

Technical specifications

Clause.1 The Technical specifications contained herein shall be read in conjunction with other documents of bid.

Clause.2 The technical specification in accordance with which the entire Work shall be carried out and completed by the contractor shall comprise of the following

Clause 3.0 TECHNICAL SPECIFICATIONS

Clause 3.1. The work in general shall be carried out as per the latest CPWD specifications 2019 Vol- I & II with up-to-date correction slips, unless otherwise specified in the nomenclature of the individual item or as Specifications shall be carried out as per approved specifications. In case any item is not covered in any of these documents, the same shall be carried out as per the NBC-2016/ BIS Codes/IRC/MOST Specification or as per approval of Engineer in Charge of NBCC.

Clause.3.2 The Electrical works shall be carried out as per CPWD Specifications for Electrical works (Part-I) Internal (2023), (Part-II) External 2023, with up to date corrections slips, General specifications for Electrical works Part-VII (DG Sets) (2013), General Specifications for Electrical works Part-IV (Substation), 2013; General specifications for Electrical works – Part- V (Wet Riser & Sprinkler Systems) 2020, General specifications for Electrical works (Lifts & Escalators) Part-III,2003., General specification for Heating, Ventilation & Air-Conditioning (HVAC) 2024 and general specification on Fire detection and alarm system-2018 Part-VI.

Clause 3.3 The Horticulture and landscaping works shall be carried out as per CPWD Horticulture and landscaping specification 2025

Clause 3.4. If so far any Amended/ Modified/ added clause may come in conflict or be inconsistent with any of the provisions of the said specifications under reference, the latest Amended/Modified/ Added Clause/latest edition of corresponding standards shall always prevail.

Clause.3.5 If none of the foregoing applies, the construction and completion of works shall conform to sound Engineering practice as approved by the Engineer in charge. In case of any dispute arising out of the interpretations of the above, the decision of the Engineer in charge shall be final and binding on the bidder

GUARANTEE

The contractor shall guarantee the entire works & services, installation as per specifications both for components and for system as a whole. All equipment shall be guaranteed for One year from the date of handover to the Department/Client against unsatisfactory performance or breakdown due to defective design, manufacture and/or installation. The installation shall be covered by the conditions that the whole installation or any part thereof found defective within one year from the date of completion shall be replaced or repaired by the contractor free of charge, as decided by the Engineer-in-Charge.

Clause.3.6, Technical specification for non-Schedule items are given below.

Sr. No.	Item Description
	CIVIL WORKS
1	Pre constructional anti-termite treatment by (A)Chemicals The chemical used for the soil treatment shall be of the following with the concentration shown is aqueous emulsion. Imidachloprid 30.5% SC Doses: 2.1 ml per lit of water (B) Method of Treatment 1.Treatment of Top Surface of Plinth Filling 2. Treatment at Junction of the wall and the floor 3.Treatment of Soil Along External Perimeter of Building 4. Treatment of Soil Surrounding Pipes, Waste and Conduits As per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
2	Factory made single leaf Solid WPC (Wood polymer) composite door shutter of 25mm thick compacted with wood grain finish structural foam panel of 29mm thickness and a density of 650kg/cu.mtr shall be used as core material for fitting the metal fittings such as tower bolts, aldrops, handles etc shall be provided. A structural adhesive compatible with (EPS) foam shall be used for bending the core material, The material and process for manufacturing the door shutters shall conform to RV-TIFAC composites Design Centre's standards and specifications and the door shutters Conforming to relevant I.S. specification. The finish of door shutter will be plain colour white/ Ivory/ Beige/ Light grey/ Mahogany/ Teak wood or any other colour using high quality pigments. Three heavy weight mild steel butt hinges type-I(ISI marked) size 100mm are to be fitted on one side of shutter as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
3	Factory made Solid WPC door frame of size 95mmx55mm fabricated. The door frame consist of four segments which are provided with plug-in-socket arrangement in-situ in the mould. The segments are plugged in and are joined together by means of screw. The WPC frame shall be provided with the material and process for manufacturing the door frames shall conform to Relevant I.S. specification. The finish of door frame will be plain colour white/ Ivory/ Beige/ Light grey/ Golden brown/Mahogany/ Teak wood/sand stone/Champagne/Pastel blue or any other colour using high quality pigments complete in all respect as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
4	30 mm thick Glass Fibre Reinforced Plastic (FRP) panelled door shutter of required colour and approved brand and manufacture, made with fire - retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5 mm thick FRP laminate for panels conforming to IS: 14856, including fixing to frames as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
5	Fibre Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminate shall be moulded with fire resistant grade unsaturated

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	polyester resin and chopped mat. Door frame laminate shall be 2mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fibre glass from all sides. M.S. stay shall be provided at the bottom to steady the frame as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
6	Glazed Aluminium openable doors With Door Closer: Providing and fixing lockable openable system Aluminium works for openable doors applications. The extruded aluminium sections should be made from Grade 6063-T5 & Anodized with Texguard coating. All profiles should be Non insulated Profiles. Corner connection will be Butt joint with Screw using Nano gaskets for sealing. All other major accessories should also be made by the same manufacturer. All panels will have no visible hinge or connecting hardware and shall not be connected on any side of the outer frame. The outer frame Depth will be 72mm. All materials which are used should be corrosion-resistant. Glass to be used is 6 mm toughened. The system should qualify Airtightness ASTM E283: 10.7m3/h.m2 at 75Pa of pressure, Water tightness ASTM E300: 240 Pa, System should have a 10-year warranty on properties, functionality and design, within restrictions defined by technical specifications of anodizin as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
7	Aluminium hanging floor door stopper with twin rubber & stopper as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
8	System Aluminium Sliding Windows - Single Glazed (With MESH): Providing and fixing System Aluminium works for Sliding windows with 50mm & 35mm visible aluminium section width in the center mullion. The extruded aluminium sections should be made from Grade 6063-T5 & Anodized with Tex guard coating, silicon coated to suit marine atmosphere. All profiles should be None insulated Profiles. Corner connection will be Butt joint with Screw using Nano gaskets for sealing. All other major Accessories should also be made by the same manufacture. All Slider windows will be center locking. Integrated Anti-lift in slider panel, EPDM gaskets should be used in slider windows in all meeting points instead of Brush Pile. Frame width shall be 72 mm for 3 track (2 Glazed panels and 1 Mesh panel track provision) with +/- 2mm maximum tolerance. Provision of mesh track must be inbuilt in the offered system. All materials which are used should be corrosion-resistant so that they are good functioning in different environments and that there are no negative influences either on the aluminium or on the surface treatment. The system should allow the application of glazing or panels with thickness up to 8mm. The external perimeter of aluminium sections should be Anodized with Tex guard coating. the system should qualify Airtightness ASTM E283: 10.7m3/h.m2 at 75Pa of pressure, Water tightness ASTM E300: 240 Pa, Wind load resistance ASTM E330: 2400 Pa. System should have a 10 year warranty on properties, functionality and design, within restrictions defined by technical specifications of anodizing & 1 year warranty on wearing parts only applies to normal and realistically foreseeable use. All Slider windows will be center locking as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
9	System Aluminium fixed cum louvred ventilators - Single Glazed Providing and fixing System Aluminium fixed cum louvred ventilators - Single Glazed with 50mm & 35mm visible aluminium section width in the center mullion. The extruded aluminium sections should be made from Grade 6063-T5 & Anodized with Tex guard coating, silicon coated to suit marine atmosphere. All profiles should be None insulated Profiles. Corner connection

	will be Butt joint with Screw using Nano gaskets for sealing. All other major Accessories should also be made by the same manufacture. in all meeting points instead of Brush Pile. All materials which are used should be corrosion-resistant so that they are good functioning in different environments and that there are no negative influences either on the aluminium or on the surface treatment. The system should allow the application of frosted glazing or panels with thickness up to 8mm. Part will be fixed, part will be louvered. The external perimeter of aluminium sections should be Anodized with Tex guard coating, the system should qualify Airtightness ASTM E283: 10.7m³/h.m² at 75Pa of pressure, Water tightness ASTM E300: 240 Pa, Wind load resistance ASTM E330: 2400 Pa. System should have a 10-year warranty on properties, functionality and design, within restrictions defined by technical specifications of anodizing & 1-year warranty on wearing parts only applies to normal and realistically foreseeable use. All Slider windows will be center locking as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
10	Toilet/Sunken Single component synthetic rubber, AquaArm Saniflex based coating with a coverage of 1.2 kg /m² over primer surface with AquaArm Uniprime GE. The coating shall be taken upto 300mm from finished floor level on the vertical walls. The coating shall have an elongation of a minimum of 80% when tested as per ASTM D 412 and tensile strength of 1 N/mm². Thorough surface preparation by mechanical means to level and plain the surface of walls and floors of the toilet areas. All cracks and crevices to filled and made good to receive waterproofing coating treatment The coating shall cover all the floor area of the wet area (toilet) and be applied over on to the vertical walls minimum 300mm height above the floor in two or more coats to achieve required thickness. Protective Plaster: Avg. 15 mm thick, CM 1:4 plaster admixed with, Integral Waterproofing Compound @ 200 ml / bag of cement. (Cement and sand shall be supplied by the main contractor) Pipes being fixed for plumbing shall be fixed in holes which are mechanically core cut, more than the dia of the pipes. Pipes shall be fixed by grouting the annular space with non-shrink cementitious grout of proprietary. Before grouting the pipes shall be wrapped with a waterproofing fleece material at least 50 mm wide and then grouted to fill in the grout, ensuring total watertight plumbing fittings. Contractor shall submit methodology statement with all detail in illustrative sketch form and get approved from Engineer in charge. Application shall be carried out by approved applicator of manufacture and as per recommended by manufacturer. Actual applied area (plan area + wall area) of toilet/sunken shall be measured for payment. Cost includes all material (for surface preparation, coating and hole packing), labour, T&P, wastage involved as mentioned in the item as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
11	OHT Tank Surface Preparation Surface shall be clean and free of dirt, oil and other contaminants, shall be removed manually or mechanical means / compressed air.

	Primer Moisture insensitive primer to the concrete surface of MYK Arment, AquaArm Primer PU DC @400g/m². Coverage of primer shall depend on the surface. Polyurethane Protective Coating Two component hi- build solvent free PU coating, AquaArm Coat PU Plus of 1mm thickness @1sqm/1Ltr. The material shall have following properties: Volume Solid- 100% as per ASTM D2697 Shore D Hardness- >50 as per ASTM 2240 Tensile - >10mpa as per ASTM D 638 Elongation- >35% as per ASTM D638 Pull off Adhesion- > 2mpa as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
12	TERRACE WATERPROOFING Surface Preparation: Mechanically grinding the surface to remove the bitumen primer from the surface including sealing of cracks if any with epoxy putty/ SBR Latex. Treatment of Pipe Penetration: Providing and sealing the gaps in the core cuts around PVC pipes treated with epoxy bonding agent & sprinkled sand; using Armgrout M 65 non shrink grout followed by sealing of the same joint by using 2 coats of waterproofing coating & SealArm Joint Tape. Coving: Providing and making coving 50mm*50mm at the junction of slab and vertical offsets with Cement Mortar 1:3 and admixed with ReArm SBR 45 at dosage of 1Ltr per 50kg cement. (cement and sand shall be in the scope client) Application of Primer: Apply Epoxy based primer AquaArm Primer PU DC over well prepared surface at 250-300 gm/Sq.Mtr. Waterproofing Coating: Providing and applying single component moisture cured waterproofing coating to sound, moisture free concrete surface with AquaArm SPU SPL. Application of waterproofing coating @ recommended consumption of 1.5 kg/sqm for total average system thickness of 1 mm in two coats using Roller, all complete as per manufacturer's methodology. Membrane Termination shall be done at 300 mm above FFL or as per site conditions using 8mm * 8mm groove and filling with PU sealant,. Payment shall be made as per actual area of measurement. For vertical exposed areas, where plastering is to be done, sand shall be sprinkled over the tacky final coat of sealer coat on vertical surface. Later after final curing, plastering should be done. The membrane formed shall confirm to following minimum properties: 1) Solid Content: > 90% 2) Tensile strength :> 2 Mpa 3) Elongation at break: > 500 % 4) Crack Bridging ability > 2 mm Work shall be carried out by manufacturer's authorised applicator as per manufacturer's methodology. Geotextile: Providing and installing 200 GSM non-woven geotextile

	membrane over the finished waterproofing over the horizontal area maintaining overlapps of geotextile. prior to protection screed. Protection Screed: Providing and laying of average 75 mm thk (min 50mm at the drains) M20 grade Concrete admixed with approved integral waterproofing compound as per specification in BOQ, drawings, BIS and direction of the Engineer in charge.
13	Expansion joint Treatment Surface Preparation: The area to be treated should be cleaned thoroughly with mechanical means especially for structure. For new surfaces grinding, vacuum cleaning will be sufficient and it should be ensured that the substrate is clean fine pored and free from any loose particles, dust laitance, mould release agents & curing compounds etc. Use suitable methods to prepare the substrate dependent on its condition such as brushing, grinding milling, shot-blasting and water jetting. Providing and applying High performance Expansion joint Sealing system, 600mm x 250mm as per roll size of SealArm Tape TPE and fixing it with Epoxy adhesive ReArm Bond 4031, allows irregular and high movement in more than one direction, whilst maintaining a high quality seal, mixing by mechanical means of ReArm Bond 4031, Applying on both sides of the joint and Fixing of tape over joint as per suitable mentioned width of the tape, and complete work as per manufacturer's specification. The tape should be not fixed at the junction to allow free movement. The termination of the membrane on the parapet wall shall be done with epoxy adhesive as same on the horizontal slab as per specification in BOQ, drawings, BIS and direction of the Engineer in charge. The Parameters for Treatment are as follows: Shore A Hardness Approx.: 87 Tear Resistance-length wise (DIN EN 12311-2 Method B): >12.5 N / m Elongation at break (DIN EN 12311-2 Method B): >500% Tearing Resistance (nail shank) length wise (DIN EN 12310 -1): >200N Water vapour permeability (DIN EN 1931 Method B): >40 m.
	ELECTRICAL WORKS
1	Recessed wiring to light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor of ISI marked of Approved Make with 20 mm dia HMS FRLS PVC conduit ISI marked of Approved Make 6A modular type (anti-bacterial & flame retardant type) switch ISI marked Approved Make and ceiling rose ISI marked of modular type G.I box with metallic cover plate (both side) (anti-bacterial & flame retardant type) Approved Make of suitable size, modular box with 1.5 sq. Mm FRLS PVC insulated single core multi standard copper conductor as earth wire including all accessories and connection as per specification in BOQ, BIS and direction of the Engineer in charge.
2	6A Plug on the same board in existing switch board with complete fitting by 01 no of 6A switch & socket (modular type & other required accessories of ISI marked as approved as per specification in BOQ, BIS and direction of the Engineer in charge.
3	6A Plug on the separate board with complete fitting by 01 no of 6A switch & socket (modular type) (anti-bacterial & flame retardant type) with suitable size modular box & cover including supplying of all required accessories of ISI marked as approved as per specification in BOQ, BIS and direction of the Engineer in charge.

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4	1x16A Plug on the separate board with complete fitting by 01 no of 16A switch & socket (modular type) (anti-bacterial & flame retradant type) with suitable size modular box & cover including supplying of all required accessories of ISI marked as approved as per specification in BOQ, BIS and direction of the Engineer in charge.
5	1x6A+1X1 6A Plug on the separate board with complete fitting by 01 no of 16A+1 no 6A switch & socket (modular type) ((anti-bacterial & flame retradant type) with suitable size modular box & metallic cover plate (both side) (anti-bacterial & flame retradant type) including supplying of all required accessories of ISI marked as approved as per specification in BOQ, BIS and direction of the Engineer in charge. (For equipment power) (Maximum 02 nos point in one circuit).
6	3x6A+1X1 6A Plug on the separate board with complete fitting by 01 no of 16A+3 nos 6A switch & socket(modular type) (anti-bacterial & flame retradant type) (with suitable size modular box & metallic cover plate (both side)including supplying of all required accessories of ISI marked as approved as per specification in BOQ, BIS and direction of the Engineer in charge. (For equipment power). (Maximum 02 nos point in one circuit).
7	Receass wiring for circuit/submain wiring with the following mentioned size PVC FRLS insulated, copper conductor, single core cable of approved make in recessed HMS FRLS PVC conduit of mentioned size as required as per specification in BOQ, BIS and direction of the Engineer in charge. 2 nos single core 1.5 sq. mm copper wire for phase and neutral and 01 no of single core 1.5 sq. mm copper wire for earth continuity conductor. In 20 mm dia non-metallic heavy duty conduit (LDB to LSB/LIGHT CKT) (2X1.5+1X1.5)
8	Receass wiring for circuit/submain wiring with the following mentioned size PVC FRLS insulated, copper conductor, single core cable of approved make in recessed HMS FRLS PVC conduit of mentioned size as per specification in BOQ, BIS and direction of the Engineer in charge.2 nos single core 2.5 sq. mm copper wire for phase and neutral and 01 no of single core 1.5 sq. mm copper wire for earth continuity conductor in 20 mm dia non-metallic heavy duty conduit. (BDB to LSB/LIGHT CKT/5A PLUG/UPS POINT) (2X2.5+1X1.5)
9	Receass wiring for circuit/submain wiring with the following mentioned size PVC FRLS insulated, copper conductor, single core cable of approved make in recessed HMS FRLS PVC conduit of mentioned size as per specification in BOQ, BIS and direction of the Engineer in charge.2 nos single core 4 sq. mm copper wire for phase and neutral and 01 no of single core 1.5 sq. mm copper wire for earth continuity conductor in 20 mm dia non-metallic heavy duty conduit .(PDB to PSB/ POWER POINT/AC POINT) (2X4+1X1.5)
10	Receass wiring for circuit/submain wiring with the following mentioned size PVC FRLS insulated, copper conductor, single core cable of approved make in recessed HMS FRLS PVC conduit of mentioned size as required as per specification in BOQ, BIS and direction of the Engineer in charge. 4 nos single core 10 sq. mm copper wire for phase and neutral and 02 nos of single core 6 sq. mm copper wire for earth continuity conductor in 32 mm dia non-metallic heavy duty conduit. (LFDB TO FLOOR PANEL TO TPN BDB power) (4X10+2X6)
11	CALL bell (Ding-dong type) /Buzzer on the existing switch box/cover. as required as per specification in BOQ, BIS and direction of the Engineer in charge.

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12	Bakelite angle holder/batten holder A category ISI marked as approved) of ISI marked conforming to IS-1258/1987 in place of ceiling rose as per specification in BOQ, BIS and direction of the Engineer in charge.
13	5 step type Modular electronic Fan Regulator ISI Marked with all connection complete in all respect as per specification in BOQ, BIS and direction of the Engineer in charge.
	Sub-Head II (Light fitting Fixture & Fan)
14	Energy efficient LED tube light fittings with decorative aluminium batten and LED tube light having power rating not more than 20 watt and lumen output not less than 2200 lumen complete with electronic driver and all other accessories with diffuser having 2 years warranty i/c connection etc as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
15	Energy efficient surface /recess mounted square /round shape 18 W LED luminaire of dimension of consists of white powder coated , die-cast Aluminium housing with high quality frosted diffuser for glare-free uniform lighting distribution with wattage not more than 18 watt and lumen output of 1800 lumens, , CRI not less than 80,CCT of 6000 degree K,THD less than 10%, with electronic driver, internal surge protection of 3 KV , L70 B50: 50000 hrs and all other accessories suitable for operation on 220 V to 240 V supply as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
16	Energy efficient recessed mounted LED luminaire made up of CRCA powder coated housing, bottom opening clean room LED luminaire of 600 X 600 x 65 mm size with of 36 W and system lumens output not less than 3600 lumens , IP65 ,dust free & zero maintenance , anti-glare high transmittance PMMA diffuser , operating voltage range 150-265 V, high performance potentiometric electronic driver for zero maintenance , 2.5 KV internal urge protection, L70 B 50: 50,000 hrs., CRI not less than 80, CCT of 5700-6500 degree K, THD less than 10%,,IP 65 protection complete with all other accessories suitable for operation on 230 V, 50 Hz supply as required as per specification in BOQ, BIS and direction of the Engineer in charge.
17	Energy efficient Recess /Surface mounted square/round shaped LED luminaire made up of CRCA powder coated sheet steel of 25W (2'x2') 595mmx595mmx70mm and system lumens output not less than 3250 lumens (130 lm/ wt) with diffusers for better light transmission and pure effect with High luminous flux LEDs for better light output, CRI not less than 80, CCT of 5700-6500 degree K, THD less than 10%,internal surge protection of 3 KV, complete with Non-integrated isolated electronic driver (protects the output /secondary side from any disturbance on the input / primary side ensuring safe operation) and all other accessories suitable for operation on140- 270 V, 50 Hz, L70 @50,000 burning hrs (5 years warranty) of approved make as required as per direction of Engg.-in-Charge. as per specification in BOQ, BIS and direction of the Engineer in charge.
18	Sleek LED 10watt mirror light fitting with extruded polycarbonate housing, High optically efficient diffuser, above wash basin complete with all accessoriesetc. directly on wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as

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	required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
19	1200 mm sweep white/milky colour BLDC copper winding ceiling fan with aluminium blades having wattage not more than 28W and air delivery $\geq 215 \text{ m}^3/\text{min}$ of approved make including wiring the down rod of standard length (upto 30 cm) with 1.5 sq mm PVC insulated, copper conductor, single core cable etc as required as per specification in BOQ, BIS and direction of the Engineer in charge.
20	20 cm length G.I. pipe 15 mm dia, heavy gauge including painting etc. as required as per specification in BOQ, BIS and direction of the Engineer in charge. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored) of ISI mark as approved.
21	Exhaust fan of heavy duty 300 mm sweep 1400 rpm with louvers of exhaust fan in the existing wall, including fixing & connection as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
	BDBS, DB, AC DB, FLOOR PANEL, MCBS
22	Three pole/single pole and neutral, sheet steel, double door MCB distribution board, 415 volts/240 volts shall be as per IEC 61439-3, integrated door earthing system offering additional safety to the user, High quality polyurethane Gasket, the box and cover shall be fabricated to withstand IK09, the DB should be properly pre-treated with 7 tank process and duly powder coated, phosphatized with powder coated finish, on surface/recess, complete with terminal blocks, with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper busbar, neutral busbar, earth bar, din bar as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
23	4 Way (8+12) Way TPN MCB DD DB Horizontal Type as per IEC 61439-3 suitable for Flush mounting and Surface mounting with 100A Copper Bus Bar for each phase, with neutral Bus bar, Earth Bar & Cable ties for cable management, prefitted masking sheet, IP43-IK09 with metal door as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
24	2+4way MCB Enclosure DB (GLAZED door) (only each EM. CONNECTION UPS LOAD) as required of approved make as per specification in BOQ, BIS and direction of the Engineer in charge.
25	6- 32 amps rating, 240 volts, C series, Single poles MCB of approved make in the existing MCB DB complete with connections as per specification in BOQ, BIS and direction of the Engineer in charge.
26	6- 32 amps rating, 240 volts, C series, Double poles MCB of approved make in the existing MCB DB complete with connections as per specification in BOQ, BIS and direction of the Engineer in charge.
27	40Amps 4P 415 volts, MCB in the existing MCB DB in the existing MCB DB complete with connections as per specification in BOQ, BIS and direction of the Engineer in charge.
28	40 Amps rating, RCCB 30mA. in the existing MCB DB complete with connections, testing and commissioning etc as per specification in BOQ, BIS and direction of the Engineer in charge.

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29	40 amps rating, 240 volts, C series,10KA breaking capacity, Double poles MCB of in the existing MCB DB complete with connections as per specification in BOQ, BIS and direction of the Engineer in charge.Warranty on MCB is 1 year.
30	25 Amps 4P 415 volts RCCB 30 mA of approved make in the existing MCB DB complete with connections as per specification in BOQ, BIS and direction of the Engineer in charge.
	CABLING AND END TERMINATION MAIN AREA
31	PVC insulated armoured and PVC sheathed XLPE property AL. conductor power cable of 1.1 KV grade of following size cables as per specification in BOQ, BIS and direction of the Engineer in charge. 4core x 16 sq mm (incommer)
32	PVC Insulated PVC Seated /XLPE power cable of 1.1 kv grade size not exceeding 25 SQ. MM direct in ground in the trench in one horizontal formation including excavation, sand cousing protection covering and refilling the trench etc as required as per specification in BOQ, BIS and direction of the Engineer in charge.
33	PVC Insulated PVC Seated /XLPE power cable of 1.1 kv grade size not exceeding 25 SQ. MM in surface with shaddle and screw etc as required as per specification in BOQ, BIS and direction of the Engineer in charge.
34	End termination with brass double compression gland and aluminium lugs for following mentioned size cable as per specification in BOQ, BIS and direction of the Engineer in charge. 4 core x16sq mm
35	G.I. pipe (medium class) in ground complete with G.I fitting incl. trenching(75 mm depth)and refilling as per specification in BOQ, BIS and direction of the Engineer in charge. 50 mm dia
	CABLE TRAY /RACE WAY FOR DISTRIBUTION OF POWER
36	Perforated cable trays with horizontal & vertical bends, reducers, tees, crossover, brackets & other accessories ar requited confirming to IS-IEC - 61537, the cable tray shall be galvanised for corrosion protection confirming to DIN EN 10346/ISO 1461. Size 60mm(H) x 200mm(W)of The Load bearing capacity of the Cable Trays should be minimum of 104.8Kg/meter at the span of 1.5Meter as per UL specifications as required as per specification in BOQ, BIS and direction of the Engineer in charge.
37	FLOOR RACE WAY WITH JUNCTION box GALVANIZED(GC) type AS PER EN-ISO-1461, with internal dimensions of size 38mm(H) x 225mm(W), of .(With all accessories, bend, cover, supporter)WITH REQUIRED SIZED JUNCTION BOX ,COVER CONNECTOR as required as per specification in BOQ, BIS and direction of the Engineer in charge.
38	4 pair Cat6 23 awg U/UTP LSZH Cable in the existing surface/ recessed steel/ PVC conduit as required: The 4 pair Unshielded Twisted Pair cable shall be UL Listed, exceeds the requirements of ANSI/TIA-568-C.2 and ISO/IEC 11801 Class E, 4 twisted pairs separated by internal PE Cross Separator. Full separator. Half shall not be accepted. Rip Cord is must, Insertion Loss of 32.8 db/100m at 250 MHz, Cable should support operating temperature from -20°

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	to +70°C Cable support Conductor Resistance $\leq 9.38 \Omega/100m$ Max., Cable support Delay Skew: $< 45 \text{ ns}/100m$, Operating Voltage: 72V, Impedance: $100 \pm 15 \Omega$ @100 MHz. and Propagation Delay @250 MHz: 536 ns/100m, ETL Verified 4 connector channel performance up to 700 MHz, RoHS Compliant as per specification in BOQ, BIS and direction of the Engineer in charge.
39	Cat6 I/O with Dual Face plate: The Outlet shall meet or exceed requirement as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173. The information outlet NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified for CAT6 @ 250Mhz & CAT6A @ 500Mhz. The information outlet connector shall be of gold/nickel, thickness of gold $> 0.8 \mu m$. The connectors shall be compatible as per IEEE 802.3af standard for POE application. The PVC material of Face plate should compile ABS /UL94-V-O certified as per specification in BOQ, BIS and direction of the Engineer in charge.
40	Cat 6, 24-port loaded, 1U Modular Jack Panel Should accommodate Cat6 with Rear Cable Management and Front removable Toolless Information outlet. Should have easy clip management with labels and clear label covers, made with of Dicast Aluminium Alloy Material and Non-Corrosive with Cat6 toolless RJ45 x 24 ports with colour code front panel with patch cord locking as per specification in BOQ, BIS and direction of the Engineer in charge.
41	Cat6 UTP 24 AWG Patch Cord Patch cord: 6 UTP Patch Cords are Factory Tested for Better Quality and Suitable for the High-speed Data Transmission. Complies to the Standard ANSI/TIA/EIA-568-C.2 Standard. Supports Data Networks Speeds Up to 10/100-Base-T and 1000-Base-T. Available in LSZH Jacket-Reduced Toxic Gasses Emitted During Combustion, RJ45, 8P8C, 2 FORK 50 μ ” Gold Plated Contacts, 100% Factory Tested, Transparent Boot Cable Assemblies as per specification in BOQ, BIS and direction of the Engineer in charge.
42	Cat6 UTP 24 AWG Patch Cord Patch cord: 6 UTP Patch Cords are Factory Tested for Better Quality and Suitable for the high-speed Data Transmission. Complies to the standard ANSI/TIA/EIA-568-C.2 Standard. Supports Data Networks Speeds Up to 10/100-Base-T and 1000-Base-T. Available in LSZH Jacket-Reduced Toxic Gasses Emitted During combustion, RJ45, 8P8C, 2 FORK 50 μ ” Gold Plated Contacts, 100% Factory Tested, Transparent Boot Cable Assemblies. (2 mtr length) as per specification in BOQ, BIS and direction of the Engineer in charge.
43	6 core Single mode OS2 Unitube Armoured Optical fiber cable through existing conduit: The Fiber should be OS2 Single Mode Optical Fiber Cable of Size 9/125 μm . Outdoor Corrugated Steel tape Central loose tube. (Standard Approved: ISO 11801 2nd edition/ EN 50173-1:2002 / IEC 60794-1/IEC 60793-2-50 class B1.3 / EN 60793-2-50: class B1.3 / ITU Recommendation G.652.D - the oder ITU designations A, B and C are also fulfilled / OS1/ISO/IEC 24702:2006, cat. OS2; also OS1 requirements are fulfilled/IEEE 802.3 - 2002 incl. 802.3ae) Jacket as per specification in BOQ, BIS and direction of the Engineer in charge.
44	Rack mount Draw Type Loaded 6 port LIU available in Standard 19”, Dimensions (mm) : 430 X 220 X 1U , Cold Rolled Steel as Raw Material , Consist of Top Cover and Bottom Panel , Easy to Assemble and Disassemble , Three Types of Input Holes Cable Entry Through Water Proof Cable Clamp , 12 Duplex SC or LC Adapter Interface , Splice 24 Fibers at Most with 1 Tray ,Adaptor, SM, Duplex SC, PC Type ,Pigtail, Support the TIA/EIA

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	Telecommunication Wiring Standards. Compact Design, Telcordia GR-326-Core as per specification in BOQ, BIS and direction of the Engineer in charge.
45	OFC Patch Cor, SM (OS2), Duplex LC-SC, LC-LC PC Type, 3M, LSZH Fiber Optic Single Mode OS2 Patch Cords are offered in LSZH Jackets with Corning Fiber, Insertion Loss : ≤ 0.2 db, Max 0.3db/MTRJ: Max 0.5db Return Loss : $PC \geq 45$ db, $UPC \geq 50$ db, $APC \geq 60$ db as per specification in BOQ, BIS and direction of the Engineer in charge.
46	1G-LX/LH SFP transceiver module, SMF, 1310nm, 9/125 um Single mode Fiber Type up to 20 KM as per specification in BOQ, BIS and direction of the Engineer in charge.
47	9U/500D Wall Mount Rack with Accessories: The rack size should be 600W x 500D, Front frame integrated with top, bottom, front and two side panels for better rigidity and strength, Front Glass Door with Lock loaded, Compliance with standards shall be UL 2416., DIN 41494, IEC EN 60529, IEC EN 62262 , IEC EN 60068-2-11 , ISO 9001:2008 including Power Distribution Unit (06/16 Amp Indian-Standard - 06 Socket - Single Pole / Screw Mountable / 16 Amp MCB / Alternating Current - 16 Amp 3 Pin Plug with Power Cable 2.5 sq.mm 3 meter Length), 1 cooling Fan(230V AC - 90 CFM, dB 42), 2nos 1U Metal Cable manager with Plastic cable loops and H/W screw as per specification in BOQ, BIS and direction of the Engineer in charge.
48	Heavy class PVC FRLS conduit ISI marked along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required as per specification in BOQ, BIS and direction of the Engineer in charge. 20 MM 25 MM
49	0.5 sq mm FR PVC insulated annealed copper conductor, unarmoured telephone cable in the surface/ recessed steel/ PVC conduit as required as per specification in BOQ, BIS and direction of the Engineer in charge. 2 Pair
50	5MP IP Network TDN Low-Light IR Fixed Lens Dome/Bullet Camera, 1/2.8" CMOS or better, 5MP (2592 x 1944) @ 25fps or better, four stream at various resolution & Frame Rates, Min. Illumination required 0.005 lux (color), 0 Lux IR On, 3 IR LEDs, Smart IR with upto 50m(bullet)/40m(dome) IR distance, Auto ICR (Infrared Cut Filter) 130dB True WDR, S/N Ratio 55db, Shutter Speed 1/3 - 1/100,000; Advance Video Compression technology such as H.265 HEVC/ H.264 / MJPEG , Fixed Lens 2.8mm(Dome)/3.6mm(bullet), Field of View FoV H:96.5°, V:73.8°(dome)/ Field of View FoV H:94.1°, V:71°(bullet), BLC, HLC, WDR, 2D/3DNR, White Balance - Auto/Manual/Day/Night/timing, Minimum Edge Intelligence Video Analytics : Video Motion Detection, Tampering, Loitering, Intrusion, & People Counting, 5 Privacy Mask, 6 Region Of Interest, Defog, HTTPS, IP Filter, TLS1.2, AES-128/256, SSH/Telnet closed, Stream Encryption, 2TB SD card support, PoE (802.3 af) and 12V DC, IP 66/67 & IK10 Vandal proof with Die Cast Aluminium Housing, Having Operating temp range : -30°C to 60° C. Certifications: ONVIF Profile S/G/T compliant,, CE (EN 50130-4), FCC Part 15, EN 55032 & RoHS (EN63000), NDA, STQC compliant as per specification in BOQ, BIS and direction of the Engineer in charge.

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51	Lightning conductor finial, made of 25 mm dia 300 mm long, G.I. tube, having single prong at top, with 85 mm dia 6 mm thick G.I. base plate including holes etc. complete as required as per specification in BOQ, BIS and direction of the Engineer in charge.
52	Lightning conductor finial (single prong) with base plate including holes etc. complete as required as per specification in BOQ, BIS and direction of the Engineer in charge.
53	Copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required as per specification in BOQ, BIS and direction of the Engineer in charge.
54	G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required as per specification in BOQ, BIS and direction of the Engineer in charge. (For horizontal run)
55	G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required as per specification in BOQ, BIS and direction of the Engineer in charge. (For vertical run)
56	Joint, made of 20 mm X 3 mm thick G.I. strip, 125 mm long, with 4 nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required as per specification in BOQ, BIS and direction of the Engineer in charge.
57	Electric Motor Driven Pressurization Terrace Pump having discharge of 900 LPM at 35 Mtr head complete with Pump Set, Electric Motor suitable for operation on 415 V ,3 ph, 50 c/s AC supply, Base Frame as per specification in BOQ, BIS and direction of the Engineer in charge.
58	Floor/Wall mounted sectionalised, front operated top entry dust and vermin proof M.V.Panel Boards suitable for operation at 415V, 3 phase, 4 wire, 50Hz distribution system fabricated out of 2.0 mm thick CRCA sheet, insulated busbar with heat shrinkable PVC sleeve, base frame, complete with all accessories including interconnections, earth bus etc as required comprising of One (1)- 63 Amp, 10 KA,TPN (Class-C) MCB with 3 Nos Phase indicating lamps with control fuse/ MCB, Digital Voltmeter with selector switch. DOL starter with O/L and Single Phasing Preventor suitable for 7.5 HP motor. ON/OFF indication lamps, Auto manual switch and ON/OFF push button.as per direction of engineer in charge Control panel for fire pumps for auto action as per specification in BOQ, BIS and direction of the Engineer in charge.
59	FRLS, PVC outer sheath, steel armoured, aluminium, 1100v grade power cables with glands etc. The minimum size of the cables shall as mentioned below as per direction of engineer in charge 3.5C x 16 mmsq as per specification in BOQ, BIS and direction of the Engineer in charge.
60	2 core 1.5 sq.mm, multi strand, copper conductor, FRLS (Fire Retardent Low Smoke)-PVC insulated GI Screened Armoured cable with saddle and required accessories & Power Cable as per specification in BOQ, BIS and direction of the Engineer in charge.
61	G.I. earthing strips of 25mm x 6mm thick, strip shall be run for PUMPS as per specification in BOQ, BIS and direction of the Engineer in charge.
62	C' class MS Pipe as per IS1239 for underground/over ground pipes with welded / flanged connection with saddles, supports (all with screwed/welded joints)

	as required including pipe of shorter lengths, tapering connecting pieces, short or long bends, specials like sockets, union nuts, elbows, reducers, plugs, Tees etc. Complete to make the system operative as required by LFA / TAC authorities the pipes will have to be laid and fixed in trenches. The work includes excavation in all types of soils and back filling, dewatering, etc., making holes in brick or RCC walls, slabs/ roofs and making good the damages by bringing to the original condition to the satisfaction of the client and painting two coats of approved shade(Post office red)of enamel paint over a coat of approved primer for overheads pipes and providing and fixing pyp kote (corrosion protection tape) including supply and application of pipe coating and spiral Wrapping for underground piping (wrapping should have overlap of 15 to 20 mm) etc.Complete as per ASTM standards/IS: 10221 for corrosion protection of pipes for the underground installation.Note: The piping installation has to be put to hydraulic test to1.5 times the working pressure & as per latest applicable codes & standard before applying paint or pipe coating or wrapping etc. complete as per specification in BOQ, BIS and direction of the Engineer in charge. 100mm NB 80mm NB 25mm NB
63	'C' class MS Pipe as per IS1239 for underground/over ground pipes with welded / flanged connection with saddles, supports (all with screwed/welded joints) as required including pipe of shorter lengths, tapering connecting pieces, short or long bends, specials like sockets, union nuts, elbows, reducers, plugs, Tees etc. Complete to make the system operative as required by LFA / TAC authorities the pipes will have to be laid and fixed in trenches. The work includes excavation in all types of soils and back filling, dewatering, etc., making holes in brick or RCC walls, slabs/ roofs and making good the damages by bringing to the original condition to the satisfaction of the client and painting two coats of approved shade(Post office red)of enamel paint over a coat of approved primer for overheads pipes and providing and fixing pyp kote (corrosion protection tape) including supply and application of pipe coating and spiral Wrapping for underground piping (wrapping should have overlap of 15 to 20 mm) etc.Complete as per ASTM standards/IS: 10221 for corrosion protection of pipes for the underground installation.Note: The piping installation has to be put to hydraulic test to1.5 times the working pressure & as per latest applicable codes & standard before applying paint or pipe coating or wrapping etc. complete as per specification in BOQ, BIS and direction of the Engineer in charge. 100mm NB
64	Cast iron double flanged type dual plate Non return Valve as per IS- 5312 (Part 1): 2004 with ISI mark of pressure rating PN-1.60 including fixing the same with supply of required jointing materials like flanges, rubber insertion, MS nuts & bolts, paint etc. and testing the joints with required water pressure etc. all complete as per specification in BOQ, BIS and direction of the Engineer in charge. 100mm NB

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65	Pressure gauge of 0-16 Kgf/sq.cm. range with cut-off bronze ball valves of suitable size with all accessories as per specification in BOQ, BIS and direction of the Engineer in charge.
66	Pressure Switch with cut-off bronze ball valves with integral strainer & flare nut (mixed ends) of suitable size with all accessories as per specification in BOQ, BIS and direction of the Engineer in charge.
67	Stainless steel strainer fabricated out of 1.6 mm thick stainless steel sheet Y Stainer with 3 mm dia holes with stainless steel flange as required as per specification in BOQ, BIS and direction of the Engineer in charge. 100mm NB
68	Stainless steel Hydrant Valve / Landing valve, of 63 mm NB size, type-A, single headed, oblique type, as per IS :5290/93 and as per specification in BOQ, BIS and direction of the Engineer in charge.
69	SS short branch pipe with 63 mm male inlet and 19 mm outlet nozzle, as per IS:903 and as per specification in BOQ, BIS and direction of the Engineer in charge.
70	63 mm NB and 15meter long RRL Fire Hose fitted with 63mm instantaneous stainless steel male & female SS coupling, complete by GI wire binding for Internal Hydrant as per specification in BOQ, BIS and direction of the Engineer in charge.
71	MS Hose Box for of suitable size(750X600X250mm) to accomodate 2 nos. of 15/ 1 no of 30 mtr long fire hose and a branch pipe, wall mounted type as per specification in BOQ, BIS and direction of the Engineer in charge.
72	Swinging pattern wall fixing first aid hose reel made from MS sheet and waterways and moving parts with rubber hose of 20 mm dia. and 30 mtrs. long with ABS(Plastic) shut-off nozzle as per IS: 444/IS: 12585 Type-I., complete with all accessories as per specification in BOQ, BIS and direction of the Engineer in charge.
73	C.I. 25 MM single air relief valve with stop cock confirming to IS:14845/2000 with ISI mark for water works purpose including fixing the same with hydrant riser including testing & commissioning the system etc. all complete as per specification in BOQ, BIS and direction of the Engineer in charge.
74	4-Way GM fire brigade connection consisting of 63 mm dia instantaneous type male couplings with built-in check valves, 150mm dia flanged outlet complete with bolts, nuts and rubber insertions confirming to IS:904 with ISI mark including testing & commissioning the system etc. all complete as per specification in BOQ, BIS and direction of the Engineer in charge.
75	CO2 type Fire Extinguisher 4.5 kg capacity confirming to IS: 2878 made from ISI marked seamless cylinder confirming to IS: 7285, fitted with ISI marked controlled valve confirming to IS: 3224, high pressure 1mtr discharge hose & horn complete with initial gas charged with carrying handle & wall mounting bracket as per specification in BOQ, BIS and direction of the Engineer in charge.
76	Fire buckets (FILLED WITH SAND) round bottom type enamel painted, white inside & Red out side and Letter "FIRE" in black out side and handle with

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	mounting bracket as per specification in BOQ, BIS and direction of the Engineer in charge.
77	4 Loop Network Panel micro-processor based 4 wire fault tolerant loop, with inbuilt network port (each loop accessing 99 or more detectors and 99 or more modules) fire alarm/detection control panel. The Panel shall have 10000 or more event log history. Panel shall be capable of having 1600 or more configurable zones. The panel shall be able to give location of all fire/fault conditions of addressable units via the address codes. Further, the panel must be able to automatically switch ON /OFF respective control module whenever any alarm is triggered. The panel shall have 7 Inch Touch Screen unit to indicate Fire/Fault Signal with address and analog output, external/inbuilt printer to log all fire or fault events complete in all respects. The Panel shall be Sheet Steel Painted, sealed to IP30. The Panel shall have provision for 40 or more Zones with Individual LED Indicators expandable upto 200 Zones or higher. The panel shall have a built-in power supply and battery charger along with maintenance free 7 AH, 2 x 12 volt SMF Lead acid batteries capable of running for a minimum of 48 hours with battery charger complete as required and as per specifications. conforming to BS5839 Standards and Duly Approved by EN54 The panel shall support detection logics like coincidence & verification detections for the false alarm management. The Panel shall adjust the sensitivity between day and night to maintain the better detection/response time. The Panel shall be capable of programming through PC ; Touch Screen of USB .This panel having facility of MODBUS protocol over TCP/IP for BMS integration. The panel should have provision for inbuilt RJ45 connection terminal for connecting to the LAN with inbuilt BACNET Protocol as per specification in BOQ, BIS and direction of the Engineer in charge.
78	Addressable multi sense smoke detector with inbuilt isolator module/isolator base, base, junction box and other accessories as per specification in BOQ, BIS and direction of the Engineer in charge.
79	Addressable Manual Call Point with inbuilt monitor module and back box as per specification in BOQ, BIS and direction of the Engineer in charge.
80	Addressable Hooter at 85 dBA @ 3m for Audible annunciation and 75cd flashing at 1 Hz for visual indication with all accessories etc., complete as per specification in BOQ, BIS and direction of the Engineer in charge.
81	2C x 1.5 sq. mm, Twisted Pair PVC insulated FRLS Armoured Cable with Accessories conforming to IS standards and specifications. The quoted rate shall include of Acrylic Fire stop Sealant in the opening for cables passing through fire compartment walls of RCC floors, masonry walls to provide up to 2 hours fire rating as per specification in BOQ, BIS and direction of the Engineer in charge.
82	6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required as per specification in BOQ, BIS and direction of the Engineer in charge.
83	Power amplifier of 480 watt. The amplifier should be clean reliable audio for public address amplification. Line input less than 1 volt, unbalanced & line output less than 1 volt unbalanced as per specification in BOQ, BIS and direction of the Engineer in charge.

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84	12 Watt wall mounted speakers with built in line matching transformer, grill flush mounting type inside the utility rooms as per specification in BOQ, BIS and direction of the Engineer in charge.
85	2 runs of 40 strand and each of 0.2 mm thick, Twisted Pair PVC insulated FRLS unarmored Cable with Accessories confirming to IS standards and specifications. The quoted rate shall includes of Acrylic Fire stop Sealant in the opening for cables passing through fire compartment walls of RCC floors, masonry walls to provide up to 2 hours fire rating as per specification in BOQ, BIS and direction of the Engineer in charge.
86	Sign boards made out of 3mm thick flexible photoluminescent based glow in dark sheeting with luminous properties enclosed in a weather proof Uvstabilized film with UV screen printing by imported links pasted over 3 mm thick cast acrylic from front side with 6 mm thick acrylic, -20 to +80 deg C, Suitable for indoor use, greenish yellow, glow visible upto 4-6 hr in total darkness for floor indication, fire exit, hydrant, hose reel, fire extinguisher, MCP, fire alarm panel, in case of fire, lift, alarm valve signages, FIRE EVACUATION PLAN as per specification in BOQ, BIS and direction of the Engineer in charge.
87	13 Passenger lift gearless with Machine room Capacity(884 Kg), Elevator G+2 Floors with ACVVVF drive/Control with ARD 1.25 MPS, SS honeycomb interior, 2hr fire rated door with simplex operation without attendant car position indicators, battery operated alarm bell & emergency light, SS honeycomb finish door finished car interior, recess Granite flooring, power operated centre opening automatic sliding SS honeycomb finish doors for car entrance & hoist way entrance etc. All SS Material shall be of SS-304 Grade and the thickness shall not be less than 1.6mm. Machine beams, buffer support channels, fascia plate including sills pit ladder metal screen in Elevator pit etc. as per specification including cost of (i) Overload detection, (ii) Voice announcement, (iii) Intercom, (iv) Braille Buttons with all Civil & Electrical works required for installation of Elevator in the existing lift well and machine room, scaffolding, floor cutting including Fireman's switch complete in all respect. The Elevator should be suitable for physically handicapped person as per specification in BOQ, BIS and direction of the Engineer in charge.
88	Chlorinated Polyvinyl Chloride [CPVC] pipes SDR-11 conforming to IS:15778, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fitting including fixing the pipe with clamps at 1.00m spacing. This includes jointing of pipes and fittings with one step CPVC solvent cement and testing of joints complete as per specification in BOQ, BIS and direction of the Engineer in charge. 20 mm PVC sch-80 pipes 25 mm PVC sch-80 pipes 32 mm PVC sch-80 pipes 50 mm PVC sch-80 pipes
89	C.P. Brass Extension Nipple 1 inch with extension piece as per specification in BOQ, BIS and direction of the Engineer in charge.
90	CP Gratings of the following nominal diameter of outlet, of self cleaning design with sand cast iron screwed down or hinged grating with or without vent arm

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	including cutting and making good to the walls and floors etc. all complete as per specification in BOQ, BIS and direction of the Engineer in charge.
91	Chrome plated Grab Bar, for Physically challenged toilet, The work shall include the cutting of walls or floors & making good, complete as per specification in BOQ, BIS and direction of the Engineer in charge.
92	Chromium Plated brass or glazed porcelain Toilet paper holder fixed to woden plugs with Chromium Plated brass screws complete as per specification in BOQ, BIS and direction of the Engineer in charge.
93	1000 Litre HDPE Overhead Water Tank (2-layer, 3-layer, etc.).of approved with UV stabilization, food-grade material & manhole cover complete and commissioning complete with approved quality and make as required as per instruction of site incharge as per specification in BOQ, BIS and direction of the Engineer in charge.