon or equilant make.	Meters	200
13	SITC of die casted aluminium C - Clamp with rotatable spud with key lock as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Nos.	123
14	SITC of 4-leaf barndoor made up of Aluminium sheet with brand name ebossed as per the technical specification as required. Make : Sholite / OSRAM / ADB / Claypaky or equilant make.	Each	26
15	SITC of Safety bond with lock clip as per the technical specification as required. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Each	34
16	SITC of 2 Way 10A IEC Socket for lights in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	34
17	SITC of 2 Way 10A IEC Socket with DPST Rocker switch to supply power to splitter and console in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	3
18	SITC of 1 Way 5 Pin DMX Signal IN Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4

19	SITC of 1 Way 5 Pin DMX Signal OUT Socket in MS Fabricated enclosure with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4
20	SITC of MS Fabricated DMX Signal Loop cable with 5/3 Pin DMX connectors Socket with black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti or equilant make.	Each	4
21	SITC of MS Fabricated Auxilliary Marshalling Boxes for Light bars with required connectors, black epoxy polyester powder coated per the technical specification as required. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Each	4
22	SITC of MS Fabricated Direct Lighting Distribution Board with 63A TPN Incomer for power network connectors, Grey epoxy polyester powder coated per the technical specification as required. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.	Each	1
23	SITC of 5 Pin XLR Male / Female cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.	Each	36
24	SITC of 5 Pin XLR Termination Plug cable mount connectors for DMX network as per the technical specification as required. Make:- Sholite / Neutric / Amphenol or equilant make.	Each	8
25	SITC of Following size of Perforated Hot/cold Dipped Galvanised Iron cable tray with lid with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. Make : Sholite / Mec / Premier / Support or equilant make.		
25.1	75 mm width X 50 mm depth X 1.6 mm thickness	Meters	60
25.2	150 mm width X 50 mm depth X 1.6 mm thickness	Meters	30
26	SITC of Hardwares required for the system nd Black valcro tape for cable dressing as per the technical specification as required. Make :-CUSTOM or equilant make.	JOB	1

STAGE LIGHTING CONVENTION HALL

Sr. No.	Description	Unit	Qty
1	SITC of Moving head wash 7X30 W , output CCT (White colour) 7300K with pixel control , motorised zoom beam angle 6-40 degree, lumen output of 4680 at 5 meter at narrow beam, max PAN 540 degree & max tilt angle of 250 degree, noise level of 45 dB, Make : VARILITE PHILIPS / DTS / Robert Julieta or equilant make.	Each	6
2	SITC of 440W LED 12-36Deg Moving Head Profile Fixture4-blade dual position rotating framing system, a stunningly bright 440 W LED engine, two 6-position rotating slot and lock gobo wheels, CMY + CTO color mixing, a 7-position + white color wheel, variable frost, 3-facet prism, and a 13° to 37° zoom range. Take control with DMX, sACN, Art-Net, or W-DMX, and test with RDM. Make : VARILITE PHILIPS / DTS / Robert Julieta or equilant make.	Each	4
3	SITC of MS perforated cable trays of size 75 x 40mm, 150 x 40mm and 300 x 40mm, 2mm in thickness with cable tray lid treated with 7 tank process with various chemical treatment to keep them rust free, duly powder coated/painted with matt black texture finish paint along with clamping arrangement assuring all the cables to be concealed in them. Make : Sholite / Mec / Premier / Support or equilant make.		
3.a	a) Size 40 x 75 x 40mm	Lot	80
3.b	b) Size 40 x 150 x 40mm	Lot	80
4	SITC of MS lighting junction box (On Motorised Bar 1) with 10A 4 Way IEC socket of imported make CE Certified for direct points, Box should undergo through chemical treatment to keep them rust free duly powder coated/painted with matt black texture finish for scissor motor along with the FC11 glands. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Nos	10
5	SITC of MS lighting junction box with 16A CE socket of imported make for dimmer points, undergone through chemical treatment to keep them rust free duly powder coated/painted with matt black texture finish for moving heads along with the FC11 glands. (Direct Power Out Late) Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Nos.	10
6	SITC of MS sheet metal fabricated DMX junction box(Outbox) undergone through chemical treatments to keep them rust free duly powder coated /painted with Matt black texture finish for dimmable points along with the FC7 glands. (On FOH Bar) Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Nos.	20
7	SITC of MS sheet metal fabricated power cable termination marshalling box chemical treatment to keep them rust free duly powder coated/painted/painted with Matt black texture finish for moving headpoints along with the Brass glands. (Total circuit termination complete with connectors, glands and mounting brackets). Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Lot	2
8	SITC of Auxilliary marshalling box made of fabricated Sheet chemical treatment to keep them rust free duly powder coated/painted with Matt black texture finish for scissor lift points along with the FC11&FC13 glands. and connectors to terminate the power and signal cables for Teleclimber. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Lot	2

9	SITC of MS Fabricated duly powder coated/painted/painted Recessed Wall Plate DMX loop box with DMX male/Female 500mm loop cord, undergone through chemical treatment to keep them rust free duly powder coated/painted with Matt black texture finish for moving head points along with the FC7 glands. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Nos.	3
10	SITC of MS Fabricated undergone through various chemical treatments to keep them rust free duly powder coated/painted/painted with Matt black texture finish power junction box (PJB) with black Matt texture finish to terminate the Motorized section power connections. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	each	10
11	SITC of Well designed and engineered rack mount power distribution center panel with necessary metering, outgoing feeders and incomer and emergency trip arrangement (PDCP)(Qty As per drawings) And IEC junction Boxes(Qty as per drawings) way MCB Panel rack mount internally wired for IEC points to control individual light points. It shall also include control system for all types of scissor lifts etc. Make:- Sholite / Legrand / ABB / Crompton / Indo / Effectron or equilant make.		
11.a	PDCP	Lot	1
11.b	MCCP	Lot	1
12	SITC of Wall Plate MS sheet metal fabricated 2-way power junction box duly powder coated in black/painted Matt texture finish and fitted with 2no 10amps IEC socket ON / OFF switch and FC11 gland. Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.	Nos.	4
13	SITC of Internal earthing copper baren conductor network related to work coming under integrator scope. Providing and fixing following size of the copper strip on the surface or in recessed for connection as required Make :- Sholite / ABB / Hensal / Arri / Desisti / Effectron or equilant make.		
13.a	25mm x 3mm	Mtrs	5
13.b	4 mm dia copper earth wire	Mtrs	50
14	Installation hardware such as clamps, connectors, glands, lugs, ferrules, welding rods etc. Make : Custom or equilant make.	Lot	1
15	SITC of Die cast aluminium "C" clamp with safety locking chain. Lock - MS threaded Galvanized lock key, Plastic Glass filled nylon moulded M6 key. Receptacle - 28mm standard TV spigot. Safety - MS Galvanized chain with pin. Finish - Pretreated and black epoxy polyester powder coated. Self-weight - 0.54Kg, Safe working load – 150Kg Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Nos.	10
16	SITC of 1.5mtr long safety bond with lock clip to be fixed around the grid and each lighting fixture to avoid fall of the fixture in case if the "C" clamp is not locked properly . SWL 100Kgs. Make:- Sholite / Signify / OSRAM / Arri / Desisti or equilant make.	Nos.	10
17	SITC of Grid mount photo isolator DMX splitter unit 1 DMX input and 8 isolated output with following specifications: Power Supply: 90-240V AC, 45-63Hz. Control: DMX 512 protocol, Control Signal input: 5 pin XLR female, Size: 482 x 44 x 128mm, Weight: 2Kg.with splitter bracket Make:- Sholite / Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Nos.	2
18	SITC of Digital Lighting Console with 1024 DMX channels • 1024 Channels. • 96 Fixtures. • 96 Dimmer Control Channels. • Time control of scenes: Fade in/out, LTP slope • Channels for each fixture 40 primary + 40 fine tune • LCD display with back light • 60 Scenes/Playbacks • 600 Scene step • 10 Scenes to run simultaneoulsy • Shape generato: Shapes of Dimmer, Pan/Tilt, RGB, CMY, Color, Gobo, Iris and Focus • Master slider - Global, playback, fixture • USB Memory - FAT32 supported Make:- Signify / Zeroo88 / Avolite / ADB / Claypaky or equilant make.	Nos.	1
19	SITC of 5 pin XLR male / female connectors for dimming network Make:- Sholite / Neutric / Amphenol or equilant make.	Nos.	6
20	SITC of 5 Pin XLR Termination plug Make:- Sholite / Neutric / Amphenol or equilant make.	Nos.	6
21	SITC of PVC Copper unarmoured flexible FRLS insulated multicore cable 1100V grade confirming to IS694 size 4cx4 sq mm. Make:- Polycab / Havells / RR Kable or equilant make.	Mtrs	150
22	SITC of PVC Copper unarmoured flexible FRLS insulated multicore cable 1100V grade confirming to IS694 size 3cx2.5 sq mm. Make:- Polycab / Havells / RR Kable or equilant make.	Mtrs	150
23	SITC of 5 core DMX signal cable for DMX network. Make:- Polycab / Havells / RR Kable or equilant make.	Lot	1
24	SITC of Sky Hooks to be constructed as per the drawings supplied in the tender. Make : Custom or equilant make.	Nos.	6
25	SITC of Motorized Lifts 5 Mtr travel well designed for the luminaire mounting with 180W EM brake Motor duly powder coated body, well designed gear box and mountings having a safe working load of 60Kg control through Wired RCP, DmX control. 2 Limit controllers for Up and down limits, Minimum Collapse height 0.6 Mtr and Max Travel 5 Mtr. Make:- Sholite / Effectron or equilant make.	Nos.	10

equipment for VRV System

BLOCK -A			
S.No	Item	Qty.	Unit
A	Outdoor Units-Heat Pump (R410A)-N. Cap. VRV X		
	Outdoor units of the VRV System shall be compact air cooled type, The outdoor unit should comprise of inverter controlled scroll compressor, Each module of outdoor unit should be all inverter scroll type which can work on part load suitable to operate at heat load proportional to indoor requirement. In order to avoid short cycling of hot air, the outdoor unit fan should have an external static pressure of more than 75 Pa, top discharge for easy discharge of hot air. The ODU must deliver COP of minimum 5 at 50% load. The outdoor units must be suitable for upto 165 m refrigerant piping between outdoor unit & the farthest indoor units. Allowable level difference between outdoor units & Indoor Units shall be 90 m in case of outdoor unit at top & 90 m in case of outdoor unit at bottom. Allowable level difference between various indoor units connected to one outdoor unit shall be upto 30 m. The outdoor units shall be suitable to operate in an ambient temperature range of 5 Deg C to 49 Deg C in cooling mode & -20 Deg C to 15 Deg C in heating mode. The entire operation of outdoor units shall be through independent remotes of indoor units. No separate start/stop function shall be required. Inverter compressor of the unit shall start first & at minimum frequency, to reduce the inrush current during starting. complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested. Units above 12 HP shall be with multiple compressor.		
	ODU - 30HP (12HP+18HP) + Connection Kit	1	Nos.
	ODU - 40HP (20HP+20HP) + Connection Kit	2	Nos.
	ODU - 52HP (16HP+18HP+18HP) + Connection Kit	4	Nos.
	ODU - 54HP (18HP+18HP+18HP) + Connection Kit	1	Nos.
	ODU - 60HP (20HP+20HP+20HP) + Connection Kit	1	Nos.
	Indoor Units		
B	Double Skin puff insulated Air Handling Units with DX Coil and Control Box with EEV, Electrical Panel,Ceiling/Floor Mounted ,Compatible with VRV/VRF System as per following capacities and Air Flow Rates :-		
	AHU		
	3200 CFM	2	Nos.
	4000 CFM	4	Nos.
	4400 CFM	1	Nos.
	6750 CFM	2	Nos.
	12000 CFM	2	Nos.
	13000 CFM	2	Nos.
	VRV IDU		
	Supply of Round Flow type Cassette indoor units comprising with per-filter,drain pump, fan section with low noise fan multi speed motor, coil section with DX coil, outer cabinet, insulation, pipe connections with human occupancy sensor and VRT Smart technology and following capacities, • The cassettes units shall have dual sensor which detect the presence of people and floor temperature to provide comfortable air – conditioning and energy saving. The sensor should detect human presence and adjust the air flow direction automatically to prevent drafts. Room temp should be increase up to 4 Deg C or the indoor unit to be switched off when people are not detected. The sensor should detect the floor temperature and automatically adjusts the operation of the indoor units to reduce the temperature difference between the ceiling and the floor.		
	Round Flow Cassette Type - 2.65 TR + Cordless Remote + Joint	4	Nos.
	Round Flow Cassette Type - 3.30 TR + Cordless Remote + Joint	2	Nos.
	Round Flow Cassette Type - 4.13 TR + Cordless Remote + Joint	8	Nos.
	Round Flow Cassette Type - 4.75 TR + Cordless Remote + Joint	2	Nos.
S.No	Description	Qty	Unit
1.0	Installation and Testing		
	Lifting, shifting, positioning, installation and testing of following AHU / Indoor units, outdoor units,as per specification and drawings.		
	VRV Single Outdoor Unit	RO	Nos

	VRV Double Outddoor Unit	3	Nos
	VRV Triple Outddoor Unit	6	Nos
	AHU type Indoor Unit	13	Nos
	Cassette AC type Indoor Unit	16	Nos
	Ductable type Indoor Unit	0	Nos
	Hi Wall type Indoor Unit	0	Nos
	Refnet Joint	20	Nos
2.0	Gas Charging		
	Commissioning of VRV systems including topping R410A gas per site requirements	432	H.P
3.0	Refrigerant Piping		
	Providing, fixing and testing insulated liquid and suction copper refrigerant piping of adequate size along with necessary fittings to interconnect the condensing unit and the evaporating unit.		
a)	6.4mm dia	0	Rmt.
b)	9.5mm dia	60	Rmt.
c)	12.7mm dia	150	Rmt.
d)	15.9mm dia	135	Rmt.
e)	19.1mm dia	400	Rmt.
f)	22.2mm dia	6	Rmt.
g)	28.6mm dia	240	Rmt.
h)	34.9mm dia	60	Rmt.
i)	41.3mm dia	310	Rmt.
4.0	Communication Cabling		
a)	Providing, fixing and testing of control cabling to interconnect the condensing unit and the evaporating unit .	1300	Rmt.
b)	Providing, fixing and testing of Remote cabling.	130	Rmt.
5.0	Drain Piping		
	Providing, fixing, testing and commissioning insulated PVC drain piping for indoor unit with 6 mm thick Nitrile Rubber insulation.		
a)	25mm dia x 6 mm insulation	0	Rmt.
b)	32mm dia x 6 mm insulation	160	Rmt.
c)	40mm dia x 6 mm insulation	130	Rmt.
6.0	Ducting		

6.1	Supply, fabrication and erection of following gauge of G.S.S. ducting complete with elbows splitters, supports / suspenders bends, tees vanes, double canvas connection of the equipment etc. all complete as required.		
a)	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated		
	0.63 mm (24 gauge)	615	Sqm.
	0.80 mm (22 gauge)	162	Sqm.
	0.92 mm (20 gauge)	RO	Sqm.
	G.I sheet metal ducting (Oval/ Round duct) Factory Fabricated		
	0.63 mm (24 gauge)	125	Sqm.
	0.80 mm (22 gauge)	RO	Sqm.
7	Duct Acoustic Lining		
	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.		
7.1	10 mm	50	Sqm
8	Duct Insulation		
a)	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with addesive.		
8.1	13 mm	860	Sqm
9	Flexible Duct Connection		
9.1	Providing and fixing fire retardant nonporous double layer flexible connection between each VRV unit and duct.	13	Nos.
10	Grilles / Diffusers / Dampers		
10.1	Supply & erection of Aluminium powder coated supply air grills with volume control dampers	9	Sqm.
10.2	Supply & erection of Alumininum Powder Coated return air grilles without volume control dampers	25	Sqm.
10.3	Supply & erection of Aluminium powder coated supply air diffuser with volume control dampers	7	Nos
10.4	Supply & erection of Alumininum Powder Coated return air diffuser without volume control dampers	7	Nos
10.5	Supply & fixing of Duct Damper	2	Sqm
10.6	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.	3	Sqm
11.0	Isolators		
11.1	Providing, fixing and testing of Weather proof isolators for ODU	24	Nos

12.0	Cable Tray		
12.1	Providing & fixing of cable Tray for protection of piping.	120	RMT
13.0	UV Treatment of exposed Ref. Pipes		
13.1	Providing & fixing of UV Treatment on exposed copper pipe insulation.	24	Lot
14.0	Electrical Pannel		
	Supply, installation, testing and commissioning of outdoor type cubicle type free standing/ floor mounting sheet metal clad dead front dust and vermin proof compartmentalized design fabricated out of 16 SWG sheet steel complete with Copper bus bars separate earth bus to be provided through out the length of panel. The panel should be with suitable as per specifications & system required. Necessary cable alleys, cable trays (If Required), space for spare switches, Power cabling (from panel to equipment) and copper earthing shall also be included. for 432 HP	432	KW

BLOCK -B				
S.No	Item		Qty.	Unit
A	Outdoor Units-Heat Pump (R410A)-N. Cap. VRV X			
	Outdoor units of the VRV System shall be compact air cooled type, The outdoor unit should comprise of inverter controlled scroll compressor, Each module of outdoor unit should be all inverter scroll type which can work on part load suitable to operate at heat load proportional to indoor requirement. In order to avoid short cycling of hot air, the outdoor unit fan should have an external static pressure of more than 75 Pa, top discharge for easy discharge of hot air. The ODU must deliver COP of minimum 5 at 50% load. The outdoor units must be suitable for upto 165 m refrigerant piping between outdoor unit & the farthest indoor units. Allowable level difference between outdoor units & Indoor Units shall be 90 m in case of outdoor unit at top & 90 m in case of outdoor unit at bottom. Allowable level difference between various indoor units connected to one outdoor unit shall be upto 30 m. The outdoor units shall be suitable to operate in an ambient temperature range of 5 Deg C to 49 Deg C in cooling mode & -20 Deg C to 15 Deg C in heating mode. The entire operation of outdoor units shall be through independent remotes of indoor units. No separate start/stop function shall be required. Inverter compressor of the unit shall start first & at minimum frequency, to reduce the inrush current during starting. complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested. Units above 12 HP shall be with multiple compressor.			
	ODU - 24HP (12HP+12HP) + Connection Kit		1	Nos.
	ODU - 32HP (16HP+16HP) + Connection Kit		2	Nos.
	ODU - 34HP (16HP+18HP) + Connection Kit		2	Nos.
	ODU - 38HP (18HP+20HP) + Connection Kit		1	Nos.
	ODU - 44HP (12HP+12HP+20HP) + Connection Kit		1	Nos.
	Indoor Units			
B	Double Skin puff insulated Air Handling Units with DX Coil and Control Box with EEV, Electrical Panel, Ceiling/Floor Mounted ,Compatible with VRV/VRF System as per following capacities and Air Flow Rates :-			
	AHU			
	4500 CFM		4	Nos.
	4900 CFM		2	Nos.
	6000 CFM		2	Nos.
	VRV IDU			

	Supply of Round Flow type Cassette indoor units comprising with per-filter, drain pump, fan section with low noise fan multi speed motor, coil section with DX coil, outer cabinet, insulation, pipe connections with human occupancy sensor and VRT Smart technology and following capacities, The cassettes units shall have dual sensor which detect the presence of people and floor temperature to provide comfortable air – conditioning and energy saving. The sensor should detect human presence and adjust the air flow direction automatically to prevent drafts. Room temp should be increase up to 4 Deg C or the indoor unit to be switched off when people are not detected. The sensor should detect the floor temperature and automatically adjusts the operation of the indoor units to reduce the temperature difference between the ceiling and the floor.				
	Round Flow Cassette Type - 2.65 TR + Cordless Remote + Joint		2	Nos.	
	Round Flow Cassette Type - 3.30 TR + Cordless Remote + Joint		6	Nos.	
	Round Flow Cassette Type - 4.13 TR + Cordless Remote + Joint		6	Nos.	
	Round Flow Cassette Type - 4.75 TR + Cordless Remote + Joint		5	Nos.	
	Supply of Ductable indoor units comprising with per-filter, drain pump, fan section, coil section with DX coil, outer cabinet, insulation, pipe connections with VRT Smart technology and following capacities :-				
	HS Duct Type - 5.60 TR + Corded Remote + Joint		2	Nos.	
	Supply of Hi wall type indoor units comprising with per-filter, fan section with low noise fan multi speed motor, with DX coil, outer cabinet, pipe connections Compatible with VRT Technology.				
	Hi-wall Type - 1.32 TR + Cordless Remote + Joint		1	Nos.	
S.No	Description		Qty	Unit	
1.0	Installation and Testing				
	Lifting, shifting, positioning, installation and testing of following AHU / Indoor units, outdoor units, as per specification and drawings.				
	VRV Single Outdoor Unit		RO	Nos	
	VRV Double Outdoor Unit		6	Nos	
	VRV Triple Outdoor Unit		1	Nos	
	AHU type Indoor Unit		8	Nos	
	Cassette AC type Indoor Unit		19	Nos	
	Ductable type Indoor Unit		2	Nos	
	Hi Wall type Indoor Unit		1	Nos	
	Refnet Joint		23	Nos	
2.0	Gas Charging				
	Commissioning of VRV systems including topping R410A gas per site requirements		238	HP	
3.0	Refrigerant Piping				
	Providing, fixing and testing insulated liquid and suction copper refrigerant piping of adequate size along with necessary fittings to interconnect the condensing unit and the evaporating unit.				
a)	6.4mm dia		5	Rmt.	

b)	9.5mm dia		70	Rmt.
c)	12.7mm dia		160	Rmt.
d)	15.9mm dia		150	Rmt.
e)	19.1mm dia		230	Rmt.
f)	22.2mm dia		20	Rmt.
g)	28.6mm dia		210	Rmt.
h)	34.9mm dia		125	Rmt.
i)	41.3mm dia		150	Rmt.
4.0	Communication Cabling			
a)	Providing, fixing and testing of control cabling to interconnect the condensing unit and the evaporating unit .		1120	Rmt.
b)	Providing, fixing and testing of Remote cabling.		100	Rmt.
5.0	Drain Piping			
	Providing, fixing, testing and commissioning insulated PVC drain piping for indoor unit with 6 mm thick Nitrile Rubber insulation.			
a)	25mm dia x 6 mm insulation		10	Rmt.
b)	32mm dia x 6 mm insulation		190	Rmt.
c)	40mm dia x 6 mm insulation		100	Rmt.
6.0	Ducting			
6.1	Supply, fabrication and erection of following gauge of G.S.S. ducting complete with elbows splitters, supports / suspenders bends, tees vanes, double canvas connection of the equipment etc. all complete as required.			
a)	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated			
	0.63 mm (24 gauge)		625	Sqm.
	0.80 mm (22 gauge)		165	Sqm.
	0.92 mm (20 gauge)		RO	Sqm.
	G.I sheet metal ducting (Oval/ Round duct) Factory Fabricated			
	0.63 mm (24 gauge)		130	Sqm.
	0.80 mm (22 gauge)		RO	Sqm.
7	Duct Acoustic Lining			
	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.			
7.1	10 mm		50	Sqm

8	Duct Insulation			
a)	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with additive.			
8.1	13 mm		825	Sqm
9	Flexible Duct Connection			
9.1	Providing and fixing fire retardant nonporous double layer flexible connection between each VRV unit and duct.		10	Nos.
10	Grilles / Diffusers / Dampers			
10.1	Supply & erection of Aluminium powder coated supply air grilles with volume control dampers		8	Sqm.
10.2	Supply & erection of Aluminium Powder Coated return air grilles without volume control dampers		28	Sqm.
10.3	Supply & erection of Aluminium powder coated supply air diffuser with volume control dampers		7	Nos
10.4	Supply & erection of Aluminium Powder Coated return air diffuser without volume control dampers		7	Nos
10.5	Supply & fixing of Duct Damper		2	Sqm
10.6	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.		2	Sqm
11.0	Isolators			
11.1	Providing, fixing and testing of Weather proof isolators for ODU		15	Nos
12.0	Cable Tray			
12.1	Providing & fixing of cable Tray for protection of piping.		75	RMT
13.0	UV Treatment of exposed Ref. Pipes			
13.1	Providing & fixing of UV Treatment on exposed copper pipe insulation.		15	Lot
14.0	Electrical Pannel			
	Supply, installation, testing and commissioning of outdoor type cubicle type free standing/ floor mounting sheet metal clad dead front dust and vermin proof compartmentalized design fabricated out of 16 SWG sheet steel complete with Copper bus bars separate earth bus to be provided through out the length of panel. The panel should be with suitable as per specifications & system required.Necessary cable alleys,cable trays (If Required), space for spare switches, Power cabling (from panel to equipment) and copper earthing shall also be included. for 238 HP		238.00	KW

BLOCK -C			
S.No	Item	Qty.	Unit
A	Outdoor Units-Heat Pump (R410A)-N. Cap. VRV X		

	Outdoor units of the VRV System shall be compact air cooled type, The outdoor unit should comprise of inverter controlled scroll compressor, Each module of outdoor unit should be all inverter scroll type which can work on part load suitable to operate at heat load proportional to indoor requirement. In order to avoid short cycling of hot air, the outdoor unit fan should have an external static pressure of more than 75 Pa, top discharge for easy discharge of hot air. The ODU must deliver COP of minimum 5 at 50% load. The outdoor units must be suitable for upto 165 m refrigerant piping between outdoor unit & the farthest indoor units. Allowable level difference between outdoor units & Indoor Units shall be 90 m in case of outdoor unit at top & 90 m in case of outdoor unit at bottom. Allowable level difference between various indoor units connected to one outdoor unit shall be upto 30 m. The outdoor units shall be suitable to operate in an ambient temperature range of 5 Deg C to 49 Deg C in cooling mode & -20 Deg C to 15 Deg C in heating mode. The entire operation of outdoor units shall be through independent remotes of indoor units. No separate start/stop function shall be required. Inverter compressor of the unit shall start first & at minimum frequency, to reduce the inrush current during starting. complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested. Units above 12 HP shall be with multiple compressor.		
	ODU - 26HP (12HP+14HP) + BHFP22P1006		2 Nos.
	ODU - 32HP (16HP+16HP) + BHFP22P1006		1 Nos.
	ODU - 38HP (18HP+20HP) + BHFP22P1006		3 Nos.
	ODU - 40HP (20HP+20HP) + BHFP22P1006		1 Nos.
	ODU - 44HP (12HP+12HP+20HP) + BHFP22P1516		2 Nos.
	ODU - 48HP (16HP+16HP+16HP) + BHFP22P1516		1 Nos.
	ODU - 60HP (20HP+20HP+20HP) + BHFP22P1516		1 Nos.
	Indoor Units		
B	Double Skin puff insulated Air Handling Units with DX Coil and Control Box with EEV, Electrical Panel, Ceiling/Floor Mounted ,Compatible with VRV/VRF System as per following capacities and Air Flow Rates :-		
	AHU		
	3400 CFM	2	Nos.
	3600 CFM	2	Nos.
	4500 CFM	2	Nos.
	5200 CFM	1	Nos.
	6100 CFM	1	Nos.
	9000 CFM	1	Nos.
	VRV IDU		
	Supply of Round Flow type Cassette indoor units comprising with per-filter, drain pump, fan section with low noise fan multi speed motor, coil section with DX coil, outer cabinet, insulation, pipe connections with human occupancy sensor and VRT Smart technology and following capacities, The cassettes units shall have dual sensor which detect the presence of people and floor temperature to provide comfortable air – conditioning and energy saving. The sensor should detect human presence and adjust the air flow direction automatically to prevent drafts. Room temp should be increase up to 4 Deg C or the indoor unit to be switched off when people are not detected. The sensor should detect the floor temperature and automatically adjusts the operation of the indoor units to reduce the temperature difference between the ceiling and the floor.		
	Round Flow Cassette Type - 2.65 TR + Cordless Remote + Joint	15	Nos.
	Round Flow Cassette Type - 3.30 TR + Cordless Remote + Joint	16	Nos.
	Round Flow Cassette Type - 4.13 TR + Cordless Remote + Joint	22	Nos.
	Round Flow Cassette Type - 4.75 TR + Cordless Remote + Joint	5	Nos.
S.No	Description	Qty	Unit
1.0	Installation and Testing		
	Lifting, shifting, positioning, installation and testing of following AHU / Indoor units, outdoor units, as per specification and drawings.		
	VRV Single Outdoor Unit	RO	Nos
	VRV Double Outdoor Unit	7	Nos

	VRV Triple Outdoor Unit	4	Nos
	AHU type Indoor Unit	9	Nos
	Cassette AC type Indoor Unit	58	Nos
	Ductable type Indoor Unit	0	Nos
	Hi Wall type Indoor Unit	0	Nos
	Refnet Joint	56	Nos
2.0	Gas Charging		
	Commissioning of VRV systems including topping R410A gas per site requirements	434	HP
3.0	Refrigerant Piping		
	Providing, fixing and testing insulated liquid and suction copper refrigerant piping of adequate size along with necessary fittings to interconnect the condensing unit and the evaporating unit.		
a)	6.4mm dia	0	Rmt.
b)	9.5mm dia	390	Rmt.
c)	12.7mm dia	160	Rmt.
d)	15.9mm dia	380	Rmt.
e)	19.1mm dia	580	Rmt.
f)	22.2mm dia	100	Rmt.
g)	28.6mm dia	290	Rmt.
h)	34.9mm dia	90	Rmt.
i)	41.3mm dia	450	Rmt.
4.0	Communication Cabling		
a)	Providing, fixing and testing of control cabling to interconnect the condensing unit and the evaporating unit .	2500	Rmt.
b)	Providing, fixing and testing of Remote cabling.	90	Rmt.
5.0	Drain Piping		
	Providing, fixing, testing and commissioning insulated PVC drain piping for indoor unit with 6 mm thick Nitrile Rubber insulation.		
a)	25mm dia x 6 mm insulation	0	Rmt.
b)	32mm dia x 6 mm insulation	580	Rmt.
c)	40mm dia x 6 mm insulation	90	Rmt.
6.0	Ducting		

6.1	Supply, fabrication and erection of following gauge of G.S.S. ducting complete with elbows splitters, supports / suspenders bends, tees vanes, double canvas connection of the equipment etc. all complete as required.			
a)	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated			
	0.63 mm (24 gauge)		630	Sqm.
	0.80 mm (22 gauge)		165	Sqm.
	0.92 mm (20 gauge)		RO	Sqm.
	G.I sheet metal ducting (Oval/ Round duct) Factory Fabricated			
	0.63 mm (24 gauge)		130	Sqm.
	0.80 mm (22 gauge)		RO	Sqm.
7	Duct Acoustic Lining			
	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.			
7.1	10 mm		55	Sqm
8	Duct Insulation			
a)	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with addhesive.			
8.1	13 mm		900	Sqm
9	Flexible Duct Connection			
9.1	Providing and fixing fire retardant nonporous double layer flexible connection between each VRV unit and duct.		9	Nos.
10	Grilles / Diffusers / Dampers			
10.1	Supply & erection of Aluminium powder coated supply air grills with volume control dampers		8	Sqm.
10.2	Supply & erection of Aluminium Powder Coated return air grilles without volume control dampers		30	Sqm.
10.3	Supply & erection of Aluminium powder coated supply air diffuser with volume control dampers		7	Nos
10.4	Supply & erection of Aluminium Powder Coated return air diffuser without volume control dampers		7	Nos
10.5	Supply & fixing of Duct Damper		2	Sqm
10.6	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.		3	Sqm
11.0	Isolators			
11.1	Providing, fixing and testing of Weather proof isolators for ODU		23	Nos
12.0	Cable Tray			
12.1	Providing & fixing of cable Tray for protection of piping.		75	RMT

13.0	UV Treatment of exposed Ref. Pipes		
13.1	Providing & fixing of UV Treatment on exposed copper pipe insulation.	23	Lot
14.0	Electrical Pannel		
	Supply, installation, testing and commissioning of outdoor type cubicle type free standing/ floor mounting sheet metal clad dead front dust and vermin proof compartmentalized design fabricated out of 16 SWG sheet steel complete with Copper bus bars separate earth bus to be provided through out the length of panel. The panel should be with suitable as per specifications & system required. Necessary cable alleys, cable trays (If Required), space for spare switches, Power cabling (from panel to equipment) and copper earthing shall also be included. for 434 HP	434	KW

Ventilation System

S.No	Description	Unit	Qty
	<u>High Side (Part - A)</u>		
	-		
1	Inline Fan		
1.1	Supply of Inline Fans for Toilet Ventilation		
A	1000 CFM	Nos.	2
B	1400 CFM	Nos.	5
C	2000 CFM	Nos.	2
D	2200 CFM	Nos.	2
E	900 CFM	Nos.	2
F	700 CFM	Nos.	2
G	500 CFM	Nos.	1
H	400 CFM	Nos.	1
I	100 CFM	Nos.	1
2.0	Packaged Type Airwasher		
	Supply, Installation, Testing & Commissioning of packaged type Double skin with PUF Insulated Air Washer with single Blower (Imported- Nicotra/Kruger make), SS Sump etc. with suitable motor and pump.		
	(Make :- ZECO/EDGETECH)		
	18700 CFM , 50 mmwg Static Pressure	Nos.	1
	7000 CFM , 50 mmwg Static Pressure	Nos.	1
	6000 CFM , 50 mmwg Static Pressure	Nos.	1
	-		
3.0	<u>Exhaust Scrubber</u>		
	Supply, Installation, testing & commissioning of packaged type Double skin with PUF Insulated centrifugal exhaust scrubber with fan with motor and drive (both fan and motor shall be mounted on a common frame using cushy foot mounting) with side suction and front discharge including vibration isolator, water tank with float valve, pump, distributor, nozzels, eleminator, piping & valve from tank to pump to distributor, earthing and frame for supports etc. as per specifications and drawings.		
	(Make :- ZECO/EDGETECH)		
	22000 cfm 65 mmwg Static Pressure	Nos.	1
	<u>Low Side (Part - B)</u>		
	-		
2.0	Standard Installation, testing and commissioning of Inline Fans	Nos.	18

3.0	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated		
	24 gauge	Sqm	440
	22 gauge	Sqm	830
4.0	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.	Sqm	45
5.0	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with addessive complete as per specifications and drawings.. (thickness 9mm/13mm)	Sqm	835
6.0	Providing and fixing fire retardant nonporous double layer flexible connection between each inline fan and duct. (both side of fans)	Nos	40
7.0	Grilles / Diffusers / Dampers		
7.1	Supply & erection of Aluminium powder coated grill with volume control dampers for Toilet Exhaust(Min. Grill area will be charged 0.1 Sqm/Grill)	Sqm	15.15
7.2	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.	Sqm	2.03

S.No	Item	Qty.	Unit
A	Outdoor Units-Heat Pump (R410A)-N. Cap. VRV X		
	Outdoor units of the VRV System shall be compact air cooled type, The outdoor unit should comprise of inverter controlled scroll compressor, Each module of outdoor unit should be all inverter scroll type which can work on part load suiatble to operate at heat load proportional to indoor requirement. In order to avoid short cycling of hot air, the outdoor unit fan should have an external static pressure of mare than 75 Pa, top discharge for easy discharge of hot air. The ODU must deliver COP of minimum 5 at 50% load. The outdoor units must be suitable for upto 165 m refrigrerant piping between outdoor unit & the farthest indoor units. Allowable level difference between outdoor units & Indoor Units shall be 90 m in case of outdoor unit at top & 90 m in case of outdoor unit at bottom. Allowable level difference between various indoor units connected to one outdoor unit shall be upto 30 m. The outdoor units shall be suitable to operate in an ambient temprature range of 5 Deg C to 49 Deg C in cooling mode & -20 Deg C to 15 Deg C in heating mode. The entire operation of outdoor units shall be through independant remotes of indoor units. No seperate start/stop function shall be required. Inverter compressor of the unit shall start first & at minimum frequency, to reduce the inrush current during starting. complete refrigerant circuit, oil balancing/equalizing circuit shall be factory assembled & tested. Units above 12 HP shall be with multiple compressor.		
	ODU - 6HP	1	Nos.
	ODU - 8HP	2	Nos.
	ODU - 10HP	4	Nos.
	ODU - 20HP	1	Nos.
	Indoor Units		
	Supply of Daikin Make TFA units		
	TFA 4.13 TR + Corded Remote + Joint	1	Nos
	TFA 6.60 TR + Corded Remote + Joint	2	Nos
	TFA 8.30 TR + Corded Remote + Joint	6	Nos
S.No	Description	Qty	Unit

1.0	Installation and Testing		
	Lifting, shifting, positioning, installation and testing of following TFA units, outdoor units, as per specification and drawings.		
	VRV Single Outdoor Unit	8	Nos
	TFA Unit	9	Nos
2.0	Gas Charging		
	Commissioning of VRV systems including topping R410A gas per site requirements	82	HP
3.0	Refrigerant Piping		
	Providing, fixing and testing insulated liquid and suction copper refrigerant piping of adequate size along with necessary fittings to interconnect the condensing unit and the evaporating unit.		
a)	6.4mm dia	RO	Rmt.
b)	9.5mm dia	240	Rmt.
c)	12.7mm dia	28	Rmt.
d)	15.9mm dia	46	Rmt.
e)	19.1mm dia	67	Rmt.
f)	22.2mm dia	147	Rmt.
g)	28.6mm dia	48	Rmt.
h)	34.9mm dia	RO	Rmt.
i)	41.3mm dia	RO	Rmt.
4.0	Communication Cabling		
a)	Providing, fixing and testing of control cabling to interconnect the condensing unit and the evaporating unit .	450	Rmt.
b)	Providing, fixing and testing of Remote cabling.	90	Rmt.
5.0	Drain Piping		
	Providing, fixing, testing and commissioning insulated PVC drain piping for indoor unit with 6 mm thick Nitrile Rubber insulation.		
a)	25mm dia x 6 mm insulation	RO	Rmt.
b)	32mm dia x 6 mm insulation	10	Rmt.
c)	40mm dia x 6 mm insulation	80	Rmt.

6.0	Ducting			
6.1	Supply, fabrication and erection of following gauge of G.S.S. ducting complete with elbows splitters, supports / suspenders bends, tees vanes, double canvas connection of the equipment etc. all complete as required.			
a)	G.I sheet metal ducting (rectangular, medium pressure) Site Fabricated			
	0.63 mm (24 gauge)		412	Sqm.
	0.80 mm (22 gauge)		72	Sqm.
	0.92 mm (20 gauge)		RO	Sqm.
	G.I sheet metal ducting (Oval/ Round duct) Factory Fabricated			
	0.63 mm (24 gauge)		RO	Sqm.
	0.80 mm (22 gauge)		RO	Sqm.
7	Duct Acoustic Lining			
	Providing and fixing duct acoustic lining with 10 mm thick Acoustic Sheet of Nitrile Rubber with adhesive complete as per specifications and drawings.			
7.1	10 mm		44	Sqm
8	Duct Insulation			
a)	Duct Insulation with Closed cell cross linked expanded polythene foam / nitrile rubber with additive.			
8.1	9 mm /13mm		440	Sqm
9	Flexible Duct Connection			
9.1	Providing and fixing fire retardant nonporous double layer flexible connection between each VRV unit and duct.		9	Nos.
10	Grilles / Diffusers / Dampers			
10.1	Supply & erection of Aluminium powder coated supply air grills with volume control dampers		0.90	Sqm.
10.2	Supply & erection of Aluminium Powder Coated return air grilles without volume control dampers		RO	Sqm.
10.3	Supply & erection of Aluminium powder coated supply air diffuser with volume control dampers		33	Nos
10.4	Supply & erection of Aluminium Powder Coated return air diffuser without volume control dampers		RO	Nos
10.5	Supply & fixing of Duct Damper		RO	Sqm
10.6	Supply & erection of Aluminium powder coated Exhaust Air Louvers with Bird Screen.		4.58	Sqm
11.0	Isolators			
11.1	Providing, fixing and testing of Weather proof isolators for ODU		8	Nos

12.0	Cable Tray		
12.1	Providing & fixing of cable Tray for protection of piping.	15	RMT
13.0	UV Treatment of exposed Ref. Pipes		
13.1	Providing & fixing of UV Treatment on exposed copper pipe insulation.	8	Lot
14.0	Electrical Pannel for TFA		
	Supply, installation, testing and commissioning of outdoor type cubicle type free standing/ floor mounting sheet metal clad dead front dust and vermin proof compartmentalized design fabricated out of 16 SWG sheet steel complete with Copper bus bars separate earth bus to be provided through out the length of panel. The panel should be with suitable as per specifications & system required.Necessary cable alleys,cable trays (If Required), space for spare switches, Power cabling (from panel to equipment) and copper earthing shall also be included. for 82 HP	82	KW