

**TENDER**

**FOR**

***STRENGTHENING AND UPGRADATION OF  
KOZHIKODE MEDICAL COLLEGE  
FOR  
INCREASING PG SEATS***

**PART-III  
PRICE BID**

**TENDER NO. HLL/ID/13 /01  
JANUARY 2013**

**HLL LIFECARE LIMITED  
INFRASTRUCTURE DEVELOPMENT DIVISION**

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## **1 COMMERCIAL CONDITIONS**

1.0.1 The tendered rate shall inter alia be deemed to include for the provision of all materials, process, operation and special requirements detailed in the particular specification irrespective of whether these are mentioned in the description of equipment schedule and Bill of quantities or not. It is an express condition of the contract that the tendered rates for various items in the Bill of Quantities shall be deemed to include for the full, entire and final condition of the contractor respective items of the works in accordance with the provision of the contract.

1.0.2 The tendered rate shall include for all taxes, duties, etc. as applicable and shall be quoted on the works contract basis for Strengthening and Upgradation of Govt. Medical College, Kozhikode.

1.0.3 The tendered rate shall remain firm and free from variation due to rise in the cost of materials/equipment, labour or any other reasons whatsoever during the contract period and valid extension on the case may be.

1.0.4 The quantum of excise duty included in the tendered price, the rate at which they were assumed etc. shall be indicated in the tender.

### **1.1 UNIT RATES**

1.12 Only approved work will be measured on completion and priced as per rates quoted against the respective items.

### **1.2 BRIEF DESCRIPTION OF PRICING**

- 1.2.1. Unforeseen difficulties for which provision has not been made in the tender will in no way relieve the successful tenderer from the full execution of the work.
- 1.2.2 The price quoted shall be the final amount for this finished work.

### **1.3 INCOME TAX**

Any payment to the contractor as per contract, will be made after deducting income tax as per the rules and regulations.

#### **1.4 SALES TAX AND EXCISE DUTY**

The tenderer shall clearly indicate sales tax, Excise and other duties as applicable in his offer for carrying out this work.

#### **1.6. SUBMISSION OF BILL**

1.6.1. The contractor shall from time to time prepare and submit interim bills of the work executed and on completion of the contract, he shall prepare and submit the final bill. The measurements sheets in support of the interim and final bills shall be prepared by the contractor on the basis of measurements taken by him jointly with the project engineer and the said measurement sheets shall be submitted by him with the relevant bill.

1.6.2. Within the above frame work of the terms of payment the contract's interim bills will have to be of a minimum value of Rs.2.25 Crores only.

#### **1.7. EXTRA ITEMS**

The contractor is bound to carry out any items of work necessary for the completion of the job even though such items may not have been included in the schedule of probable quantities or rates, such items being necessary or essential for completing the job. Variation order in respect of such additional items and their quantities will be issued in writing by the employer.

1.7.1 All shavings, cuttings and other rubbish as it accumulates from time to time during the progress of work and on completion including that of the sub-contractors and special tradesman and all materials condemned by the project engineer shall be cleared and removed from the site by the contractor without any extra charge.

1.7.2 All measuring steel taps, scaffolding, ladders instruments and tools that may be required for taking measurements shall be supplied by the contractor.

#### **1.8. OVER TIME WORK**

If the contractor is required to work night or on holidays in order to maintain the time schedule he shall take prior approval from the Engineer-in-charge. He should also provide and maintain at his own cost sufficient lights as may be necessary to enable the work to proceed satisfactorily during the night.

- 1.8.1. The contractor shall give full facilities to all other contractors working on site. He shall also arrange his programme of work so as not hinder the progress of other trades. The decision of the Engineer-in-charge on any point of dispute between the various parties shall be final and binding.
- 1.8.2. It is specifically pointed out that the contractor shall not be entitled to any compensation whatsoever on account of delay in procurement or supply of controlled materials and the rates quoted in the contract are fixed till the completion of the contract.
- 1.8.3. The contractor shall co-operate with other agencies appointed by the owners for the work to proceed smoothly with the least possible delay and to the satisfaction of the owners, architects and the consultants.
- 1.8.4. The owners shall provide a source for power supply at one convenient point at site. The contractor shall at his own cost install a separate meter at the said source and lay additional cables from the said source also at his own cost. For the electricity consumed by the contractor he shall pay the owner the actual cost at the rate charged by the local authority for power for constructional purposes. The contractor shall also obtain the necessary permit for utilizing power for constructional purposes.

## **2. SPECIAL CONDITIONS**

### **2.1. EXECUTION WORK**

- 2.1.1. The whole of the work as described in the contract (including bills of materials, specification and all drawings pertaining thereto) and as advised by the Engineer-in-charge from time is to be carried out and completed in all parts to the entire satisfaction of the Employer. Any minor details of construction which are obviously and fairly intended, or which may not have been definitely referred to in this contract, but which are usual construction practice and essential to the work, shall be included in this contract.

### **2.2. CERTIFICATE OF COMPLETION**

- 2.2.1 The contractor shall intimate to the Engineer-in-charge in writing as and when the works are completed and put into beneficial use in order to enable the consultants to check certify to the owners to take over the plants.
- 2.2.2 The work shall not be considered as completed and put into beneficial use until the consultants have certified in writing that the same has been completed and put into beneficial use.
- 2.2.3 The defects liability period shall commence from date of such completion or any specific date mentioned therein.

### **3. TECHNICAL SPECIFICATIONS**

#### **AIR CONDITIONING SYSTEM**

#### **SECTION - I**

#### **BRIEF DESCRIPTION OF WORK**

##### **1.1 Scope of Work**

The scope of work covers design, preparation of drawings, supply, installation, testing and commissioning of Air-conditioning System for PG Upgradation at Govt. Medical College, Kozhikode.

##### **1.2 Space to be Air conditioned**

The space to be air-conditioned is as per the drawings attached. Tenderers are advised to visit the site before submitting their bids.

##### **1.3 Bill of Quantities & Equipment**

The details of equipment and the bill of quantities required are furnished in relevant sections of this document. The technical specifications are also described. The tenderers are required to fill in the prices item wise all inclusive, as per format and submit the Bill of Quantities. The rate quoted should be inclusive of taxes, duties, freight, packing and forwarding, Octroi entry tax, loading, unloading, handling at site, etc. The tenderer shall not be eligible for any extra amount due to change in taxes, duties, etc.

##### **1.4 Technical Data**

The tenderers are required to submit technical data documents as per the format. The data proposal sheets are enclosed in the tender document. The tenderer shall fill in all the data required.

## Section- II

### **TECHNICAL DETAILS**

#### **2.1 SCOPE OF WORK**

The complete scope of work shall cover supply, installation, testing and commissioning of Air Conditioning System for PG Up gradation at Govt. Medical College, Kozhikode including sizing of ducts, pipes routing & exhaust ventilation for toilets including ducting. The contractor shall submit the design & drawings for approval and obtain approval from Consultant/ Client before commencement of works.

#### **2.2 Basis of Design**

The entire system has been designed based on climatological data available as given under the section basis of Design. The technical requirements given under here are only indicative and not descriptive and the contractor shall ensure that the whole system supplied is complete in all respects for the smooth operation of the plant and should be suitable for the rated performance.

#### **2.3 Terms and Definitions**

The following terms have been used in the tender specifications, drawings, etc.

BIS Bureau of Indian Standards

ASHRAE American society of Heating, Refrigeration and Air-conditioning Engineers, USA.

ASME American Society of Mechanical Engineers.

ASA American Standard Association.

B.S British Standards

CMH Cubic Meter per Hour

CFM Cubic Feet per Minute

US GPM US Gallons per Minute

IGPM Imperial Gallons per Minute.

RPM Revolutions per Minute

BTU/Hr. British Thermal Unit per Hour

KCal/Hr. Kilo Calories per Hour

HZ Hertz

H.P. Horse Power

Kg/CM<sup>2</sup> Kilo Gram per Square Centimeter

SG Supply Air Grilles

SD Supply Air Diffuser

SAF Supply Air Filters

FD Fire Damper

VCD Volume Control Damper

RG Return Air Grilles

RD Return air diffuser

FAD Fresh Air Damper

RH Relative Humidity

DB Dry Bulb Temperature

WB Wet Bulb Temperature

MV Mechanical Ventilation



DP	Drain Point.
RO	Rate Only

The design, manufacture, identification of material and testing of the equipment covered in this specification shall comply with the latest edition of the appropriate standard of the following:

- 1) Duct Work - IS:655 (latest edition)
- 2) Welding - IS:3589
- 3) Refrigeration and Air-conditioning - As per ASHRAE/ISI air-conditioning and refrigeration institute standards.
- 4) Sluice Valves for Water Lines - IS:778-1980
- 5) Copper alloy Gate/ Globe / Check Valve for water lines - IS:778
- 6) Colour code for the identification of pipe lines - IS:2379-1963
- 7) Specific requirements for the direct switching of the individual motors - IS:4064 (Part-II)-1978
- 8) PVC insulated (HD) Electric Cables for working voltage up including 1100 Volts - IS:1554 (Part I)
- 9) Starters - IS:8554 (Part-I) 1979
- 10) HRC Cartridge fuse links upto 650 Volts - IS:2208
- 11) Inspection and testing of installation IS:732 (Part-III) 1979
- 12) Galvanized steel wire for fencing - IS:277-1977
- 13) Three phase induction motors - IS:325
- 14) Horizontal centrifugal pumps - IS:1620
- 15) Wrought aluminum and aluminum alloy sheet and strip for general engineering purposes - IS:737
- 16) Bourdan tube pressure & vacuum gauges - IS:3624
- 17) Glossary of terms used in refrigeration and air-conditioning - IS:3615
- 18) Code for practice for standard for selection of standard worm and helical gears - IS:7403
- 19) PVC insulated (heavy duty) electric cables for working voltage upto and including 1100 watts: -IS:1554 (Part-I)
- 20) Expanded Polystyrene (EPS) : - IS 4671.
- 21) Resin bonded glass wool: - IS 8183.

## 2.4 Safety Codes

The following IS codes shall be followed:

- Safety code for mechanical refrigeration - IS:660
- Safety code for air-conditioning - IS:659
- Safety code for scaffolds & ladders -IS:3696
- Code of practice for fire precautions in welding & cutting operations - IS:3016
- Code for safety procedures and practices in electrical works - IS:5216
- Code of practice for safety and health requirements in electrical & gas welding and cutting operations - IS:3696
- Indian Electricity Act 1910
- Electricity Supply Act and Indian Electricity Rules.

## 3.5 MACHINERY

## **AIR COOLED PACKAGED/DUCTABLE AIR CONDITIONING UNIT**

### **1. Cabinet**

The packaged split air conditioning units shall have metal cabinet of min 1.6mm thick (16 gauge) galvanized sheet steel. The body should be machine pressed and adequately stiffened. The body should be chemically treated for corrosion resistance and Polyester powder coated.

### **2. Compressor**

All compressors shall be hermetically sealed scroll type of suitable capacities. Compressor shall be suitable for R22 refrigerant. The compressor shall be electrically interlocked with indoor and outdoor fan motors, HP/LP cutouts and thermostat in the evaporator. The compressor shall be housed inside the Condenser.

### **3. Condenser (Air cooled)**

The coils shall be made of copper hydraulically bonded with aluminium fins. The tubes shall have a minimum of 9.5 mm outer diameter, firmly bonded with aluminium fins spaced at 12-14 fins/inch. The air velocity across the face of the coil shall not exceed 200 m/min. The coils shall be designed for a maximum working pressure of 35 kg./sq.cm. The condenser coil shall be protected on the open end by a wire mesh duly powder coated/plastic coated.

### **4. Evaporator coil**

The coils shall be made of copper hydraulically bonded with aluminium fins. The coils shall be hydrophilic in nature. The tubes shall have a minimum of 9.5 mm outer diameter, firmly bonded with aluminium fins spaced at 12-14 fins/inch. The air velocity across the face of the coil shall not exceed 170 m/min. The coils shall be designed for a maximum working pressure of 35 kg/sq.cm. The circuit should include a thermostatic expansion valve/capillary tube, distributor, liquid strainer, suction line shut off valve and liquid line shut off valve.

### **5. Condenser motor**

The condenser motor shall be of IP-55 rating.

### **6. Refrigeration piping and accessories**

Only hard drawn copper shall be used in piping with brass fittings wherever required. Brazing shall be with silver copper phosphorous alloy. Horizontal lines shall have a grading of at least 1:250 away from the compressor and towards condenser to prevent gravity draining of oil to compressor. Liquid lines shall be sized to ensure that flashing of liquid refrigerant does not occur. The circuit should include a thermostatic expansion valve, distributors, liquid strainer, de-hydrator and liquid lines shut off valve and suction line shut off valve.

Leaks shall be tested with soap solution at a minimum pressure of 21 kg/sq.cm. After all leaks have been repaired, system shall be tested with the test pressure maintained for a period of not less than 8 hours. No measurable drop in pressure should be detected after the pressure readings are adjusted for temperature changes. After satisfactory completion of the pressure test, the system shall be evacuated to reduce the pressure to 0.1 Kg/Sq.cm. for a period of 6 hours and vacuum broken. A vacuum pump connected to the refrigeration system shall be used to create the vacuum and the installed compressor shall not be used to create the purpose. The system shall again be evacuated and a vacuum of 0.01 Kg/Sq.cm.

maintain for 24 hours before charging with correct quantity of refrigerant and oil. The system shall be operated for 12 hours and then again tested for leaks.

7. **Drain Piping**

Drain pipe shall be of 32mm dia. PVC pipes. All Ductable Split units shall be provided with independent drain lines. And all the drain line above false ceiling shall be insulated. The drain shall be taken to the nearest exit points.

8. **Fan**

Fan section including wheel and housing shall be of heavy gauge steel/aluminium. Fans shall be centrifugal, forward curved multi-blade type. Fan housing shall have inlets and guide vanes for smooth air flow. Fans shall be complete with drive motor. The fans should be statically and dynamically balanced. The fan motor should be resilient mounted. The fan should deliver a static pressure of 20 mm.

9. **Dampers**

All fresh air intakes shall be provided with dampers. The fan outlets should be controllable with a damper. The supply collars, wherever mentioned, shall be provided with collar dampers.

10. **Filters**

All evaporator units shall be provided with air filters capable for filtration unto 20 microns. The filters shall be of washable synthetic fibre type.

11. **Control Panel**

All units shall have independent electrical control panels housing contactors, overload relays, voltage cutouts, time delays, interlocks, strip connectors, indication lamps, and control fuse. All these have to be housed inside the Outdoor unit of each circuit.

12. **Thermostat**

The Thermostat shall be control wired with the control panel and shall be placed in the return air path inside the boxing.

13. **Installation**

Adequate vibration isolation using rubber/neoprene pads/vibration springs in order to reduce transmission of vibrations to the floor shall be provided for all condensing units.

14. **Testing**

Ductable units after installation shall be tested for its conformity to specifications. Units shall also be tested for the rated capacity and power consumption.

15. **Electric motor**

The electric motor driving the compressor shall be as per manufacturer's standard for this compressor and motor shall be suitable for operation on A.C. supply. The motor shall be continuous duty rated for the application. The motor shall be selected such a way that the motor rating is for actual requirement.

The motor shall be provided with suitable bearing to take care of loads/thrust. Necessary lubricators shall be provided to enable the bearings to be correctly greased as required. The tenderer shall also calculate KW/TR.

## 2.6 DUCTING SYSTEM

This section deals with supply, erection, testing and commissioning of all sheet metal ductwork conforming to specifications given below. The ducts shall be of factory fabricated.

### 2.6.1 Material for Ducting

All ducts shall be fabricated from galvanized sheet of 120 gm/sq.m (Class VIII) confirming to IS 277-1962 (revised). The fabrication of duct shall strictly conform to ISS 655-1963. The thickness of the sheet shall be as follows:

Maximum size (mm)	Thickness of sheet (mm)	Type of transverse joint connections	Bracing (if any)
Upto 300	0.63 24 G	S-drive, pocket or bar slips, on 2.5m centres	None
301 to 600 601 to 750	0.63 24 G	S-drive, pocket or bar slips, on 2.5m centres S-drive, 25mm pocket or 25mm bar slips on 2.5m centres drive	None 25x25x3mm angle 1.2m from joint
751 to 1000 1001 to 1500	0.80 22 G	40x40mm angle connections, or 40mm pocket or 40mm bar slips, with 35x3mm bar reinforcing on 2.5m centres	40x40x2mm angle 1.2m from joint
1501 to 2250	1.00 20 G	40x40mm angle connections, or 40mm pocket or 40mm bar slips, 1 m maximum centres with 35x3mm bar reinforcing	40x40x3mm angle / 40x40x3mm angle 60mm from joint.
2251 & above	1.25 18 G	50x50mm angle connections, or 40mm pocket or 40mm bar slips, 1 m maximum centres with 35x3mm bar reinforcing	40x40x3mm angle / 40x40x3mm angle 60mm from joint.

The following points shall be also taken into account while fabrication of ducts.

- All ducts shall be as per gauges, etc. indicated on the approved drawings.
- All ducts of size larger than 450 mm shall be cross broken.
- All ducts shall be supported from RCC/truss by means of MS rods, angles, etc.
- The ductwork shall not extend outside and beyond height limits as specified on the approved drawings.
- All ducts shall be reinforced, if necessary and must be secured in place so as to avoid shifting of the ducts on its supports.
- The vanes shall be provided and securely fastened to prevent noise and vibration.
- The rubber gasket shall be installed between duct flanges in all connections and joints.
- The ductwork can be modified in consultation with Purchaser to suit actual conditions in the building.
- All flanges and supports should be primer coated on all surfaces before erection and painted with aluminum paint thereafter.
- The flexible joints are to be fitted to the suction and delivery of all fans with double heavy canvass. The length of flexible joints should not be less than 150 mm.

- k) All sheet metal gauges and fabrication procedure as given in BIS specification shall be strictly adhered to. The BIS specification shall form part of this contract.

### **2.6.2 Grilles/Diffusers**

Material of construction - Extruded Aluminum

Supply air and return air grilles shall be continuous type and shall be fixed as given in the approved drawing. The square/rectangular diffusers shall be flush or step down type to match false ceiling pattern. The diffuser blades shall be die formed, flush mounted with single or double direction airflow. Supply of frames for fixing the grilles/diffusers, if required, is also in the scope of the contractor.

Return air grilles shall be with blanks and return air provisions. The size and appearance shall match with supply air grilles. The supply air grilles shall form part of the continuous return air grilles. The fixing of grilles/diffusers should be done in close co-ordination with false ceiling work and as directed by Purchaser.

The aluminum grilles/diffusers, etc. shall be powder coated of colours to match the interiors. However, successful bidder shall have to obtain prior approval regarding colour, finish, shape, etc. of grilles/diffusers and sample should be submitted to Purchaser for approval.

### **2.6.3 Testing**

The complete duct system shall be tested for air leakage and complete air distribution systems shall be balanced in accordance with the approved drawings for achieving designed values inside the building.

## **2.7 THERMAL / ACOUSTIC INSULATION**

### **2.7.1 Material**

- ◆ Insulation material shall be Closed Cell Elastomeric Nitrile Butadiene Rubber.
- ◆ Insulation material shall have anti-microbial product protection. The antimicrobial product protection shall be an integral part of insulation that is built-in during the manufacturing process and the product protection should not allow the microbes to function, grow and reproduce.
- ◆ Resistance towards microbiological growth on insulation surface should confirm to following standards: Fungi Resistance – ASTM G21 where the fungal growth on the surface is NIL after 28 days of incubation at 28 – 30 deg C and Bacterial resistance – ASTM E 2180 where the reduction of bacterial growth is minimum 99.9% after 24 hours of incubation at 34 – 38 deg C.
- ◆ Thermal conductivity of Elastomeric Nitrile rubber shall not exceed 0.035 W/m<sup>2</sup>K at an average temperature of 20°C in accordance to EN12667
- ◆ The insulation shall have fire performance such that it passes Class 1 as per BS476 Part 7 for surface spread of flame as per BS 476 and also pass Fire Propagation requirement as per BS476 Part 6 to meet the Class 'O' Fire category as per 1991 Building Regulations (England & Wales) and the Building Standards (Scotland) Regulations 1990.
- ◆ Water vapour permeability shall not exceed  $1.74 \times 10^{-14}$  Kg/m.s.Pa, i.e. Moisture Diffusion Resistance Factor or 'μ' value should be minimum 10,000 according to EN 12086
- ◆ Density of Material shall be between 40 to 60 Kg/m<sup>3</sup>.

### **2.7.2 Duct Insulation**

External thermal insulation shall be provided as follow:

- ◆ The thickness of Nitrile rubber shall be as shown on drawing or identified in the schedule of quantity. Following procedure shall be adhered to:
- ◆ Duct surfaces shall be cleaned to remove all grease, oil, dirt, etc. prior to carrying out insulation work. Measurement of surface dimensions shall be taken properly to cut closed cell elastomeric rubbers sheets to size with sufficient allowance in dimension.
- ◆ Material shall be fitted under compression and no stretching of material shall be permitted. A thin film of adhesive shall be applied on the back of the insulating material sheet and then on to the metal surface. When adhesive is tack dry, insulating material sheet shall be placed in position and pressed firmly to achieve a good bond. All longitudinal and transverse joints shall be sealed as per manufacturer recommendations. The adhesive shall be strictly as recommended by the manufacturer.
- ◆ The detailed Application specifications are mentioned separately.

### **2.7.3 Insulation of Ducts Exposed Directly to Sunlight**

For installations exposed to sunlight, after giving 36 hours curing time for the adhesive apply manufacturer's recommended UV/Mechanical Protection. Please refer the separate detailed guidelines on UV/Mechanical Protection.

### **2.7.4 Piping Insulation**

All chilled water, refrigerant and condensate drain pipe shall be insulated in the manner specified herein. An air gap of 25 mm shall be present between adjacent insulation surfaces carrying chilled water or refrigerant. Before applying insulation, all pipes shall be brushed and cleaned. All Pipe surfaces shall be free from dirt, dust, mortar, grease, oil, etc. Nitrile Rubber insulation shall be applied as follows:

- ◆ Insulating material in tube form shall be sleeved on the pipes.
- ◆ On existing piping, slit opened tube of the insulating material (slit with a very sharp knife in a straight line) shall be placed over the pipe and adhesive shall be applied as suggested by the manufacturer.
- ◆ Adhesive must be allowed to tack dry and then press surface firmly together starting from butt ends and working towards centre.
- ◆ Wherever flat sheets shall be used it shall be cut out in correct dimension. All longitudinal and transverse joints shall be sealed as per manufacturer recommendations.
- ◆ The insulation shall be continuous over the entire run of piping, fittings and valves.
- ◆ All valves, fittings, joints, strainers, etc. in chilled water piping shall be insulated to the same thickness as specified for the main run of piping and application shall be same as above. Valves bonnet, yokes and spindles shall be insulated in such a manner as not to cause damage to insulation when the valve is used or serviced.

The detailed application specifications are as mentioned separately. The manufacturer's trained installer should only be used for installation.

### 2.7.5 Recommended Adhesive

In all cases, the manufacturer's recommended Adhesive should be used for the specified purpose.

### 2.7.6 Acoustic Insulation

Material shall be engineered Nitrile Rubber open cell foam.

The Random Incidence Sound Absorption Coefficients (RISACs) across the octave band frequencies; tested as per ISO 354, and Noise Reduction Coefficients (NRCs) for the Acoustic Insulation should be minimum as per the below chart:

Freq (Hz)	125	250	500	1000	2000	4000	NRC
10 mm	0.03	0.04	0.14	0.40	0.88	1.00	0.40
15 mm	0.01	0.09	0.29	0.74	1.08	0.83	0.55
20 mm	0.04	0.13	0.40	0.90	1.04	0.90	0.60
25 mm	0.05	0.25	0.86	1.14	0.88	0.99	0.80
30 mm	0.07	0.32	0.99	1.16	0.93	1.08	0.85
50 mm	0.23	0.73	1.29	0.99	1.09	1.11	1.05

- The material should be fibre free.
- The density of the acoustic insulation should be minimum 140 Kg/m<sup>3</sup>
- The insulation should have Microban®; Built-in Anti-Microbial Product Protection, and should pass Fungi Resistance as per ASTM G 21 and Bacterial Resistance as per ASTM E 2180.
- The insulation should be non-eroding & should pass Air Erosion Resistance Test in accordance to ASTM Standard C 1071-05 (section 12.7).
- The material should have a thermal conductivity not exceeding 0.047 W/m.K @ 20 Deg. C
- The material should withstand maximum surface temperature of +85°C and minimum surface temperature of -20°C
- The material should confirm to Class 1 rating for surface spread of Flame in accordance to BS 476 Part 7 & UL 94 (HBF, HF 1 & HF 2) in accordance to UL 94, 1996.
- The acoustic insulation should be tested and approved by Sound Research Laboratories Ltd., U.K.
- Thickness shall be 10mm for Duct Acoustic Lining
- Duct so identified and marked on Drawings and included in Schedule of Quantities shall be provided with internal acoustic lining for a distance of minimum 6 meters (or 30% of the duct length whichever is more)
- Thickness of the insulation material shall be as specified for the individual application. The insulation should be installed as per manufacturer's recommendation.

### 2.7.7 Accessories

Adhesive to adhere insulation to the inside walls of the duct shall be from the Insulation manufacturer only.

### 2.7.8 Under deck insulation

- ◆ Insulation material shall be Closed Cell Elastomeric Nitrile Rubber
- ◆ Density of Material shall be between 40 to 60 Kg/m<sup>3</sup>
- ◆ Thermal conductivity of elastomeric nitrile rubber shall not exceed 0.035 W/m<sup>2</sup>K at an average temperature of 0°C
- ◆ The insulation shall have fire performance such that it passes Class 1 as per BS476 Part 7 for surface spread of flame as per BS 476 and also pass Fire Propagation requirement as per BS476 Part 6 to meet the Class 'O' Fire category as per 1991 Building Regulations (England & Wales) and the Building Standards (Scotland) Regulations 1990
- ◆ Material should be FM (Factory Mutual), USA approved.
- ◆ Water vapour permeability shall not exceed 0.017 Perm inch ( $2.48 \times 10^{-14}$  Kg/m.s.Pa), i.e. Moisture Diffusion Resistance Factor 'μ' value should be minimum 7000.

### 2.7.9 Installation procedure:

- The ceiling surface shall be cleaned with brush to remove all dirt, cement etc. If surface is uneven it should be made smooth prior to carrying out insulation work.
- A layer of synthetic rubber adhesive should be applied on the ceiling with the help of brush so that all the pores are filled and surface becomes smooth and allow it to dry.
- Allow an additional 5 mm to the total dimensions while cutting Insulation sheet. Ensure you measure the cutting dimensions on the top surface of the insulation sheet. This can be identified by the products markings; "they are always on the top surface. This surface is the one you will see after installation.
- All Insulation sheet and ceiling surfaces shall have all-over adhesive coverage. Adhesive should be applied on the side that has no product markings and identification printing. This side is the one that curves inwards.
- During installation avoid air bubbles. Always apply pressure while fixing the Insulation sheet, this action will ensure maximum bond strength.
- All cut Insulation sheet edges shall be of a "clean cut nature and not cut rough".
- All seams and joint shall be sealed with synthetic rubber adhesive.
- Measurement of surface dimensions shall be taken properly to cut closed cell elastomeric rubbers sheets to size with sufficient allowance in dimension. Material shall be fitted under compression and no stretching of material shall be permitted. A thin film of adhesive shall be applied on the ceiling with brush and then on to the back of the insulating material sheet with brush/small piece of sheet metal having smooth edges. When adhesive is tack dry, insulating material sheet shall be placed in position and pressed firmly to achieve a good bond. All joints shall be sealed. The adhesive shall be strictly as recommended by the manufacturer. There is no need to make holes for wires etc. as no supporting wires/screws are required.

While doing installation on the metal roofing, it is important to ensure that metal roof should not face direct sun light, as metal sheets becomes very hot and adhesive may not work. In such conditions work should be done in the evening / night



## **2.8 FIRE DAMPERS**

This section deals with supply, erection, testing and commissioning of fire dampers and box type dampers, conforming to general specification and suitable for duty selected, indicated in schedule of equipment/material.

### **2.8.1 Dampers**

- a) The fire dampers of at least two hour rating shall be provided in all return air ducts at wall crossing. All fire dampers shall be fire tested by CBRI Roorkee for 120 minutes fire rating as per UL555-1995.
- b) 6G GSS sheet blade and frame with 165mm casing, heavy duty interlocking blades and fully enclosed blade linkage mechanism, SS lateral seal blade seals, self lubricating sintered bronze bushes, fire rating as per UL555-1995 tested as per BS-476 part 20 with 18G extended sleeve 450mm and with fusible link, spring mechanism control panel temp sensor, smoke sensor, limit switch with lever for auto shut off in case of fire/smoke
- c) In the normal position the blades of the dampers shall remain open to allow maximum air to flow. The dampers shall be actuated using fusible link and spring mechanism. The fire damper shall also close due to temperature rise above 74°C.
- d) All fire dampers shall be mounted on wall with a duct sleeve 400 mm long depending on the wall thickness. The sleeve shall be factory fitted on the fire damper. The joint at the sleeve end shall be slip on type. Minimum thickness of GI sheet used for sleeves shall be 18G.

### **2.8.2 Exhaust Air Blowers**

line exhaust air flow duct blowers suitable for single phase operations with direct driven class F motor, IP 54 insulation, max 1400rpm, necessary steel frame, and complete with GI box, with an operating sound level not exceeding 60dB at 3m distance.

### **2.8.3 Hepa Filter**

Hepa Filter shall be of efficiency 99.97%. HEPA filters shall be aluminium corrugated and Mini pleat style. All filters shall be made up of high quality micro-fine glass fiber media. Filter frames shall be made up of Galvanized steel. Hepa filter shall ensure low pressure drop even at high airflows & with Antimicrobial protection.

All filters shall be made in accordance and tested to EN 1822 / ASHRAE 52.2 standards. These filters shall be tested at factory and test certificates from OEM's shall be produced. The Hepa filter shall be fixed in a plenum constructed at the AHU mouth.

## **2.9 PAINTING WORK**

- 2.9.1** All equipment shall be painted as specified under respective headings. Grilles/diffusers shall be powder coated as per approved colour matching with interiors. The contractor has to get approval of the quality and colour of paints for all types of painting work.

All pipes for chilled water shall be painted as per standard code of practice and arrows indicating direction of flow of water shall be marked.

### 2.9.2 Colour scheme for the plant and equipment

i)	Compressor	.. Battle ship grey
ii)	Condenser	.. Battle ship grey
iii)	Refrigerant discharge line	.. Red
iv)	Refrigerant liquid line	.. Yellow
v)	Steel supports	.. Black
vi)	Direction of flow of water	.. White arrows
vii)	Electrical panels/sub-panel/remote control console	.. Light grey or any approved
viii)	Cable trays	.. Black
xi)	Supports for ducts/open ducts	.. Black.

*Section- III*

**MODE OF MEASUREMENT**

**The following measurement code shall apply to this contract:-**

**3.1 Mechanical Items**

**3.1.1 Ducting**

- i) All sheet metal ducting work shall be measured in terms of final sheet area installed in Sq. m.  
Eg:- Measurement of 600 mm x 300 mm duct of 1 m length =  $\frac{[(600+300) \times 2 \times 1]}{1000}$  = 1.80 Sq.m.
- ii) Duct fittings such as bends, elbows, tap-offs, collars, transformation pieces etc. shall be treated as ordinary duct pieces with their length measured along their centre line as mentioned in point (i).
- iii) Vanes, splitters, duct dampers, deflectors, access doors, etc. which are required to be installed in the duct work shall not be measured separately as it shall form part of the duct work.
- iv) Duct supports, stiffening members, etc. shall not be measured separately. All such supports/hangers shall form part of duct work.
- v) Equipment connections such as canvas/asbestos/rexine shall be deemed to be part of the duct work, and no separate measurement shall be allowed.
- vi) No separate special measurement shall be made for bends, transformation pieces, tap offset, elbows, etc.

**3.1.2 Grilles:**

All grills will be measured in terms of effective area in Sq.m.

**3.1.3 Diffusers:**

Diffusers will be measured in terms of effective area in Sq.m.

**3.1.4 Ducting Insulation**

- d) Ducting insulation will be measured on the basis of centerline of insulation and not the outer line of insulation.  
Eg:- Measurement of 25mm thick insulation on 600 mm x 300mm duct of 1m length =  $\frac{[(600+25)+(300+25)] \times 2 \times 1}{1000}$  Sq.m
- ii) No separate special measurement shall be made for insulation of bends, transformation pieces, tap offs, elbows, etc. All such insulation shall be treated as standard duct insulation.
- iii) Insulation item shall include all accessories and finishes as specified. No separate measurement will be made for such items.

**3.2 Electrical items**

**Mode of Measurement of Electrical Items**

The Works shall be measured, as prescribed in the specification of work, notwithstanding any general or local custom, except where otherwise specifically described or prescribed in the Contract. Wherever not specifically mentioned in the Contract, the mode of measurement as prescribed in the relevant IS codes shall be applicable and binding to the Contract. Only the latest editions of all the codes of practices including all latest official amendments and revisions shall be applicable.

#### Section-IV

### **TESTING OF AIR-CONDITIONING SYSTEM**

- 4.1 Routine and type tests for the various items of equipment of the system shall be performed at the Contractor's own cost and test certificates are to be submitted.
- 4.2 The performance tests to determine whether or not the full intent of the specification is met shall be conducted by the contractor. After notification to Purchaser that the installation has been completed and the system has run continuously for a period of at least one week, the contractor shall conduct under the direction and the presence of Purchaser such tests as specified to establish the capacity of various equipment supplied and installed by the contractor.
- 4.3 The contractor shall operate, test and adjust the air-conditioning system units, fan, motors, all air handling appliances including adjustment of regulators, dampers, etc. All testing equipments, labour, operating personnel, oil, refrigerant or any other item required for these tests shall be provided by the contractor to enable the plant to be put in a continuous running test.

#### **4.4 TEST PROCEDURE:**

##### **4.4.1 Design Conditions:**

The inside and outside conditions shall be recorded on hourly basis. The outside and inside dry bulb and wet bulb temperatures shall be recorded by means of a sling psychrometer with mercury thermometers. The relative humidity shall be computed from the psychrometric chart. The inside dry bulb temperature and relative humidity shall fall within the specified limits.

The contractor should conduct performance such tests as indicated in the rated Technical Part and produce sufficient documentary proof that the plant is operating at the rated capacity.

- 4.5 The following readings shall be recorded hourly during the tests and capacity of the plant shall be computed.

##### **1. Compressor**

- a. Suction pressure - Kg/cm<sup>2</sup> (psi)
- b. Suction temperature - °C (°F)
- c. Discharge pressure - Kg/cm<sup>2</sup> (psi)
- d. Condensing Tempr. - °C (°F)
- e. Oil pressure - Kg/cm<sup>2</sup> (psi)
- f. Compressor Speed - RPM

##### **2. Compressor motor**

- a. Rated capacity - HP
- b. Rated volts - Volts
- c. Rated current - Amps
- d. Starting current - Amps

##### **3. Inside unit**

- a. Air velocity - M/Hr. (FPM)
- b. Face area - M<sup>2</sup> (SFT)

- |                          |   |
|--------------------------|---|
| c. Air quantity          | - $M^3/\text{Hr. (CFM)}$                |
| d. Entering air temp. DB | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| e. Entering air temp. WB | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| f. Leaving air temp. DB  | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| g. Leaving air temp. WB  | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| <br>                     |   |
| <b>4. Air Grilles</b>    |   |
| a. Area of Grilles       | - $M^2 \text{ (Sft)}$                   |
| b. Velocity              | - $M/\text{Hr (FPM)}$                   |
| c. Air flow rate         | - $M^3 \text{ (FPM)}$                   |
| d. Temperature DB        | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| e. Temperature WB        | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| <br>                     |   |
| <b>5. Air Diffusers</b>  |   |
| a. Area                  | - $M^2 \text{ (Sft)}$                   |
| b. Velocity              | - $M/\text{Hr (FPM)}$                   |
| c. Air flow rate         | - $M^3 \text{ (FPM)}$                   |
| d. Temperature DB        | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| e. Temperature WB        | - $^{\circ}\text{C (}^{\circ}\text{F)}$ |
| <br>                     |   |
| <b>6. Filters</b>        |   |
| a. Total area            | - $M^2 \text{ (Sft)}$                   |
| b. Effective area        | - $M^2 \text{ (Sft)}$                   |
| c. Velocity of air       | - $M/\text{Hr (FPM)}$                   |
| d. Quantity of air       | - $M^3 \text{ (CFM)}$                   |

Section-v

**TECHNICAL DATA**

**(To be submitted along with the tender)**

- 5.0** The following data shall be furnished along with the offer: (REFER LIST OF APPROVED MAKES)  
(Attach catalogues, brochures, etc.)

**1. Ductable Split unit**

Manufacturer  
Model  
Actual capacity TR  
Overall dimensions  
Over all weight  
Operating weight  
Refrigerant

**Compressor**

Manufacturer  
Model  
Type  
Capacity at the specified water temp. and flow rates - in TR  
Type of capacity control provided  
Type of lubrication  
KW / TR

**Motor**

Model  
Manufacturer  
Number of motors  
Capacity HP  
Whether provided with part winding  
Type  
Class of insulation  
Speed RPM  
Characteristics  
Type of starter  
Rating  
Whether the following protections are provided.

- |     |   |        |
|-----|---|--------|
| i)  | Overload  | Yes/No |
| ii) | Under voltage   | Yes/No |
| i)  | Single phase protection<br>(for three phase motor starters) | Yes/No |

**2. Inside units**

Manufacturer  
Model  
Type of fan

Fan speed (R.P.M.)  
 No. of fans.  
 Fan wheel diameter (mm)  
 Drive arrangement  
 Material and thickness of fan wheel and blades.  
 Materials and thickness of housing.  
 Fan outlet area  
 Outlet velocity.  
 Total air quantity  
 Static pressure at outlet. (mm. of water)  
 Whether statically and dynamically balanced.  
 B.H.P. Consumed  
 Total weight of all items

### **Cooling Coil**

Material of Tubes  
 Material of fins  
 Tube diameter  
 Tube thickness  
 Fin thickness  
 Method of bonding of fins  
 No. of fins/cm.  
 Total tube surface outside  
 Test pressure  
 Coil face area

### **Filter**

Manufacturer  
 Type of filters  
 Filter medium  
 Material of frame work and its thickness  
 Face area  
 Face velocity across filters  
 Pressure drop across filters (mm of water)

### **Motor**

Manufacturer  
 Model  
 Number of motors  
 Capacity HP  
 Type  
 Class of insulation  
 Speed RPM  
 Characteristics  
 Type of starter  
 Rating  
 Whether the following protections are provided.  
 i) Overload

Yes/No



- |      |   |        |
|------|---|--------|
| ii)  | Under voltage   | Yes/No |
| iii) | Single phase protection<br>(for three phase motor starters) | Yes/No |

### **3. Ducting**

Material

Manufacturer

### **4. Insulation (for ducting)**

Manufacturer

Material

'k' Value at 10 (°C) mean temperature

Thickness.

Density

Fire Retardant property

Note : Any other data relevant to each equipment shall also be furnished.

### **APPROVED MAKES OF ITEMS**

1.	AC – Packaged/ Ductable split units	Blue star/ Voltas/ Carrier /Hitachi/ ETA/Daikin/Samsung/General/Trane/York
2.	High Wall Split Air Conditioners	Blue star/ Voltas/ Carrier /Hitachi/ LG/Daikin/Samsung/General/Panasonic
3.	AHU	Blue star/ Voltas/ Carrier/VTS/ Zeco/ETA
4.	AHU Fans	Kruger/Nicotra/ Comefri
5.	Copper Pipes	Totaline/ Mandev/ Piyush
6.	Three phase motors	Siemens/ Kirloskar/Crompton/ Bharath Bijlee /ABB /Alsthom
7.	Aluminium Conductor Cables	Finolex/ NICCO/Havells// Gloster
8.	Stabilizer	V Guard/VOLTAS
9.	GI Sheets	SAIL/TATA/JINDAL
10.	Factory Fabricated Ducts	Zeco/Western Air Ducts/Radiant
11.	Resin bonded Glass wool	UPTWIGA /Owens Coning/ KIMMCO
12.	Nitrile Rubber Insulation	Armaflex/K Flex
13.	Grilles/Diffusers	Airmaster/ Carryaire/Air Flow/ Ravistar
14.	Pressure gauges	Feibig/ H-Guru/ Jaspin
15.	Industrial type thermometers	Feibig/ H-Guru/Jaspin
16.	Fire Dampers	Carryaire/ Airmaster/Air Flow
17.	Volume Control Damper	Airmaster/ Carryaire/Air Flow/ Ravistar
18.	Inline Duct Fan	System Air/Kruger/ Nicotra
19.	Hepa Filter	Aerofoil/Pyramid/AAF
20.	Paints	ICI/Asian/Berger
21.	PVC pipe	Any ISI marked.
22.	Fresh Air Damper	Ravistar/ Airmaster/ Carryaire

## TECHNICAL SPECIFICATIONS FOR ELEVATORS

- 1.1 This section deals with technical requirement of Electric Traction Type Passenger Elevator Machine Room Less type, its components, and safety devices. All features shall be of latest International standards such as EN81, European standards, American standards or IS 14665 (part -1 to 5) and amended up to date. The technical specifications given below are for general guidance only and standard specifications of manufactures are acceptable subject to the condition that these specifications meet the technical / functional requirement specified below.

The contractor shall be responsible to check and ensure dimensions of hoist way, before tendering that requirements of statutory laws and local codes of Electrical / elevator inspector are met with and the equipment offered are suitable for the space available.

### 1.2 POWER SUPPLY

HLL shall provide 415 V $\pm$ 10%, 3 phases, 50 Hz AC power supply for the elevator at suitable location in top landing. Elevator shall be suitable for operation on 415 V $\pm$ 10%, 3 phases, 50 Hz AC power supply. Wiring shaft lighting and required electrical panel shall be carried out by the elevator contractor which shall be included in his quoted rates and nothing extra shall be paid on this account. All power required for erection, testing and handing over the elevator shall be in the scope of the contractor.

### 1.3 CODES & STANDARDS

- 1.3.1 Work carried out shall in general be in conformity with following:
- (i) CPWD specification for electrical work.
  - (ii) IS 14665 (part -1 to 5) and amended up to date or international specifications whichever is superior shall be applicable and in accordance with regulations of local codes which govern the requirements of the elevator.
  - (iii) In addition, Indian Electricity Rules 1956 and Indian Electricity Act 1910 and the rules issued there under with amendments issued from time to time shall also apply.
  - (iv) All the codes and standards mean the latest publication. Unless specified otherwise, the installation shall generally follow the Indian Standard code of practice/the relevant British Standard code of Practice.
- 1.3.2 All designs, materials, manufacturing techniques and workmanship shall be in accordance with accepted National or international standards/ practices for this type of equipment.
- 1.3.3 The tenderer shall also state, where applicable, the National or other International Standard (s) to which the whole or any specific part, of the equipment or system complies. In addition, any other information/ description, the tenderers may wish to provide, the features/ performance figures specified/indicated shall be with supporting documents/calculations.

#### 1.4 TECHNICAL REQUIREMENT

Sl. No.	Items	Technical requirement
1	Type of Elevator	Passenger Lift
2	Capacity	1360 Kgs (minimum), 20 Persons (minimum)
3	Speed	1.00 Mtr/sec
4	Serving Floors	GF1,FF & SF.
5	Travel in meters	10 M
6	Stops & Opening	3 stops & 3 Openings.
7	Hoist Way available	Refer drawings attached to this tender document
8	Machine	Machine Room Less Gearless traction machine with electro-magnetic brake placed in the hoist way on top.
9	Control system	Micro-processor based control with variable voltage variable frequency technology.
10	Operation	Simplex full collective.
11	Car Enclosure	SS hairline finish on all sides and SS mirror finish ceiling for passenger lift.
12	Flooring	Granite flooring
13	Number of Entrance	Entrance at front side on all the serving floors (All stops – opening on the same side). (Refer drawings attached to this document)
14	Car & Hoist way Entrance (landing) Doors.	Automatic side/center opening SS hairline finish door, min 1.0m wide.
15	Safety Feature	(i) All safety feature required as per IS / International Standards.
		(ii) Additional features.
		a) Reverse phase relay on controller.
		b) Single Phasing power supply protection.
		c) Overload warning indicator on car (visual and audio)
		d) Fireman's switch
		e) Battery operated alarm bell & emergency light with battery and charger.
		f) Infra red rays sensing device along the edge of the car door for full height.
16	Signals	a) LED Hall buttons/ landing call registered indicator at all landings.
		b) Digital car position indicator in car and at all landings with automatic announcement system.
		c) Up/ Down pre-announcing indicator at all

		landings
		d) Integral car operating panel with aesthetic luminous switches, emergency stop switch, key switch for auto/ attendant mode.
		e) Annunciator in car
17	Fixtures (In car)	a) SS mirror finish ceiling.
		b) Concealed decorative luminaries with CFL lamps complete with housing, reflector and accessories.
		c) Axial pressure fan suitable design to suit the ceiling.
18	Inter com (In car)	Suitable to hook to EPABX system.
19	Automatic rescue device.	Solid state battery operated device to automatically rescue passengers trapped in the elevator car in between floors in the event of power failure.
20	Manual Rescue Device	Manual rescue device shall also be provided so as to bring the elevator car to the nearest floor in the event of failure of battery operated automatic rescue device.

## 1.5 **CONTROLLER**

- 1.5.1 The control system shall be of microprocessor controller type, incorporating variable voltage variable frequency drive for elevators of 1.0 m/s speed. It shall be suitable for site programmability and shall have field test mechanism for quick fault diagnosis. The elevator motor shall be fed through this controller for smooth & silent operation of elevator.

## 1.6 **ELEVATOR HOISTING MACHINE**

- 1.6.1 Manufacturer's standard design/constructional features are acceptable. The elevator hoisting machine shall be compact, energy efficient and proven design. The hoisting machinery shall be gearless type with 3 Phase AC motor. The drive shall be of variable voltage variable frequency type.

## 1.7 **MOTOR**

- 1.7.1 The elevator hoisting motor shall be as per manufacturer's selection. Motor shall be dynamically balanced and shall have high starting torque and low starting current, suitable for elevator duty and equipped with required protection. Motor shall be part of drive unit.

## 1.8 **INSTALLATION OF ELEVATOR HOISTING MACHINE**

- 1.8.1 The required arrangement for installation of elevator hoisting machine shall be provided by the contractor.

## 1.9 GUIDE

- 1.9.1 Machined steel guides shall be provided for the car and counterweight. The guide rails shall have tongued and grooved joints, sliding clips shall be used for fastening the guides to allow building settlement without distorting the guide. The flanges shall be mechanical for the fish plate mounting so that rail alignments at joints almost remain constant. To keep down the noises level and to reduce wear and tear of sections, only Nylon ribs shall be used in the guide shoes. However, initially cast iron ribs shall be provided for smoothening of guide rails which shall later be replaced free of cost by Nylon ribs.

## 1.10 DRIVING MACHINE BRAKE

- 1.10.1 Electric elevator machine shall be equipped with brakes which shall be applied automatically by means of springs in compression only or by gravity when the operating device is in the 'off' position or in the event of power failure. The brake shall be designed to have a capacity sufficient to hold the car at rest with 125% of its rated load.

## 1.11 ROPES / FLAT BELTS

- 1.11.1 The elevator shall be provided with round stranded steel wire ropes or flat belts having tensile strength not less than 12.5 tone/ cm<sup>2</sup>. Lubricants between the strands shall be achieved by providing impregnated hemp core. The rope shall conform to IS –2365 – 1963 amended up to date.

## 1.12 LEVELING

- 1.12.1 Leveling with floors should be exact virtually independent of passenger load. This is to be achieved by self adaptive load compensation.

## 1.13 SELECTOR

Selector shall be as per OEM, however selector shall be microprocessor based.

## 1.14 CAR DETAILS

### 1.14.1 CAR FRAME

The car frame shall be made of structural steel of rigid construction to withstand without permanent deformation the operation of safety gear. The car shall be so mounted on the frame that vibration and noise transmitted to the passengers inside is minimized.

## 1.15 CAR PLATFORM

- 1.15.1 The car platform shall be of framed construction and designed on the basis of rated load evenly distributed. The dimensions shall conform to IS – 3534 – 1968 amended up to date unless otherwise specified. The flooring shall be finished with antiskid material (sample shall be got approved).

- 1.16 CAR BODY
  - 1.16.1 The side walls of the car shall be as per SOQ.
- 1.17 CAR ROOF
  - 1.17.1 The roof of the car shall be solid type with extra supporting arrangement capable of taking load of maintenance team (at least 140 Kg weight) and also have a fan and light fittings.
- 1.18 CAR DOOR
  - 1.18.1 The car entrance doors shall be as per SOQ. Doors shall be automatic side/centre opening horizontal sliding and power operated type.
- 1.19 HOIST WAY (LANDING) DOORS
  - 1.19.1 Doors shall be as per SOQ. It shall be fitted with a locking device which shall comply with clause 21 of IS –3-4666-1980 amended up to date.
- 1.20 CAR DOOR & HOIST WAY DOOR OPERATORS
  - 1.20.1
    - (i) Each hoist way door shall be provided with an interlock which shall prevent movement of the car away from the landing unless the door is in the closed position as defined in the IS codes.
    - (ii) Door system should have the following features:
      - (a) Reliable robust construction, linear drive door gear with electronically controlled closing and opening for trouble free operation under adverse duty conditions.
      - (b) Door system interface compatible with modern micro-contactor control system for optimum performance.
      - (c) Proven door safety devices for maximum safety of users.
- 1.21 SAFETY GEARS & GOVERNORS
  - (a) Elevator shall be provided with car safety devices attached to the elevator car-frame and placed beneath the car. The safety device shall be capable of stopping and sustaining the elevator car with full rated load.
  - (b) The elevator shall be provided with over speed monitoring & tripping safety device and its operation shall be independent of power.
  - (c) The car safety is provided to stop the car whenever excessive descending speed is attained. The safety shall be operated by a centrifugal speed governor located at the top of hoist way and connected to the governor through a continuous steel rope. The governor shall be provided with ropes in proper tension. Even after ropes stretch, suitable means shall be applied to cut off power from motor and apply the brakes on applications of the safety.

- (d) Temper proof infrared rays sensing device shall be provided through out the height of door or upto 1.8m above sill as per OEM to ensure the door reopens till the obstruction exits in case obstruction comes while the door is closing.

## 1.22 COUNTER BALANCE

- 1.22.1 A suitable guided structural steel frame with appropriate filler weights shall be furnished to promote smooth and economical operation.

## 1.23 TERMINAL SWITCHES

- 1.23.1 Elevator shall be provided with proximity switches arranged to stop the car automatically within the limits of top car clearance and bottom run by over travel from any speed attained in normal operation. Such switches shall Act independently of the operating device, the ultimate or final limit switches and the buffers.

Proximity switches may be fitted in the elevator car or in the elevator well or in the machine room and such switches shall be brought in to operation by the movement of elevator car.

An automatic safety switch shall be provided to stop the machine should the chain, rope or other similar device mechanically connecting the stopping device to the car, fail.

## 1.24 ULTIMATE OR FINAL SWITCHES

- 1.24.1 Elevator shall be provided with ultimate or final switches arranged to stop the car automatically within the top and bottom clearance independently of the normal operating device and the terminal switches.

Final switches shall act to prevent movement of the elevator car under power in both directions of travel and shall after operating remains open until the elevator car has been moved by a hand winding to a position within the limits of normal travel.

All ultimate or final switches shall be of enclosed type and shall be securely mounted. The contacts of all switches shall be opened positively and mechanically by the movement of elevator car.

## 1.25 TERMINAL BUFFERS

- 1.25.1 Heavy-duty spring Buffers/polyerethene rubber pads as per OEM to adhere the latest safety parameters shall be installed as a means of stopping the car and counter weight at the extreme limits of travel. Buffers in the pit shall be mounted on steel channels, which shall extend between both the car and counter weight guide rails. Oil buffer as per OEM standard is acceptable.

## 1.26 ELECTRICAL INSTALLATION REQUIREMENTS



- 1.26.1 IS: 4666 – 1980 amended up to date state the requirement for main switches and wiring with reference to relevant regulations and read in conjunction with clause-3.1 (i).

## 1.27 ELECTRICAL WIRING AND WIRING FOR SIGNALS

- 1.27.1 Complete electric wiring shall be done in copper cable/ wires by the elevator supplier as per clause 7.1.2 of IS: 1860-1980 amended up to date and read in conjunction with clause-3.1 (i).

The wiring for signals, landing call buttons & indicators shall use serial communication technique to reduce the number of wires and read in conjunction with clause-3.1 (i)

## 1.28 TRAVELLING CABLE

- 1.28.1 Flat traveling cable shall be 16/20 core to give better running performance.

## 1.29 OVER LOAD WARNING

- 1.29.1 Over load warning feature with audiovisual indication shall be provided (Visual indication shall show “Over Loaded” and a buzzer shall also operate). Car shall not move until the overload condition is removed.
- 1.29.2 A load plate giving the rated load and permissible maximum number of passengers should be fitted in each lift car in a conspicuous position.

## 1.30 INTERCOM SYSTEM

- 1.30.1 Intercom suitable to hook to EPABX shall be provided inside the car for making emergency calls.

## 1.31 EMERGENCY RESCUE DEVICE:

### 1.31.1 AUTOMATIC EMERGENCY RESCUE DEVICE:

Elevator system shall have automatic battery operated emergency rescue device to automatically rescue passengers trapped in the elevator car in between floors in the event of power failure having following features:

Automatic operation and immediate actions in the event of mains failure capable to move the elevator to the nearest landing, opens the doors automatically. Shall have sealed maintenance free battery back up of suitable size with automatic charging unit and auto change over unit on mains failure. Message indicator in the elevator car.

## 1.32 MANUAL EMERGENCY RESCUE DEVICE

- 1.32.1 Manual emergency rescue device shall be provided to rescue the passengers trapped in the elevator car in the event of failure of battery operated automatic emergency rescue device. The elevator car stopped in between floors due to

power failure shall be brought to the nearest landing by releasing the break by means of pulling the mechanical lever provided in the last landing. The standard constructional feature of OEM for this manual emergency rescue device is acceptable.

### 1.33 OPERATION

- 1.33.1 The elevator shall be operated in simplex mode (with/ without attendant) and generally the elevator shall be in automatic mode. However a two position key-operated switch marked to indicate "ATT" (Attended Operation) and "AUTO" (Automatic Mode) shall be provided. When the switch is in the position of "ATT" mode, the elevator shall be in attendant mode. It will connect the hall button pushes to the annunciate, provided in the car, to register the calls. In automatic mode, momentary pressure of the car button/ landing button will send/ bring the car to this landing and car will automatically stop.

### 1.34 LIST OF APPROVED MAKES

ELEVATORS	OTIS / KONE / /SCHINDLER /MITSUBISHI
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**BILL OF QUANTITIES**

**ABSTRACT**

<b>SEC.</b>	<b>DESCRIPTION OF ITEM</b>	<b>AMOUNT (Rs.)</b>
	<b>PART I – LIBRARY BLOCK</b>	
<b>A</b>	CIVIL WORKS	
<b>B</b>	ELECTRICAL WORKS	
	<b>PART II - CHEST DISEASE OP BLOCK (FIRST FLOOR)</b>	
<b>A</b>	CIVIL WORKS	
<b>B</b>	ELECTRICAL WORKS	
	<b>PART III – RENOVATION WORKS IN VARIOUS DEPTS.</b>	
<b>A</b>	CIVIL WORKS	
<b>B</b>	ELECTRICAL WORKS	
	<b>PART IV</b>	
	AIR CONDITIONING	
	<b>PART V</b>	
	<b>LIFT</b>	
	<b>GRAND TOTAL</b>	<b>Rs.</b>

## **PART I - CONSTRUCTION OF LIBRARY BLOCK**

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
	<b>PART A - CIVIL WORKS</b>				
	<b>DISMANTLING &amp; DEMOLISHING WORKS</b>				
1	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	1.00	cum		
2	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar	49.00	cum		
3	Dismantling doors, windows and clerestory windows (steel or wood) including shutters chowkhats, architrave, holdfasts etc. complete and stacking with in 50m lead Of area 3sq.meters and below	2.00	Each		
4	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50metres lead.	4050	Kg		
5	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of: Asbestos sheet	270.00	sqm		
	<b>EARTH WORK</b>				
6	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth upto 30 cm measured at a height of 1 m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.	1200.00	sqm		
7	Felling trees of the girth (measured at a height of 1m above the ground level) including cutting of trunks and branches and removing the roots and stacking of serviceable material and disposal of the unserviceable materials Beyond 30cm girth upto and including 60cm girth	2.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
8	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.	392.52	Cum		
9	Extra for every additional lift of 1.5 m or part thereof in excavation/ banking excavated or stacked materials.	28.00	Cum		
10	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 m and lift upto 1.5 m.	269.00	Cum		
11	Supplying and filling in plinth with quarry dust under floors including watering, ramming, consolidating and dressing complete.	66.13	Cum		
12	Supplying and filling in plinth with murrum under floors including watering, ramming, consolidating and dressing complete.	390.98	Cum		
	<b>PLAIN CEMENT CONCRETE</b>				
13	Cement concrete (Cast-in-situ) Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering- All work upto plinth level 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size)	111.00	Cum		
14	Providing and laying damp proof coarse with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including and applying a coat of residual petroleum bitumen of penetration of penetration 80/100 of approved quality using 1.7 kg per square metre on damp proof coarse after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil 50mm thick	29.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
	<b>REINFORCED CEMENT CONCRETE</b>				
15	<p>Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge.</p> <p>NOTE- 1) Cement content considered in this item is @ 330 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately.</p> <p>2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS 456. Uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS:456 -2000 in the items of BMC and RMC.</p> <p>3) The above item shall be used judiciously where specified quality of Fly Ash is available for mixing in concrete. Also, the guidelines issued by CDO, CPWD, vide circular no. CDO/ SE(RR)/ Fly Ash (Main)/ 102 dated 9th April 2009 shall be followed in such cases.</p>				
(a)	All works up to Plinth level.	224.00	cum		
(b)	All works above plinth & up to floor V level	662.00	cum		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
16	Extra for providing richer mixes at all floor levels. Note:- Excess/ less cement over the specified cement content used is payable/ recoverable separately. Providing M-30 grade concrete instead of M-25 grade BMC/ RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).	87.00	Cum		
17	Add/ Deduct for using extra/ Less cement in the items of design mix over/ below the specified cement content therein.	QR	Kg		
18	Centering and shuttering including strutting, propping etc. and removal of form for: Foundations, footings, bases of columns, etc. for mass concrete.	457.00	Sqm		
19	Reinforced cement concrete work in walls (any thickness) including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc upto floor V level including cost of centering, shuttering, finishing and excluding cost of reinforcement in 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) For dummy columns	7.00	Cum		
20	Centering and shuttering including strutting, propping etc. and removal of form for: Columns, Pillars, Piers, Abutments, Posts and Struts.	757.00	Sqm		
21	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand : 3graded stone aggregate 20 mm nominal size)	10.00	Cum		
22	Centering and shuttering including strutting, propping etc. and removal of form for Stairs, (excluding landings) except spiral-staircases.	65.00	sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
23	Centering and shuttering including strutting, propping etc. and removal of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers.	1447.00	sqm		
24	Centering and shuttering including strutting, propping etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform.	2009.00	Sqm		
25	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured) Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	1338.18	Sqm		
26	Reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically treated bars (Using Vizac, Tata or SAIL)	142668.00	Kg		
	<b>STONE /BRICK WORK</b>				
27	Stone work with neatly dressed selected hard laterite stones of of good quality size 32X21X20 cm in foundation and plinth cement mortar 1:6 (1 cement : 6 course sand) including extra for super structure above plinth level and upto floor V level	301.00	Cum		
28	Half Brick masonry with F.P.S bricks of class designation 75 in super structure above plinth level upto floor V level in Cement mortar 1:3 (1 cement : 3 coarse sand)	274.00	Sqm		
29	Extra for providing and placing in position 2 nos 6mm dia. M.S bars at every third course of half brick masonry (with F.P.S bricks)	274.00	Sqm		
	<b>STEEL WORK</b>				
30	Providing and fixing M.S grills of required pattern in frames of windows etc with M.S.flats,square or round bars etc all complete:- Fixed to openings/ wooden frames with rawl plugs screws etc	2077.00	Kg		



SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
31	Providing and fixing Stainless Steel 1.5 mm thick sheet cladding work of 304 grade covering of circular/ square columns including of sub frame works , all materials, scaffolding, welding and mirror finish polished complete.	40.00	sqm		
32	Supplying and fixing 1.00m height hand rails for stair cases with 2 Nos. polished stainless steel tube of outer diameter 50mm at top and bottom with wall thickness not less than 1.60mm as per SS 304 vertical members of 50mm diameter pipe 1.00m length (approximately) welded together at 1.50m center to center and providing and fixing 2 nos 25 mm outer diameter stainless steel tube horizontally between the top and bottom tubes including fixing with steel nuts and bolts as per the direction of the Engineer-in-charge. Hand rails shall be fixed in the floor/ steps with expansion hold fasters of required size including drilling etc. complete.	28.00	Rm		
33	Providing and fixing stainless steel 12mm dia bar bent to shape with hooked ends in R.C.C. slabs during laying including, all as per standard design complete.	138.00	Each		
	<b>ROOFING</b>				
34	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying: a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	746.86	sqm		
35	Grading roof for water proofing treatment with Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	48.46	cum		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
36	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS: 8183, density 24kg/ m3, 50mm thick, wrapped in 200 G Virgin Polythene bags, fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5 mm x 24 gauge wire mesh, for top most ceiling of building.	148.00	sqm		
37	Providing and fixing poly carbonate (multi wall 6mm or nearest size) sheet roofing of approved make and quality fixed with polymer coated J or L hooks, bolts and nut of required diameter necessary washers complete including the cost of M S square tube 50x25mm 16 guage fixed with M S flat 25x6mm including necessary nuts and bolts to support the roofing , painting with two or more coats with synthetic enamel paint over a priming coat of Zinchromate primer etc complete.	13.00	sqm		
38	Providing & fixing on roof pressed clay tile (Mangalore tile) of 20 mm nominal thickness and of approved size and as per approved pattern on steel frame work complete (steel frame work to be paid separately).	354	sqm		
39	Providing and fixing on wall face unplasticised-Rigid PVC rain water pipes conforming to IS:13592 type A including jointing with seal ring conforming to IS:5382 leaving 10mm gap for thermal expansion (i) Single socketed pipes – 110mm diameter OD	95.00	Rm		
40	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Bend 87.5° 110mm diameter OD Plain Bend	8.00	Each		
41	Providing and fixing unplasticised-P.V.C pipes clips of approved design to unplasticised-P.V.C rain water pipes by means of 50 x 50 x 50 mm hard wood plugs, screwed with M.S screws of required length including cutting brick work and fixing in cement mortar 1 : 4 (1 cement : 4 coarse sand) and making good the walls etc. complete 110mm	118.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
42	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15cm diameter and weighing not less than 440 grams.	16.00	Each		
	<b>FLOORING</b>				
43	Providing and laying polished vitrified floor tiles of size 600x600mm of thickness 10mm or nearest size of M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent in light colours and shades, with water absorption's less than 0.08% and conforming to IS:15622, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with cement and matching pigments etc, complete as directed by the Engineer-in-charge. <i>Basic rate of tile not less than Rs. 865/sqm</i>	1800.97	Sqm		
44	Providing and laying anti skid ceramic floor tiles of 400x400 mm size for toilets (7.5mm thickness or nearest size) M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent of 1st quality conforming to IS: 15622 of approved make in all colours, shades, except white, ivory, grey, fume red brown laid on 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement and matching pigments etc complete. <i>Basic rate of tile not less than Rs. 370/sqm</i>	72.00	Sqm		
45	Providing and fixing 1st quality ceramic glazed wall tiles <b>joint free</b> of size 300x400 mm conforming to IS: 15622, approved make like M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent approved by Engineer in charge in all colours, shades Except bottle green, Black of any size as approved by engineer in charge in skirting, rises of step and dados over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per Sqm including pointing in white cement mixed with pigment of matching shade complete. <i>Basic rate of tile not less than Rs. 400/sqm</i>	332.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
46	Providing and fixing 18mm gagsaw cut mirror polished (premoulded and prepolished) machine cut for kitchen plat forms, vanity counters, window sills, facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement :4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing moulding and polishing to edge to give high gloss finish etc. complete at all levels. Granite of any colour and shade Area of slab over 0.50sqm	86.00	Sqm		
47	Providing edge moulding to 18mm thick granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge. Granite work	58.00	Rm		
48	Providing and laying 60mm 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 50mm thick compacted bed of fine sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	699.00	Sqm		
	<b>PVC WORKS</b>				
49	Providing and fixing factory made UPVC door frame made of UPVC extruded, section having an over all dimension, as below (tolerance +/- 1mm) with wall thickness 2.0mm +/-0.2mm, corners of the door frame to be joined with galvanized brackets and stainless steel screws,joint mitred and plastic wilded. The hinge side vertical of the frames reinforced by galvanized MS tube of size 19x19mm and 1mm +/- 0.1mm wall thickness and 3nos. stainless steel hinges fixed to the frame complete as per manufacturersand direction of Engineer in Charge. Extruded section Profile size48x40mm	75.00	Rm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
50	Providing and fixing to existing door frames 24mm thick factory made PVC door shutters made of styles and rails of a UPVC hollow section of size 59x24 mm and wall thickness 2mm +/- 0.2mm with inbuilt edging on both sides. The styles and rails mitred and jointed at the corners by means of M.S. galvanised/plastic brackets of size 75 x 220 mm having wall thickness 1mm and stainless steel screws. the styles of the shutter reinforced by inserting galvanised M.S. tubes of size 20 x 20mm and 1mm +/- 0.1 mm wall thickness. the lock rail madeup of 'H' section, a UPVC hollow section of size 100 x 24mm and 2mm +/- 0.2 mm wall thickness fixed to the shutter styles by means of plastic /galvanised M.S. 'U' cleats. The shutter frame filled with a UPVC multi-chambered single pannel of size not less than 620mm, having over all thickness of 20mm and 1mm +/- 0.1mm wall thickness. The panalles filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer - in - Charge. For W/C and Bathroom Shutter	24.00	Sqm		
51	Providing and fixing at all height false ceiling of 12.5 mm thick tapered edge gypsum board conforming to IS: 2095/ calcium silicate boards, including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating 600 as per IS: 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastner 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x5mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick botton wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm and as per detail specification				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
(a)	Plain gypsum ceiling	279.00	sqm		
(b)	Design gypsum ceiling	358.80	sqm		
52	<p>Providing &amp; Fixing of Mineral Fibre Acoustical Suspended Ceiling System with 15 mm EXPOSED GRID. The tiles should have Humidity Resistance (RH) of 95%, NRC 0.70, Light Reflectance &gt;85%, Thermal Conductivity k = 0.052- 0.057 w/m K, Colour White, Fire Performance Class 0/Class 1 (BS 476 Part 6&amp;7) in module size of 600 X 600 X 20 mm with Bio Block coating on the face of the tile, suitable for Green Building application, with Recycled content of 81%. The grid should be with 15mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm &amp; 600 mm Cross Tees with a web height of 32mm and a load carrying capacity of 7.57 Kgs/M2. The T Sections have a Galvanizing of 120 grams per M2 &amp; passed through 500 hrs of Salt test. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls at 450 mm maximum centers. accessories consisting of M6 Anchor Fasteners with Vertical Hangers made of Galvanized steel of size 26 x 26 x 25 x 1.2mm with a Galvanized Thickness of 80gsm, A pre Straightened Hanger wire of dia – 2.68 mm of 1.83 m length., thickness of 80gsm and a tensile strength of 344-413 MPa, along with Adjustable hook clips of 0.8mm thick, galvanized spring steel for 2.68 mm with a minimum pull strength of 110 kg. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runners all complete as per the miniature's specification</p>	739.05	sqm		
	<b>FINISHING</b>				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
53	CEMENT PLASTER (IN FINE SAND) 12 mm cement plaster of mix: 1:4 (1 cement : 4 fine sand)	1485.42	Sqm		
54	15 mm cement plaster on the rough side of single or half brick wall of mix: 1:4 (1 cement: 4 fine sand)	643.00	Sqm		
55	6mm cement plaster to ceiling of mix 1:3 (1 cement : 3 fine sand)	611.00	Sqm		
56	12mm cement plaster on rough side of single or half brick wall finished of mix 1:4 ( 1 cement : 4 coarse sand)	2138.00	Sqm		
57	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufacturers.	43.00	Sqm		
58	Reapering with Cement Moratar 1:3 - 50x50x30mm for MP Roof Tiles:- ( 1 cement : 3 coarse sand)	1771.00	RM		
59	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface: Water thinnable cement primer.	2692.00	Sqm		
60	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:	2719.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
61	Finishing walls with Acrylic smooth exterior paint of required shade:- New work (Two or more coats applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.2 kg/10sqm.)	1616.00	Sqm		
62	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade Two or more coats on new work.	221.00	Sqm		
	<b>ALUMINIUM WORK</b>				
63	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	2537.00	Kg		



64	<p>Providing and fixing aluminium work for doors, windows, ventilators, and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/ panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately):</p> <p>For shutters of doors, windows &amp; ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC/ neoprene gasket required (Fittings shall be paid for separately).</p> <p>Powder coated aluminium (minimum thickness of powder coating 50 micron)</p>	3053.00	Kg		
65	<p>Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item):</p> <p>With float glass panes of 5.5 mm thickness</p>	202.24	Sqm		
66	<p>Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item):</p> <p>With float glass panes of 4.0 mm thickness</p>	189.00	Sqm		
67	<p>Providing and fixing 12mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade 1 type II, in panelling fixed in aluminium doors, windows shutters and partition frames with C.P brass/ stainless steel screws etc. complete as per architectural drawings and directions of engineer in charge</p> <p>Pre laminated particle board with decorative lamination on both sides</p>	15.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
68	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour and shade with necessary screws etc. complete. Twin rubber stopper	36.00	Each		
69	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc. complete: 200 x 10 mm	36.00	Each		
70	Providing and fixing aluminium round shape handle of outer dia 100mm with SS screws etc. Complete as per direction of Engineer-in-charge Anodized (AC 15) aluminium	36.00	Each		
71	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	23.00	Each		
72	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS: 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge With stainless steel cover plate	14.00	Each		
73	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete	22.00	Each		
74	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
(a)	255 X 19 mm	125.00	Each		
(b)	355 X 19 mm	225.00	Each		
75	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100 mm long with SS screws etc .complete as per direction of Engineer-in-Charge. Powder coated minimum thickness 50 micron aluminium tubular handle bar.	30.00	Each		
	<b>INTERNAL WATER SUPPLY &amp; SANITARY INSTALLATIONS</b>				
76	Providing and fixing white vitreous china pedestral type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & CP flush bend with fittings & CI brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required. WC pan with ISI marked black solid plastic seat and lid	15.00	Each		
77	Providing and fixing <b>wash basin</b> with C.I./M.S. brackets, 15mm C.P. brass pillar taps, Kingston/ Gem/ Techno/ Parko, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required: White Vitreous China Wash basin size 550x400mm with single 15mm C.P.brass pillar tap	19.00	Each		
78	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350mm and 340x410x265mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required: One urinal basin with 5 litre white P.V.C. automatic flushing cistern.	2.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
79	Providing and fixing 600x450mm bevelled edge <b>mirror</b> 5mm thick of superior glass(of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P.brass screws and washers complete.	19.00	Each		
80	Providing and fixing PTMT <b>towel ring</b> round/ trapezoidal shape 215mm long,200mm wide with a minimum distance of 37mm from wall face with concealed fittings arrangement of approved quality, colour and make weighing not less than 80gms	21.00	Each		
81	Providing and fixing PTMT <b>liquid soap container</b> 109mm wide, 125mm high and 112mm distance from wall of standard shape with bracket of the same material with snap fittings of approved quality, co lour and make, weighing not less than 105gms	21.00	Each		
82	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.; Concealed work including cutting chases and making good the walls etc.				
(a)	20mm	200.00	RM		
(b)	32MM	200.00	RM		
(c)	50MM	150.00	RM		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
(d)	62.5 mm	50.00	Rm		
83	Providing and fixing unplasticised rigid P.V.C pipe (pressure 4kg/cm <sup>2</sup> ) in rain water pipe or in drainage lines including jointing all complete				
(a)	75mm	290.00	RM		
(b)	110mm	210.00	RM		
84	Providing and fixing bend of required degree with access door, including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	110mm	20.00	Each		
(b)	75mm	20.00	Each		
85	Providing and fixing bend of required degree, including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	110mm	15.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
(b)	75mm / 62.50 mm	30.00	Each		
86	Providing and fixing single equal plain junction of required degree including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	75x75x75mm	11.00	Each		
(b)	110x110x110mm	15.00	Each		
87	Providing and fixing C.P brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	12.00	Each		
88	Providing and fixing C.P brass stop cock (concealed) of standard design of approved make conforming to IS: 8931. conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	12.00	Each		
89	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)				
(a)	65mm	1.00	Each		
(b)	50mm	1.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
90	Providing and fixing unplasticised PVC connection pipe with brass unions: 30 cm length 15mm nominal bore	13.00	Each		
91	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design :Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg): With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	10.00	Each		
92	Providing and fixing PVC trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors: 100mm inlet and 100mm outlet	16.00	Each		
93	Providing and placing on terrace (at all floor levels) poly ethylene water storage tank ISI: 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and over flow pipes but with out fittings and the base support for tank	10000.00	Litre		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
94	Constructing soak pit 1.20x1.20x1.20m filled with brick bats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.	6.00	Each		
95	making soak pit 2.5m diameter 3.0 m deep with 45x45cm drybrick honeycomb shast with bricks of class designation 75 and SW drain pipe 100mm diameter, 1.8m long complete as per standard design. With FPS bricks	1.00	Each		
96	Supplying and fixing C.I cover without frame for manholes: 455x610 mm rectangular CI cover (light duty) weight of the cover to be not less than 23 kg	15.00	Each		
		<b>SUB TOTAL – CIVIL WORKS</b>			



<b><u>PART I - CONSTRUCTION OF LIBRARY BLOCK</u></b>					
<b>SI No</b>	<b>Description of item</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate in Rs (in words &amp; in figures)</b>	<b>Amount in Rs</b>
	<b>PART B - ELECTRICAL WORKS</b>				
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.				
a	Group A	Point	120		
b	Group B	Point	310		
c	Group C	Point	380		
2	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.	Point	23		
3	Wiring for light/ power plug with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	m	450		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
4	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	m	3200		
b	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	m	1800		
c	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	m	470		
d	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	m	280		
e	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	m	300		
f	4 X 16 sq. mm + 2 X 16 sq. mm earth wire	m	300		
5	Supplying and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	1 x 1.5 sq. mm	m	230		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
b	3 x 1.5 sq. mm	m	300		
c	2 x 4 sq. mm	m	160		
d	4 x 6 sq. mm	m	140		
6	Supplying and drawing following pair 0.5 sq mm FR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	2 Pair	m	250		
7	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	m	420		
b	25 mm	m	180		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
8	Supplying and fixing metal box of following sizes (Nominal size) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.				
a	250 mmx300 mmx 100 mm deep	Each	20		
9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
a	Telephone socket outlet	Each	24		
b	TV antenna socket outlet	Each	15		
10	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	65		
11	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	65		
12	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
a	1 or 2 Module (75mmX75mm)	Each	105		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
b	12 Module (200mmX150mm)	Each	46		
13	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	Each	70		
14	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	50		
15	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	160		
16	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	Each	22		
17	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	35		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
18	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting of all types, complete with all accessories and tube etc., including supplying and fixing ball and socket arrangement, 2 no. down rods of 20 mm dia X 1.6 mm thick steel conduit upto 30 cm length, painting and wiring the down rods and connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	140		
19	Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length wiring with 2 X 1.5 sq. mm FR PVC insulated, copper conductor, single core cable including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	130		
20	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable etc. as required.	Each	106		
21	Supplying and fixing extra down rod of 10 cm length G.I. pipe, 15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	190		
22	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.				
a	Upto 450 mm sweep	Each	14		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
23	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator)				
a	6 way (4 + 18), Double door	Each	8		
24	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's (but without MCB's and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	4 way (4 + 12), Double door	Each	2		
b	8 way (4 + 24), Double door	Each	4		
25	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	Each	264		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
b	Triple pole	Each	58		
26	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	64		
27	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	Each	7		
b	63 amps	Each	9		
c	100 amps	Each	6		
28	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	25 amps	Each	8		



SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
b	40 amps	Each	7		
c	63 amps	Each	6		
29	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	12		
30	Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	3		
31	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	1		
32	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	3		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
33	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	m	80		
34	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	m	30		
35	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	m	15		
	<b>MV Cable Laying on surface</b>				
36	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
a	Upto 35 sq. mm (clamped with 1mm thick saddle)	m	150		
b	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	100		
37	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
a	4 x 16 Sq mm	Each	8		
b	3.5 x 25 Sq mm	Each	14		
c	3.5 x 35 Sq mm	Each	16		
d	3.5 x 95 Sq mm	Each	8		
e	3.5 x 120 sqmm	Each	2		
38	Supplying and fixing TP sheet steel enclosure on surface/ recess along with 16/25/32amps 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	Each	3		
	<b>Total for DSR items</b>				
	<b>Adding Cost index 30.87%</b>				
	<b>LMR ITEMS</b>				
39	Supply of 1x28W Tube light made of powder coated CRCA sheet channel with all accessories like electronic ballast, lamp holder, 28W lamp etc prewired complete. (Philips TMS 095xTL5-28W or Wipro WDF 9128 SG)	Each	70		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
40	Supply & fixing of 1x18W fluorescent tube light fitting with powder coated CRCA sheet channel complete with all accessories, electronic ballast, lamp holder, 18W lamp etc as required. (Philips TMS520/118 or Wipro WRF 21118).	Each	30		
41	Supply & fixing of 2x28W mirror optic fluorescent tube fitting with CRCA steel sheet housing, louvers, complete with electronic ballast, lamp holder, 28W lamp with all accessories as required. (Philips TCS350 2xTL5-28W EBE CS or Wipro WVF48228 SWG or Crompton T5CS228EB).	Each	100		
42	Supply & fixing of 2x18W recessed downlight fixtures with sturdy PCD housing, satin finish reflector, enclosed gear compartment, removable front frame with recessed frosted glass complete with ballast, lamp holder, 18W CFL lamp with all accessories as required. (Philips FBH145 M 2xPL-C/4P18 HMF 240V or Wipro WCP 36218 SGW or Crompton DDLHR218EB/G/SL).	Each	60		
43	Supply & fixing of 2x36 W, indoor decorative recess mounted direct indirect downlight luminaire with translucent acrylic diffuser, powder coated CRCA body light fixture, 2 nos 36 W CFL lamps, electronic HPF ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Philips FBS 580 2xPL-L36W IC OD DF-WH or Wipro WVP 76236 SWA or Crompton CRDIP236EB).	Each	40		
44	Supply & fixing straight/ Angle batten holder with ISI marking including connection etc complete with all accessories as required.	Each	55		
45	Supply & fixing of following sweep ceiling fan, double ball bearing, approved colour and quality with original down rod, suspension shackle, canopy etc with out regulator complete with all accessories as required.				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
a	1050 mm sweep	Each	7		
b	1200 mm sweep	Each	92		
46	Supply of 250mm sweep, 1250 rpm, louvered ventilating fan suitable for single phase 230 volt, 50Hz AC supply complete with motor, capacitor, louvers/shutters and all accessories as required complete. (Usha Crisp Air or Equi.)	Each	14		
47	Supply & fixing of 3 Wings, 400mm Sweep, Decorative Wall Mounted fan with cords for Control with all accessories. (Usha Helix Hi speed or Equi.)	Each	7		
48	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 15 watts of approved quality.	Each	19		
49	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 20 watts of approved quality.	Each	55		
50	Supply & fixing of fluorescent tube light fitting with bi-directional reflector, CRCA sheet steel powder coated housing, complete with lamp holder, electronic ballast, 28W lamp etc with all accessories as required. (Philips TMS 122M EBE/ Wipro WIF 30128 SG/ Crompton T5RSF28EB).				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
a	Suitable for single 28 T5 W lamp	Each	12		
b	Suitable for twin 28 W T5 lamps	Each	12		
51	Supplying and fixing 2x18W CFL Decorative compact street light luminaire with sheet steel housing, powder coated CRCA sheet steel gear tray, clear acrylic cover, aluminium reflector etc complete with all mounting accessories as required. The item shall also include suitable size lamp bracket fabricated out of B class G.I pipe to suit the lamp fitting with its clamping accessories as required. (Crompton SCE 13218 or Equi.)	Each	28		
52	Supplying and fixing 2x18W surface mounting mirror optic luminaire with CRCA powder coated housing, aluminium reflector, paralite P5 louver system complete with lamp holder, ballast, 18W lamp, including all mounting accessories as required. (Wipro WVP 45218 or Crompton TLE218EB/ P5)	Each	2		
53	Supply & fixing FP sheet steel enclosure on surface/ recess along with 40A, 415 volt, FP Isolator complete with connections, testing & commissioning etc as required.	Each	8		
54	Supply and fixing Polished Aluminium shade reflector 250 mm on the PVC straight / angle batten holder etc complete with all accessories as required.	Each	28		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
55	Supplying and fixing following rating, double pole, 240 volts, 25A isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Each	3		
56	Supply of 3.5C x 50 sqmm 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended upto date.	m	10		
57	Supply, Installation, Testing & Commissioning of LT panel, cubicle type, made out of 2mm thick CRCA sheet, totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system with busbars extendable on both sides, including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
	<b>INCOMER</b>				
	125A, 16 kA,FP, MCCB with thermal magnetic release having adjustable overload & short circuit protection with neutral link.				
	<b>BUSBARS</b>				
	1 Set of 150A TPN busbars of high conductivity electrolytic quality Aluminium alloy.				
	<b>INSTRUMENTS</b>				
	1 No 3 phase Digital Multi function meter to read V, A, F, Acc class 1.				
	1 Set of phase indicating lamps, LED type, RYB.				
	1 Set of 2A 10kA C curve SP control MCB				
	1 Set of 125/5A, Class 1.0, 10VA, Cast Resin CT				
	<b>OUTGOING</b>				
	2 nos 63A, TPN, C curve, MCB				
	6 nos 40A, TPN, C curve, MCB				
	2 nos 25A, TPN, C curve, MCB	Each	2		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
58	Supply, Installation, Testing & Commissioning of Three phase meter box, cubicle type, made out of 2mm thick CRCA sheet, totally enclosed, IP54, wall / floor mounting, dust and vermin proof, powder coated, outdoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
	<b>SWITCHGEAR &amp; OTHER ACCESSORIES</b>				
	Space provision for accomodating 3 phase CT operated energy meter from KSEB with all connections, glass view panel, control MCB, lockable compartment etc.				
	3 nos. Suitable ratio CT (as per KSEB) with Acc. Class 0.5, 10VA in locakable compartment.				
	3 nos 160A rewirable type baklite fuse unit with 1 no. Neutral link.				
	1 no. 160A, FP, AC23A, 415V, 50Hz switch disconnector fuse unit with Din type HRC fuse of suitable rating (as per KSEB) in separate cubical.				
	The meter board shall have 200 Amp TPN busbars of high conductivity electrolytic quality Aluminium alloy, earth bus of required size, 4P terminal connectors, control wiring with all required accessories complete.	Each	1		
59	Supply, Installation, Testing & Commissioning of LT panel, cubicle type, made out of 2mm thick CRCA sheet, totally enclosed, IP42, free standing, floor mounting, dust and vermin proof, powder coated, indoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system with busbars extendable on both sides, including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
	<b>Incomer</b>				
	160A, 25 kA, FP, MCCB with thermal magnetic release having adjustable overload & short circuit protection with neutral link.				
	<b>Busbar</b>				



SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
	1 Set of 200 A TPN busbars of high conductivity electrolytic quality Aluminium alloy.				
	<b>Instruments</b>				
	1 Set of phase indicating lamps, LED type, RYB.				
	1 Set of 2A 10kA C curve SP control MCB				
	1 Set of 160/5A, Class 1.0, 10VA, cast resin CT for metering.				
	1 No 3 phase Digital Multi function meter to read V, A, F Acc class 1.				
	<b>Out goings</b>				
	2 nos 63A, TPN, C curve, MCB				
	6 nos 40A, TPN, C curve, MCB				
	2 nos 25A, TPN, C curve, MCB	Each	1		
60	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended upto date.				
a	4 x 16 Sq mm	m	150		
b	4 x 6 Sq mm	m	10		
d	3.5 x 25 Sq mm	m	220		
e	3.5 x 35 Sq mm	m	240		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
f	3.5 x 95 Sq mm	m	200		
g	3.5 x120 Sq mm	m	160		
61	Supply, installation, testing & commissioning of 10 kVA, 3 phase input, 3 phase output, true on-line UPS system with 30 minutes back up (full load), IGBT PWM technology, output isolation transformer, static by-pass, including all accessories, SMF batteries VRLA type with powder coated MS cabinet including all accessories as required complete having following specification.				
	Fully digital controlled based on DSP				
	Power factor corrected from end > 0.9				
	Pure sine wave output.				
	Full time output voltage & frequency regulation				
	Auto regulation of battery end voltage				
	Intelligent interface with LED/LCD display				
	Static bypass switch & manual by pass switch				
	Auto temperature compensation	Set	1		
	<b>B - Total for Electrical works</b>				
	<b>PART I - TOTAL</b>				

<b>PART II - CONSTRUCTION OF CHEST DISEASE OP BLOCK (FIRST FLOOR)</b>					
<b>SL No</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate (Rs.) (in words &amp; in figures)</b>	<b>Amount (Rs.)</b>
	<b>PART A - CIVIL WORKS</b>				
	<b>DEMOLISHING &amp; DISMANTLING WORKS</b>				
1	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc complete	371.00	Sqm		
2	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	3.00	Cum		
3	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar	2.20	Cum		
4	Dismantling doors, windows and clerestory windows (steel or wood) including shutters chowkhats, architrave, holdfasts etc. complete and stacking with in 50m lead Of area 3sq.meters and below	2.00	Each		
5	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50metres lead.	227	Kg		
6	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of : Asbestos sheet	15.12	Sqm		
7	Dismantling the PVC pipe lines and re-fixing in position jointing all complete including replacing the necessary damaged pipes & accessories	20.00	Rm		
	<b>EARTH WORK</b>				
8	Felling trees of the girth (measured at a height of 1m above the ground level) including cutting of trunks and branches and removing the roots and stacking of serviceable material and disposal of the unserviceable materials. Beyond 30cm girth upto and including 60cm girth	2.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
9	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.	240.00	Cum		
10	Extra for every additional lift of 1.5 m or part thereof in excavation/ banking excavated or stacked materials.	22.00	Cum		
11	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 m and lift upto 1.5 m.	121.00	Cum		
12	Supplying and filling in plinth with quarry dust under floors including watering, ramming, consolidating and dressing complete.	10.27	Cum		
13	Supplying and filling in plinth with murrum under floors including watering, ramming, consolidating and dressing complete.	55.69	Cum		
	<b>SUB HEAD - II - PLAIN CEMENT CONCRETE</b>				
14	Cement concrete(Cast-in-situ) Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering- All work upto plinth level 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size)	26.00	Cum		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
15	Providing and laying damp proof coarse with cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 20mm nominal size) including and applying a coat of residual petroleum bitumen of penetration of penetration 80/100 of approved quality using 1.7 kg per square metre on damp proof coarse after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil 50mm thick	6.00	Sqm		
	<b>REINFORCED CEMENT CONCRETE</b>				
16	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge.				
	NOTE- 1) Cement content considered in this item is @ 330 kg/Cum. Excess/ less cement used as per design mix is payable/ recoverable separately.				
	2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS 456. Uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS:456 -2000 in the items of BMC and RMC.				
	3) The above item shall be used judiciously where specified quality of Fly Ash is available for mixing in concrete. Also, the guidelines issued by CDO, CPWD, vide circular no. CDO/SE(RR)/Fly Ash (Main)/102 dated 9th April 2009 shall be followed in such cases.				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
16 (a)	All works up to Plinth level.	35.00	Cum		
16 (b)	All works above plinth & up to floor V level	136.00	Cum		
17	Extra for providing richer mixes at all floor levels. Note:- Excess/ less cement over the specified cement content used is payable/ recoverable separately. Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/Cum).	18.00	Cum		
18	Add/ Deduct for using extra/ Less cement in the items of design mix over/ below the specified cement content therein.	QR	Kg		
19	Centering and shuttering including strutting, propping etc. and removal of form for: Foundations, footings, bases of columns, etc. for mass concrete.	86.00	Sqm		
20	Reinforced cement concrete work in walls (any thickness) including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc upto floor V level including cost of centering, shuttering, finishing and excluding cost of reinforcement in 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) For dummy columns	4.00	Cum		
21	Centering and shuttering including strutting, propping etc. and removal of form for: Columns, Pillars, Piers, Abutments, Posts and Struts.	228.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
22	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5coarse sand : 3graded stone aggregate 20 mm nominal size)	5.00	Cum		
23	Centering and shuttering including strutting, propping etc. and removal of form for Stairs, (excluding landings) except spiral-staircases.	20.00	Sqm		
24	Centering and shuttering including strutting, propping etc. and removal of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers.	299.00	Sqm		
25	Centering and shuttering including strutting, propping etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform.	945.00	Sqm		
26	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured) Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	671.27	Sqm		
27	Reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically treated bars (Using Vizac, Tata or SAIL)	23405.00	Kg		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
	<b>STONE /BRICK WORK</b>				
28	Stone work with neatly dressed selected hard laterite stones of good quality size 32X21X20 cm in foundation and plinth cement mortar 1:6 (1 cement : 6 course sand) including extra for super structure above plinth level and upto floor V level	109.00	Cum		
29	Half Brick masonry with F.P.S bricks of class designation 75 in super structure above plinth level upto floor V level in Cement mortar 1:3 (1 cement : 3 coarse sand)	216.00	Sqm		
30	Extra for providing and placing in position 2 nos 6mm dia. M.S bars at every third course of half brick masonry (with F.P.S bricks)	216.00	Sqm		
	<b>STEEL WORK</b>				
31	Providing and fixing M.S grills of required pattern in frames of windows etc with M.S. flats, square or round bars etc all complete:- Fixed to openings/ wooden frames with rawl plugs screws etc	1285.00	Kg		
32	Supplying and fixing 1.00m height hand rails for stair cases with 2 Nos. polished stainless steel tube of outer diameter 50mm at top and bottom with wall thickness not less than 1.60mm as per SS 304 vertical members of 50mm diameter pipe 1.00m length (approximately) welded together at 1.50m center to center and providing and fixing 2 nos 25 mm outer diameter stainless steel tube horizontally between the top and bottom tubes including fixing with steel nuts and bolts as per the direction of the Engineer-in-charge. Hand rails shall be fixed in the floor/ steps with expansion hold fasters of required size including drilling etc. complete.	22.00	Rm		
33	Providing and fixing stainless steel 12mm dia bar bent to shape with hooked ends in R.C.C. slabs during laying including, all as per standard design complete.	24.00	Each		



SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
	<b>ROOFING</b>				
34	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying: a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	393.48	Sqm		
36	Grading roof for water proofing treatment with Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	28.00	Cum		
37	Providing and fixing poly carbonate (multi wall 6mm or nearest size) sheet roofing of approved make and quality fixed with polymer coated J or L hooks bolts and nut of required diameter necessary washers complete including the cost of M S square tube 50x25mm 16 guage fixed with M S flat 25x6mm including necessary nuts and bolts to support the roofing, painting with two or more coats with synthetic enamel paint over a priming coat of Zinchromate primer etc complete.	29.00	Sqm		
38	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.	28.16	Kg		
39	Providing & fixing on roof pressed clay tile (Mangalore tile) of 20 mm nominal thickness and of approved size and as per approved pattern on steel frame work complete (steel frame work to be paid separately).	194	sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
41	Providing and fixing on wall face unplasticised-Rigid PVC rain water pipes conforming to IS:13592 type A including jointing with seal ring conforming to IS: 5382 leaving 10mm gap for thermal expansion (i) Single socketed pipes – 110mm diameter OD	58.00	Rm		
42	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Bend 87.5° 110mm diameter OD Plain Bend	12.00	Each		
43	Providing and fixing unplasticised-P.V.C pipes clips of approved design to unplasticised-P.V.C rain water pipes by means of 50 x 50 x 50 mm hard wood plugs, screwed with M.S screws of required length including cutting brick work and fixing in cement mortar 1 : 4 (1 cement : 4 coarse sand) and making good the walls etc. complete 110mm	64.00	Each		
44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15cm diameter and weighing not less than 440 grams.	10.00	Each		
	<b>FLOORING</b>				
45	Providing and laying polished vitrified floor tiles of size 600x600mm of thickness 10mm or nearest size of M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent in light colours and shades, with water absorption's less than 0.08% and conforming to IS:15622, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with cement and matching pigments etc, complete as directed by the Engineer-in-charge. <i>Basic rate of tile not less than Rs. 865/sqm</i>	469.03	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
46	Providing and laying anti skid ceramic floor tiles of 400x400 mm size for toilets (7.5mm thickness or nearest size) M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent of 1st quality conforming to IS: 15622 of approved make in all colours, shades, except white, ivory, grey, fume red brown laid on 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement and matching pigments etc complete. <i>Basic rate of tile not less than Rs. 370/sqm</i>	24.00	Sqm		
47	Providing and fixing 1st quality ceramic glazed wall tiles <b>joint free</b> of size 300x400 mm conforming to IS: 15622, approved make like M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent approved by Engineer in charge in all colours, shades Except bottle green, Black of any size as approved by engineer in charge in skirting, rises of step and dados over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per Sqm including pointing in white cement mixed with pigment of matching shade complete. <i>Basic rate of tile not less than Rs. 400/sqm</i>	581.00	Sqm		
48	Marble stone flooring with 18 mm thick marble stone, as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with: Udaipur green marble	58.00	Sqm		
49	Providing edge moulding to 18mm thick granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge. Marble Work	73.00	Rm		
	<b>PVC WORKS</b>				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
50	<p>Providing and fixing factory made UPVC door frame made of UPVC extruded, section having an over all dimension, as below (tolerance +/- 1mm) with wall thickness 2.0mm +/-0.2mm, corners of the door frame to be joined with galvanized brackets and stainless steel screws, joint mitred and plastic wilded. The hinge side vertical of the frames reinforced by galvanized MS tube of size 19x19mm and 1mm +/- 0.1mm wall thickness and 3nos. stainless steel hinges fixed to the frame complete as per manufacturers and direction of Engineer in Charge.</p> <p>Extruded section Profile size 48x40mm</p>	25.00	Rm		
51	<p>Providing and fixing to existing door frames 24mm thick factory made PVC door shutters made of styles and rails of a UPVC hollow section of size 59x24 mm and wall thickness 2mm +/- 0.2mm with inbuilt edging on both sides. The styles and rails mitred and jointed at the corners by means of M.S. galvanised/ plastic brackets of size 75 x 220 mm having wall thickness 1mm and stainless steel screws. the styles of the shutter reinforced by inserting galvanised M.S. tubes of size 20 x 20mm and 1mm +/- 0.1 mm wall thickness. the lock rail madeup of 'H' section, a UPVC hollow section of size 100 x 24mm and 2mm +/- 0.2 mm wall thickness fixed to the shutter styles by means of plastic /galvanised M.S. 'U' cleats. The shutter frame filled with a UPVC multi-chambered single pannel of size not less than 620mm, having over all thickness of 20mm and 1mm +/- 0.1mm wall thickness. The panalles filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer - in - Charge. (For W/C and Bathroom Shutter)</p>	8.00	Sqm		

52	Providing and fixing at all height false ceiling of 12.5 mm thick tapered edge gypsum board conforming to IS : 2095/calcium silicate boards, including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating 600 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastner 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x5mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm and as per detail specification				
(a)	Plain gypsum ceiling	70.00	Sqm		
	<b>FINISHING</b>				
53	CEMENT PLASTER (IN FINE SAND) 12 mm cement plaster of mix :1:4 (1 cement: 4 fine sand)	1055.58	Sqm		
54	15 mm cement plaster on the rough side of single or half brick wall of mix :1:4 (1 cement: 4 fine sand)	672.00	Sqm		
55	6mm cement plaster to ceiling of mix 1:3 (1 cement : 3 fine sand)	773.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
56	12mm cement plaster on rough side of single or half brick wall finished of mix 1:4 ( 1 cement : 4 coarse sand)	405.00	Sqm		
57	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufacturers.	28.00	Sqm		
58	Reapering with Cement Moratar 1:3 - 50x50x30mm for MP Roof Tiles:- ( 1 cement : 3 coarse sand)	859.00	RM		
60	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :Water thinnable cement primer.	1127.00	Sqm		
61	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:	1127.00	Sqm		
62	Finishing walls with Acrylic smooth exterior paint of required shade:- New work (Two or more coats applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.2 kg/10sqm.)	550.00	Sqm		
63	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade Two or more coats on new work.	126.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
	<b>ALUMINIUM WORK</b>				
64	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	1039.00	Kg		
65	Providing and fixing aluminium work for doors, windows, ventilators, and partitions with extruded built up standard tubular sections / appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC / neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC/ neoprene gasket required (Fittings shall be paid for separately). Powder coated aluminium (minimum thickness of powder coating 50 micron)	718.00	Kg		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
66	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 5.5 mm thickness	11.00	Sqm		
67	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 4.0 mm thickness	36.00	Sqm		
68	Providing and fixing 12mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS12823 Grade 1 type II, in panelling fixed in aluminium doors, windows shutters and partition frames with C.P brass/ stainless steel screws etc. complete as per architectural drawings and directions of engineer in charge Pre laminated particle board with decorative lamination on both sides	11.00	Sqm		
69	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc. complete. Twin rubber stopper	20.00	Each		
70	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete: 200 x 10 mm	20.00	Each		
71	Providing and fixing aluminium round shape handle of outer dia 100mm with SS screws etc. Complete as per direction of Engineer-in-charge Anodized (AC 15 ) aluminium	20.00	Each		
72	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	10.00	Each		



SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
73	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge With stainless steel cover plate	10.00	Each		
74	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete	10.00	Each		
75	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.				
	255 X 19 mm	124.00	Each		
76	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100 mm long with SS screws etc .complete as per direction of Engineer-in-Charge. Powder coated minimum thickness 50 micron aluminium tubular handle bar.	2.00	Each		
	<b>INTERNAL WATER SUPPLY &amp; SANITARY INSTALLATIONS</b>				
77	Providing and fixing white vitreous china pedestral type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & CP flush bend with fittings & CI brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required. WC pan with ISI marked black solid plastic seat and lid	5.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
78	Providing and fixing <b>wash basin</b> with C.I./M.S. brackets, 15mm C.P. brass pillar taps, Kingston/ Gem/ Techno/ Parko, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required: White Vitreous China Wash basin size 550x400mm with single 15mm C.P.brass pillar tap	6.00	Each		
79	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the wall wherever required : Size 600x450x200mm	2.00	Each		
80	Providing and fixing stainless steel scurb 2500x600x800mm with C.I brackets and stainless steel plug 40mm including painting of fittings and brackets ,cutting and making good the walls wherever required a)Scrub with drain board	1.00	Each		
81	Providing and fixing 600x450mm bevelled edge <b>mirror</b> 5mm thick of superior glass (of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P.brass screws and washers complete.	6.00	Each		
82	Providing and fixing PTMT <b>towel ring</b> round/trapezoidal shape 215mm long,200mm wide with a minimum distance of 37mm from wall face with concealed fittings arrangement of approved quality, colour and make weighing not less than 80gms	6.00	Each		
83	Providing and fixing PTMT <b>liquid soap container</b> 109mm wide, 125mm high and 112mm distance from wall of standard shape with bracket of the same material with snap fittings of approved quality, co lour and make, weighing not less than 105gms	6.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
84	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.; Concealed work including cutting chases and making good the walls etc.				
(a)	20mm	25.00	RM		
(b)	32MM	70.00	RM		
(c)	50MM	50.00	RM		
85	Providing and fixing unplasticised rigid P.V.C pipe (pressure 4kg/cm <sup>2</sup> ) in rain water pipe or in drainage lines including jointing all complete				
(a)	75mm	75.00	RM		
(b)	110mm	75.00	RM		
86	Providing and fixing bend of required degree with access door, including all fixing accessories as per the direction of engineer in charge etc. complete				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
(a)	110mm	5.00	Each		
(b)	75mm	5.00	Each		
87	Providing and fixing bend of required degree , including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	110mm	5.00	Each		
(b)	75mm	10.00	Each		
88	Providing and fixing single equal plain junction of required degree including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	75x75x75mm	3.00	Each		
(b)	110x110x110mm	3.00	Each		
89	Providing and fixing C.P brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	17.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
90	Providing and fixing C.P brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore With long Handle	3.00	Each		
91	Providing and fixing C.P brass stop cock (concealed) of standard design of approved make conforming to IS 8931. conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	17.00	Each		
92	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)				
(a)	65mm	1.00	Each		
(b)	50mm	1.00	Each		
93	Providing and fixing unplasticised PVC connection pipe with brass unions: 30 cm length 15mm nominal bore	17.00	Each		
94	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design :Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	4.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in figures)	Amount (Rs.)
95	Providing and fixing PVC trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors: 100mm inlet and 100mm outlet	10.00	Each		
96	Providing and placing on terrace (at all floor levels) poly ethylene water storage tank ISI: 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and over flow pipes but with out fittings and the base support for tank	3000.00	Litre		
97	Constructing soak pit 1.20x1.20x1.20m filled with brick bats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.	3.00	Each		
98	making soak pit 2.5m diameter 3.0 m deep with 45x45cm drybrick honeycomb shaft with bricks of class designation 75 and SW drain pipe 100mm diameter, 1.8m long complete as per standard design. With FPS bricks	1.00	Each		
99	Supplying and fixing C.I cover without frame for manholes: 455x610 mm rectangular CI cover (light duty) weight of the cover to be not less than 23 kg	5.00	Each		
		<b>TOTAL - CIVIL WORKS</b>			

**PART II - CONSTRUCTION OF CHEST DISEASE OP BLOCK (FIRST FLOOR)**

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
<b>PART B - ELECTRICAL WORKS</b>					
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.				
a	Group A	Point	23		
b	Group B	Point	60		
c	Group C	Point	75		
2	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.	Point	5		
3	Wiring for light/ power plug with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	m	80		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
4	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	m	600		
b	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	m	350		
c	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	m	90		
d	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	m	55		
e	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	m	60		
f	4 X 16 sq. mm + 2 X 16 sq. mm earth wire	m	55		
5	Supplying and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	1 x 1.5 sq. mm	m	45		
b	3 x 1.5 sq. mm	m	55		



SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
c	2 x 4 sq. mm	m	30		
d	4 x 6 sq. mm	m	30		
6	Supplying and drawing following pair 0.5 sq mm FR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	2 Pair	m	50		
7	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	m	80		
b	25 mm	m	35		
8	Supplying and fixing metal box of following sizes (Nominal size) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.				
a	250 mmx300 mmx 100 mm deep	Each	5		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
a	Telephone socket outlet	Each	5		
b	TV antenna socket outlet	Each	3		
10	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	15		
11	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	15		
12	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
a	1 or 2 Module (75mmX75mm)	Each	25		
b	12 Module (200mmX150mm)	Each	9		
13	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	Each	10		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
14	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	13		
15	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	30		
16	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	Each	8		
17	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	15		
18	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting of all types, complete with all accessories and tube etc., including supplying and fixing ball and socket arrangement, 2 no. down rods of 20 mm dia X 1.6 mm thick steel conduit upto 30 cm length, painting and wiring the down rods and connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	25		
19	Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length wiring with 2 X 1.5 sq. mm FR PVC insulated, copper conductor, single core cable including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	25		
20	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable etc. as required.	Each	15		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
21	Supplying and fixing extra down rod of 10 cm length G.I. pipe 15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	35		
22	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.				
a	Upto 450 mm sweep	Each	3		
23	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
a	4 way (4 + 12), Double door	Each	1		
b	6 way (4 + 18), Double door	Each	1		
24	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's (but without MCB's and incomer ) as required . (Note: Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	4 way (4 + 12), Double door	Each	1		
b	8 way (4 + 24), Double door	Each	1		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
25	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	Each	54		
b	Triple pole	Each	11		
26	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	15		
27	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	Each	2		
b	63 amps	Each	3		
28	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	25 amps	Each	4		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
b	40 amps	Each	3		
c	63 amps	Each	2		
29	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	4		
30	Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	4		
31	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	1		
32	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	2		
33	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	m	40		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
34	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	m	20		
35	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	m	10		
36	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
a	Upto 35 sq. mm (clamped with 1mm thick saddle)	m	85		
b	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	40		
37	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed/ XLPE aluminium conductor cable of 1.1 KV grade as required.				
a	4 x 16 Sq mm	Each	8		
b	3.5 x 25 Sq mm	Each	6		
c	3.5 x 35 Sq mm	Each	4		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
d	3.5 x 50 Sq mm	Each	2		
e	3.5 x 95 Sq mm	Each	2		
38	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 amps 240 volts "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	Each	1		
39	Supplying and fixing TP sheet steel enclosure on surface/ recess along with 16/ 25/ 32 amps 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	Each	1		
40	Supply of 1x28W Tube light made of powder coated CRCA sheet channel with all accessories like electronic ballast, lamp holder, 28W lamp etc prewired complete. (Philips TMS 095xTL5-28W or Wipro WDF 9128 SG)	Each	20		
41	Supply & fixing of 1x18W fluorescent tube light fitting with powder coated CRCA sheet channel complete with all accessories, electronic ballast, lamp holder, 18W lamp etc as required. (Philips TMS520/118 or Wipro WRF 21118).	Each	6		
42	Supply & fixing of 2x28W mirror optic fluorescent tube fitting with CRCA steel sheet housing, louvers, complete with electronic ballast, lamp holder, 28W lamp with all accessories as required. (Philips TCS350 2xTL5-28W EBE CS or Wipro WVF48228 SWG or Crompton T5CS228EB).	Each	24		
43	Supply of 2x36W, indoor clean room, recess mounted fluorescent light fixture with CRCA housing, reflector and control gear tray duly powder coated, clear acrylic diffuser, non-hygroscopic gasket to ensure dust proofing, 36 W T8 lamps, low loss copper ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIF 43236 SWG or Philips FCS650 2XPL-L36W EBP or Crompton CRFW12236EB).	Each	15		



SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
44	Supply & fixing of 2x36 W, indoor decorative recess mounted direct indirect downlight luminaire with translucent acrylic diffuser, powder coated CRCA body light fixture, 2 nos 36 W CFL lamps, electronic HPF ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Philips FBS 580 2xPL-L36W IC OD DF-WH or Wipro WVP 76236 SWA or Crompton CRDIP236EB).	Each	7		
45	Supply & fixing straight/ Angle batten holder with ISI marking including connection etc complete with all accessories as required.	Each	15		
46	Supply of following sweep ceiling fan, double ball bearing, approved colour and quality with original down rod, suspension shackle, canopy etc without regulator complete with all accessories as required.				
a	1200 mm sweep	Each	16		
47	Supply of 250mm sweep, 1250 rpm, louvered ventilating fan suitable for single phase 230 volt, 50Hz AC supply complete with motor, capacitor, louvers/ shutters and all accessories as required complete. (Usha Crisp Air or Equi.)	Each	5		
48	Supply of 3 Wings, 400mm Sweep, Decorative Wall Mounted fan with cords for Control with all accessories. (Usha Helix Hi speed or Equi.)	Each	5		
49	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 15 watts of approved quality.	Each	10		
50	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 20 watts of approved quality.	Each	15		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
51	Supply & fixing of fluorescent tube light fitting with bi-directional reflector, CRCA sheet steel powder coated housing, complete with lamp holder, electronic ballast, 28W lamp etc with all accessories as required. (Philips TMS 122M EBE/ Wipro WIF 30128 SG/ Crompton T5RSF28EB).				
a	Suitable for single 28 T5 W lamp	Each	3		
b	Suitable for twin 28 W T5 lamps	Each	3		
52	Supplying and fixing 2x18W CFL Decorative compact street light luminaire with sheet steel housing, powder coated CRCA sheet steel gear tray, clear acrylic cover, aluminium reflector etc complete with all mounting accessories as required. The item shall also include suitable size lamp bracket fabricated out of B class G.I pipe to suit the lamp fitting with its clamping accessories as required. (Crompton SCE 13218 or Equi.)	Each	8		
53	Supplying and fixing 2x18W surface mounting mirror optic luminaire with CRCA powder coated housing, aluminium reflector, paralite P5 louver system complete with lamp holder, ballast, 18W lamp, including all mounting accessories as required. (Wipro WVP 45218 or Crompton TLE218EB/P5)	Each	3		
54	Supplying and fixing four pole sheet steel enclosure on surface/ recess along with 40A, 415 volts, isolator complete with connections, testing and commissioning etc. as required.	Each	2		
55	Supply and fixing Polished Aluminium shade reflector 250 mm on the PVC straight / angle batten holder etc complete with all accessories as required.	Each	8		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
56	Supplying and fixing double pole sheet steel enclosure on surface / recess along with 40A, 240 volts, isolator complete with connections, testing and commissioning etc. as required.	Each	2		
57	Supply, Installation, Testing & Commissioning of Three phase meter box, cubicle type, made out of 2mm thick CRCA sheet, totally enclosed, IP54, wall / floor mounting, dust and vermin proof, powder coated, outdoor, compartmentalised, suitable for operation on 3 phase and neutral, 415 V, 50Hz AC system including internal wiring with suitable size wires, rotary handle, spreaders, 3mm thick gland plate, hinged type door with neoprene gasket etc. The panel shall include supply & installation of following switchgears, metering instruments and accessories as per specification.				
	<b>SWITCHGEAR &amp; OTHER ACCESSORIES</b>				
	Space provision for accommodating 3 phase CT operated energy meter from KSEB with all connections, glass view panel, control MCB, lockable compartment etc.				
	3 nos. Suitable ratio CT (as per KSEB) with Acc. Class 0.5, 10VA in lockable compartment.				
	3 nos 160A rewirable type bakelite fuse unit with 1 no. Neutral link.				
	1 no. 160A, FP, AC23A, 415V, 50Hz switch disconnector fuse unit with Din type HRC fuse of suitable rating (as per KSEB) in separate cubical.				
	The meter board shall have 200 Amp TPN busbars of high conductivity electrolytic quality Aluminium alloy, earth bus of required size, 4P terminal connectors, control wiring with all required accessories complete.	Each	1		
58	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended upto date.				
a	4 x 16 Sq mm	m	50		
b	4 x 6 Sq mm	m	10		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in figures)	Amount in Rs
c	3.5 x 25 Sq mm	m	100		
d	3.5 x 35 Sq mm	m	60		
e	3.5 x 95 Sq mm	m	50		
f	3.5 x 120 Sq mm	m	40		
	<b>Total for Electrical works</b>				
	<b>PART II - TOTAL</b>				

### **PART III - RENOVATION WORKS IN VARIOUS DEPARTMENTS**

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
	<b>PART A CIVIL PORTION</b>				
	<b>DISMANTLING &amp; DEMOLISHING WORKS</b>				
1	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc complete	3577.60	Sqm		
2	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	11.11	Cum		
3	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar	37.14	Cum		
4	Dismantling doors, windows and clerestory windows (steel or wood) including shutters chowkhats, architrave, holdfasts etc. complete and stacking with in 50m lead Of area 3sq.meters and below	31.00	Each		
5	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead Of area beyond 3 sq. metres	1.00	Each		
6	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50metres lead.	540.00	Kg		
7	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of: Asbestos sheet	36.00	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
8	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable surplus material and stacking of serviceable material within 50 meters lead as directed by Engineer-in-charge	179.02	Sqm		
9	Dismantling the PVC pipe lines and re-fixing in position jointing all complete including replacing the necessary damaged pipes & accessories	190.00	Rm		
10	Chipping and exposing the RCC slab to provide and fixing stainless steel 12mm dia bar bent to shape with hooked ends in R.C.C. slabs including, re-finishing with cement mortar 1:4 complete.	10.00	Each		
11	Dismantling the wooden window glass shutters and grills for repairing the shutters and replacing the damaged Mild steel hinges, window glass beadings including materials and refixing in position complete	58.00	Sqm		
12	Reparing the wooden plastic wire chair bottom and back side portion with replacing and fixing new wire complete	20.00	Each		
13	Repairing the aluminium/ GI / powder coated and AC sheet roofing in all floors with Bitumen felt (hessian base) type 3 grade I conforming to IS: 1322. over roof sheets consisting of courses of blown bitumen 85/25 or 90/15 conforming to IS : 702 applied hot @ 1.45 Kg per square metre of area in the damaged portion including scaffolding etc, complete	24.60	Sqm		
14	Chipping the damaged water proofing plaster in terrace level and cleaning, apply two coats of brush bond with approved materials and replaster with water proofing material complete.	15.00	Sqm		
15	Providing and filling in position bitumen mix filler of proportion 80 kg of hot bitumen 1 kg of cement and .25 cum of coarse sand for expansion joints	18.00	Rm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
	<b>EARTH WORK</b>				
16	Earth work in excavation by mechanical means (Hydraulic Excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 Sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.	67.50	Cum		
	<b>REINFORCED CEMENT CONCRETE</b>				
17	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	29.52	Cum		
18	Centering and shuttering including strutting, propping etc. and removal of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers.	513.52	Sqm		
19	Reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically treated bars (Using Vizac, Tata or SAIL)	3613.65	Kg		
	<b>STONE / BRICK WORK</b>				
20	Stone work with neatly dressed selected hard laterite stones of good quality size 32X21X20 cm in foundation and plinth cement mortar 1:6 (1 cement : 6 coarse sand) including extra for super structure above plinth level and upto floor V level	139.26	Cum		
21	Half Brick masonry with F.P.S bricks of class designation 75 in super structure above plinth level upto floor V level in Cement mortar 1:3 (1 cement : 3 coarse sand)	681.40	Sqm		
22	Extra for providing and placing in position 2 nos 6mm dia. M.S bars at every third course of half brick masonry (with F.P.S bricks)	681.40	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
	<b>STEEL WORK</b>				
23	Providing and fixing M.S grills of required pattern in frames of windows etc with M.S.flats, square or round bars etc all complete:- Fixed to openings/ wooden frames with rawl plugs screws etc	2926.13	Kg		
24	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 25x25 mm made of G.I. wire of dia. 3mm including strengthening with 2mm dia. wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge	22.50	Sqm		
25	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer	13.44	Sqm		
	<b>ROOFING</b>				
26	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/Sqm mixed with water proofing cement compound @ 0.253 kg/Sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg/Sqm mixed with water proofing cement compound @ 0.126 kg/Sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	197.42	Sqm		
27	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS: 8183, density 24kg/m <sup>3</sup> , 50mm thick, wrapped in 200 G Virgin Polythene bags, fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5 mm x 24 gauge wire mesh, for top most ceiling of building.	1100.19	Sqm		



SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
28	Providing corrugated G.S. sheet (powder coated) roofing including vertical/curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead and including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces) excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required. 0.63 mm thick or nearest size	205.20	Sqm		
29	Providing and fixing poly carbonate (multi wall 6mm or nearest size) sheet roofing of approved make and quality fixed with polymer coated J or L hooks ,bolts and nut of required diameter necessary washers complete including the cost of M S square tube 50x25mm 16 guage fixed with M S flat 25x6mm including necessary nuts and bolts to support the roofing , painting with two or more coats with synthetic enamel paint over a priming coat of Zinchromate primer etc complete.	29.11	Sqm		
30	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:	687.80	Kg		
31	Providing and fixing on wall face unplasticised-Rigid PVC rain water pipes conforming to IS: 13592 type A including jointing with seal ring conforming to IS: 5382 leaving 10mm gap for thermal expansion (i) Single socketed pipes – 110mm diameter OD	48.00	Rm		
32	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS: 13592 Type A, including jointing with seal ring conforming to IS: 5382, leaving 10 mm gap for thermal expansion. Bend 87.5° 110 mm bend	3.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
33	Providing and fixing unplasticised- P.V.C pipes clips of approved design to unplasticised- P.V.C rain water pipes by means of 50 x 50 x 50 mm hard wood plugs, screwed with M.S screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the walls etc. complete 110mm	48.00	Each		
34	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15cm diameter and weighing not less than 440 grams.	7.00	Each		
	<b>FLOORING</b>				
35	Providing and laying polished vitrified floor tiles of size 600x600mm of thickness 10mm or nearest size of M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent in light colours and shades, with water absorption's less than 0.08% and conforming to IS:15622, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with cement and matching pigments etc, complete as directed by the Engineer-in-charge. <i>Basic rate of tile not less than Rs. 865/sqm</i>	1358.17	Sqm		
36	Providing and laying Vitrified tiles in size 600x600mm of thickness 10mm or nearest size, with water absorption less than 0.08% and conforming to IS: 15622, of M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent in all colours and shade in skirting, riser of steps, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS: 15477, in average 6 mm thickness, including grouting of joints and matching pigments etc, complete as directed by the Engineer-in-charge. <i>Basic rate of tile not less than Rs. 865/sqm</i>	61.89	Sqm		
37	Providing and laying Vitrified tiles in floor with size 600x600mm (thickness to be specified by the manufacturer), with water absorption less than 0.08% and conforming to IS: 15622, of M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent in all colours and shade, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS: 15477, in average 6 mm thickness, including grouting of joints and matching pigments etc, complete as directed by the Engineer-in-charge. <i>Basic rate of tile not less than Rs. 865/sqm</i>	815.80	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
38	Providing and laying anti skid ceramic floor tiles of 400x400 mm size for toilets (7.5mm thickness or nearest size) M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent of 1st quality conforming to IS: 15622 of approved make in all colours, shades, except white, ivory, grey, fume red brown laid on 20mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand) including pointing the joints with white cement and matching pigments etc complete. <i>Basic rate of tile not less than Rs. 370/sqm</i>	458.90	Sqm		
39	Providing and fixing 1st quality ceramic glazed wall tiles of 300x400 size conforming to IS: 15622, thickness not less than 5 mm of approved make like M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent approved by Engineer in charge in all colours, shades Except bottle green, Black of any size as approved by engineer in charge in skirting, rises of step and dados over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per Sqm ncluding pointing in white cement mixed with pigment of matching shade complete. <i>Basic rate of tile not less than Rs. 330/sqm</i>	468.00	Sqm		
40	Providing and fixing 1st quality ceramic glazed wall tiles <b>joint free</b> of sie 300x400 mm conforming to IS: 15622, approved make like M/s. JOHNSON, KAJARIA, NITCO, SOMANY or equivalent approved by Engineer in charge in all colours, shades Except bottle green, Black of any size as approved by engineer in charge in skirting, rises of step and dados over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per Sqm including pointing in white cement mixed with pigment of matching shade complete. <i>Basic rate of tile not less than Rs. 400/sqm</i>	2096.00	Sqm		
41	Providing and fixing 18mm gagsaw cut mirror polished (premoulded and prepolished) machine cut for kitchen plat forms, vanity counters, window sills, facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels. Granite of any colour and shade Area of slab over 0.50Sqm	9.60	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
42	Providing edge moulding to 18mm thick marble stone counters, vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge. Granite work	13.60	Rm		
	<b>PVC WORKS</b>				
43	Providing and fixing factory made UPVC door frame made of UPVC extruded, section having an over all dimension, as below (tolerance +/- 1mm) with wall thickness 2.0mm +/-0.2mm, corners of the door frame to be joined with galvanized brackets and stainless steel screws, joint mitred and plastic wilded. The hinge side vertical of the frames reinforced by galvanized MS tube of size 19x19mm and 1mm +/- 0.1mm wall thickness and 3nos. stainless steel hinges fixed to the frame complete as per manufacturers and direction of Engineer in Charge. Extruded section Profile size 48x40mm	218.10	Rm		
44	Providing and fixing to existing door frames 24mm thick factory made PVC door shutters made of styles and rails of a UPVC hollow section of size 59x24 mm and wall thickness 2mm +/- 0.2mm with inbuilt edging on both sides. The styles and rails mitred and jointed at the corners by means of M.S. galvanised/ plastic brackets of size 75 x 220 mm having wall thickness 1mm and stainless steel screws. the styles of the shutter reinforced by inserting galvanised M.S. tubes of size 20 x 20mm and 1mm +/- 0.1 mm wall thickness. the lock rail made up of 'H' section, a UPVC hollow section of size 100 x 24mm and 2mm +/- 0.2 mm wall thickness fixed to the shutter styles by means of plastic /galvanised M.S. 'U' cleats. The shutter frame filled with a UPVC multi-chambered single panel of size not less than 620mm, having over all thickness of 20mm and 1mm +/- 0.1mm wall thickness. The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer - in - Charge. For W/C and Bathroom Shutter	72.35	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
45	Providing and fixing at all height false ceiling of 12.5 mm thick tapered edge gypsum board conforming to IS: 2095/ calcium silicate boards, including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating 600 as per IS: 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastner 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x5mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick botton wedge of 80mm with tapered flanges of 26mm Each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm and as per detail specification				
(a)	Plain gypsum false ceiling	671.17	Sqm		
(b)	Partition Gypsum board	91.98	Sqm		
46	Providing and fixing at all heights including providing and fixing of frame work, center to center fixed with rod hangers of required length to the ceiling and other end of rod hanger being fixed with nut and bolts 6 mm thick <b>Synthetic false ceiling</b> with GI channel as per manufacture's specification and also including the cost of making opening for light fittings, grills, diffusers, cutouts made with frame of perimeter angles suitably fixed all complete as per the drawing and specification and direction of the Engineer in charge	357.14	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
47	Providing and fixing at all height false ceiling including providing and fixing of frame work centre to centre fixed with rod hangers, of required length to the ceiling, and other end of rod hanger being fixed with nut and bolts 20mm thick <b>Thermocol False Ceiling</b> of size 600x600mm powder coated with 50mm Grid Channel (Perforated Grid Design )as per manufactures specification of Brand Armstrong, and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter angles suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge	102.72	Sqm		
48	<p>Providing &amp; Fixing of Suspended Ceiling System with 15 mm EXPOSED GRID. The tiles should have Humidity Resistance (RH) of 95%, NRC 0.70, Light Reflectance &gt;85%, Thermal Conductivity k = 0.052- 0.057 w/m K, Colour White, Fire Performance Class 0/Class 1 (BS 476 Part 6&amp;7) in module size of 600 X 600 X 20 mm with Bio Block coating on the face of the tile, suitable for Green Building application, with Recycled content of 81%. The grid should be with 15mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm &amp; 600 mm Cross Tees with a web height of 32mm and a load carrying capacity of 7.57 Kgs/M2. The T -Sections have a Galvanizing of 120 grams per M2 &amp; passed through 500 hrs of Salt test. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees.</p> <p>Perimeter trim to be wall angles of size 3000x19x19mm, secured to walls at 450 mm maximum centers. accessories consisting of M6 Anchor Fasteners with Vertical Hangers made of Galvanized steel of size 26 x 26 x 25 x 1.2mm with a Galvanized Thickness of 80gsm, A pre Straightened Hanger wire of dia – 2.68 mm of 1.83 m length., thickness of 80gsm and a tensile strength of 344-413 MPa, along with Adjustable hook clips of 0.8mm thick, galvanized spring steel for 2.68 mm with a minimum pull strength of 110 kg. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runners all complete as per the miniature's specification</p>				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
(a)	False ceiling - Mineral Fibre Acoustical	879.85	Sqm		
b)	False ceiling - GRG	119.47	Sqm		
49	Providing and fixing 15 cm wide 45 cm overall semi-circular plain PVC - 6 kg/cm <sup>2</sup> gutter with iron brackets 40x3mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipes complete.	56.00	RM		
	<b>FINISHING</b>				
50	CEMENT PLASTER (IN FINE SAND) 12 mm cement plaster of mix :1:4 (1 cement : 4 fine sand)	1259.09	Sqm		
51	15 mm cement plaster on the rough side of single or half brick wall of mix :1:4 (1 cement: 4 fine sand)	601.32	Sqm		
52	6mm cement plaster to ceiling of mix 1:3 (1 cement : 3 fine sand)	28.35	Sqm		
53	12mm cement plaster on rough side of single or half brick wall finished of mix 1:4 (1 cement : 4 coarse sand)	1136.12	Sqm		
54	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface: Water thinnable cement primer.	5218.55	Sqm		
55	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:	4985.55	Sqm		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
56	Finishing walls with Acrylic smooth exterior paint of required shade:- New work (Two or more coats applied @ 1.67 ltr/10 Sqm over and including base coat of water proofing cement paint applied @ 2.2 kg/10Sqm.)	601.32	Sqm		
57	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade Two or more coats on new work.	848.86	Sqm		
	<b>ALUMINIUM WORK</b>				
58	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	3148.78	Kg		
59	Providing and fixing aluminium work for doors, windows, ventilators, and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/ neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/ panelling. C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC/ neoprene gasket required (Fittings shall be paid for separately). Powder coated aluminium (minimum thickness of	4759.56	Kg		



	powder coating 50 micron)				
SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
60	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 5.5 mm thickness	70.51	Sqm		
61	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 4.0 mm thickness	376.83	Sqm		
62	Providing and fixing 12mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade 1 type II, in panelling fixed in aluminium doors, windows shutters and partition frames with C.P brass/ stainless steel screws etc. complete as per architectural drawings and directions of engineer in charge Pre laminated particle board with decorative lamination on both sides	213.75	Sqm		
63	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour and shade with necessary screws etc. complete. Twin rubber stopper	65.00	Each		
64	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent od dyed to required colour or shade with necessary screws etc. complete: 200 x 10 mm	65.00	Each		
65	Providing and fixing aluminium round shape handle of outer dia 100mm with SS screws etc. Complete as per direction of Engineer-in-charge Anodized (AC 15 ) aluminium	65.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
66	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	58.00	Each		
67	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete	28.00	Each		
68	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete. 255 X 19 mm	16.00	Each		
69	Providing and fixing bright finished stay-cum friction Hymax hinges with necessary screws etc. complete-- 250 mm (Heavy type)	30.00	Each		
	<b>INTERNAL WATER SUPPLY &amp; SANITARY INSTALLATIONS</b>				
70	Providing and fixing white vitreous china pedestral type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & CP flush bend with fittings & CI brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required. WC pan with ISI marked black solid plastic seat and lid	15.00	Each		
71	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS: 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required: White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests.	5.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
72	Providing and fixing <b>wash basin</b> with C.I./M.S. brackets, 15mm C.P. brass pillar taps, Kingston/ Gem/ Techno/ Parko, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required: White Vitreous China Wash basin size 550x400mm with single 15mm C.P.brass pillar tap	19.00	Each		
73	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350mm and 340x410x265mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required: One urinal basin with 5 litre white P.V.C. automatic flushing cistern.	1.00	Each		
74	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the wall wherever required: Size 600x450x200mm	1.00	Each		
75	Providing and fixing 600x450mm bevelled edge <b>mirror</b> 5mm thick of superior glass (of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P.brass screws and washers complete.	14.00	Each		
76	Providing and fixing PTMT <b>towel ring</b> round/ trapezoidal shape 215mm long, 200mm wide with a minimum distance of 37mm from wall face with concealed fittings arrangement of approved quality, colour and make weighing not less than 80gms	14.00	Each		
77	Providing and fixing PTMT <b>liquid soap container</b> 109mm wide, 125mm high and 112mm distance from wall of standard shape with bracket of the same material with snap fittings of approved quality, co lour and make, weighing not less than 105gms	14.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
78	Providing and fixing square-mouth PVC gully trap complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design	9.00	Each		
79	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work including cutting chases and making good the walls etc.				
(a)	32mm	6.00	RM		
(b)	25mm	25.00	RM		
80	Providing and fixing unplasticised PVC connection pipe with brass unions: 15 mm nominal bore	18.00	Each		
81	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete. 40 mm dia	18.00	Each		
82	Providing and fixing PVC pipe complete including cutting, chasing in walls and making good the walls etc complete.				
(a)	20mm	131.00	RM		
(b)	25mm	131.00	RM		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
(c)	32MM	131.00	RM		
83	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge				
(a)	20mm	20.00	RM		
(b)	32mm	3.00	RM		
(c)	40mm	32.00	RM		
(d)	50MM	147.00	RM		
84	Providing and fixing unplasticised rigid P.V.C pipe (pressure 4kg/cm <sup>2</sup> ) in rain water pipe or in drainage lines including jointing all complete				
(a)	75mm	100.00	RM		
(b)	100mm	65.00	RM		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
85	Providing and fixing single equal plain junction of required degree including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	110mm	16.00	Each		
(b)	75mm	18.00	Each		
86	Providing and fixing bend of required degree, including all fixing accessories as per the direction of engineer in charge etc. complete				
(a)	110mm	18.00	Each		
(b)	75mm	18.00	Each		
87	Providing and fixing bend of required degree with access door, including all fixing accessories as per the direction of engineer in charge etc. complete Single tee with door				
(a)	75x75x75mm	17.00	Each		
(b)	100x100x100mm	17.00	Each		
88	Providing and fixing bend of required degree with access door, including all fixing accessories as per the direction of engineer in charge etc. complete Single tee without door				

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
(a)	100mm	16.00	Each		
(b)	75mm	16.00	Each		
89	Providing and fixing C.P brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	41.00	Each		
90	Providing and fixing C.P. brass short body bib cock of approved quality conforming to IS: 8931: 15 mm nominal bore	28.00	Each		
91	Providing and fixing C.P brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore With long Handle	1.00	Each		
92	Providing and fixing C.P brass stop cock (concealed) of standard design of approved make conforming to IS: 8931. conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	41.00	Each		
93	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet: 100 mm diameter	13.00	Each		
94	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)				
(a)	65mm	2.00	Each		
(b)	50mm	6.00	Each		

SL No	Description	Quantity	Unit	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
95	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design: Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg): With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	4.00	Each		
96	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors: 100mm inlet and 100mm outlet	37.00	Each		
97	Providing and placing on terrace (at all floor levels) poly ethylene water storage tank ISI: 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and over flow pipes but without fittings and the base support for tank	2000.00	Litre		
98	Making soak pit 2.5m diameter 3.0 m deep with 45x45cm drybrick honeycomb shaft with bricks of class designation 7.5 and SW drain pipe 100mm diameter, 1.8m long complete as per standard design. With FPS bricks	1.00	Each		
99	Supplying and fixing C.I cover without frame for manholes: 455x610 mm rectangular CI cover (light duty) weight of the cover to be not less than 23 kg	5.00	Each		
100	Providing and fixing PTMT grating of approved quality and colour. 100 mm nominal dia.	28.00	Each		
	<b>TOTAL – CIVIL WORKS</b>				



## **PART III - RENOVATION WORKS IN VARIOUS DEPARTMENTS**

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
<b>PART B - ELECTRICAL PORTION</b>					
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.				
a	Group A	Point	47		
b	Group B	Point	115		
c	Group C	Point	255		
2	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.	Point	16		
3	Rewiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable and 1.5 sq.mm. FR PVC insulated copper conductor single core cable as earth wire in existing surface/ recessed steel conduit including dismantling as required.				
a	Group A	Point	57		
b	Group B	Point	195		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
c	Group C	Point	336		
4	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	m	2230		
b	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	m	1005		
c	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	m	385		
d	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	m	160		
e	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	m	245		
f	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	m	440		
g	4 X 16 sq. mm + 2 X 16 sq. mm earth wire	m	235		
5	Supplying and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	1 x 1.5 sq. mm	m	325		
b	3 x 1.5 sq. mm	m	435		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
c	2 x 4 sq. mm	m	290		
d	6 x 2.5 sq. mm	m	190		
e	4 x 6 sq. mm	m	180		
6	Supplying and drawing following pair 0.5 sq mm FR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	2 Pair	m	270		
7	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	m	1130		
b	25 mm	m	355		
8	Supplying and fixing metal box of following sizes ( Nominal size ) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.				
a	250 mmx300 mmx 100 mm deep	Each	58		
9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
a	Telephone socket outlet	Each	26		
b	TV antenna socket outlet	Each	5		
10	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	78		
11	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	166		
12	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
a	1 or 2 Module (75mmX75mm)	Each	153		
b	12 Module (200mmX150mm)	Each	65		
13	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	Each	152		
14	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	93		
15	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	353		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
16	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	255		
17	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc., including supplying and fixing ball and socket arrangement, 2 no. down rods of 20 mm dia X 1.6 mm thick steel conduit upto 30 cm length, painting and wiring the down rods and connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	160		
18	Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length wiring with 2 X 1.5 sq. mm FR PVC insulated, copper conductor, single core cable including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	231		
19	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable etc. as required.	Each	255		
20	Supplying and fixing extra down rod of 10 cm length G.I. pipe ,15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	446		
21	Painting of ceiling fan in installed position with one or more coats of spray painting with synthetic enamel paint of approved brand and manufacture to give an even shade, including cleaning of surface with detergent etc as required.	Each	20		
22	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
a	4 way (4 + 12), Double door	Each	2		
b	6 way (4 + 18), Double door	Each	8		
23	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's with provision of 100 A FP Isolator as incomer, interconnection between incomer isolator and busbar (but without MCB's and incomer) as required. (Note: Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	4 way (4 + 12), Double door	Each	2		
b	8 way (4 + 24), Double door	Each	1		
24	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	Each	133		
b	Triple pole	Each	61		
25	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	151		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
26	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	Each	40		
b	63 amps	Each	28		
c	100 amps	Each	7		
27	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	25 amps	Each	12		
a	40 amps	Each	23		
b	63 amps	Each	14		
28	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	38		
29	Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	3		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
30	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	1		
31	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	m	10		
32	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	m	5		
33	Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	15		
34	Supplying and fixing TP sheet steel enclosure on surface/ recess along with 16/25/32amps 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	Each	16		
35	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	Each	24		
36	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
a	Upto 35 sq. mm (clamped with 1mm thick saddle)	m	180		
b	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	85		



SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
37	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
a	2 x 6 Sq mm	Each	18		
b	3.5 x 25 Sq mm	Each	14		
c	3.5 x 35 Sq mm	Each	12		
38	Rewiring for Twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable and 1.5 sq.mm. FR PVC insulated copper conductor single core cable as earth wire in existing surface/ recessed steel conduit including dismantling as required.	Each	1		
39	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	m	10		
40	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	m	220		
41	Supply and fixing 2x36W surface mounted luminaire with opal acrylic cover, housing made of CRCA sheet steel with all accessories like electronic ballast, lamp holder, 28W lamp etc prewired complete. (Philips TCS 019 2xTL-D36W EBE or Wipro WCF 51240 SGW or Crompton DIS1124LDB).	Each	30		
42	Supply of 2x36W, indoor clean room, recess mounted fluorescent light fixture with CRCA housing, reflector and control gear tray duly powder coated, clear acrylic diffuser, non-hygroscopic gasket to ensure dust proofing, 36 W T8 lamps, low loss copper ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIF 43236 SWG or Philips FCS650 2XPL-L36W EBP or Crompton CRFW12236EB).	Each	35		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
43	Supply & fixing of 1x18W fluorescent tube light fitting with powder coated CRCA sheet channel complete with all accessories, electronic ballast, lamp holder, 18W lamp etc as required. (Philips TMS520/118 or Wipro WRF 21118).	Each	91		
44	Supply of 1x28W Tube light made of powder coated CRCA sheet channel with all accessories like electronic ballast, lamp holder, 28W lamp etc prewired complete. (Philips TMS 095xTL5-28W or Wipro WDF 9128 SG)	Each	75		
45	Supply & fixing of 2x36 W, indoor decorative recess mounted direct indirect downlight luminaire with translucent acrylic diffuser, powder coated CRCA body light fixture, 2 nos 36 W CFL lamps, electronic HPF ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Philips FBS 580 2xPL-L36W IC OD DF-WH or Wipro WVP 76236 SWA or Crompton CRDIP236EB).	Each	67		
46	Supply & fixing of 2x28W mirror optic fluorescent tube fitting with CRCA steel sheet housing, louvers, complete with electronic ballast, lamp holder, 28W lamp with all accessories as required. (Philips TCS350 2xTL5-28W EBE CS or Wipro WVF48228 SWG or Crompton T5CS228EB).	Each	24		
47	Supply & fixing of 2x18W recessed downlight fixtures with sturdy PCD housing, satin finish reflector, enclosed gear compartment, removable front frame with recessed frosted glass complete with ballast, lamp holder, 18W CFL lamp with all accessories as required. (Philips FBH145 M 2xPL-C/4P18 HMF 240V or Wipro WCP 36218 SGW or Crompton DDLHR218EB/G/SL).	Each	5		
48	Supply & fixing FP sheet steel enclosure on surface / recess along with 40A, 415 volt, FP Isolator complete with connections, testing & commissioning etc as required.	Each	1		
49	Supply of following sweep ceiling fan, double ball bearing, approved colour and quality with original down rod, suspension shackle, canopy etc without regulator complete with all accessories as required.				
a	1050 mm sweep	Each	29		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
b	1200 mm sweep	Each	150		
50	Supply of 250mm sweep, 1250 rpm, louvered ventilating fan suitable for single phase 230 volt, 50Hz AC supply complete with motor, capacitor, louvers/shutters and all accessories as required complete. (Usha Crisp Air or Equi.)	Each	27		
51	Supply of 3 Wings, 400mm Sweep, Decorative Wall Mounted fan with cords for Control with all accessories. (Usha Helix Hi speed or Equi.)	Each	8		
52	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 15 watts of approved quality.	Each	89		
53	Supply and fixing ISI marked Compact Fluorescent Lamp (CFL), 20 watts of approved quality.	Each	78		
54	Supply of fluorescent tube light fitting with bi-directional reflector, CRCA sheet steel powder coated housing, complete with lamp holder, electronic ballast, 28W lamp etc with all accessories as required. (Philips TMS 122M EBE / Wipro WIF 30128 SG / Crompton T5RSF28EB).				
a	Suitable for single 28 T5 W lamp	Each	17		
b	Suitable for twin 28 W T5 lamps	Each	8		
55	Supplying and fixing 2x18W CFL Decorative compact street light luminaire with sheet steel housing, powder coated CRCA sheet steel gear tray, clear acrylic cover, aluminium reflector etc complete with all mounting accessories as required. The item shall also include suitable size lamp bracket fabricated out of B class G.I pipe to suit the lamp fitting with its clamping accessories as required. (Crompton SCE 13218 or Equi.)	Each	5		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
56	Supplying and fixing 2x18W surface mounting mirror optic luminaire with CRCA powder coated housing, aluminium reflector, paralite P5 louver system complete with lamp holder, ballast, 18W lamp, including all mounting accessories as required. (Wipro WVP 45218 or Crompton TLE218EB/P5)	Each	3		
57	Supply & fixing straight / Angle batten holder with ISI marking including connection etc complete with all accessories as required.	Each	126		
58	Supply and fixing Polished Aluminium shade reflector 250 mm on the PVC straight / angle batten holder etc complete with all accessories as required.	Each	4		
59	Supplying and fixing following rating, double pole, 240 volts, 25A isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Each	22		
60	Supply of the following sizes of Alluminium armoured PVC insulated, XLPE Power cable of 1.1kV grade to site including transporting and stacking charges at work site..				
a	4 x 6 Sq mm	m	20		
b	4 x 16 Sq mm	m	160		
c	3.5 x 25 Sq mm	m	180		
d	3.5 x 35 Sq mm	m	150		
e	3.5 x 50 Sq mm	m	20		

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
61	Supplying and fixing TP sheet steel enclosure on surface/ recess, along with 63 A, 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	Each	5		
	AC Repair				
62	Dismantling & reinstalling existing Air conditioner upto 2TR, attending repairs, ensuring cooling, including refilling gas etc by skilled AC technician with all required accessories as required.	Each	4		
63	Providing additional copper piping suiting for AC upto 2TR including all required accessories as required.	m	35		
64	Supply and fixing of 5W, 24 LED re-chargable type Table light fixture complete with all required accessories as required. (Similar to BPL SL100)	Each	45		
65	Dismantling the existing wiring with switch box and stacking the same to the place as per the direction of engineer in charge.	Points	240		
66	Dismantling existing all types of light fixing, ceiling fan, exhaust fan, wall fan etc. and stacking the same to a the place as per the direction of engineer in charge.	Each	275		
67	Dismantling, cleaning and reinstalling the existing ceiling fan, attending minor repairs, painting with two coats of approved colour/ brand enamel paint with primer including all required accessories as required.	Each	190		
68	Supplying and fixing double bolt type stainless steel fan clamp (Hook) on RCC Slab including all accessories as required.	Each	160		
69	Supply, installation, testing & commissioning of 1 kVA, 1 phase input, 1 phase output, true on-line UPS system, IGBT PWM technology, including all accessories, SMF batteries VRLA type (26 Ah batteries - 3 nos) with powder coated MS cabinet including all accessories as required complete having following specification.				

SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
	Fully digital controlled based on DSP				
	Power factor corrected from end > 0.9				
	Pure sine wave output.				
	Full time output voltage & frequency regulation	Each	1		
	<b>Electrical Total</b>				
	<b>TOTAL - PART III</b>				

**PART IV - AIR CONDITIONING WORKS**

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
PART A	MACHINERY				
1	Supply, installation, testing and commissioning (SITC) of 22 TR capacity air cooled Packaged split air conditioner with scroll compressor, Floor mounted Indoor Units (IDU) with top discharge and all standard fittings, IDU SS drain pan, as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads , ODU MS stands and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	2		
2	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 22TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition (in case of multiple compressor machine, unit length will be 1m of multiple pipes as required) .	Each	33		
3	Supply, installation, testing and commissioning (SITC) of 17 TR capacity aircooled Packaged split air conditioner with scroll compressor, Floor mounted Indoor Units (IDU) with top discharge and all standard fittings, IDU SS drain pan, as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads , ODU MS stands and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	2		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
4	Supply, installation, testing and commissioning (SITC) of 17 TR capacity aircooled Ductable split air conditioner with scroll compressor, Ceiling Suspended Indoor Units (IDU) and all standard fittings, IDU SS drain pan, as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads, ODU MS stand and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	4		
5	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 17TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition (in case of multiple compressor machine, unit length will be 1m of multiple pipes as required) .	Each	207		
6	Supply, installation, testing and commissioning (SITC) of 8.5 TR capacity aircooled Outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads, ODU MS stand and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	1		
7	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 8.5TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition.	RM	20		



Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
8	SITC of DX type double skinned air handling units, ceiling suspended type 8.5 TR, 1500 lps capacity suitable to connect to 8.5TR ODU complete with suitable DIDW blower (as per approved make), blower section, static pressure of 125mm of water column, built in pre filter(EU4), fine filter(EU7) and HEPA filter(EU13) and controls connected to condensing units, insulated SS drain pan, 6 row cooling coil, electric motor, belt drive package with TEFC motor class 'B' insulation, suitable for 3 phase, 415 V, 50Hz supply, suitable AHU panel, ARI certified, belt guards, thermometers and pressure gauges at the inlet & outlet, suitable supports for suspending from slab, vibration isolator, etc. conforming to specifications.	Each	1		
9	Supply, installation, testing and commissioning of 5.5 TR capacity aircooled Outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads, ODU MS stand and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	2		
10	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 5.5TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition (in case of multiple compressor machine, unit length will be 1m of multiple pipes as required) .	RM	27		
11	SITC of DX type double skinned air handling units, ceiling suspended type 5.5 TR, suitable to connect to 5.5TR ODU 1100 lps capacity complete with suitable DIDW blower (as per approved make), blower section, static pressure of 125mm of water column, built in pre filter(EU4), fine filter(EU7) and HEPA filter(EU13) and controls connected to condensing units, insulated SS drain pan, 6 row cooling coil, electric motor, belt drive package with TEFC motor class 'B' insulation, suitable for 3 phase, 415 V, 50Hz supply, suitable AHU panel, ARI certified, belt guards, thermometers and pressure gauges at the inlet & outlet, suitable supports for suspending from slab, vibration isolator, etc. conforming to specifications.	Each	2		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
12	Supply, installation, testing and commissioning of 3 TR capacity aircooled Outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads, ODU MS stand and safety devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	Each	1		
13	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 3TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition	RM	20		
14	Supply, installation, testing and commissioning of DX type double skinned air handling units, ceiling suspended type 3 TR suitable to connect to 3TR ODU, 600 lps capacity complete with suitable DIDW blower (as per approved make), blower section, static pressure of 100 mm of water column, built in pre filter(EU4), fine filter(EU7) and HEPA filter(EU13) and controls connected to condensing units, insulated SS drain pan, 6 row cooling coil, electric motor, belt drive package with TEFC motor class 'B' insulation, suitable for 3 phase, 415 V, 50Hz supply, suitable AHU panel, ARI certified, belt guards, thermometers and pressure gauges at the inlet & outlet, suitable supports for suspending from slab, vibration isolator, etc. conforming to specifications.	Each	1		
15	Supply, Laying and Fixing of 4C 4Sq.mm size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor cable conforming to IS 7098 (Part 1) amended upto date with brass compression glands on surface/ cable tray/ wall / build in trench etc as required from the Indoor to outdoor units of all units for control wiring.	RM	138		
16	Supply, installation, testing and commissioning PVC drain pipe of 25mm dia ISI marked, connecting the drain lines from the indoor units to floor level with 9mm nitrile rubber insulation as per specification	RM	248		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
17	Supply, installation, testing and commissioning of Air Cooled High Wall mounted Split Air Conditioner of following capacity consisting of high wall mounted type room unit (fan coil) with cordless remote control and one number outdoor condensing unit comprising of energy efficient suitable rotary compressor for operation on single phase, 230 V, 50Hz supply, fixing the outdoor unit on a raised platform as per manufacturers recommendation and fixing of room (fan coil) unit on wall, upto 5 m distance refrigerant copper piping with 13mm nitrile rubber insulation, providing and making interconnection between room & condenser as per site conditions, comprising of 1" dia drain PVC pipe with insulation 5m, canvas connections, full electrical cabling from power plug near indoor unit and to outdoor unit, vibration isolators, ODU MS stand, first charge refrigerant gas, min 4star rated as per BEE suitable stabilizer etc complete as required.				
17.1	2 TR	No	8		
17.2	1.5 TR	No	24		
17.3	1 TR	No	5		
18	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping additional length for above machines with 13 mm nitrile rubber insulation & suitable size electrical cabling interconnecting the condensing unit to evaporating unit for split units as per site condition.	RM	124		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
19	Supply and fixing Heater package with Humidistat and contactor for humidity control	Set	2		
	<b>TOTAL FOR PART A</b>				
<b>PART B</b>	<b>AIR DISTRIBUTION</b>				
20	Supply, installation, testing and commissioning of factory fabricated rectangular GSS sheet metal ducting for Supply/return/fresh air duct/collar connecting to indoor unit as per ducting specifications and with suitable supports using MS angles, channels, rods, anchor bolts, etc to roof /truss as per IS 655 and as per specifications.				
20.1	18 G	SQM	20		
20.2	20 G	SQM	68		
20.3	22 G	SQM	136		
20.4	24 G	SQM	1216		
21	SITC of External thermal insulation on supply air ducts using min 12mm thick nitrile rubber class "O" closed cell type with antimicrobial protection as per specifications.	SQM	1369		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
22	Supply, installation, testing and commissioning of Acoustic duct lining using 10mm nitrile rubber insulation open cell type inside the ducts, with necessary adhesive, fixtures at the outlets of all indoor units upto 4m distance from fan outlet as per spec provided.	SQM	145		
23	Supply, installation and commissioning of underdeck insulation with 20 mm thick closed cell elastomeric Nitrile Rubber density of 40kg/ m3 on ceiling with necessary adhesive, fixtures supports etc.	SQM	476		
24	Supply, fabrication, installation, testing of flexible connections made out of fire resistant flexible double canvas sleeve.	Set	16		
25	Supply, installation, testing and commissioning of Powder coated extruded aluminium Continuous grilles 16mm frame, 15deg deflection for supply / return air 150mm wide as per spec	SQM	73		
26	SITC of Powder coated extruded aluminium supply air diffusers 4 way both side coated with collar damper aluminium extruded black anodized. (300mmX300mm/600mmx600mm)	SQM	19		
27	SITC of Powder coated extruded aluminium return air diffusers 4 way both side coated without VCD.(300mm x 300mm/600mmx600mm)	SQM	19		
28	SITC of Fire Control Damper made of 16G GSS sheet blade and frame with 165mm casing, heavy duty interlocking blades and fully enclosed bade linkage mechanism, SS lateral seal blade seals, self lubricating sintered bronze bushes, fire rating as per UL555-1995 tested as per BS-476 part 20 with 18G extended sleeve 450mm and with fusible link, spring mechanism control panel temp sensor, smoke sensor, limit switch with lever for auto shut off in case of fire/smoke as per specifications.	SQM	4		

Item No.	Description of items	Unit	Qty	Rate (Rs.) (in words & in fig.)	Amount (Rs.)
29	SITC of multi blade type volume control dampers made of extruded aluminium for ducts/ collars to be provided with suitable links, levers and quadrants for manual control of volume of air flow and for proper balancing of the air distributions system in main ducts & other area as per specification.	SQM	9		
30	SITC of Fresh air GI louvers of size 300x300 mm with wire mesh and birds screen for IDUs/AHUs as per specifications.	SQM	9		
31	Supply, installation, testing and commissioning of Inline Centrifugal duct fan with dynamically balanced impeller of 700cfm capacity, min 10 mm static , complete with GI box, with single phase direct driven motor with class B, IP44 protection with an internal automatic safety thermal overload protection, dynamically balanced impeller of following capacity, with an operating sound level of less than 55dB at 3 m distance.	Each	4		
	<b>TOTAL FOR PART B</b>				
	<b>GRAND TOTAL</b>				

PART V - LIFT					
SI No	Description of item	Unit	Qty	Rate in Rs (in words & in fig.)	Amount in Rs
1	Supply, installation, testing & commissioning of electric traction type elevator of following capacities and type suitable for operation on 415 V, 3 phase, 50 Hz AC supply, having AC variable voltage and variable frequency type traction control, machine room less, speed of 1.00 Mtr/sec, electromagnetic brake system, simple operations, operating control panel with luminous buttons, overload warning indicator, battery operated alarm bell, LED type emergency light, intercom suitable for hook up to EPABX, infrared ray sensing door protection for full height, reverse phase relay on controller, fireman's switch at ground floor, digital car positions indicator in car and at all positions indicator in car and at all floors with Up/DOWN direction, all signal fixtures in vandal proof stainless steel faceplates, light fixtures, ventilation fan, etc complete with all accessories including automatic rescue device in the event of power failure etc., Complete with necessary scaffolding, electrical panel, logic control panel and shaft lighting etc required for the erection of the elevators as required.	1.00	Each		
	Machine Room less type with the traction motor placed directly on top of the hoistway and elevator shall be of gearless type with travel height of 10.mtrs. (suitable for lift well size 3000mm (D)X 2000m(W)) complete as per technical specification, simplex full collective operation with/without attendant. Car/Hoistway Entrance, protected by SS hair line finish doors and clear side(telescopic) opening min 1000mm wide x 2000mm height. <b>20 passengers</b> (Minimum) capacity (minimum 1360 Kgs) elevator, 3 stops & 3 openings car size of 2400mm deep x 1300mm wide x 2300mm Height Inside dimensions and entrance at front side on all the serving floors, provided with SS hairline finish panel on all four sides, SS mirror finish ceiling, stainless steel hand rail on three sides complete as per specifications.				
	Approved Makes: KONE, OTIS, SCHINDLER, MITSUBUSHI				
	<b>TOTAL</b>				