

Advanced Materials (Defence) Testing Foundation

(A Joint Venture of MIDHANI, HAL, BDL, YIL and PTC Industries)

Registered Address: NH-25A, Sarai Sahjadi Bani, Lucknow- 226401, Uttar Pradesh

CIN: U71200UP2024NPL203979

Email: tender@amdtf.in

Part-II (PRICE BID)

“Construction of RCC Building for AMDTF Lab at Lucknow, Uttar Pradesh”

To,
Shri B. Saha
CEO - AMDTF

Dear Sir,

Sub: "Construction of RCC Building for AMDTF Lab at Lucknow, Uttar Pradesh".

1. Please find enclosed herewith the Tender Enquiry for the above work you are requested to furnish your offer through online tender@amdtf.in before last date of submission, along with EMD of Rs 10 lakhs (Earnest Money Deposit)–ONLINE PAYMENT or Bank Guarantee through a Nationalized Bank/ Scheduled Commercial Bank en-cashable in INDIA confirmed by bankers. Validity of the BG shall be 90 days. The tenders without EMD/tender fee amount will be rejected; request for adjustment from pending bill will not be entertained. Please confirm whether you are MSME Unit or MSME Unit owned by SC/ST Entrepreneur. If yes, please submit latest valid documentary proof for extending benefits as per government guidelines **Estimated value of work for Rs. 746.00 Lakhs**
2. Tender shall be submitted on or before **13-10-2025** up to 2100 hrs. through email at tender@amdtf.in
3. The period of completion of job will be 6 Months (staggered) from the date of site handover.
4. The tenderer shall inspect the site of work and understand the scope of work before quoting. No extra amount will be paid on account of misunderstanding either in scope of work, specification, drawings, site conditions etc.
5. All materials required for the work shall be arranged by the contractor unless until specified in Bill of Quantities.
6. The work shall be carried out as per latest CPWD specifications.
7. This is an item rate contract and the quantities are approximate, but payment will be made only on actual work done based on joint measurement.
8. **Six R.A Bills and one Final Bill will be paid. Apart from the above 2 material advance bills for reinforcement steel/structural steel @ 75% of bill cost excluding transport & GST will be paid .**The contractor has to furnish all material gate entries along with each bill (if any).
9. a. R.A Bill will be paid within 15 days from the date of certification of Engineer-in-charge. However, Final bill will be made within 30 days after satisfactory completion of work and certification by Engineer-in-charge.

b. A sum of 2.5% of gross value of work order will be deducted from each running bill and final bill. The same will be released after the completion of defect liability period of 12 months and after certification of Engineer –In- Charge. Also, contractor can submit Bank Guarantee for equivalent

amount at the time of final bill in the prescribed format issued by nationalized or scheduled bank and same shall be valid for defect liability period + 3 months claim period.

10. **a) Security Deposit (S.D):** The successful tenderer has to deposit 2.5% of contract value as Security Deposit within 21 days from the receipt of order, interest @12% p.a shall be levied for the period of delay beyond 21 days. This 2.5% Security Deposit can be submitted online or can deposit Bank Guarantee from any nationalized bank.

The validity of B.G shall be equivalent to contract period plus three months extra. The 2.5% Security Deposit will be released after completion of work, Site clearance and cleaning by the contractor duly certified by Engineer- In- Charge.

Name of Company: Advanced Materials (Defence) Testing Foundation

PAN: ABACA8172D

Bank Name: Punjab National Bank

Branch Address: 10 Ashok Marg, Hazratganj, Lucknow - 226001

Account no.: 7177002100010505

IFSC Code: PUNB0717700

MICR Code: 226024028

Type of Account: Current Account

11. The security and safety rules of AMDTF to be followed. The contractor shall take care of all labour laws regarding minimum wages, ESI, PF, CAR policy, Group Insurance etc., AMDTF is no way responsible in this respect. AMDTF is not liable for any claim in respect of any accidents during the work.
12. (a) AMDTF reserves the right to operate partial or delete any item specified in BOQ without any compensation to contractor for the items un-operated or deleted.
- (b) If at any time after acceptance of the tender AMDTF feels that for any reasons whatsoever, if the whole or any part of the contract services is not required to be carried out, notice shall be given in writing of the fact to the contractor and upon receipt of such notice, the contractor shall stop the execution of such services as indicated in the notice forthwith. The contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the services in full, but which he did not derive in consequence of the foreclosing of the services / contract. Contractor shall be paid at contract rates for the full amount of the work executed including such additional services as may be rendered necessary by said foreclosing.
13. Any new items (viz. supply of material, labour, skilled works etc) will be paid as per (a) or (b) whichever is less:
- a) As per CPWD 2023 rates with applicable Percentage Index at that time.
- b) As per market rate analysis.
14. The contractor should not cause any loss or damage to AMDTF property/or personnel, if any loss or damage is caused the cost of the same will be recovered from the bills by AMDTF, which will be final.
15. Quantities of individual items are subjected to variation upto a maximum of +50%. For any new item, variation shall not exceed +10% of the PO value. Excavation of soil/ hard rock items are subjected to a deviation of $\pm 100\%$ quantity. However, overall deviation in the PO is limited to $\pm 20\%$ of the PO value..

16. If the contractor fails to receive the work order within a week time from the date of intimation to him or if the contractor does not start the work within 3-7 days from the date of handover of site, or if the work is abandoned / stopped without bringing proper notice to Engineer-in-charge, the contract will be terminated and balance work will be carried out at the cost and risk of contractor.

17. Liquidated Damages:

a) If the work is not completed within stipulated time, liquidated damages at 0.5% per week delay or part there of up to maximum of 10% total value of work will be deducted.

b) If the delays are not solely attributed to the contractor, the competent authority holds the right to waive off the L.D or reduce the L.D as the case may be.

18. AMDTF reserves the right to penalize

a) If the contractor fails to submit the 2.5% Security deposit within the stipulated period, then penalty as per clause 10 (a) will be collected and further delay will empower AMDTF to termination of contract and apply risk purchase.

b) If the contractor fails to receive the work order within 3 days of intimation, then a penalty Rs 500 per day will be levied subjected to maximum of Rs 5000.00. Further delay will empower AMDTF to termination of contract and apply risk purchase.

c) Contractor has to maintain "HINDRANCE REGISTER" which is to be certified by both AMDTF Site engineer and contractor engineer before release of final bill.

d) Resident Engineer: A degree holder in Civil Engg. with at least 8 to 10 years practical experience of the similar works & Two Degree Holders in civil Engg. with at least 5 years practical experience and two supervisors with at least 3 to 5 years practical experience in work (suitably allocated for handling Quantity Surveying. Field Laboratory, Surveying and other specialized works) to be deployed by the contractor, failing which, a penalties as follows will be recovered from the bills payable to contractor upon certification of Engineer- In- Charge

- Resident engineer : Penalty of Rs. 45,000/- per month
- Degree holder : Penalty of Rs. 30,000/- per month
- Supervisor : Penalty of Rs. 20,000/- per month

19. The offer shall be valid for 90 days from the date of opening of tender.

20. Incomplete or partially filled tenders will be rejected. Also, conditional offers are liable for rejection. AMDTF reserves the right to accept or reject any or all tenders without assigning any reasons.

21. Contractor has to maintain site record, hindrance record, record for steel, cement etc.

22. Site has to be cleaned by the contractor before handing over to AMDTF after completing the work. The final bill will be processed only after obtaining site cleaning certificate from the Engineer-in-charge.
23. **If the contractor performs any work in a manner contrary to the Contract, without the approval of the Engineer-In-Charge, the Contractor shall bear all the costs arising therefrom and shall be responsible for all losses to the employer arising therefrom.**
24. The Earnest money deposit can be encashed if the tenderer withdraws his tender proposals / modifies / changes / alters / impairs / derogates the tender document on his own after the first cover is opened or within the subsistence of the validity period of offer or fails to accept the Letter of Award (LOA) issued by AMDTF or fails to submit security deposit or fails to turn-up and execute contract agreement or fails to commence the work as per LOA. Such bidders will be banned subject to action as may be deemed fit. In case of unilateral revision or withdrawal of offer by the bidder as above, shall also result in rejection of bid without notice. If there is any authentic information about the intending tenderer having formed a cartel / submitted Nonearnest bids, the tender will be cancelled and the Earnest Money Deposit of all the tenderer shall be forfeited, besides initiating actions like banning as may be deemed fit.
24. Note to Suppliers regarding Invoice and related payment conditions:
1. The GST invoice to be submitted by supplier shall be in accordance with provisions of Sec 31 of CGST Act, 2017 and shall contain all particulars specified in rule 46 of CGST Rules including HSN/SAC codes.
 2. Wherever E-invoice is applicable as per provisions of GST Act and notifications issued from time to time, bills will be processed only on submission of E-invoice (in addition to all other relevant documents). If E-invoice is not applicable, supplier is requested to submit the declaration on letter head signed by Authorized signatory in the attached format at Annexure-A.
 3. Further to above, if the aggregate turnover of the supplier exceeds threshold limits as notified by Government of India at any future date, then E-invoice shall be applicable and the bidder has to comply with required provisions of GST Law.
 4. Supplier need to give declaration whether he is filing GSTR-1 and GSTR-3B on monthly basis or quarterly basis. If supplier is filing /opted for GSTR-1 and GSTR-3B on Quarterly basis, supplier is requested to submit the declaration on letter head signed by Authorized signatory in the attached format at Annexure-B.
 5. If the supplier is filing returns on monthly basis, payment will be made only after filing of GSTR-1 and GSTR-3B of the respective month including availability of invoice in GSTR- 2B (It is to be noted that the Invoice will appear in GSTR-2B of corresponding month if the supplier files GSTR-1 within due dates mentioned in the Act).
 6. If supplier is filing / opted for GSTR-1 and GSTR-3B on Quarterly basis, only the base amounts will be paid initially and release of GST amounts will be made only after quarterly filing of GSTR-1, GSTR-3B of corresponding months including availability of invoice in GSTR-2B (It is to be noted that the Invoice will appear in GSTR-2B of corresponding month if the supplier files GSTR-1 within due dates mentioned in the Act). After filing of GSTR-1 and GSTR-3B Supplier has to intimate the same to

Purchase Department along with copies of GSTR-1 and GSTR-3B for onward intimation to Finance Department.

7. In case AMDTF is unable to avail GST credit within time limit specified under the GST Act due to delay in filing and /or intimation regarding filing of GST returns by supplier or due to any other fault of supplier, corresponding GST amounts will not be paid to supplier.

25. **Contractor has to quote price viz price + taxes + GST + Cess for each item. The accuracy shall be up to two decimals**

**Yours faithfully,
For Advanced Materials (Defence) Testing Foundation**

B. Saha (CEO)

DECLARATIONS: -

- 1) I have seen the site and understood the full scope of work, specified in tender, BOQ, drawings etc. The drawings enclosed with this tender are only tentative. The actual dimensions/details shall be provided before construction.
- 2) I agree to return all the documents along with this offer.
- 3) I have taken into account of points circulated in Minutes of Pre bid Meeting circulated on AMDTF website, if posted.

SIGNATURE AND SEAL

BOQ for Construction of RCC building for AMDTF Lab at Lucknow, Uttar Pradesh					
S. No.	Description	Quantity	Unit	Rate	Amount (Rs.)
SUB-HEAD - EARTH WORK					
1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.				
	All kinds of soil	3407.58	Cum		
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 and for all lift.	2726.06	Cum		
3	Excavating, supplying, stacking and filling of local earth (including royalty) by mechanical transport upto a lead of 5km also including ramming and watering of the earth in layers not exceeding 20 cm in foundation trenches, plinth, sides of foundation etc. complete for all lift.	10437.84	Cum		
4	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	622.00	Cum		
SUB-HEAD - PLAIN CEMENT CONCRETE					
5	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.				
5.1	1:3:6 (1 Cement : 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 20 mm nominal size derived from natural sources)	204.21	Cum		

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SUB-HEAD - REINFORCED CEMENT CONCRETE					
6	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge, for the following grades of concrete. Concrete of M25 grade with minimum cement content of 330 kg /cum Note: NO Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.				
6.1	All works up to plinth level.	1113.18	Cum		
6.2	All works above plinth level up to floor V level.	426.27	Cum		
7	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars of grade Fe-500D or more	170217.8 2	Kgs.		
SUB-HEAD - FOAMWORK					
8	Centering and shuttering including strutting, propping etc. and removal of form for :				
8.1	Foundations, footings, bases of columns, etc. for mass concrete.	454.84	Sqm		
8.2	Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.	517.80	Sqm		
8.3	Suspended floors, roots, landings, balconies and access platform.	1717.49	Sqm		
8.4	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	3047.83	Sqm		

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8.5	Columns, Pillars, Piers, Abutments, Posts and Struts.	1807.24	Sqm		
SUB- HEAD- STRUCTURAL STEEL					
9	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. Hot finished welded type tubes	937.75	Kgs.		
ARCHITECTURE(B)					
SUB- HEAD- BRICK WORK & WALLS					
10	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
	Cement mortar 1:6 (1 cement: 6 coarse sand)	349.33	cum		
11	Brick work with clay flyash F.P.S. (non modular) brick of class designation 7.5 in superstructure above plinth level up to floor five level in :				
	Cement mortar 1 : 6 (1 cement : 6 coarse sand)	464.39	cum		
12	Providing and Installation of 125mm Thick high performance lightweight Gypsum interior wall system consisting of a GI steel frame/Studs, encased in Two or More Layers of gypsum plasterboards on either side attached with self-drilling drywall screws. The joints are then to be taped and finished with gypsum jointing compounds. Min Acoustic Rw of 50, and Minimum Fire rating of 120 Mins and ISI Marked	244.82	Sqm.		
SUB-HEAD - FINISHING					
13	Cement plaster in course sand				
	12 mm cement plaster of mix:				
	1:6 (1 cement : 6 fine sand)	1949.85	sqm		
14	18 mm cement plaster in two coat under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) and a top layer 6mm thick cement plaster 1:3(1 cement: 3 coarse sand) finished rough with sponge:	1895.72	sqm		

15	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.				
	Two or more coats on new work i/c 2 MM putty	2358.69	sqm		
16	Finishing walls with textured exterior paint of required shade :				
	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied 2.20kg/10 sqm	1895.72	sqm		
17	Stone work (machine cut edges) for wall lining etc. (vener work)upto 10 metre height, backing filled with a grout of average 12 mm 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 and the sides by means of cramps and pins which shall be paid for separately) :				
	40mm White sand stone - exposed face Designed dressed with rough backing .	686.35	sqm		
18	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.	840.70	Kg		
19	Providing and fixing copper pins 7.5 cm long 6 mm diameter for securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases.	8407.00	Each		
SUB-HEAD - FLOORING					
20	Kota stone slab flooring 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) :				

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	25 mm thick -	1220.68	Sqm.		
21	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	70.10	Sqm.		
22	Providing and laying Double charge Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.				
	Size of Tile 600 x 600 mm.	37.98	Sqm.		
	Size of Tile 800 x 1600 mm.	148.26	Sqm.		
23	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete				
	Size of Tile 800x800 mm	18.41	Sqm.		
24	Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling/ grouting and finishing complete as per direction of Engineer-in-charge.				
	Size of Tile 600 x 600 mm.	37.98	Sqm.		
	Size of Tile 800 x 800 mm.	148.26	Sqm.		

25	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
	Polished Granite stone slab of colour Black, Cherry/Ruby Red or equivalent	76.19	Sqm.		
	Polished Granite stone slab of all colour and texture except Black, Cherry/Ruby Red	114.28	Sqm.		
26	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of 600x1200 as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	174.24	Sqm.		
SUB- HEAD- DOOR & WINDOW WORK					
27	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately)	108.00	Metre		

28	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/sqm) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).	74.88	Sqm		
29	Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/sqm) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/ powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-charge with glass of required thickness having 60 minutes of fire resistance both integrity & radiation control (EW60) and minimum 20 minutes of insulation (EI20). The manufacturer have to give test report/certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm.	23.32	Sqm		

30	Providing and Fixing factory made uPVC door frame, made of uPVC extruded sections, of size 65 mm x 55 mm with wall thickness 2.0 mm (± 0.2 mm), corners of the door frame to be mitred cut and jointed with plastic brackets and stainless steel screws, reinforcing hinge side vertical of the frames with PVC profile of Size 28 mm x 30 mm having wall thickness 2 mm (± 0.2 mm), including providing & fixing 3 nos of 125 mm long stainless steel hinges to the frame, fixing the frame with jamb with required number & size of anchor dash fastners, all complete as per manufacturer's specification and direction of Engineer-in-charge	48.20	Metre		
31	35 mm thick factory made Solid panel PVC Door shutter, made out of single piece extruded solid PVC profiles, 5 mm (± 0.2 mm) thick, having styles & rails (except lock rail) of size 95 mm x 35 mm x 5 mm, out of which 75 mm shall be flat and 20 mm shall be tapered (on both side), having one side thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power, including reinforcing with MS tube of size 40 mm X 20 mm x 1 mm, joints of styles & rails to be mitered cut & joint with the help of PVC solvent cement, self driven self tapping screws & M.S. rectangular pipes bracket of size 190 mm X 100 mm of cross section size 35 mm x 17 mm x 1 mm at each corner. Single piece extruded 5 mm thick solid PVC Lock rail of size 115 mm x 35 mm, out of which 75 mm to be flat and 20 mm to be tapered at both ends, having 15 mm solid core in middle of rail section integrally extruded, fixing the styles & rails with the help of solvent and self driven self tapping screws of 125 mm x 11 mm, including providing 5 mm Single piece solid PVC extruded sheet inserted in the door as panel, all complete as per manufacturer's specification and direction of Engineer-in-charge. Decorative finish (wood grained finish)	18.00	Sqm		

32	Three track three panels sliding window with Aluminium channel for roller track, wool pile, nylon rollers with SS 304 body using R3 series with frame (98 mm & above) x (40 mm & above) & sash (30 mm & above) x (55 mm & above) with zinc alloy (zamak) powder coated handle on two end panels along with multi-point locking system (Height upto 1.8 metre).	25.20	Sqm		
33	Design supply & installation of suspended Spider Glazing system designed to withstand the wind pressure as per IS 875 (Part-III). The Suspended System held with Spider Fittings of SS-316 Grade Steel of approved manufacturer with glass panel having 12 mm thick clear toughened glass held together with SS- 316 Grade Stainless steel Spider & bolt assembly with laminated glass fins 21 mm thick. The Glass fins and glass panel assembly shall be connected to Slab/beams by means of SS- 316 Grade stainless steel brackets & Anchor bolts and at the bottom using SS channel of 50x25x2 mm using fastener & anchor bolts, non staining weather sealants of approved make, Teflon/ nylon bushes and separators to prevent bi-metallic contacts, all complete to perform as per specification and approved drawings. The complete system to be designed to accommodate thermal expansion & seismic movements and Provisions for necessary openings have to be incorporated etc. The joints between glass panels (6 to 8 mm) and gaps at the perimeter & in U channel of the assembly to be filled with non staining weather sealant, so as to make the entire system fully water proof & dust proof. The rate shall include all design, Engineering and shop drawing including approval from structural designer, labour, T&P, scaffolding, other incidental charges including wastage, enabling temporary services all fitting fixers nut bolts, washer, Buffer plates, fastener, anchors, SS channel laminated glass etc. all complete. For the purpose of payment, actual elevation area of Glazing including thickness of joints and the portion of Glass panel inside the SS channel shall be	473.22	sqm		

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	measured.				
34	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	3132.00	Kg		
SUB-HEAD -ROOF WORK					
35	Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture of size 595 x 595 mm in true horizontal level, suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanising @ 120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and of size 24x38 mm made from 0.33 mm thick (minimum) sheet, spaced 1200 mm centre to centre, and cross "T" of size 24x28 mm made out of 0.33 mm (Minimum) sheet, 1200 mm long spaced between main'T' at 600 mm centre to centre to form a grid of 1200x600 mm and secondary cross 'T' of length 600 mm and size 24 x28 mm made of 0.33 mm thick (Minimum) sheet to be inter locked at middle of the 1200x 600 mm panel to form grid of size 600x600 mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40 mm thick (minimum) sheet with the help of rawl plugs at 450 mm centre to centre with 25 mm long dry wall screws @ 230 mm interval and laying 15 mm thick densified edges calicum silicate ceiling tiles of approved texture in the grid, including, cutting/ making opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc., wherever required.				

	<p>Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25x35x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm G.I. adjustable rods with galvanised steel level clips of size 85 x 30 x 0.8 mm, spaced at 1200 mm centre to centre along main 'T'. Bottom exposed with 24 mm of all T-sections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by Engineer-in-Charge.</p> <p>Note :- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqm. The calcium silicate ceiling tile shall have NRC value of 0.50 (Minimum), light reflection > 85%, non- combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity <0.043 w/mK.</p>	1258.66	Sqm		
36	<p>Providing 10 mm thick plaster of Paris (gypsum anhydrous) ceiling up to a height of 5 m above floor level, over GI/SS False Ceiling Frame with 10 mm gap in between and reinforced with rabbit wire mesh fixed to frame. Including cutting of Lights or Sunken area and Making coves as per Design (frame work to be Included):</p>	321.72	Sqm		

37	<p>Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations:</p> <p>(a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment.</p> <p>(b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.</p> <p>(c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.</p>				
	<p>(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep.</p> <p>(e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. "All above operations to be done in order and as directed and specified by the Engineer-in-Charge" With average thickness of 120 mm and minimum thickness at khurra as 65 mm.</p>	1693.16	Sqm		
ELECTRICAL SAFETY / MISCELLANEOUS EQUIPMENT(C)					

EMPLOYER

CONTRACTOR

38.0	TRANSFORMER	-	-	-	-
A	1000 KVA Oil cooled Transformers Level II (Out door type) with all controllers, interlocking & other all accessories as required.	1	SET		
LT PANEL, MDBs, SDBs & FINAL DISTRIBUTION BOARDS					
39.0	The rates for the distribution boards shall also include the following :				
	Supporting rigid steel framework.				
	Cubicle type, CRCA sheet steel enclosed.				
	Complete with interconnections and distribution bus bars.				
	Proper bonding to earth.				
	Painting/lettering on Breakers and distribution boards, the location and pupose, SLD of each panel and DB details.				
	Providing cable clamps / supports within distribution boards cable alley.				
	Door interlocking for all outgoing feeders shall be provided.				
	TPN MPCBs/ MCCBs shall be provided with solid neutral link. TPN MCBs shall have inbuilt neutral isolation module or 4 pole MCB shall be provided (Neutral link is not acceptable).				
	All MCCBs shall be ICS = ICU.				
	All MCCB shall have rotary handle with pad locking arrangement.				
	Minimum breaking capacity for MCBs shall be 10 KA.				
	All indicating lamps shall be provided with 2 amps control MCBs.				
	All outgoing terminals shall be provided in cable alley on proper insulated supports.				
	Degree of protection of distribution panel enclosure shall be as under:				
	IP 42 for indoor panels.				
	IP 54 for service area panels.				
	IP 55 for outdoor panels.				
	Bus bar rating shall be considered as 1.0 amps and 1.6 amps per Sq mm for aluminum and copper bus bars respectively.				
	All hinged door shall be earthed through 2.5 sq mm tinned braided copper wire.				

	The tripping characteristics of MCBs shall be as under:				
	Type "C" - For motor protection				
	Type "B" - For resistive, lighting and convenience power				
	Type "D" - For UPS and discharge lamps				
	All Panels and Final distribution boards shall have provision for surge protection devices.				
	Panels shall fabricated out of 16guage thick for structural members (Load bearing members) and 18Guage thick for door and covers (Non load bearing members) CRCA sheet in cubicle compartmentalized free standing floor mounted, dust and vermin proof with reinforcement of suitable size angle iron, channel 'T' irons and / or flats wherever necessary, 18 gauge CRCA sheet steel shall be used for final distribution panels. Panels shall be treated with all anticorrosive process before painting as per specifications and final approved shade of enamelled paint. 2 Nos. copper earthing terminals shall be provided for all distribution panels.				
	11 KVA H.T PANEL				
	2000 Amp VCB, EDO 11KVA Complete C/T P/T with all controllers, relays, interlocking & other all accessories as required.	1	NOS.		
Main LT PANEL - 1 (as per SLD)					
40.0	Fabrication & supply, testing & commissioning of main incoming Distribution board floor mounted cubical type made of 2 mm CRCA sheet, modular, dust and vermin proof construction, concealed hings, special type locks, high quality power coated in approved shade, complete suitable aluminium bus bars, internal wiring duly tested unit, with engraved name plates, schematic diagraph, ready to use comprising of the following feeders and meters.				
	Incoming (Grid Supply)				
	2000 A 4 pole, EDO, ACB having microprocessor based releases with earth fault shunt trip/under voltage release.				

	3 Nos. of LED type phase indicating lamps, Digital Ammeter, Voltmeter & MFM with Comm. port .				
	2000/5 ratio CT for APFC Relay				
	Incoming (DG-1 Supply)				
	1000 A 4 pole ,MCCB 65ka having microprocessor based releases with earth fault shunt trip/under voltage release.				
	3 Nos. of LED type phase indicating lamps, Digital Ammeter, Voltmeter & MFM with Comm. port .				
	Bus Bar - 1				
	1250 amps TPN AL bus bars with color coded heat shrinkable insulation sleeve.				
	Outgoings				
	1 No 630A MCCB for 300 kVAR Capacitor bank with Contactor based switching and 7% detuned reactors as per SLD. Complete with interconnections and all required accessories.				
	1 No. 500 Amps TPN MCCB (50KA) for (Feeder NDT)				
	2 No. 200 Amps TPN MCCB (36KA) for (Feeder Metrology & Floor Panel)				
	1 No. 100 Amps TPN MCCB (36KA) for (Feeder Workshop)				
	1 No. 100 Amps TPN MCCB (36KA) for Fire Panel				
	1 No. 200 Amps TPN MCCB (36KA) Spare				
	1 No. 100 Amps TPN MCCB (36KA) Spare				
	1250A FP BUS COUPLER & CONTROLLER (as per SLD)				
	PLC With HMI LMS/SYN & Interlocking (as per SLD) Make: Seimens				
	Incoming (DG-2 Supply)				
	1000 A 4 pole MCCB having microprocessor based releases with earth fault shunt trip/under voltage release.				

	3 Nos. of LED type phase indicating lamps, Digital Ammeter, Voltmeter & MFM with Comm. port .				
	Bus Bar - 2				
	1250 amps TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
	1 No. 630 Amps TPN MCCB (50KA) for (Feeder Mech. Test Lab)				
	1 No. 250 Amps TPN MCCB (36KA) for (Feeder Chemical Lab)				
	1 No. 100 Amps TPN MCCB (25KA) for (Feeder Metrology Lab)				
	1 No. 63 Amps TPN MCCB (16KA) Plumbing Panel				
	1 No. 100 Amps TPN MCCB (25KA) Spare				
	1 No. 63 Amps TPN MCCB (16KA) Spare				
	MAIN LT CUM AMF PANEL as per above description	1	Nos.		
APFC PANEL (Capacitor bank panel)					
41.0	Supplying, Installation, testing & commissioning of 300 KVAR, 12 step APFC relay panel auto - operation and power factor should be nearing unity complete as required including all contactors, relays, indicating units. As required at site". APFC Relay panel make : ABB / Siemens				
	12 Nos of capacitor duty contactors (Make: L&T / Schenieder/ABB)				
	3 Nos 50 KVAR MPP type heavy duty capacitor banks along with 2 nos 100A TP MCB of 25 kA service breaking capacity with heavy duty solid detachable neutral link. (Capacitor Make: ABB/Seimens/L&T)				
	2 Nos 30 KVAR MPP type heavy duty capacitor banks along with 2 nos 80A TP MCB of 25 kA service breaking capacity with heavy duty solid detachable neutral link. (Capacitor Make: ABB/Seimens/L&T)				

	3 Nos 20 KVAR MPP type heavy duty capacitor banks along with 2 nos 63A TP MCB of 16 kA service breaking capacity with heavy duty solid detachable neutral link. (Capacitor Make: ABB/Seimense/L&T)				
	2 Nos 10 KVAR MPP type heavy duty capacitor banks along with 3 nos 32A TP MCB of 16 kA service breaking capacity with heavy duty solid detachable neutral link. (Capacitor Make: ABB/Seimense/L&T)				
	2 Nos 5 KVAR MPP type heavy duty capacitor banks along with 3 nos 16A TP MCB of 10 kA service breaking capacity with heavy duty solid detachable neutral link. (Capacitor Make: ABB/Seimense/L&T)				
	APFC PANEL as per above description	1	Nos.		
SUB DISTRIBUTION PANELS					
42	FEEDER PANEL (Chemical Lab)				
i.	Incoming				
	One (1) No. 250 Amps TPN MCCB (36KA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-300 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No. digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	300 amps (36 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	4 No. 100 Amps TPN MCCB (25kA) (1 Spare)				
	4 No. 40 Amps TPN MCCB (1 Spare)				
	FEEDER PANEL as per above description	1	Nos.		
43	FEEDER PANEL (Mechanical Testing Lab)				
i.	Incoming				
	One (1) No. 630 Amps TPN MCCB (50KA) with following accessories:				

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	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-800 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	800 amps (50 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	3 No. 200 Amps TPN MCCB (36kA) (1 Spare)				
	2 No. 100 Amps TPN MCB (25kA) (1 Spare)				
	4 No. 40 Amps TPN MCCB (1Spare)				
	FEEDER PANEL as per above description	1	Nos.		
44	FEEDER PANEL (Metalography Lab)				
i.	Incoming				
	One (1) No. 100 Amps TPN MCCB (25KA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-200 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	160 amps (16 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	6 No. 40 Amps TPN MCCB (1 Spare)				
	3 No. 40 Amps DP MCB (1 Spare)				
	FEEDER PANEL as per above description	1	Nos.		
45	FEEDER PANEL (Metrology)				
i.	Incoming				
	One (1) No. 200 Amps TPN MCCB (36KA) with following accessories:				

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	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-300 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	300 amps (36 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	3 No. 100 Amps TPN MCCB (25kA) (1 Spare)				
	4 No. 40 Amps TPN MCCB (1 Spare)				
	4 No. 40 Amps DP MCB (1 Spare)				
	FEEDER PANEL as per above description	1	Nos.		
46	FEEDER PANEL (NDT)				
i.	Incoming				
	One (1) No. 500 Amps TPN MCCB (50KA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-500 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	600 amps (50 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	2 No. 200 Amps TPN MCCB (36kA) (1 Spare)				
	4 No. 100 Amps TPN MCCB (25kA) (1 Spare)				
	2 No. 40 Amps DP MCB (1Spare)				
	FEEDER PANEL as per above description	1	Nos.		
47	FEEDER PANEL (Workshop)				
i.	Incoming				

	One (1) No. 100 Amps TPN MCCB (25KA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-200 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	200 amps (16 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	2 No. 63 Amps TPN MCCB (1 Spare)				
	2 No. 40 Amps DP MCB (1 Spare)				
	FEEDER PANEL as per above description	1	Nos.		
48	FLOOR PANEL (Power, Light, AC, UPS & Guard Room DB)				
i.	Incoming				
	One (1) No. 400 Amps TPN MCCB (50kA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-500 Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port.				
ii.	Bus Bar				
	500 amps (50 KA) TPN Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	2 No. 100 Amps TPN MCCB (For 2 # 30 KVA UPS				
	10 No. 63 Amps TPN MCCB (1 Spare) For 9 # VRF ODU				
	4 No. 63 Amps TPN MCB (1 Spare) Power & AC DBs				

	5 No. 40 Amps TPN MCB (1 Spare) For Light DB & Guard Room DB				
	FLOOR PANEL as per above description	1	Nos.		
49	PLUMBING PANEL				
i.	Incoming				
	One (1) No. 100 Amps TPN MCCB (25KA) with following accessories:				
	Metering:				
	One (1) No. (0-500 volts) voltmeter with 'ON' and 'OFF' selector switch.				
	One (1) No. (0-200Amps) ammeter with ammeter selector switch and suitable ratio CTs.				
	Phase indication lamps each backed up with MPCB.				
	One (1) No.digital dual type KWH meter with suitable ratio CTs and RS-485 port. (NOT IN SLD)				
ii.	Bus Bar				
	160 amps (16 KA) 4P Al bus bars with color coded heat shrinkable insulation sleeve.				
iii.	Outgoings				
	1 No. 63 Amps 4P MCCB (10KA) to STP panel				
	3 No. 40 Amps 4P MCCB (10KA)				
	5 No. 32 Amps 4P MCB (10KA)				
	PLUMBING PANEL as per above description	1	Nos.		
50	ISOLATORS				
	Supply, installation, tesing and commissioning of the following MCCB Isolator/MCB in powder coated, MS enclosure of minimum 1.6 mm thickness (IP 42) with all accessories as required.				
a	63 Amps 4P MCB (16kA) with industrial encloser outdoor type (Near VRV ODU)	10	Nos.		
b	415 volts three phase and neutral 32 amps polycarbonate splash proof (IP-66) industrial socket outlet with suitable plug top.	5	Nos.		
c	230 volts single phase and neutral 25 amps polycarbonate splash proof (IP-66) industrial socket outlet with suitable plug top.	5	Nos.		
FINAL DISTRIBUTION BOARDS					

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51.0	12 WAY TPN DB (FOR POWER & AC POWER)				
	Comprising of following:				
	Incoming:				
	One (1) No. 63 A TPN MCB Isolator				
	One (1) Nos. 63 A 4P RCCB 100mA sensitivity				
	Outgoing:				
	36 Nos. 10A/16A/25A SP MCB (10 KA)				
	Busbar:				
	100A TPN copper bus bar				
	Neutral link:				
	Separate for each phase.				
	Earthing:				
	Suitable for 36 Nos. outgoing.				
	Distribution board as per above description	3	Nos.		
52.0	6 WAY TPN (FOR LIGHT & UPS DB)				
	Comprising of following:				
	Incoming:				
	One (1) No. 40 A TPN MCB Isolator				
	One (1) Nos. 40 A 4P RCCB 30mA sensitivity				
	Outgoing:				
	18 Nos. 10A/16A/25A SP MCB (10 KA)				
	Busbar:				
	63A TPN copper bus bar				
	Neutral link:				
	Separate for each phase.				
	Earthing:				
	Suitable for 18 Nos. outgoing.				
	Distribution board as per above description	4	Nos.		
53.0	4 WAY TPN (FOR LIGHT & POWER DB IN GUARD ROOM)				
	Comprising of following:				
	Incoming:				
	One (1) No. 40 A TPN MCB Isolator				
	One (1) Nos. 40 A 4P RCCB 30mA sensitivity				
	Outgoing:				
	12 Nos. 10A/16A/25A SP MCB (10 KA)				
	Busbar:				
	63A TPN copper bus bar				
	Neutral link:				
	Separate for each phase.				
	Earthing:				

	Suitable for 12 Nos. outgoing.				
	Distribution board as per above description	2	Nos.		
LT CABLES & CABLE TRAYS					
	The rate shall also include the following :				
	Providing and fixing junction boxes with covers including painting where ever required.				
	Providing all fixing accessories such as clamping devices nuts, bolts and screws.				
	Wherever the cables are of aluminium and bus bars of copper bimetallic lugs shall be used.				
	All cable shall be laid with one diameter gap.				
	All cables shall be IEC/ IS approved.				
	Double compression glands				
	All cables passing through holes in floor or walls shall be sealed with fire retardant Sealant and FR paint one meter on both side of wall penetration and at termination as per specifications.				
	Burried LT cables to be laid atleast 750 mm below ground.				
54.0	Laying, installation testing and commissioning of 1100 Volt grade XLPE insulated, PVC sheathed aluminium/Cu conductor armoured cables on cable trays, existing trenches, burried cables including the cost of providing identification tags,route markers etc. complete as per specification and as per site requirements.	Approx			
54.1	3.5C x 300 Sq.mm cable-Aluminium	250	RM		
54.2	3.5C x 240 Sq.mm cable-Aluminium	200	RM		
54.3	3.5C x 120 Sq.mm cable-Aluminium	60	RM		
54.4	3.5C x 95 Sq.mm cable-Aluminium	200	RM		
54.5	3.5C x 35 Sq.mm cable-Aluminium	400	RM		
54.6	4C x 16 Sq.mm cable-Aluminium	1050	RM		
54.7	4C x 10 Sq.mm cable- Aluminium	500	RM		
54.8	3C x 4 Sq.mm Copper cable	160	RM		
54.9	4C x 4 Sq.mm Copper cable	210	RM		

55.0	Supplying of all materials and making terminations of 1.1 KV grade aluminium/copper multicore cables of the following sizes. The work includes cable glanding using brass plated double compression glands, sizing the core leads, removing insulation, fixing suitable crimping type copper lugs/ thimbles by using hydraulic crimping tools with correct size of the dies, shaping the leads and neatly connecting the same to the equipment terminals.				
55.1	3.5C x 300 Sq.mm cable-Aluminium	10	Nos		
55.2	3.5C x 240 Sq.mm cable-Aluminium	8	Nos		
55.3	3.5C x 120 Sq.mm cable-Aluminium	6	Nos		
55.4	3.5C x 95 Sq.mm cable-Aluminium	8	Nos		
55.5	3.5C x 35 Sq.mm cable-Aluminium	30	Nos		
55.6	4C x 16 Sq.mm cable-Aluminium	30	Nos		
55.7	4C x 10 Sq.mm cable-Aluminium	26	Nos		
56.0	Supplying and fixing cable trays of the following sizes (in one/two/ three tier fashion either on one side of the wall or on two sides of the wall) of Hot dip GI perforated type including grouting supports/hangers required hardwares etc. as specified in the drawings.				
56.1	900mm x 75mm x 2mm	80	RM		
56.2	600mm x 75mm x 2mm	100	RM		
56.3	450mm x 75mm x 2mm	60	RM		
56.4	300mm x 50mm x 2mm	100	RM		
56.5	150mm x 50mm x 2mm	150	RM		
57.0	Fabricating, supplying to site & installation in the floor including chase cutting of floor,leveling, refilling and making good the same 1.6 mm thick G.I raceways of height 40 mm and 2.0 mm thick openable cover, totally enclosed,The two lengths of channels and junction box shall be nut bolted together to make it dust and water proof. complete with all fixing accessories as required.				
57.1	300 mm (wide) x 40 mm (height)	50	RM		
57.2	150 mm (wide) x 40 mm (height)	50	RM		
EARTHING SYSTEM					

58.0	Advance Maintenance Free environment friendly CPRI tested electrolytic grade Copper earthing model 'JMV-193 Cu' or approved equivalent based on flat in pipe technology consisting 50 mm dia & 3000 mm length copper pipe filled with 32 x 4 mm copper strip & hygroscopic powder Crystalline Conductive Mixture (CCM) having anti corrosive and conductive property. The electrode will be connected with extender of size 50 x 6 x 150 mm of SS metal. The electrode will be surrounded with 2 bags (25 Kgs each) of environment friendly RoHs tested backfill compound complete with earthpit cover and other accessories required to complete the installation.	20	Nos.		
59.0	Supply & installation, testing and commissioning of following sizes of GI strip/wire clamped to walls, cable trays, cables, in recess (including cost of digging & backfilling) or on surface etc for equipment earthing complete as required including inter connection between length at joints, all fixing accessories saddles, clamps etc. and other fixing hardware material as required for proper installation.				
59.1	50 x 6 mm strip	120	RM		
59.2	25 x 6 mm strip	250	RM		
59.3	32 x 6 mm strip	50	RM		
59.4	10 SWG Wire	1600	RM		
59.5	8 SWG Wire	1250	RM		
60.0	Supply & installation, testing and commissioning of following sizes of copper strip/wire clamped to walls, cable trays or on surface etc for equipment earthing complete as required including inter connection between length at joints, all fixing accessories, saddles, clamps and other fixing hardware material as required for proper installation.				
60.1	32 x 6 mm strip	50	RM		
LIGHTING FIXTURES					

	The rates shall include all components that may be required to make the supply complete in all respects such as :				
	All lamps.				
	point wiring between accessories.				
	Earthing terminal.				
	Suitable length of GI down rod, hanger and connecting wires where called for.				
	Wires for connecting the fixtures to the point through connector block.				
	All metal blocks to serve as base of fixtures.				
	Bonding with earth wires..				
	Drilling holes in supports wherever required.				
	Fixing clamps, GI bolts and nuts, brass screws, saddles, rawl bolts and other fixing accessories as required.				
	Testing of all fixtures & fans before and after installation.				

<p>61.0</p>	<p>Supplying, installation, Testing & Commissioning of 36W Panel light 2x2 ft, of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C).</p>	<p>204</p>	<p>Nos.</p>		
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<p>62.0</p>	<p>Supplying, installation, Testing & Commissioning of 18W Panel light 1x1 ft, of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C).</p>	<p>17</p>	<p>Nos.</p>		
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<p>63.0</p>	<p>Supplying, installation, Testing & Commissioning of 12W LED Concealed Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C)</p>	<p>52</p>	<p>Nos</p>		
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<p>64.0</p>	<p>Supplying, installation, Testing & Commissioning of 7W LED Concealed Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C)</p>	<p>54</p>	<p>Nos</p>		
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<p>65.0</p>	<p>Supplying, installation, Testing & Commissioning of 45 W Street light LED fixture powder coated pressure die cast aluminum body with driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80, under voltage and over voltage protection, EMIEMC As per CISPR -15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED,Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin),SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C).</p>	<p>38</p>	<p>Nos</p>		
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66.0	Supply & Installation of 24W / metre LED strip light with suitable wattage as per design high performance LEDs, suitable for mounting with Armstrong/Grid ceiling. CRCA powder coated white after phosphochromate treatment.	50	RMT		
67.0	Supply & Installation of 2x5 W LED twin light Luminaire, recess/surface mounting luminaire with suitable wattage as per design high performance LEDs, suitable for mounting with Armstrong/Grid ceiling. CRCA powder coated white after phosphochromate treatment.	19	Nos		
68.0	Wiring of light points with 1.5 sq.mm FRLS PVC insulated, 1100 volts grade stranded copper conductor wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit for surface conduiting and above false ceiling conduit including cost of cutting & filling chases as required supply & fixing of modular cover plate, 1.2 mm thick GI box, with supply and fixing of modular switches (6A, single pole, 240 V), and earthing with 1.5 Sq mm. PVC insulated green copper wire complete with all accessories as required. The cost of circuit wiring with 2 x 2.5 Sq mm. + 1 x 1.5 Sq mm PVC insulated copper conductor 1100 volts grade wires shall be included in the cost of primary point wiring complete with all accessories. (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.)				
68.1	Primary point	86	Nos.		
68.2	Secondary Loop	261	Nos.		

69.0	Wiring of 230 volts single phase, 6 Amps 3/5 pin plug point with 2.5 sq.mm FRLS PVC insulated, 1100 volts grade stranded copper conductor wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit including cost of cutting & filling chases as required with supply & fixing of modular cover plate, 1.2 mm thick GI box, supply & fixing of 6A modular switch & socket and earthing with 2.5 Sq mm. PVC insulated green copper wire complete with all accessories as required. (At most 6 / 8 Nos. 6 amps switched socket outlets shall be kept on one circuit). (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.)				0.00
69.1	Primary Point	2	Nos.		
69.2	Secondary Loop	21	Nos.		
70.0	Wiring of 230 volts single phase, 16 Amps power socket outlet with 4 Sq mm. FRLS PVC insulated, 1100 volts grade stranded copper conductor wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit including cost of cutting and filling chases as required with supply & fixing of modular cover plate and 3/5 pin 16 Amps modular plate type switch socket with point wiring in 1.2 mm thick GI box, earthing of 3rd pin with FRLS PVC insulated green colour 4 Sq mm. copper wire, complete with all accessories as required. (Power Socket). (At most 3 Nos. 16 amps switched socket outlets shall be kept on one circuit). (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.)				
70.1	Primary Point	38	Nos.		
70.2	Secondary Loop	61	Nos.		
71.0	Wiring of 230 volts single phase for A/C socket by using 2*2.5 sq.mm. PVC insulated 1100 V grade copper conductor wire and earthing with 1*2.5 sq.mm. PVC insulated 1100 V grade copper conductor wire with modular type AC box(tiny trip type) with socket complete in all respects controlled by 16 A SP MCB to be provided near indoor unit. The point starts from DB to indoor unit.	11	Nos.		

72.0	Wiring of 230 volts single phase for A/C socket by using 2*4.0 sq.mm. PVC insulated 1100 V grade copper conductor wire and earthing with 1*4.0 sq.mm. PVC insulated 1100 V grade copper conductor wire with modular type AC box(tiny trip type) with socket complete in all respects controlled by 25/32 A SP MCB to be provided near indoor unit. The point starts from DB to indoor unit.	16	Nos.		
73.0	Wiring of 230 volts single phase, 6 Amps UPS power socket outlet with 2.5 Sq mm. FRLS PVC insulated, 1100 volts grade stranded copper conductor wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit from UPS DB to computer points including cost of cutting and filling chases as required with supply & fixing of modular cover plate and 5 pin 1 nos. 6 Amps modular plate type socket, one 6 Amp modular switch with point wiring in 1.2 mm thick GI box, earthing of 3rd pin with FRLS PVC insulated green colour 2.5 Sq mm. copper wire, complete with all accessories as required. (Power Socket). (At most maximum 3 points in one circuit). (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.)				
73.1	Primary Points	5	Nos.		
73.2	Secondary Points	23	Nos.		
74.0	Installation, testing & commissioning of ceiling fan including wiring the down rod of standard length (upto 300 mm) with 1.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible "FRLS" wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit including cost of cutting and filling chases as required with providing fan hook box, 6 amps switch and electronic fan regulator of approved make in GI box and earthing the fan and outlet box with 1.5 sq. mm. PVC insulated copper conductor stranded flexible FRLS wire. (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.)	3	Nos.		

75.0	Installation, testing & commissioning of Exhaust fan in the existing opening including wiring with 1.5 sq. mm.PVC insulated copper conductor 1100 volts grade stranded flexible "FRLS" wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit including cost of cutting and filling chases as required with supply and fixing of modular switches (6A, single pole, 240 V), in 1.2 mm thick GI box and 6 amps 3 pin socket outlet near exhaust fan and earthing with 1.5 Sq mm. PVC insulated green copper wire complete with all accessories as required. (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.). Exhaust fan upto 450mm Sweep	1	Nos.		
76.0	supply, Installation, testing & commissioning of call bell / Buzzer including wiring with 1.5 sq. mm.PVC insulated copper conductor 1100 volts grade stranded flexible "FRLS" wires in surface/recessed 25 mm dia 16 gauge FRLS Conduit including cost of cutting and filling chases as required with supply and fixing of modular call bell switches (6A, single pole, 240 V), in 1.2 mm thick GI box earthing with 1.5 Sq mm. PVC insulated green copper wire complete with all accessories as required. (All wall / slab recessed conduit shall be with 25 mm dia 2 mm thick heavy duty PVC conduit.).	2	Nos.		
TELEPHONE & DATA & WIFI SYSTEM (D)					
Notes	Providing and installing of all conduiting and cabling for TV including providing and fixing of the following:				
	All necessary specials for fittings				
	Approved cover plates for inspection, junction and outlet boxes.				
	2 mm thick outlet boxes and junction boxes.				
	All fixing accessories such as clips, nails, screws etc..				
	Providing and fixing approved saddles, hooks and grouting the same as required, in the case of all exposed conduit works.				

	Embedding conduits and accessories in wall, floors etc. During construction and / or cutting chases and making good as necessary in the case of all concealed conduit work.				
	All necessary cable connectors.				
77.0	Wiring for computer networking from I/O hub to computer workstation with Cat-6 computer cable including providing ferrules at both ends and termination at both ends including providing & fixing frame for CAT-6 with shutter. High speed outlet, faceplate & mounting box complete of modular type. this also includes supply and laying of PVC conduit throughout the route of CAT-6 cable from the I/O hub to the point.	14	Nos.		
78.0	Wiring for VOICE from Jack Panel in data rack to telephone workstation with Cat-6 voice cable in PVC conduits of size 20/ 25 mm including providing ferrules at both ends and termination at both ends including providing & fixing frame for Cat-6 with shutter, RJ 45 outlet, faceplate and mounting box complete of modular type. This work includes supply and laying of CAT-6 cable in PVC conduits throughout the length, from the I/O hub to the point.	10	Nos.		
a	Supplying, laying, fixing & terminations, testing and commissioning of 0.51 mm dia Cu. Conductor, twisted, colour coded with polythene capor barrier, telephone cables in the existing tray or in conduit including providing & fixing conduit pipe or cable tray as required from building tag block to the floor as required.				
79.0	Supply and installation, testing and commissioning following size telephone tag blocks in lockable 16 gauge sheet steel enclosure complete as required.				
79.01	16 pair Krone type tag block	1	Nos.		
80.0	Supply, installation, testing and commissioning of following Ethernet workstation switch with fiber uplink port as per specification.				

b	24 port Non PoE switch (For Data)	1	Nos.		
81.0	Supply and installation of following 19 inch rack for ethernet switches with AC. distribution box, wire manager, fan tray, lockable front tinted glass door and two pair angle to support the switch installed in the rack.				
a	12 U Rack	1	Nos.		
82.0	Supply, installation, testing and commissioning of following Category 6, IDC patch panel prepackaged with wiring block with legs with legs insert labels, label holders, jumper troughs, metal back panel, duct assembly, screws, washers and an instruction sheet for termination of incoming pairs.				
82.01	24 port jack panel	1	Nos.		
82.02	16 port jack panel	1	Nos.		
83.0	EPABX System of 16 lines extendable to 32 lines, No. of Junctions -4, Console Operator-1, ISDN Compatible. Extendable to 32 intercom connection;Internal/External Music on Holding, Operator/Auto-attendant Mode, Remote Programming Day/Night Mode (Manual), Music and Ringing Recordable OGM (outgoing message), Music Duration 20 Seconds Caller ID, Call Transfer, Call Forwarding Manually, Outgoing Call Transfer, Power Failure Transfer, Specific Main Line (CO/Trunk Line) Dialing, Three Way Conference, Do Not Disturb, Auto/Manual Dial-Out Mode Type: Digital, Analog Temperature Range : 0-50 Operating Humidity: 0-95%, Non Condensing Battery Bachup 12AH: 30 min	1	Nos.		

84.0	Supply and installation of following Enhanced Category 6 mounting cord for connecting the outlets to the data station (computer/printer etc). It shall have male RJ 45 connector on one end and male RJ45 connector or open ended wire or a connector suitable for data outlet at the other end. 4 pair cord with each conductor of 24 AWG stranded wire.				
84.01	0.61 m long	15	Nos.		
84.02	0.91 m long	15	Nos.		
85.0	Supply and installation of following 16 guage PVC conduits / 2 mm thick heavy duty FR PVC conduits including cost of junction boxes, bends, elbows, sockets, tees and all accessories, laying in slab cutting chasis and making good or surface mounted including all fixing hardware.				
85.01	25 mm dia PVC conduit	250	RM		
86.0	Supply of following type tools :				
86.01	5 pair tools set	1	Set		
87.0	Supply and installation supply Wifi Internet System for Connectivity				
a	Supply and installation of following Tp Link Core Switch Tp Link T2600G-52TS(with accessories, laying making good or surface mounted including all fixing hardware.	1	Nos		
b	Supply and installation of following TP-Link wife device with accessories, laying and fixing and making good or surface mounted including all fixing hardware.	4	Nos		
UPS SYSTEM					
	Rate for supply shall also include the following :				
	Approved rating single core copper conductor cable connecting to batteries.				
	All equipment shall be housed in individual cabinets.				
	Battery backup must be given for full resistive load. Battery should be sealed maintenance free type.				

	Real time Web based UPS monitoring system with software on remote computer and by SMS/email shall be provided				
	BMS Interface required with each UPS.				
88.0	30 KVA three phase input (415 V + 15%), three phase output (415 V + 1%) on line UPS with minimum 30 minutes backup and as per technical specification with all accessories each complete with battery rack.	1	Nos.		
FIRE ALARM SYSTEM (E)					
	FIRE ALARM SYSTEM				
89	Supply, Installation, Testing & Commissioning of Conventional 8 zone / loop fire alarm control panel, fully networkable with each loop capable of taking minimum 30/20 detectors and devices respectively, minimum 2 line x 4 character alpha-numeric liquid crystal display . The panel shall be able to give pin point location of all fire/fault conditions. Further, the panel must be able to manually switch off respective control switches when ever any alarm is triggered and as per specification. (Make : Agni or equivalent)	1	Set		
90	Supply, installation, Testing & commissioning of conventional interface Optical Smoke detector with base and junction box. The optical sensor element shall have multiple selectable sensitivity levels from 0.2% Obs/ft to 3.7% Obs/ft. The detector shall have operating temperature range from -9°C to 50°C and humidity tolerance range up to 95% RH, Non-Condensing.(UL listed and FM approved) Detector must comply UL 268 7th Edition. Make: Agni Hunt or equivalent.	60	Nos		

91	Supply, Installation, Testing & commissioning of conventional interface Multi-Sensor (Optical Smoke + Heat) detector with base and junction box. The optical sensor element shall have multiple selectable sensitivity levels from 0.2% Obs/ft to 3.7% Obs/ft. The ROR detection element shall have selectable rate of rise setting of 8°C per minute & 11°C per minute (or close to this value not deviating more than 1°C). Fixed temp detection element shall have two selectable settings of 57°C and 68°C (or closer to this value not deviating by 1°C). The detector shall have operating temperature range from -9°C to 50°C and humidity tolerance range up to 95% RH, Non-Condensing. Make: Agni Hunt or equivalent.	2	Nos		
92	Supply, installation, Testing & commissioning of Conventional interface manual call point (break glass type) complete with input module, push button, enclosed in box with provision for cable or conduit coupling, self adhesive sticker indicating loop number and address. The unit to be painted fire red outside, white inside and written " in case break glass" including GI mounting based box complete as required to be installed on wall/ concealed in brick/concrete wall etc complete as require by technical specifications. The MCP shall have operating temperature range from 0°C to 50°C and humidity tolerance range up to 93% RH, Non-Condensing. Sample to be provided prior installations. (UL listed and FM approved). Make: Agni Hunt or equivalent.	2	Nos		
93	Supply, installation, Testing & commissioning of response indicator (metal clade) for all detectors located above false ceiling and in closed rooms which consists of steady glowing LED. This LED shall be mounted within a MS box and connected in parallel to the built in indication of the detector as per specification. The RI shall come ON as soon as the detector activates complete in all respects as per technical specification. Make: Agni Hunt or equivalent.	55	Nos		

94	Supply, Installation, Testing & Commissioning of Conventional interface Hooter cum Strobe rated at 82 dBA @ 3m for Audible annunciation and 75 cd flashing at 1 Hz for visual indication and power supply. The required control modules and power supply as required for these hooters should be included in this item rate only. The strobs shall be synchronized for better evacuation as per specification .(UL listed and FM approved) . Make: Agni Hunt or euivalent.	2	Nos		
95	Supply Installation, Testing & Commissioning of Conventional inteface Potential-free, Form-C, SPDT contact based relay control module to trigger 3rd party utilities like AHU shut-off, Lift shut-off, Pressurization fan activation, Special notification activation etc. The contact shall be rated for 2A@24Vdc (Resistive) & 1A@24Vdc (Inductive). The control module shall have operating temperature range from 0°C to 49°C and a humidity tolerance of up to 93% RH, Non-Condensing. (UL listed and FM approved)	8	Nos		
96	Supply ,Installation, Testing & Commissioning of Conventional interface Monitor module having Rotary, decimal addressing system for monitoring the field devices & shall be capable of providing DPDTcontact rated at 24V DC, 2A. (sprinkler flow switch, deludge valve switch, pumps etc.) (UL listed and FM approved)	2	Nos		

97	Supply , Laying, Testing and commissioning of 2CX1.5 sqmm fire survival armoured cable (600/1000V) with class-2 copper conductor having Mineral insulation (MI) according to BS-60702 and requirement as per clause NO 6.2.1 (e) IS 15908 : 2011 and low smoke zero halogen (LSZH) inne and outer sheath. Cable should meet fire performance circuit integrity test as per BS 6387 & 8434 CWZ for 2 hours and enhanced test.Outer sheath should be red in colour with anti rodent including end terminations, saddles, clamps with screws etc fixing on wall/ ceiling/struss or on existing cable trays and providing/fixing 1.6 mm thick GI box with grid plates with earthing complete in all respect. (Make : FINOLEX / RR / Polycab /Skytone)	900	Mtr		
98	Supply ,Installation, Testing & Commissioning of fire evacuation Exit sign LED type with all fixing accessories as required.	10	Nos		
99	Supply ,Installation of fire man Axes	6	Nos		
100	Supply and fixing of 25 mm dia, 2 mm thick PVC FRLS Conduits. Including junction boxes, bends, elbows, sockets, tees with cover, pull boxes, check nuts, saddles, bushes etc. laying in wall/ slab cutting chases and making good or surface mounted including all fixing hardware.	450	RM		
PUBLIC ADDRESS SYSTEM (F)					
101	Supply, installation, testing and commissioning of the multi tap (2/1/0.5/0.25w) metal 2 watt Speaker suitable for wall /ceiling mounting, max SPL-3M/0.25W@ 79 dB, frequency response of 80Hz-20 KHz, and providing/fixing 1.6 mm thick GI box with grid plates with earthing complete in all respect as required.	16	Nos.		

102	Supply and laying Wiring of 1.5 sq mm twin core shielded type of speaker cable with Providing and fixing in position the following FRLS PVC conduits including all accessories concealed/ exposed in F.Ceiling/ Wall complete as required including 1.6/2.0 mm thick PVC junction or pull boxes with 3 mm thick perspex sheet cover plate complete with 1.6 mm dia G.I. pull wires in the length of conduit.	350	RM		
103	Supply, installation, testing and commissioning of following Philips/BOSCH or equivalent make Music Accessories/ Equipments.				
103.10	Power Amplifier, 70 Watts with output transformer etc. complete. Ahuja / Plena Range or as approved by the client/consultant. Capable of taking inputs from USB etc.	1	Nos.		
103.20	6U Equipment Rack complete with mounting unit, speaker, power supply control etc. President make suitable for 1x70 watts amplifier system With all terminating set up.	1	Nos.		
103.30	15-20 mtr range microphone	1	Nos.		
<u>CCTV SYSTEM (G)</u>					
104	Supply, installation, cable laying, testing and commissioning of indoor type UL Listed, IP N/W TDN Low-Light IR Dome Camera, 1/3" CMOS sensor, 2 MP resolution @ 25fps or better, Fixed 2.8 mm lens, IR upto 20 Mtr,, Corridor mode, Intrusion Detection, Line Crossing, Day Night cameras, Vandal Proof & Motion detection, POE, (high resolution cameras / 4CIF) ONVIF compliant complete with IP 66 Dome Housing, Connectors, Lens, Camera Mounts, Power Supply, I/O and all ancillary equipment, 1.2 mm thick GI box with grid plates with earthing & all accessories providing and fixing as required as per site requirements. Make: Hikvision / CP Plus. This work includes the supply and laying of CAT-6 cable in PVC conduits throughout the length, from the camera to the PoE switch/Rack.	20	No.		

105	Supply, installation, testing and commissioning of outdoor UL Listed, IP N/W TDN Low-Light IR Bullet Camera, 1/3" CMOS sensor, 2 MP resolution @ 25fps or better, varifocal 2.8 - 12 mm lens, IR Upto 30 Mtr, Day Night cameras, Vandal Proof & Motion detection, POE, ONVIF compliant complete with IP 66 Housing, Connectors, Lens, Camera Mounts, Power Supply, I/O and all ancillary equipment 1.2 mm thick GI box with grid plates with earthing & all accessories providing and fixing as required as per site requirements. This work excluded the supply and laying of CAT-6 cable in PVC conduits throughout the length, from the camera to PoE switch/Rack.	12	No.		
106	Supply, installation, testing and commissioning of Layer 2 managed switch with 24 ports (RJ-45), POE as to support all cameras 15% spare ports complete with supply. The switch shall have 1 GB port to communicate with other switches including Passive components inbuilt 2 SFP ports including SFP modules, POE compliant ports, rack mountable, SMPS power supply & other termination accessories (Like Pigtails/ LIUs/Convertors/Splicing equipment , Patch panel, Patch Cord Etc) complete as per specifications and as required.	1	No.		
107	Supply, installation, testing and commissioning of Layer 2 managed switch with 12 ports (RJ-45), POE as to support all cameras 15% spare ports complete with supply. The switch shall have 1 GB port to communicate with other switches including Passive components inbuilt 2 SFP ports including SFP modules, POE compliant ports, rack mountable, SMPS power supply & other termination accessories (Like Pigtails/ LIUs/Convertors/Splicing equipment , Patch panel, Patch Cord Etc) complete as per specifications and as required.	1	No.		

108	Supply, Installation, Testing and Commissioning of UL listed Windows Server Based Network Video Recorder including data base server for recording real time audio - video and data applications for 64 Cameras, of suitable Raw Capacity, capability to eliminate Single Points of Failure, redundant Power Supplies, redundant fans, .The NVR storage should store all cameras at 2 MP resolution for minimum 15 days backup @ 25 FPS,complete as per specifications and as required. The NVR shall be compatible with ONVIF compliant cameras. the required hardware and the software with operating system, video management client viewing license for 3 User for monitoring of all camera simultaneously complete as per specifications and as required.(including rack) Note: CCTV coverage shall also be viewavable on APP based for Mobile.				-
	32 Channel NVR	1	No.		
	6 GB Har disk	3	No.		
109	Supplying and fixing of 12U Rack with glass door, opening in the front power panel 1 (horizontal), cable manager 1 lock & key etc includes all accessories as required.	1	Nos.		
110	Supply, installation, testing and commissioning of video management client workstations, UPS, associated cables etc including 42" full HD LED 24x7 application, keyboard, Joystick, mouse, and all required accessories complete as per specifications and as required. The licence support shall be for life time.	1	No.		
111	Supply, installation, testing and commissioning 42" LED Screen including all required accessories complete as per specifications and as required.	1	No.		
HVAC WORKS (VRV SYSTEM)(H)					
112	OUTDOOR UNITS				

	<p>Supply, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kWr ISEER 5.4, Capacity > 40 and <70 ISEER 5.5, Capacity > 70 ISEER 5.6 for ECSBC Building)</p>				
112.10	a) VRF - 16.0 HP , inverter type scroll compressor	2	No.		

112.11	a) VRF - 12.0 HP , inverter type scroll compressor	8	No.		
113	INDOOR UNIT				
	ONE WAY CASSETTE TYPE				
	Supply, Installation, Testing and Commissioning of following minimum capacity Single way wall/corner VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)				
113.01	1.6 TR	2	Each		
113.02	2.0 TR	2	Each		
114	TWO WAY CASSETTE TYPE				

	Supply, Installation, Testing and Commissioning of following minimum capacity Double way VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor).				
114.01	1.6 TR	2	Each		
115	HIGH WALL TYPE				

	Supply, Installation, Testing and Commissioning of following minimum capacity High wall type Indoor unit equipped with and comfort washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V \pm 10%, 50 Hz, single phase AC supply, complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor).				
115.01	1.0 TR	2	Each		
116	DUCTABLE TYPE				

	Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted high ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor).				
116.01	High Static Ductable units (minimum 49 to 77 Pascal external static pressure)				
116.02	3.2 TR	1	Each		
116.03	4.0 TR	2	Each		

117	Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted high ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor).				
	High Static Ductable units (minimum 78 pascal external static pressure)				
117.01	4.5 TR	2	Each		
117.02	5.5 TR	10	Each		
117.03	8.0 TR	4	Each		
118	Supply, Installation, Testing and Commissioning of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODUs and IDUs.				
118.01	Indoor Units (Refnet)	22	Each		
118.02	Outdoor Multi Joint (BHF)	5	Each		
119	REFRIGERANT PIPING				

	Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of specified thickness as given below for Suction and Liquid lines, all accessories as per specifications etc. as required				
119.01	6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	25	RM		
119.02	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	530	RM		
119.03	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	80	RM		
119.04	15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	585	RM		
119.05	19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	265	RM		
119.06	22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	115	RM		
119.07	25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation		RM		
119.08	28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	185	RM		
119.09	31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation		RM		
119.1	34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	150	RM		
119.11	38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation		RM		
119.12	41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick		RM		

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	insulation				
	DRAIN PIPING				
120	Supply, installation, testing and commissioning of rigid heavy duty PVC piping complete with fittings, support as per drawing and insulated with 6 mm closed cell elastomeric insulation.				
120.01	25 mm dia	100	RM		
120.02	32 mm dia	80	RM		
120.03	40 mm dia	60	RM		
	INLINE FAN				
121	Supplying, installing, testing and commissioning of inline fans suitable for installing in any position in vertical or horizontal ducts. The capacity of the fan given as under				
121.01	Air Quantity : 6000 CFM				
	Static Pressure : 30 mm wg				
	Duty : Fresh/Exhaust	2	No.		
121.02	Air Quantity : 450 - 500 CFM				
	Static Pressure : 15 mm wg				
	Duty : Fresh/Exhaust	1	No.		
121.03	Air Quantity : 225 mm Dia, 3 mm St. Pr., 900 RPM or as per OEM, fan suitable for 220± 5% volts 50 cycles, 1 phase AC Power supply as Required	1	No.		
	CONTROL & TRANSMISSION WIRING				
122	Supply, installation, testing and commissioning of 2 Core x 1.5 mm ² copper wire in PVC conduit as per specifications for transmission	500	RM		
	AIR DISTRIBUTION (FOR AIRCONDITIONING)				
123	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				

123.01	0.63 MM (24 gauge) Galvanized Sheet Steel Ducting	150	Sqm.		
123.02	0.80 MM (22 gauge) Galvanized Sheet Steel Ducting	200	Sqm.		
124	Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
124.01	0.63 MM (24 gauge) Galvanized Sheet Steel Ducting	0	Sqm.		
124.02	0.80 MM (22 gauge) Galvanized Sheet Steel Ducting	0	Sqm.		
125	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, as per specifications.	10	Sqm.		
	SUPPLY / RETURN AIR GRILLES				
126	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications.	15	Sqm.		
127	Supplying & fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers as per specifications.	15	Sqm.		
	SUPPLY / RETURN AIR DIFFUSERS				
128	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.	25	Sqm.		
129	Supplying, fixing testing commissioning of Return air/ Exhaust diffusers of powder coated aluminium without volume control dampers with anti smudge ring & removable core.	25	Sqm.		

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130	Supplying, Fixing,testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.				
130.01	Fire damper	5	Sqm.		
130.02	Actuator	1	Each		
131	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish closed cell Nitrile rubber (class“O”) insulation on existing duct after applying Suitable adhesive for nitrile rubber. The joints shall sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.				
131.01	19 mm thick (In Condition Space)	375	Sqm.		
132	Supply, Installation, testing and commisioning of FLEXIBLE CANVAS CONNECTION	15	Sqm		
133	Supply, Installation, testing and commisioning of Outdoor Stand as per actual outdoor size.	10	Set		
PLUMBING / DRAINAGE WORKS BOQ(J)					
	Note:				

	<p>1. For make of sanitary fixtures & fittings refer list of approved makes as given in technical specifications. These makes/models are for identification only & final make/model to be supplied by the Contractor shall be as directed by the Owner/Construction Manager.</p> <p>2. Accessories like waste coupling, bottle trap, fixing arrangements like seal, brackets, nut, bolt, chair, anchor etc shall be considered in installation/fixing charges while quoting.</p>				
134	Providing & fixing wall hung type white vitreous china water closet with concealed 'P' trap, seat & lid (heavy duty) C.P. brass hinges, including wall bracket. making holes in walls floors, & making good.with Basic rate Rs. 9000/	4	Nos.		
135	Providing & fixing floor mounted Indian style white vitreous china water closet with concealed 'P/S' trap, all complete including any Brass fitting, including wall bracket. making holes in walls floors, & making good.with Basic rate Rs. 6000/	2	Nos.		
136	Providing & fixing, testing and commissioning of concealed type cistern having dual flush of 2 & 4 liters per flush comprising of actuator button/flushplate assembly including brass / S.S. screws and washer complete with cutting and making good the walls / floor wherever required. (Basic Rate : Rs 7500/	6	Nos.		
137	Providing and fixing straight /offset, single body with push fit type WC pan connector with factory supplied <u>spring loaded seal guard</u> with integral single mould sealing fins made of flexible EVA body, including bush/adaptor etc. to complete the system as per specification and drawings.	6	Each		
138	Providing, fixing, testing and commissioning of ABS Health faucet with regulator of approved quality the flow should be regulate to 3 LPM with plastic flexible pipe of 1000mm long wall hook including PLV complete in all respect as required. (Basic Rate: Rs 1100)	6	Each		
	WASH BASINS				
139	Providing & fixing white vitreous china flat back wall hung integrated / Half pedestal	1	Nos.		

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	wash basin with C.I. brackets painted white 32 mm dia C.P. waste, C.P. cast brass bottle trap with C.P. pipe to wall and C.P. wall flange and rubber adopter for waste connection including cutting and making good the walls required (Basic Rate : Rs 7000/). with all accessories				
140	Same as Item No. 9.0 but with Basic rate Rs. 5500/	7	Nos.		
141	Providing & fixing white vitreous china flat back urinal large (Semistall) of size 300x240x420mm with C.I. hangers and 15mm dia. C.P. spreader, 32mm dia cast bottle trap and pipe to wall with C.P. flange complete including cutting and making good the walls and floors wherever required, Basic Rate : Rs. 10000 /-	6	Each		
142	Providing & fixing white vitreous china urinal partition of size 680 x 300 mm fixed with expandable anchor fasteners with C.P. brass bolts and washers, embedded in wall with anchor and set in concrete complete including cutting and making good the walls wherever required. (Basic Rate :Rs. 2500)	3	Each		
	Toilet Accessories				
143	Providing & fixing in position best Indian make toilet surface mounted type paper holder complete in all respects including cutting and making good the walls etc.				
143.01	C.P. brass toilet paper holder (Base Rate: Rs. 950/-)	6	Each		
144	Providing & fixing in position best Indian make C.P. brass twin way coat and hat hooks fixed into wall with C.P. brass screws and rawl plugs etc. complete including cutting and making good the walls etc.(Basic Rate Rs. 450/-)	6	Each		
145	Providing, fixing, testing and commissioning of pressure type liquid soap container with C.P. brass lid and brackets fixed to rawl plug with C.P. brass screws and glass container complete in all respect.Basic Rate: Rs. 2650 /- (For public Toilet)	8	Each		
146	Providing & fixing CP brass towel rack Including providing & fixing necessary fittings, cutting and making good the walls (For Shower Only)Basic Rate Rs. 3350/-	6	Each		
147	Providing & fixing towel rail of approved				

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	make including, providing & fixing C.P. brass screws, making holes in walls & making good. (Basic Rate Rs. 1100/-)				
a)	Size 600 mm x 20 mm dia	1	Nos.		
148	Providing & fixing C.P. brass Perfume Dispenser fixed to rawl plug with C.P. brass screws complete.(Basic Rate: Rs 1700)	4	Each		
	WASH BASINS MIXERS				
149	Providing and fixing of CP brass single lever wash basin mixer With single hole C.P. mixer without pop-up waste assembly fitting for hot & cold water supply flow should control to 2.5 LPM with areator. Basic Rate Rs. 5575/-	8	Each		
150	Providing & fixing in position 15 mm C.P. brass bib cocks of best quality (as approved by the Engineer-in-Charge).				
a)	Bib cock Dual Type (Basic Rate: Rs. 1300/-)	5	Each		
b)	Bib cock long body (Basic Rate: Rs.1000/-)	5	Each		
c)	Bib cock short body (Basic Rate: Rs. 850/-)	5	Each		
151	Providing & fixing 15mm C.P. brass angle valve with C.P. brass flange complete, including cutting and making good the wall where required. (Basic Rate: Rs. 750/-)	30	Each		
152	Providing, fixing, testing and commissioning S.S. braided pipe of 15 mm dia and 400 mm long including nuts and washers and making connection to fixtures and fittings complete in all respect. (Basic Rate: Rs 220/-)	30	Nos		
153	Providing & fixing C.P. bath supply and shower fittings for private rooms toilet comprising of:			-	-
a)	Single flow overhead shower with arm the flow should be regulate to 5 LPM.. (Basic Rate: Rs 2900/-)	2	Each		
b)	Hand shower with hook and tube the flow should be regulate to 5LPM (Basic Rate: Rs 8300)	2	Each		
154	Providing, fixing, bevelled edge mirror of required size (aprox. Size 450 x 900 mm) and superior glass of thickness 6mm (of approved quality complete with 6mm thick water proof ply fixed to wooden cleat with C.P. brass screws and washers..(Basic Rate: Rs 1200)	5	Each		

155	Fixing & installing themostatically controlled storage type hot water Geysers (Vertical/Horizontal type) complete with all internal fittings/ accessories including cutting & making good the walls.				
a)	Cap 15 lts	2	Each		
b)	Cap 25 lts		Each		
156	Providing and fixing CPVC (Chlorinated Poly Vinyl Chloride) water supply pipes with pipe as per CTS SDR - 11 as per IS 15778, at a working pressure of 27.6 Kg/Sqcm. at 27 deg C & 6.8 Kg/Sqcm. at 82 deg C and 65mm above consider CPVC SCH 40 pipes with pipe as per ASTM F 441, using solvent welded CPVC fittings i.e Tees, Elbows, Couplers, Unions, Reducers, brushings etc. including transition fittings cconnection between CPVC & metal pipe / GI) i.e Brass Adaptors (both Male & Female threaded) conforming to ASTM D-2846 (upto 50mm dia.) /ASTM F-438 (65mm & above dia. pipe) with only CPVC solvent cement conforming to ASTM F-493 with fabricated & subsequently hot dip galvanized clamps / structural steel supports as required / directed at site including cutting chasing and fixing the same with cement concrete / cement mortar as required, including painting the exposed pipes with one coat of desired shade of enamel paint. All termination points for installation of faucets shall have brass termination fittings. Installation shall be to the satisfaction of PMC / Consultant / manufacturer of pipes & fittings.(For Domestic, Hot & Flushing water supply Internal, ceiling, shaft and terrace)				
	Make: Supreme / Astral / Finolex				
156.01	20 mm dia	40	RM		
156.02	25 mm dia	50	RM		
156.03	32 mm dia	150	RM		

157	Providing & fixing full way Brass forged concealed stop ball valve conforming to IS:1703 with brass chrome-plated steel ball tested to a pressure not less than 16 Kg/Sq.cm. with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.				
157.01	20 mm dia	1	No.		
158	Providing & fixing full way lever operated forged brass ball valve conforming to IS:1703 of brass body tested to a pressure not less than 16 Kg/Sq.cm. with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.				
158.01	20 mm dia	9	No.		
158.02	32 mm dia	4	No.		
158.03	40 mm dia	1	No.		
	Make: Zoloto / Supreme or equivalent make.				-
					-
159	Supply & fixing in position ISI marked cast iron double flanged butterfly valves (PN 16) as per IS:13095, with SS disc, shaft, seating rings, internal fastening, nitrile rubber lining, nuts, bolts including transporting to worksite, 3 mm thick rubber gaskets etc. including testing, Complete as per drawings & directions of the Engineer-in-charge.				-
					-
159.01	50 mm dia	2	Each		
160	Providing & fixing Auto Air vent for cold water supply risers, suitable for pressure not less than 15 Kg/Sq.cm.				
84.01	15 mm dia	4	No.		
	Make: Zoloto / Supreme or equivalent make.				

161	Providing, jointing and fixing UPVC Soil, Waste & Vent system conforming to IS : 13592 - Type B (Class-III) and UPVC fittings like bends, tees, Y-tees, crosses, boss connections, access pieces, saddle pieces, cleanouts, adaptors for connections to other materials, plugs, reducers, cowls, offsets and other specials. Jointing shall be done with pushfit EPDM ring jointing technique in general. Solvent cement joints may be provided for fittings and specials which are not manufactured with pushfit rubber joints. Pipes may be laid / fixed in sunken floors, under slung from ceiling. The pipes laid in sunken floor shall be encased with 75 mm thick cement concrete (1:2:4) all around. The installation shall be complete in all respects including cutting chases / holes in walls, slabs and making good the same as per specifications.				
161.1	50 mm dia	15	RM		
161.2	75 mm dia	5	RM		
161.3	90 mm dia	0	RM		
161.4	110 mm dia	60	RM		
	Make: Supreme / Prince / Astral				
162	Providing, fixing, jointing, testing and commissioning UPVC (Class III) of pressure rating 6.0 kg/sqcm for Rain water pipe conforming to IS:4985 cut to required lengths including all necessary fittings and specials. Fixing at wall/ceiling level supported by galvanized steel clamps & hangers etc. as required for proper seismic loading as per the calculations. Making proper connection with cement solvent joint as per BIS / manufacturer. Cutting chases/holes in floors / walls / slab.				
162.01	110 mm dia	80	RM		
	Make: Supreme / Prince / Astral				-
					-

163	Providing & fixing in position PVC SWR Multi connection floor trap of size 110 x 110 mm with 50mm water seal conforming to IS:13592 including providing necessary steel support and as per Specification. Making proper connection cutting chase / hole in floors / slabs and bringing the same in proper condition and shape after placing the trap in right position complete as required. The hopper and trap shall be set in cement concrete mix 1:2:4 complete as required.				-
163.01	110 x 110 mm	3	Nos.		-
	Make: Supreme / Prince / Astral				-
					-
164	Providing & fixing in position PVC SWR "P" OR "S" Floor - Trap connection of the following sizes with reducer, 50mm water seal conforming to IS:13592 including providing necessary steel support and as per Specification. Making proper connection cutting chase / hole in floors / slabs and bringing the same in proper condition and shape after placing the P-Trap in right position complete as required. The hopper and trap shall be set in cement concrete mix 1:2:4 complete as required.				-
164.01	110 x 110 mm	6	Nos.		
	Make: Supreme / Astral				
165	Providing and fixing Heavy Class SS grating with of approved design including setting in floor with cement mortar to match with floor finish as per architect requirement. Make: Jayna / Jaquar or equivalent make.	10	No.		
166	Providing and fixing Heavy Class SS grating with Cockroach proof SS strainer of approved design including setting in floor with cement mortar to match with floor finish as per architect requirement suitable for waste water. Make: Jaquare / Jayna or equivalent make.	2	No.		

167	Providing and making Khurras with average minimum thickness of 5cm Cement Concrete 1:2:4 (1 Cement : 2 Coarse Sand : 4 Graded Stone Aggregate) over PVC/ HDPE sheet (400 microns min. thickness), finished with 12mm Cement Plaster 1:3 (1 Cement : 3 Coarse Sand, admixed with waterproofing compound) and a coat of neat cement rounding the edges and making & finishing complete.				
	Khurra Size 450 x 450mm,	10	Each		
168	Providing, Laying & Jointing of SWR UPVC - Type B (Class - III) type for nonpressure external underground drainage system for sewerage & storm water application of following class & diameter including cost of conveyance from store to site of works including cost of all labour, material etc and giving satisfactory hydraulic testing as per relevant ISO standard. The cost includes the excavation, base foundation PCC (1:4:8 mix, 1 cement : 4 course sand : 8 graded stone aggregate) for pipe laying, refilling and disposal of surplus earth etc to make good and as directed by PMC / Consultant / Site engineer to complete in all respects.				
169	Providing and laying cement concrete 1:5:10 (1 cement :5 coarse cement :10 graded stone aggregate 40mm nominal size) of average 75mm thickness all-around uPVC pipes including bed concrete as per standard design including centering & shuttering etc				
169.01	110 mm dia	25	RM		
169.02	160 mm dia	380	RM		

170	<p>Only Construction of brick masoinary Sewer manhole with bricks in cement mortar 1 : 4 (1 cement : 4 coarse sand), foundation concrete 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate of 20 mm nominal size) inside plastering 12 mm thick cement mortar 1:3 (1cement 3 coarse sand) finished with a floating coat of neat cement and channels in cement concrete 1:2:4 (1cement : 2 coarse sand: 4 graded stone aggregate of 20 mm nominal size) finished with a floating coat of neat cement complete with PVC encased 12 mm diameter bar foot rests fixing with 20x20x10 cm concrete blocks 1:2:4, including fixing of CI / SFRC cover and frame in 150 mm thick concrete 1:2:4 (1cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) including centering, shuttering, excavation, refilling and disposal of surplus earth as directed complete in all respects.</p>				
170.01	<p>Internal size 600 x 600 x 600 mm average depth - DI/CI double seal cover with frame 600 x 600 mm (B-125; 70 kg)</p>	19	No.		
171	<p>Only Construction of brick masoinary Storm water Catch pit with bricks in cement mortar 1 : 4 (1 cement : 4 coarse sand), foundation concrete 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate of 20 mm nominal size) inside plastering 12 mm thick cement mortar 1:3 (1cement 3 coarse sand) finished with a floating coat of neat cement and channels in cement concrete 1:2:4 (1cement : 2 coarse sand: 4 graded stone aggregate of 20 mm nominal size) finished with a floating coat of neat cement complete with PVC encased 12 mm diameter bar foot rests fixing with 20x20x10 cm concrete blocks 1:2:4, including fixing of CI / SFRC grating / cover and frame in 150 mm thick concrete 1:2:4 (1cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) including centering, shuttering, excavation, and disposal of surplus earth as directed complete in all respects.</p>				

171.01	Internal size 600 x 600 x 600 mm average depth - DI/CI Grating with frame 600 x 600 mm (B-125; 70 kg)	13	No.		
172	Only Construction of stoneware Gully trap of the following sizes in brick masonry chamber of standard design with first class bricks and trap to be set in cement concrete 1:2:4, both side 12mm thick plastering with floating coat of neat cement. Making necessary connections & providing water tight D.I. cover with frame of 300mm x 300mm internal size. The weight of cover & frame not be less than 8 kg as per standard design. Including necessary excavation, dewatering, refilling, watering, ramming and removing the surplus excavated material and making good the same complete as required.				
172.01	300 x 300mm chamber with 100 x 100mm size 'P' trap	1	No.		
173	Providing & Fixing of Square Type Double Seal C.I Manhole Covers of Medium Duty/Heavy Duty as applicable with frame and hinges, of approved make of dia 600 mm (Medium duty) for UG Tank including all necessary supports, grouting of the frame in RCC etc. complete.	19	No.		
174	Providing and fixing Heavy duty rungs in RCC wall of water tanks etc. Including cutting, chasing the RCC work and making good the same complete as required.				
174.01	Polypropylene PVC rungs	40	No.		
175	Providing and fixing of Back flow prevention valve with vent cum Air inlet with MICA flap valve complete with inspection cover installed on a building's lateral sewer with frame for Municipal connection.				
175.01	160 mm dia connection	2	No.		

176	Supply, assembly, erection, testing and commissioning of monoblock pumps, suitable to feed supply water to OH domestic domestic water tank having the following capacities with SS body & vortex SS impeller / grinder type, complete with 1 phase squirrel cage submersible motor of required HP for 230 ± 10%volts, 1 phase, 50 Hz. A.C. supply cable upto main panel within the plant room, dry running preventor, G.I. guide pulling chain, all the necessary piping and accessories, valves, delivery header etc. as required complete in all respects. Header shall be sized for both pump working under delivery velocity of 1.5 m/sec.				
	Capacity of 2-4 L/s (120 -240 LPM) against a total head of 15 m, HP = 1.5 (Domestic water supply to fill OHT). Make: Kirlosker or other equivalent approved make. (Duty + Standby)	2	No.		
177	Supply, assembly, erection, testing and commissioning of open well submersible non-clog pumps, suitable to handle basement drainage having the following capacities with SS body & vortex SS impeller / grinder type, complete with 1 phase squirrel cage submersible motor of required HP for 230 ± 10%volts, 1 phase, 50 Hz. A.C. supply cooled by surrounding liquid,submersible cable upto main panel within the plant room, dry running preventor, G.I. guide pulling chain, all the necessary piping and accessories, valves, delivery header etc. as required complete in all respects. The rate will include pipe header complete with discharge manifold, flanges, tee, elbow etc. complete including GI pipe upto the top of sump and including GI union. Header shall be sized for both pump working under delivery velocity of 1.5 m/sec.				
	Capacity of 2-4 L/s (120 -240 LPM) against a total head of 10 m, HP = 1.5. Make: Kirlosker or other equivalent approved make.	4	No.		

178	Supply, Installation, Testing & commissioning of RO Plant along with its associated sub systems and standard accessories which are required to supply treated water having hardness < 10 PPM and flow rate of 1.0 m3/hr (minimum). The RO Plant shall include the following subsystems, however, based on the design requirement the supplier shall clearly spell out with specification of the additional sub- systems:	1	Set		
	Capacity = 300 LPH				
	1000 Ltr storage capacity				
	1. Raw water pump (Capacity as per design requirement)				
	2. Multi grade filter vessel: FRP (12" dia x 54" height), MPV - 3/4", Make: Pentair /equivalent.				
	3. Activated Carbon Filter: FRP (12" dia x 54" height), MPV - 3/4", Make: Pentair /equivalent.				
	4. Antiscalent dosing pump				
	5. Micron filter: 2 nos, Size - 20" jumbo, Cartridge - 20" string wound, Mocron rating - 5 mocron				-
	6. Membrane housing: FRP food grade, 500 PSI pressure, end port type.				-
	7. RO membrane: Thin film composite, 4" dia & 40" length				-
	8. High pressure pump: Centrifugal multi stage, Make- Kirlosker / CRI or equivalent.				-
	9. Controle instrument: 2 nos flor meter, 2 nos pressure gauge, LPS, HPS & TDS meter each				-
	10. Controle panel: 1 no				-
	11. Skid frame: Stainless steel				-
	12. Dosing tank				-
	13. Piping: High pressure pipe line				-
					-

179	Providing, Erection, testing and commissioning of Multilayer PVC water storage tank with all required accessories and connection fittings of following storage capacity. (Make: Syntex or equivalent approved make).				-
	5000 Ltr storage capacity	1	No.		
180	Providing, Erection, testing and commissioning of STP cum ETP plant includes submersible sewage delivery pump 1.0/1.5 HP (2 nos S+D), Aeration tank, settler tube, Effluent dosing system, carbon & membrane filter, Min. 500 Ltr treated water storage tank & Monoblock Discharge pump etc and all accessories as required to complete the system.				
	Capacity : 15 KLD STP cum ETP plant (12.5 KLD STP + 2.5 KLD ETP)	1	No.		

FIRE FIGHTING WORKS BOQ(K)					
181.0	Supplying, installing, testing and commissioning of Electrical driven common fire pump for Hydrant and sprinkler suitable for automatic/ manual operation consisting of the following as under: (Location: Fire Pump Room at basement level).				
i)	End suction horizontally mounted centrifugal type common fire and sprinkler pump with bronze impeller with C.I. body should be of grade F.G. 200 to IS:210 casing shall be designed for 1.5 time of working pressure, capable of delivering 1620 LPM against a total head of 55 meters while running at 2900 r.p.m. to ensure a minimum pressure of 3.5 Kg per Sq.cm at the farthest outlet complete having tail pieces for proper connection to suction and delivery line, having a name plate indicating suction, delivery, head, discharge, stages, r.p.m. and direction of rotation.				
ii)	Squirrel cage, TEFC induction motor suitable for 415 + 10% 3-phase 50 Hz A.C. supply and of approximate 30 H.P. (Approx) or as per manufacturer for the above pump running at 2900 r.p.m. conforming to IS : 325-1978.				

iii)	Common bed plate of requisite strength manufactured out of M.S. channels of suitable size of ISMC including with suitable nos. of cushy foot mounting below ISMC channel and with suitable C.C. foundation etc. complete as required.				
iv)	1 No. pressure gauge of 150 mm dia with Ball Valve (0-15 Kg./Sqcm) on the delivery line.				
v)	Suitable mechanical seal with mounting arrangement.				
vi)	Tyre type coupling and coupling guard for direct coupling of pump and motor.				
vii)	Drain pipe with valve (25 mm dia.)	1	Set		
182.0	Supplying, installing, testing & commissioning of Diesel Engine driven fire pump suitable for automatic/manual operations consisting of the following, complete as required and as per specifications: (Location: Fire Pump at basement level)				
i)	End suction horizontally mounted centrifugal type fire pump with bronze impeller with C.I. body should be of grade F.G. 200 to IS:210 casing shall be designed for 1.5 time of working pressure, capable for delivery of 1620 LPM against a total head of 55 meters while running at 1500/1800 r.p.m. complete having tail pieces for proper connection to suction & delivery line, having a name plate indicating suction, delivery, head, discharge stages, r.p.m. & direction of rotation (as per specifications).				
ii)	Diesel engine suitable for the above pump complete with standard accessories & suitable water cooling system.				
iii)	Common base plate of requisite strength manufactured out of M.S. channels of suitable size of ISMC including with suitable no. of cushy foot mounting below ISMC channel.				
iv)	Suitable mechanical seal with mounting arrangement.				
v)	1 No. pressure gauge of 150mm dia with ball valve (0-15 Kg./Sqcm) on the delivery line.				

vi)	Tyre type Coupling & coupling guard for direct coupling of engine & pump.				
vii)	1 No. 300 Lits capacity day oil storage tank fabricated from 4 mm thick M.S. plates. Tank shall be provided with inlet, outlet, overflow, vent drain connections, manhole cover (300 mm I.D.) & level indicator including floating type level indicator complete with float ball, steel rope, pulley, triangular level indicator of M.S. Sheet and scale mark on tank. Tank shall be mounted on suitable steel structural supports on the pumps foundation. Tank shall be provided with epoxy coat from inside out-side with one coat of red oxide & two or more coats of synthetic enamel paint of approved colour.				
	Note:			-	
	The contractor shall provide the first fill of Engine lubricant oil, full capacity of tank diesel and battery charging for the testing and commissioning of the system complete with piping/valves from diesel tank to engine pump.				
viii)	Drain pipe with valve (25 mm dia.)				
ix)	24 volts 180 AH lead acid battery (12 volts - 2 Nos) with boost/Trickle charger for starting the engine automatically complete as required.	1	Set		
183.0	Supplying, installing, testing & commissioning of electrically driven VERTICAL Jockey pump (as per specifications) suitable for automatic /manual operation consisting of the following: (Location: Fire Pump Room at basement level).				
i)	End suction horizontally mounted centrifugal pump running at 2900 r.p.m. capable of delivering 180 LPM against a total head of 55 meters complete with tail pieces for proper connection to suction and delivery line.				
ii)	Squirrel cage, TEFC induction motor suitable for 415 + 10% 3 phase 50 Hz A.C. supply & of approximate 10 H.P. for the above pump running at 2900 r.p.m. (as per specifications).				

iii)	Bed plate of requisite strength manufactured out of M.S. channel of suitable size of ISMC including with suitable no. of cushy foot mounting below ISMC channel with suitable C.C. foundation.				
iv)	Suitable mechanical seal & 1 No. pressure gauge of 150 mm dia with Ball Valve on the pump delivery line.				
v)	Suitable pressure vessel shall be fabricated of at least 10mm thick MS steel (minimum 450 mm dia & 1800 mm height) with all fittings/ accessories, 1 No. pressure gauge on the delivery line.				
vi)	Tyre type coupling and coupling guard for direct coupling of motor and pump.				
vii)	Drain pipe with valve (25 mm dia.)	1	Set		-
184.0	MCC Panel for Fire Pumps:				
	Design, manufacturer, supply, installation, testing and commissioning of following MV switchgear panels suitable for 415V, 3 phase, 4 wire, 50 Hz power distribution system. The panel should be indoor, free standing, floor mounting, sheet metal clad, cubicle, dead front, dust and vermin proof conforming to IP-55 enclosure, compartmentalized design, fabricated out of 14 SWG sheet steel complete with AC busbars, seperate earth bus bar to be provided through out the length of the panel. The incoming and outgoing feeders shall be accommodated in a modular multitier arrangement, adequate size cable alley, powder coating, earthing numbering, damper plate etc. as required as per specifications and drawings. The panel shall withstand a fault level of 35 MVA.				
A	Incomer :				
	200A, TP, MCCB (25kA) +NL with On & Off indicating lamps (LED type) protected with 2A, SP, MCBs.				
	Metering & Indication :				
i)	Digital Voltmeter (0-500V) with selector switch protected with 2A control MCBs.				

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ii)	Digital Ammeter (0-200A) with Selector switch and 400/5A, CI-1, 10VA Cast Resin CTs with shorting links.				
iii)	Phase indication lamps (LED type).				
B	Busbar				
	250A, TPN aluminium , colour coded bus bars suitable for 415V, 50Hz. (after deration)				
C	Outgoing				
i)	One (1) Nos. 125A, TP MCCB (16KA) +NI				
ii)	Two (2) No 63A, TPN MCB (10 KA)				
iii)	One (1) No. 20A, DP MCB (10 KA)				
	Starters :				
D	1 Nos. 40HP Soft starter (without over load relay and single phasing preventor) with Digital Ammeter (0-150A), Ammeter Selector Switch, 150/5A,CI-1,5VA Cast Resin CTs, Start/Stop Push Buttons, On/Off/Trip indicating lamps etc. (For Common Sprinkler Pump & Main fire pump)				
E	1 Nos. 10 HP automatic Soft starter (with over load relay and single phasing preventor) with Digital Ammeter (0-60A), Ammeter Selector Switch, 60/5A,CI-1,5VA Cast Resin CTs, Start/Stop Push Buttons, On/Off/Trip indicating lamps etc. (For Jockey Pump) with Digital Hour Meter.				
F	Provision for starting the diesel engine fire pump. The diesel engine driven fire pump shall start automatically in the event of pressure drop beyond preset limit on mains failure or failure of electrical driven pumps to start and logic necessary for automatic start of diesel engine along with battery charger for the diesel engine batteries. Window type fault indicator and with alarm for diesel engine faults like LLOP, HWT etc. as per manufacture requirement.				
	Boost/Trickle charger for starting the engine automatically with digital ammeter and voltmeter complete as required.				
	Six (6) Nos. pressure switches.				
	Wiring from pressure switch to starter - Lot.				
	MCC for Fire Pumps as described above	1	set		

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					-
	Notes :-				
	The panel shall be complete to make the system automatic as per functional requirements. The items which are required to meet the system requirement should be included in the panel whether mentioned in the BOQ or not.				
	All meter shall be digital type.				
	Provision should be made for BMS signal from each starter section.				
	Panel colour scheme to match with that of other panels.				
	Following provisions to be made in the fire panel & cost of the same shall be included in quoted rates.				
	Audio visual alarm & indications having disconnect/reset facility with a range of ½ km. The indication shall come on when electrical driven pump set fails to start on pressure drop or when there is power failure during pressure drop.				
	Facility for mode selection ie auto or manual.				
	Protection failure & control cabling.				
	Panel shall be without protection like undervoltage, overload single phasing etc.				
	Danger Plate.				
	Shock Treatment Chart				
	Rubber Mat in front of panel.				
	Low Low Oil Pressure (LLOP).				
	High Work Temperature (HWT)				
FIRE HYDRANT /WET RISER SYSTEM(L)					

185.0	Excavation for pipe lines in trenches and pits in open areas where disposal of surplus earth is done along the alignment, including trimming and dressing sides, leveling of beds of trenches to correct grades, cutting joint holes, refilling consolidation and dewatering of refill in 15 cm layers and restoration of unmettalled or unpaved surface to its original condition. The rate including the cost of necessary timbering dewatering of rain water, diversion of traffic, night signals, fixing caution boards, watching fencing etc.				
a)	Upto 1.5 m depth in all classes of soil except rocky.	20	RM		-
b)	From 1.5 m depth to 2.25 m depth all classes of soil		RM		
186.0	Providing and laying MS pipes to IS:1239 (heavy class) exposed on boundry wall / External building wall or buried including all fittings like anchor fasteners, couplings, bends elbows, tees etc. welded or screwed joints as required (For External work).				
a)	100 mm dia	230	RM		-
b)	80 mm dia	6	RM		-
187.0	Providing pipe protection for underground pipes from corrosion painting pipe with PYPKOTE primer and covered with PYPKOTE anticorrosive tape (4mm thick) as per specifications				
a)	100 mm dia	20	RM		-
b)	80 mm dia	0	RM		-
188.0	Supplying and laying of under noted sizes of hume pipe NP-3 grade under the road including 1:3:6 cement concrete bed at 750-1200mm depth cutting and making good the same as required as per technical specifications.(For Services crossing)				
a)	200 mm dia		RM		

189.0	Providing, fixing jointing and testing in position the following heavy class G.I. Pipes conforming to IS : 1239 cut to required lengths including all necessary fittings (conforming to IS : 1978) and specials such as bends, tees, union, reducers, flanges and plugs etc. fixing at wall / ceiling level supported by clamps hangers, etc.(all fabricated support shall be hot dip galvanized) cutting, holes in wall / floor / slab and making good the same with cement concrete 1 : 2 : 4 complete as required.				
a)	100 mm dia.(For Draw out Connection)	5	RM		-
b)	100 mm dia.(For Fire brigade Inlet)	5	RM		-
190.0	Providing, laying, jointing, testing and commissioning pipework for Hydrant and pumping System including including making connection with existing pipework, fixing of pipework on walls, beams, slabs, columns etc. with M. S. supports (duly painted), adjustable hangers, complete in all respects.				
	Material: M.S pipe Class 'C' conforming to IS:1239 for pipes upto 150 mm dia and IS:3589-1991 for pipes above 150 mm dia.				
	Fittings: M.S Forged/ Ductile iron Fittings Upto 50 mm dia pipes suitable for threaded / weldable socketed joints ; Heavy Class MS fittings for pipes above 50 mm dia suitable for butt welding and flanged joints.				
	Painting: Pipework shall be painting with two coats of enamel paint of fire red shade over a coat of primer.				
	Firestops: For all horozontal and vertical crossings of building structure (slabs, walls, beams, coloumn etc) pvc pipe sleeves of dia atleast 30 mm more than the dia of the pipe to be passed through shall be fixed in the building structure, the space buitween the the sleeve and the structure shall be made good. The annular space between the pipe and the sleeves shall be sealed (upto a minimum depth 25 mm) with fire resistant acrylic based sealent of approved make and quality.				

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A	25 mm dia	10	RM		-
B	50 mm dia	15	RM		-
C	150 mm dia (Header)	15	RM		-
191.0	Providing, fixing and testing cast iron wafer type butterfly valve complete with nitrile / EPDM lining seat, stainless steel Disc., Carbon Steel shaft and stainless steel stem complete with flange, nuts, bolts, washer and gesket tested to 16 Kg /sqcm complete in all respect.				
A	100 mm dia	7	Nos.		-
B	150 mm dia	4	Nos..		-
192.0	Providing and fixing cast iron wafer type horizontal/ vertical non return valve complete with flanges tested to 16 Kg./m2.				
a)	65 mm dia	1	Nos.		-
b)	100 mm dia	2	Nos.		-
193.0	Providing and fixing cast iron Y-strainer suitable to pipes of following dia (including flanges).				
a)	65 mm dia	0	Nos.		-
b)	150 mm dia	1	Nos.		-
194.0	Providing & fixing pressure gauge 100mm dia dial with Ball Valve suitable for a working pressure of 25 Kg/ Sqm.	6	Set		-
195.0	Providing and fixing fire hose cabinet to house stand post fire hydrant, including all other related accessories fabricated from 16 gauge M.S. sheet of fully welded construction having front door with locking arrangement, partially glazed with 4 mm thick glass. Cabinet shall be painted with post office red colour of size 750 x 600 x 250.	4	Nos.		-

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				-	
196.0	Providing & fixing fire hydrant valve with single outlet, stainless steel IS:5290 :1983 type"A" grade with 80 mm N.B. flanged inlet, brass spindle, 63mm female instantaneous outlets, complete with gunmetal blank caps chains, bearings IS:6290 mark and having flange O.D. 220mm PCD 180mm eight 19mm dia holes.	4	Nos.		-
				-	
197.0	Providing & fixing stainless steel 63mm dia. Short branch pipes with 20 mm dia. Nozzles, ISI Marked (IS:903) as per approved make.	4	Nos.		-
198.0	Providing & fixing 63 mm dia 15 mtr. long Reinforced rubber lined hose pipe including gunmetal male & female instantaneous type coupling machine wound with G.I. Wire complete in all respects. Hose shall permaline hose and coupling to IS:903-1975 with ISI certification (Two hose per Hydrant) approved by fire authority.	8	Nos.		-
199.0	Supplying and fixing first aid hose reel (swinging type) including 36.5 meter long 20 mm internal dia rubber lined hose reel tubing, 25 mm dia stop valve, shut off nozzle of sufficient length at one end of this hose and leaded tin, bronze rings and adapter to get in to the instantane-ous female coupling complete with suitable drawn brackets, hub etc as required. The hose reel strictly confirm to IS:884-1985.	0	Set		-
200.0	Providing & fixing gunmetal 6mm Nozzles.		Nos.		
201.0	Stainless steel Fire Brigade inlet connection for connecting to external fire hydrant ring main consisting of 2 Nos. 63mm dia instantaneous type male couplings with built-in check valves and 100mm dia, flanged outlet complete with bolts, nuts and rubber insertions as required and as per IS:904-1983.	1	Each		-

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202.0	2 Way Stainless steel Fire Brigade Suction Hose coupling (Draw out connection) with Nut for female coupling as per IS:902-1974 complete with 100mm dia G.I. Suction pipe and 100mm dia foot valve (to be connected to Static Tank).	1	Each		-
203.0	4 Way Stainless steel Fire Brigade draw in coupling (Draw in connection) with Nut for female coupling as per IS:902-1974 complete with 150mm dia G.I. Suction pipe and 100mm dia foot valve (to be connected to Static Tank).	1	Each		-
204.0	Supply, Installation, Testing & Commissioning of double flanged vertical air vessel fabricated shell from 10 mm thick & dished ends 12 mm thick M.S.plate, suitable for working pressure of 18 kg/cm ² and test pressure of 27 kg/cm ² , 300 mm dia and 1.50 m high for fire pumps complete with four nos dual setting pressure switches to operate jockey and main pumps at drop of pressure as given in the specifications.	1	Set		-
205.0	Providing & fixing M.S. class 'C' diesel pump exhaust pipe including all fittings, clamps/structural steel supports. The pipe shall be provided with 25mm thick glass wool tied with 20x20 chicken wiremesh finally with 26 gauge aluminium cladder				
a)	150 mm dia	20	RM		-
206.0	Designing, providing and fixing Orifice plate made out of stainless steel plate (with 6 mm thickness) for following size of pipe to reduce pressure upto 3.5 Kg/sqcm complete in all respects.				
a)	80 mm dia	4	No		-
AUTOMATIC SPRINKLER SYSTEM(M)					

207.0	Providing, laying, jointing, testing and commissioning pipework for Sprinkler System including including making connection with existing pipework, fixing of pipework on walls, beams, slabs, columns etc. with M. S. supports (duly painted), adjustable hangers, complete in all respects.				
	Material: M.S pipe Class 'C' conforming to IS:1239 for pipes upto 150 mm dia and IS:3589-1991 for pipes above 150 mm dia.				
	Fittings: M.S Forged/ Ductile Iron Fittings Upto 50 mm dia pipes suitable for threaded socketed joints ; Heavy Class MS fittings for pipes above 50 mm dia suitable for butt welding and flanged joints.				
	Painting: Pipework shall be painting with two coats of enamel paint of fire red shade over a coat of primer.				
	Firestops: For all horozontal and vertical crossings of building structure (slabs, walls, beams, coloumn etc) pvc pipe sleeves of dia atleast 30 mm more than the dia of the pipe to be passed through shall be fixed in the building structure, the space buitween the the sleeve and the structure shall be made good. The annular space between the pipe and the sleeves shall be sealed (upto a minimum depth 25 mm) with fire resistant acrylic based sealent of approved make and quality.				
a)	25 mm dia	400	RM		-
b)	32 mm dia	30	RM		-
c)	40 mm dia	40	RM		-
d)	50 mm dia	50	RM		-
e)	65 mm dia	55	RM		-
f)	80 mm dia	35	RM		-
g)	100 mm dia	110	RM		-

208.0	Providing and fixing fire authority approved ball valves with S.S. ball including all fittings required as per specifications.				
b)	25 mm dia	5	Nos.		-
209.0	Providing, fixing and testing cast iron wafer type butterfly valve with supervisory switch complete with nitrile / EPDM lining seat, stainless steel Disc., Carbon Steel shaft and stainless steel stem complete with flange, nuts, bolts, washer and gasket tested to 16 Kg /sqcm complete in all respect.				
c)	100 mm dia	2	Nos.		-
210.0	Providing and fixing 15mm dia, quick response quartzoid bulb type G.M. Sprinkler Head (Pendent / Upright / Conventional, as required) (UL / FM / LPC / TAC listed / set to operate at 68°C Approved chrome plated complete with decorating plate (Rossette).				
a)	Pendent Type at 68°C	188	Each		-
211.0	Providing and fixing 100mm dia, Installation control valve assembly comprising of vertical wet alarm valve, 150mm dia, C.I sluice valve, hydraulic alarm motor & gong, 15mm dia, test valve, 50mm dia, drain valve and all necessary trimming connection including 2 Nos. pressure gauge as per manufacturer's catalogue (UL/FM/LPC/TAC listed/ approved)	2	Each		-
212.0	Providing, fixing, testing and commissioning 25mm diameter brass isolation valve with built-in sight glass connected to 50mm drain line consisting of 50 mm by pass valve.	2	Each		-
213.0	Providing, fixing, testing & commissioning flow Switches suitable for fixing in 50mm to 100mm dia, complete with all accessories to provide Indication in annunciator panel.	2	Each		-

214.0	Providing and fixing 250mm to 400mm long 100 OD uPVC conforming to IS:4985 of Class 3 (6 Kg./cm ²) specification sleeves in R.C.C. beams or RCC slabs for pipes. Sleeves shall be tight with the help of wire to reinforcement so that it may not shift from the place where it kept during RCC pouring and also during using the vibrator for setting the RCC. The sleeves shall be kept in the locations as shown in the drawings.	0	Each		
215.0	Providing, fixing, testing and commissioning UL Listed S.S. Braided Flexible pipe for sprinkler drop complete with flare nuts on both end with washer and supporting rods and clamps 25mm dia upto 1.5 Mtr. Long.	188	Each		-
PORTABLE CHEMICAL FIRE EXTINGUISHERS (N)					
216.0	Supply and installing ISI Marked (IS:15683) portable chemical fire extinguisher, water (gas pressure) type capacity 9 litres with gun metal cap and nozzle and complete in all respects including initial fill and wall suspension brackets.	2	Each		
217.0	Supply and installing ISI marked (IS:15683) Fire Extinguisher, Carbon-di-oxide type capacity 4.5 Kgs.flat base including valve, discharge hose of not less than 10mm dia., 1M long and complete in all respects including initial fill with CO ₂ gas conforming to IS:307-1966 filled to a filling rate of not more than 0.667 and wall suspension bracket.	8	Each		
218.0	Supply and installing ISI marked (IS:15683) Portable Dry Chemical Powder Type Fire Extinguisher with Gun Metal cap and nozzle and complete in all respects including initial fill and wall suspension bracket.				
a)	4 Kgs.	2	Each		

219.0	Supply and installing ABC (Powder Type) Fire Extinguisher HP Mild Steel Cylinders ISI marked TAC approved fitted with pressure indicating gauge, internal tube, squeeze lever type valve fully charged with ABC powder (Mono Ammonium Phosphate) pressured by Nitrogen complete in all respects including wall suspension bracket and confirming bracket and confirming to IS:15683.				
a)	6 Kgs.	4	Each		
b)	2 Kgs.	10	Each		
220.0	Supply and installation of fire man's axe.	5	Nos.		
221.0	Supply, installation, testing and commissioning of exit signage of photo luminescent on aluminium sheet of 1.0 mm (\pm 10%) containing lumigen-III as base chemical, covered with U/V stabilized coating size 450 x 200.	100	Sq.Inch		
222.0	Supply and installing ISI marked under (IS : 10658) 25 Kg. capacity DCP trolley mounted mobile fire extinguisher complete with gunmetal union, discharge hose, squeeze grip, nozzle and initial charge complete in all respect for D.G. Set and Transformer.	1	Each		
223.0	Supply and installing ISI marked under (IS:2878) CO2 9 Kg. capacity trolley mounted mobile type fire extinguisher complete with hose and insulating horn, valve and locking pin duly charged with CO2 gas complete in all respect for transformer.	1	Each		
224.0	Supply and installing ISI marked under (IS:10204) 9 ltrs. capacity mechanical foam trolley mounted mobile fire extinguisher complete with braided discharge hose and initial charge of AFFF (Aqueous Film Forming Foam)for D.G. Set.	1	Each		

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SITE DEVELOPMENT WORKS BOQ (O)					
SUB- HEAD- DRAIN WORK					
225.0	Providing and Laying Precast RCC "U" Drainage Channels of Internal Size 300MM X 450MM and Wall Thickness of Min 75MM/100MM with Precast RCC Perforated Drain covers in M-30 Grade using Vibro Compaction Process. The Joints between U Channels needs to be properly Levelled and Sealed with Cement Mortar and to satisfaction of Engineer In Charge	267.00	M		
SUB- HEAD- PATHWAY & HARDSCAPE					
226	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer- in-Charge.				
	With material conforming to Grade-I (size range 75 mm to 0.075 mm) having CBR Value-30	339.30	cum		
227	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately).	20.68	cum		
228	Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with line sand	2124.16	Sqm.		

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	etc. all complete as per the direction of Engineer-in-charge.				
SUB-HEAD - HORTICULTURE					
229	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured to calculate volume for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	31.04	Cum		
230	Supplying and stacking at site dump manure from approved source, including carriage upto 5 km lead complete (manure measured in stacks will be reduced by 8% for payment) :				
	Screened through sieve of I.S. designation 4.75 mm	128.73	Cum		
231	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	708.03	Cum		
232	Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately).	708.03	Cum		
233	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)				
	Holes 90 cm dia, and 90 cm deep	125.00	Nos.		
	Holes 60 cm dia, and 60 cm deep	90.00	Nos.		
	Holes 30 cm dia, and 30 cm deep.	5000.00	Nos.		

234	Providing and Planting the Plants and Shrubs in Healthy condition on Site				
	Alstonia scholaris of height 150-165 cm	85.00	Nos.		
	Cassia fistula (Amaltash) of height 120-135 cm.	15.00	Nos.		
	Foxtail palm of ht. 240-270 cm bottom girth 35-40 cm	25.00	Nos.		
	Ficus benjamina (green) of height 120-135 cm. with 6-8 branches and lush green foliage	25.00	Nos.		
	Ficus Panda (Yellow) of height 120-135 cm. with 6-8 branches and lush green foliage	25.00	Nos.		
	Topiary of Ficus Panda well developed with fresh & healthy foliage with 3 to 4 Ball and 60 to 75 cm spread each Ball, 135 to 150 cm ht.,	20.00	Nos.		
	Topiary of Ficus Nuda well developed with fresh & healthy foliage with 3 to 4 Ball and 60 to 75 cm spread each Ball, 135 to 150 cm ht.,	20.00	Nos.		
	Hedges Like Duranta Golden, Daniella variegated, Clerodendrum inerme or similar	5000.00	Nos.		
235	Supply & Installation of SS Branding Letters and logo of the Project on the Walls of the Project in Total Size 3M X 3M	1.00	Nos.		
236	Supply & Installation of SS Branding Letters and logo of the Project on the Walls of the Project in Total Size 6M X 1.2M	1.00	Nos.		
		Total Amount in Rs.			

PS: Please submit your offer in both MS Excel format & PDF format for our ready reference.

Summary:

S.No	Work Head	Cost in Rs.
1	Structures	
1.1	Earthwork	
1.2	PCC	
1.3	RCC	
1.4	Shuttering	
1.5	Structural steel	
2.	Architecture	
2.1	Brick work	
2.2	Finishing	
2.3	Flooring	
2.4	Doors & Windows	
2.5	Roofing works	
3.	Services	
3.1	Electrical works	
3.2	FAS & PA system	
3.3	CCTV system	
3.4	HVAC works	
3.5	Plumbing works	
3.6	Fire fighting works	
4	Site Development	
4.1	Drain works	
4.2	Hardscape & pathways	
4.3	Horticulture & Landscape	
	GRAND TOTAL AMOUNT in Rs. Ps.	

Annexure-A
TO BE PRINTED ON LETTER HEAD

To whomsoever, it may concern.

We M/s. having PAN and GSTIN
Registration Number hereby undertake that our Aggregate Turnover (as per Section 2(6)
of Central Goods and Services Tax Act, 2017) for the previous financial year does not exceed the prescribed
threshold (as on the date of this declaration) for generation a Unique Invoice Registration Number (IRN) and
QR code as per the provisions of Central Goods and Services Tax Act, 2017 and rules thereunder ("GST Law").

Further, we also undertake that if the aggregate turnover of M/s.
exceeds the current threshold or revised threshold notified by Government of India at any future date, then
we shall issue invoice, Debit Note and credit note in compliance with the required provisions of GST Law
(EInvoice).

I/Weacting on behalf of (Company name) in the capacity of
(designation) and keep it indemnified against any losses, damages (or) costs which it suffers (or)
incurs due to beach on our part of this declaration.

LEGAL NAME :
TRADE NAME :
TAX PAYER TYPE :Regular

Thanking you. Yours Truly,

For M/s.....

Authorized Signatory Name:
Designation:
Stamp:

TO BE PRINTED ON LETTER HEAD

To whomsoever, it may concern.

We M/s. having PAN and GSTIN Registration Number hereby confirm that our Aggregate Turnover (as per Section 2(6) of Central Goods and Services Tax Act, 2017) was not more than prescribed limit for Quarterly filing and we are anticipating that turnover for the Current Financial year also will be within the prescribed limit. Hence, we opt to file GSTR-1 and GSTR-3B returns on a Quarterly basis for the Financial year 2020-2021(January 2021 onwards). We are hereby agreeing to file GSTR-1 and GSTR-3B on or before due dates as per provisions of GST Act and Rules thereunder. In case we revise option / required to file GSTR-1 and GSTR-3B on monthly basis, same will be intimated immediately and complied with.

Further, we also undertake that if the aggregate turnover of M/s. exceeds the current threshold or revised threshold notified by Government of India at any future date, then we shall file returns compliance with the provisions of GST Act or rules made thereunder.

I/Weacting on behalf of (Company name) in the capacity of (designation)..... and keep it indemnified against any losses, damages (or) costs which it suffers (or) incurs due to breach on our part of this declaration.

LEGAL NAME :

TRADE NAME :

Thanking you.

Yours Truly,

For M/s.....

(Authorized Signatory)

Name:

Designation:

Stamp:

P.S:

1. Interested parties may attend a **pre-bid meeting on October 7,2025 at 1500 hrs.** through Video Conferencing. Parties who are interested to attend the Meeting can send the request by on or before October 6, 2025 (2100 hrs.) via. e-mail at tender@amdtf.in **for obtaining link of VC**

2. For Technical clarifications, pl Contact:
Shri B. Saha (CEO) – AMDTF
E-mail: tender@amdtf.in

3. For commercial clarifications, pl contact:
Shri B. Saha (CEO) – AMDTF
E-mail: tender@amdtf.in

4. The Bidder is requested to submit their questions / queries / clarifications in writing by email.