

## 1.00 POINT WIRING

1.01 Point wiring for Light / Bell with 2-1.5 sq.mm & earthwire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multistrand copper wires, in following type of pipe to be erected concealed in/ on surface on wall/ceiling complete with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic box, single mounting base frame covered with textured/metallic front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed. With medium class Rigid PVC pipe and accessories Cat-III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.02 For Secondary light Point wiring with 2-1.5 sq.mm & earthwire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multistrand copper wires, in following type of pipe to be erected concealed in/ on surface on wall/ceiling complete with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic box, single mounting base frame covered with textured/metallic front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed. With medium class Rigid PVC pipe and accessories for secondary light point Cat.III

Maximum 6 mtr. length, excess will be conducted per meter.

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.03 Point wiring for FAN with 2-1.5 sq.mm & earthwire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade FRLS PVC insulated multistrand copper wires, in following type of pipe to be erected concealed in / flushed on wall/ceiling complete with 6A Modular type switch and hum free EME four or more step type electronic fan

regulator with separately mounted and accessories with earth continuity of following type erected on PVC / Metallic box, single mounting base frame covered with textured/metallic front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed. With medium class Rigid PVC pipe and accessories Cat. III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.04 Point wiring for Looped Plug with 6A Modular type switch & 5 pin socket erected on PVC / Metallic box, single mounting base frame covered with textured / metallic front plate modules erected on / in wall / ceiling with following type accessories.cat-III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.05 Point wiring for two way controlled light point with 2-1.5 sq.mm & earthwire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multistrand copper wires, in following type of pipe to be erected concealed in / flushed on wall / ceiling , complete with 6A modular type switches and following type of accessories erected on PVC / metallic box, single mounting base frame covered with textured / metallic front plate modules erected on / in wall / ceiling as per pipe erected. with necessary batten / angle holder or ceiling rose or H.D.Connector as directed.

(a) With medium class rigid PVC pipe and accessories. Cat-III.

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.06 Point wiring for individual plug with &earthwire of 1.5 sq.mm(green) both are of ISI marked 1.1 KV grade FRLS PVC insulatedmultistandard copper wires, in following type of to be erected consealed in / on surface of wall / ceilling complete with modular type switch and 5 pin plug erected on PVC / Metallic box covered with appropriate front plate modules erected on /in wall / ceilling as per pipe erected with following type of accessories.

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.07 Providing following type of Modular Type Accessies mounted with PVC/Metalic box, Single mounted base frame covered with textured / metallic front plate, moues erected with necessary connection. As desired by Engineer In charge. One No. SP 6 Amp. Cat. III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.08 Providing following type of Modular Type Accessies mounted with PVC/Metalic box, Single mounted base frame covered with textured /metalic front plate, moues erected with necessary connection. As desired by Engineer In charge.

One No. SP 5 pin plug Cat. III

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.09 Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge.

16 Amp. SP one way switch Cat.III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.10 Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured / metallic front plate modules erected with necessary connection. As desired by Engineer In charge.

6/16 Amp. Universal Socket Cat.III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.11 Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge.

TV Co-axial socket outlet, Cat. III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.12 Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge.

For two gang, Cat.III

Switch socket and accessories shall be erected perfectly in line, level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.13 Providing following type of Modular Type Accessories mounted with PVC/Metallic box, Single mounted base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge. Modem Jack for Computer Open RJ-45 Cat III

Switch socket and accessories shall be erected perfectly in line, level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.14 Providing following type of Modular Type Accessories mounted with pvc / metallic box, single mounting base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge. Fuse units 10Amp. or 16Amp., Cat. III

Switch socket and accessories shall be erected perfectly in line, level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.15 Providing following type of Modular Type Accessories mounted with PVC/Metallic box, Single mounted base frame covered with textured / metallic front plate, modules erected with necessary connection. As desired by Engineer In charge. Black Plate Single Cat III

Switch socket and accessories shall be erected perfectly in line, level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.16 Providing following type of Modular Type Accessories mounted with PVC/Metallic box, Single mounted base frame covered with textured / metallic front plate, modules erected with

necessary connection. As desired by Engineer In charge. 6A/10A/16A/20A/25A/32A Single pole Modular MCB SwitchCat III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

**1.17** Providing following type of Modular Type Accessies mounted with PVC/Metalic box, Single mounted base frame covered with textured / metallic front plate, moues erected with necessary connection. As desired by Engineer In charge.6A/10A/16A/20A/25A/32A Double pole Modular MCB Switch Cat III

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

**1.19** Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size: With medium class rigid PVC pipe and accessories painted, 2 wire 2.5 sq. mm

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

**1.20** Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected in / on wall / ceiling with 2.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size:- With medium class Rigid PVC pipe and accessories 2 wire 4 sq. mm.

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.21 Supplying & erecting Delton or approved make Telephone Cable electrolytic copper conductor PE insulation twisted in two pairs, & wrapped with FRLS PVC tape & sheathed with FRLS PVC or HFFR outer Jacket suitable for telephone wiring & confirming to C-DOT erected in existing pipe. of following size of conductors & nos.of pairs. With necessary connections:-  
Conductor Size 0.5 mm ,Unarmoured Two Pairs

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.22 Supplying and Erecting approved make LAN cable of following size in existing pipe as per direction :- CAT - 6

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.23 Supplying and Erecting approved make following size of TV Co-axial flexible cable comprising inner conductor of solid are copper insulated with foam PE & Secondary Conductor made of poly-Alluminium film bonded Al. braids @ Suitable coverage overall sheathed with black PVC Insulation of RG-6

Switch socket and accessories shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

1.24 Providing and erecting ISI mark Medium class RIGID PVC PIPES of following size complete to be erected on/in Wall or ceiling erected with necessary PVC fitting & Junction boxes Fixed with Adhesive solution & clamps with following dai of pipes , in approved manner as directed.

This item is to be used for Telephone wiring,CCTV wiring ,TV wiring etc.

Includesvcost of accessories like couplers,bends,elbows,junctions,etc.

Work shall be carried out in best workmanship like manner.

Unit of measurments shall be per mtr.

Installation shall be got approved by E.I.C

Pipe layout having shall be prepared & submitted to E.I.C.

1.25 Proving & erecting PVC Corrugated Flexible Conduit with required nos. of Coupling, PVC bushes , Check-nuts etc. complete of following size.

This item shall be used as required for entry of wires into light fitting,fans,junction boxes,etc.

Unit of measurments shall be per mtr.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

## 2.0 FITTINGS

2.01Supply & erecting approved make 1 \* 36 / 40 watt sleek batton type flourescent fitting with Tube complete with Electronic ballast assembly housed in engineering plastic covers with tube , holdres, erected with necessary lead wire & hardware materials and adapter if required. Cat.

III

These shall be used in various offices,Labs,Class rooms on wall or ceiling as directed E.I.C.

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

These item shall be used in offices and cabins.

2.02 Supply & erecting approved make 1 \* 36 / 40 watt sleek batton type flourescent fitting with Tube complete with Electronic ballast assembly housed in engineering plastic covers with tube , holdres, erected with necessary lead wire & hardware materials and adapter if required.

Cat. III

These shall be used in various offices,Labs,Class rooms on wall or ceilling as directed E.I.C.

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

These item shall be used in offices and cabins.

2.03 square / circular surface / Recessed mounted down light with provision for spring loaded mounting clip complete .20-24watt surge 4kv , catt 2

These item shall be used in various places like Egallary / sales area / passage / store area

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

These item shall be used in offices and cabins.

2.04 Supplying and erecting LED street light / flood light fitting with high power white LED wattage 1 watt and above assembled on single MCPCB efficiency more than 130lm/w and corrosion free high pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminum with diffuser and polycarbonate optics with company marked

name engraved or embossed 120 to 300 kv power factor more than .95 , THD <10% CCT 5000K to 5700K , Uniformity ration >.45 , luminaire efficiency >85% lumens watt , LED driver efficiency >85% , CREE/OSRAM/PHILIPS / Lumileds /NICHIA /SOUL/Bridgel 0% usa make LED use for luminaire each fitting require Lm 79 and LM 80 Certificate (A) Street light IP-65 surge - 4KV (a)10 to 12watt

These item shall be used outdoor purpose on outside wall or parapet buildings as required at site and instructed by EIC.

A pipe bracket may have to be made for installation for these , cost of pipe bracket should be included in prices

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

2.07 Supply & erecting approved make low noise decorative exhaust fan having size 200mm with 1350 RMP with square frame ABS body with built up lowers & square frame.

There are to be used on street light poles

Installation shall be perfect line level & plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

### **3.00 MCB DISTRIBUTIONBOARDS**

3.01 Providing and erecting sheet steel powder coated MCB distriiution board flush / or surface mounted fitted with bus bar neutral link earth bar and din rail conforming to is 13032

and BS 54861986 without MCB to house appropriate no of MCB ( the DBS should be used of same company of MCB to be used(J) Three phase 4way SS Double door for single phase outgoing horizontal box.

These shall be used to receive main power in building and from their to distribute to all room and passage/offices.

Location are shown in drg. But actual location shall be decided based on consultation with EIC

Cost of MCB , ELCB excluded .

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

**3.02** Supplying & erecting Sheet Steel powder coated Cable end termination Box to be mounted on Top or Bottom of the MCB Distribution Box for housing/covering Extra wires & Cables, suitable for following size of MCB DB Box:- Three Phase 4 Way

These shall be used along with DBS to facilitate cable termination in smooth way

Installation shall be erected perfectly in line,level and plumb.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no. and shall be socket to not for electrical work.

**3.03**Supplying & erecting approved make RCCB + MCB (Electromagnetic type only) working on residual current device having 6 KA short circuit breaking capacity and 30mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed. 6A / 10A / 16A / 20A / 25A 2 pole single phase. 16Amp for LTG DB and 25Amp for Power DB. Cat III

This shall be used in respective DB's detailed by drawing and diagrams.

Installation on MCB's shall include connections of wires. Installation shall be in perfect line ,level and plumb as per details specified.

Work shall be carried out on best workmanship like manner.

Unit of measurement shall be per no.

**3.04** Providing and erecting medium voltage danger notice board sticker of standard size.

These shall be installed properly on DBS & at other places a desired by EIC

Unit of measurement shall be per no.

**3.05** Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark. Details as per drawing and diagrams. Cat.III

It should be installed properly at the places desired by EIC.

Unit of measurement shall be per no.

**3.06** Plastic enclosure fitted with DIN rail suitable for incorporating one / two nos. MCB

These shall be installed to switch ON/OFF A/C unit All location.

Installation shall be in perfect line level & plumb.

Installation shall be best workmanship like manner.

Unit of measurement shall be per no.

**3.07** Providing & erecting 240V MCB double Pole Switch for motor & inductive load (C curve )

having 10KA breaking capacity & confirms to IS: 8828 in existing box having following capacity

6 to 32 Amp. Cat III

These shall be installed to switch ON/OFF A/C unit All location.

Installation shall be in perfect line level & plumb.

Installation shall be best workmanship like manner.

Unit of measurement shall be per no.

Providing & erecting 240V MCB double Pole Switch for motor & inductive load ( C curve )  
having 10KA breaking capacity & confirms to IS: 8828 in existing box having following capacity  
6 to 32 Amp. Cat III

These shall be installed to switch ON/OFF A/C unit All location.

Installation shall be in perfect line level & plumb.

Installation shall be best workmanship like manner.

Unit of measurement shall be per no.

#### **4.00 A.C. EARTHING**

4.01 Supplying & erecting earth pit of minimum bore dia.150mm size approved make Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 50mm having 80-200 Micron galvanizing , Inner pipe dia of 25 mm having 200-250 Micron galvanizing , connection terminal dia of 12mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. For Electrical installation covering transformer neutrals, lighting arrester earthing, A.C.Plant & Sensitive computer system ( Like Automation, SCADA) i.e. independent earthing in normal soil. Length of pipe 3.00 mtr., back filling compound : 2 nos bags of 25 Kg.

This shall be used to provide earthing of panels, DBs lighting systems,electronic systems

This shall be used for earthing of first floor electrical installation.

Before installation advance information shall be given to EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

**4.02** Providing one bag of 25 Kg. Additional Back Filling Compound (BFC) suitable for safe earthing device

This shall be used as & when desired by EIC as per local condition.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

**4.03** Providing and erecting required size HOT deep Galvanised iron strip for earthing of H.T. , OCB/ ACB/ Transformer LT panel board, Motors etc. using proper clamp.

These shall be used to provide earth connection as below:

iii) 25 \*3 mm - as required by EIC.

Earth strip shall be properly clamped.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

This shall be used to provide earthing connection from pit to MCB DB's.

Welded joint shall be painted black/green.

Whole run of earthing shall be painted green to highlight each connection.

**4.04** Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.

These shall be used to provide earthing connection as below:

i) 10 G - for earthing street light poles.

ii) 12 G - for Earthing outdoor bollards.

This shall be used to provided earthing connection as desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be perRmt.

## 5.00 5C-CABLE

5.01 Providing and erecting XLPE (IS:7098) (I)-88 ISI armoured cable multistandard Aluminium conductor for 1.1 KV. To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables

These cables shall be used to below.

3 1/2 \* 300 2 rans from utility source to MRP (main receive panel)

3 1/2 \* 300 1 ran from MRP To Main panel (LTG to other serial)

3 1/2 \* 400 MRP to main panel (Air conditioning)

This shall be used to provide power to main DB at first floor from the existing sources available at G.F

Cable shall be laid as per IE rules.

Sharp bends and kinks shall not be permitted Strictly.

Cable route shall be decided in consultant with EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per rmt

5.02 Making trench in soft soil of suitable width of 90cms deep for laying cables or locating the fault all over the run and back filling the same and making the surface as normal ground

These is to be used for laying of above cables

Workmanship shall be of best standard

Roof shall be decided in consultation with EIC.

Unit of measurement shall be per rmt.

5.03 Making trench in Hard Murrum/Tar road of suitable width of 90 cm or required depth for laying any size of cable or locating the fault all over the run and back filling the same and making the surfaces as normal ground OR

These item shall be applicable along with above item if required

Workmanship shall be of best standard

Roof shall be decided in consultation with EIC.

Unit of measurement shall be per rmt.

5.04 Covering of cables with second class bricks or cement tiles laid cover the cables crosswise and also on both sides with covering of 7.5cms layer of sand above & below cables (16 bricks per Mt)

Workmanship shall be of best standard .

Unit of measurement shall be per rmt.

5.05 Drilling the road without breaking the road surface (Asfalt) for laying of cables for feeding power supply by making up to following size of holes at both end complete . (A) Up to 100mm bore dia

These item shall be used at road crossing to facilitate through cablelane

Depth shall be decided in consultation with with EIC as per site condition that should not be less than 600mm

5.06 Providing and erecting iron clad cable route marker duly marked with ELECABLE of size 23cm x 12cm Flushed with ground in cement foundation as directed by engineer in charge

Route marker shall be installed at 15/20mm as desired by EIC.

Route marker shall be installed particularly at bends & shall depict direction of cables .

Workmanship shall be of best standard.

Unit of measurement shall be per rmt.

5.07 Providing & laying ISI marked rigid PVC pipe having 6Kg/cm<sup>2</sup> (class-3) to be erected at road crossing on or floor as directed for laying of cables . The pipe as following size of dia & weight per 6mt (C) 63mm dia (4Kg /6 rmt )

These shall be used to pass the cable through walls as desired by EIC as per site condition

Workmanship shall be of best standard

Unit of measurement shall be per rmt.

5.08 Providing and fixing heavy duty flange type brass cable gland and rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc.

For 3 & 1/2 / 4 core 25 Sq.mm.

This shall be used for cable passing through wall/floors and as desired by EIC.

Workmanship shall be of high standard.

Cable glands shall not be loose after connection.

Item shall include drilling of holes in gland plates/ boxes.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

5.09 Soldreless crimping type copper lugs confirming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/ cadmium plated nut bolts in an approved manner.

1.5/2.5 to 6 sq.mm.

Lugs shall be properly crimped and shall not remain loose after connection.

Lugs shall be Securely connected to terminals by proper size of electrical / GI bolt nuts.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.



## 7.00 PANELS

### 7.01 Main Receiving panel

#### (A) Incoming

(i) 400 A 4P FSU

(ii) 2 Al. Bus bars 400A capacity

(iii) Voltmeter (0-500 V), 96mm \*96mm with selector switch

(iv) R,Y,B indication lamps, LED type

#### (B) Out going

250 A FSU - 3 nos with R.Y.B. including lungs LED type

This shall be used to receive Main panel from Utility and feed power to main panel (lighting) and main panel (Air conditioning)

This shall be installed in basement as shown in drg/ as shown by EIC.

Manufacturing Drg. & details shall be got approved by EIC before start

Panel Shall be manufactured in best workmanship like manner & as per IS & IE rules.

Installation shall be perfect line level & plumb.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

#### 7.02 Main panel for LTG (lighting) & other Services -

Incomer

(i) 250A 4P MCCB , 25 KA

(ii) Al. Bus bar 250 A Capacity

(iii) Ameter 0-250 A , 96mm \* 96mm with Selector Switch

(iv) Suitable CTS Epoxy wound type

(v) Voltmeter (0-500 V) with selector switch

(vi) R,Y,B indicating lungs LED type

Out going

(i) 4P 40AMCB 10KA

(ii) 4P 25A MCB , 10KA

This shall be installed in to feed paver to MCB DB's for lighting and other services on each floor, bore, lights & other services.

This shall be installed in basement as shown in drg/ as shown by EIC.

Manufacturing Drg. & details shall be got approved by EIC before start

Panel Shall be manufactured in best workmanship like manner & as per IS & IE rules.

Installation shall be perfect line level & plumb.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

#### 7.03 Main panel for A/C system

Incomer

- (i) 250A 4P MCCB , 25 KA
- (ii) Al. Bus bar 250 A Capacity
- (iii) Ameter 0-250 A , 96mm \* 96mm with Selector Switch
- (iv) Suitable CTS epoxy wound type
- (v) Voltmeter (0-500 V) with selector switch
- (vi) R,Y,B indicating lungs LED type

Out going

4 P,63A MCB , 10 KA

This shall be installed in to feed paver to MCB DB's for lighting and other services on each floor, bore, lights & other services.

This shall be installed in basement as shown in drg/ as shown by EIC.

Manufacturing Drg. & details shall be got approved by EIC before start

Panel Shall be manufactured in best workmanship like manner & as per IS & IE rules.

Installation shall be perfect line level & plumb.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

## 8.00 CABLE TRAYS

8.01 Providing and fixing approved make Perforated C tupe cable tray. Made from pre-galvanized CR sheet steel. The cable tray should be banded as per IS 2062/1079. with coupler plate/Fish plate and GI hardware like nut-bolt and washers etc. erected on existing support as per specification and as instruction of engineer in charge.

This trays shall be used to support cable as below.

100 \*50 - to support cable run for basement lighting & shall be installed on clamps ,supports as desired by EIC. Supports shall be hang from ceiling.

600 \*50 - to support cables run from basement to each floor Electrical utility along walls and shall be installed on clamps.

Trays shall be erected in perfect level.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

Supports shall be paid under different item.

8.02 Providing and fixing approved make Perforated C tupe cable tray. Made from pre-galvanized CR sheet steel.TheJncton should be bended as per IS 2062/ 1079. with coupler plate / Fish plate and GI hardware like nut-bolt and washers etc. erected on existing supports as per specification and as per instruction of engineer in charge.

These are to be used as required abd desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per No.

8.03 Proving and fixing approved make 90 Degree Elbow for perforated C type cable tray .Made from pre glavanized CR sheet steel. The Junction should be banded as per IS 2062/1079. with coupler plate / Fish plate and GI hardware nut-bolt and washers etc.erected on existing supports as per Specification and as per instruction of engineer in charge.

These are to be used as required abd desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per No.

8.04 Providing and fixing approved make 'cross over Junction' for perforsted C type cable tray. Made from pre-galvanized CR sheet steel. The Junction should be banded as per IS 2062 / 1079 and shall be coated with hot dip galvanized as per IS 2629 / 4759.with coupler plate/ fish

plate and GI hardware like nut- boltes and washers etc. erected on existing supports as per specification and as per Instruction of Engineer in charge

These are to be used as required abd desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per No.

8.05 Providing and Erecting cable tray supports hanging from Ceiling with 2 nos. 6mm rods & 50 \* 50 MS galvanized complete with anchore fasteners & suitable for tray size

These are to be used as required and as desired by EIC.

Support height shall be 500mm from ceiling.

Supports will be installed 0.5 mtr. Interval.

One support will have 2 down rods & C channel 50\*50\*2 mm of required size. Down rods shall be suspended from ceiling by using anchor fasteners of required size.

Supports should be galvanized.

Unit of measurement shall be per rmt.

Installation shall be in best workmanship like manner.

## 9.00 CABLES

9.01 Providing and erecting XLPE (IS:7098) (I)-88 ISI armoured cable multistandard Aluminum conductor for 1.1 KV. To be laid on wall with necessary clamps or in existing trench / pipe of following size of cables

These cables shall be used to below.

3 1/2 \* 300 2 rans from utility source to MRP (main receive panel)

3 1/2 \* 300 1 ran from MRP To Main panel (LTG to other serial)

3 1/2 \* 400 MRP to main panel (Air conditioning)

This shall be used to provide power to main DB at first floor from the existing sources available at G.F

Cable shall be laid as per IE rules.

Sharp bends and kinks shall not be permitted Strictly.

Cable route shall be decided in consultant with EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per rmt.

9.02 Providing and erected XLPE (IS:7098) (I)- 88 ISI armoured cable multistandard Aluminum conductor for 1.1 KV. To be laid on wall with necessary clamps or in existing trench / pipe of following size of cable

4 core 16 sq.mm

This shall be used to provide power to main DB at first floor from the existing sources available at G.F

Cable shall be laid as per IE rules.

Sharp bends and kinks shall not be permitted Strictly.

Cable route shall be decided in consultant with EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per rmt.

9.03 Supplying & erecting xlpe (IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed.

3 core 2.5 sq.mm

This shall be used to provide power to main DB at first floor from the existing sources available at G.F

Cable shall be laid as per IE rules.

Sharp bends and kinks shall not be permitted Strictly.

Cable route shall be decided in consultant with EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per rmt.

9.04 Providing and Erecting iron clad cable route marker duly marked with ele. Cable size 23 cms.\* 12 cms. Flushed with ground in cement foundation as directed by Engineer in charge.

These are to be used for marking/identification of cable routes as desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.05 Providing & laying approved make double walled corrugated pipes (DPC) of polyethylene (conforming to IS 14930 II ) with necessary connecting accessories of same material at required depth of laying of cable below ground / road surface for enclosing cable and back filling the same to make ground as per original

These are to be used for road crossing and crossing of cables through holes / openings. As desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.06 Providing & laying ISI marked Rigid PVC pipe having 6Kg/Cm<sup>2</sup> (class-3) to be erected at road crossing on or floor as directed for laying of cable. The pipes as following size of dia& weight per 6 mtr.

These are to be used for road crossing and crossing of cables through holes / openings. As desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.07 Providing and fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails , insulating tape etc. for following size of cable

This shall be used for cable passing through wall/ floors and as desired by EIC.

Workmanship shall be of high standard.

Cable glands shall not be loose after connection.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.08 Providing and fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armored cable complete without going tails , insulating tape etc. for following size of cable

( I ) 2 to 4 core 16 sq.mm.

Lugs shall be properly crimped and shall not remain loose after connection.

Lugs shall be Securely connected to terminals by proper size of electrical / GI bolt nuts.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.09 Solderless crimping type Aluminum lugs conforming to IS suitable cable for following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.

Lugs shall be properly crimped and shall not remain loose after connection.

Lugs shall be Securely connected to terminals by proper size of electrical / GI bolt nuts.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

9.10 Solderless crimping type Copper lugs conforming to IS suitable cable for following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.

1.5/2.5 to 6 sq.mm

Lugs shall be properly crimped and shall not remain loose after connection.

Lugs shall be Securely connected to terminals by proper size of electrical / GI bolt nuts.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

#### 10.00 LIGHTNING PROTECTION SYSTEM

10.01 Lightning protection system with early streamer Emission technology having a covering range up to 79 mtr. Radius to be mounted at a height pf 5 mtrs. With all necessary accessories like supports / base plate / vertical rods etc. complete

This shall be used for protection of building from lightning strikes.

This shall be installed proper height at terrace as desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

10.02 Lightning Discharge counter to verify the lightning discharge occurrence

This shall be used for protection of building from lightning strikes.

This shall be installed proper height at terrace as desired by EIC.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

10.03 Providing and erecting required size Copper strip for earthing of H.T. OCB / ACB / Transformer , LT panel board , motor etc. using copper clamp for earthing connection of lightning arrester with earth pit size 25 \* 3 copper

This shall be used to connect lightning arrester to earthing pit.

Strips shall be installed on insulations wooden/ non metallic clams.

Clamps shall be 0.5 mtr interval.

Joints in strip shall be bolted by brass bolt nuts 2 nos. of 6mm dia.

Strip shall be fixed to clamps by brass / S.S. bolts of adequate size.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

#### 11.00 MISCELLANEOUS

11.01 Providing , erecting , fabricating the M.S.structure as per required on the site incorporating proper size of M.S.angles, flats, bars, channels, sections complete with cutting, welding, grinding & finishing duly painted with one coat of red oxide with erection on site as per direction of engineer in charge with necessary grouting , cementing , plastering & finishing complete.

This item shall be used for any site fabrication work like support trays ,etc.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Kg.

11.02 Fabricating the box type items made from M.S. Sheet with A.I. supports, wings, doors and other hardware materials as per requirement design with finishing by three tank powder coating processed inside and outside painted, erected as directed including minor civil works.

This item shall be used for any box type item.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Kg.

11.03 Painting with number and words for inventory identification on erected fittings / equipment or such accessories as may require with good quality of enameled paint as directed by engineer in charge.

This shall be used for identification of equipment's.

11.04 Providing & laying R.C.C. Hume pipe for cable to be laid 90cms. Below ground across the road crossing or on floor with necessary material in an approved manner & making the ground as per original.

These shall be used for any road crossing work for cables / wires , etc.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per Rmt.

Cost shall include clamps, if any.

## 12.00 LIFTS

12.01 Supplying, Erecting, Testing and Commissioning the passenger / stretcher lift having following main features.

[1] GEAR LESS LIFT DRIVE comprising of High Starting torque Lift duty 3 phase 440 V A.C. permanent magnetic synchronous motor of proper rating with high efficiency shall be used.

[2] Microprocessor based /PLC , ACVVV , vector control drive with encoded feedback closed loop system shall be used for lift car and door operation which shall be full collective selective operation hall call demand response , UP/DOWN hall stops, Main , Up/ down Contractor with overload and phase reversal relay and safety controls.

[3] Car with M S platform with bracings of adequate size and to sustain the impact load cabin + passenger with safety of fore for steel and side panels of Stainless steel of sheet of grade 304 duty. Car ceiling will be S.S. finishes with aesthetic appearance with LED ceiling lights. Car flooring shall be of anti-skid PVC with choice of color of engineer in charge. Car doors shall be

of stainless steel grade 304, hairline finish with center opening/ telescope automatic doors. Car panel will also be S.S.304 finished with emergency stop device, mechanical door safety device, facility of auto/ attended mode. All car panel buttons and all floor switches must be with brail language as per lift act.

[4] All landing doors shall be fully automatic Centre opening/ telescopic opening made of hairline finish steel grade of 304 with key holes and infrared curtains with Unlocking facility from outside.

[5] Appropriate battery operated emergency light in the car along with alarm switch shall be provided.

[6] Digital scrolling indicator system for up-down arrow along with floor position indicator shall be provided inside the car and all floors.

[7] Full height infra-red curtain with multiple criss / crossing light beams shall be provided.

[8] Automatic Rescue Device (ARD) shall be provided according of passenger capacity.

[9] Audio visual indication in the lift car showing over loading shall be provided such that doors kept open till excess load is removed.

[10] Spring buffers / PU buffers shall be provided.

[11] Car fan with automatic sleep timer shall be provided.

[12] Voice annunciator with suitable music shall be provided in lift car.

[13] Self diagnostics system for operational and safety parameters shall be provided in control panel.

[14] Mechanical over speed governor, door key holes in the floor doors, fireman switch shall be provided.

[15] Lift machine hoisting arrangement in the lift machine room and monkey ladder for lift pit should be provided by the lift agency, along with the other steel structure works , foundations for the machine etc...

[16] In the hoist way fascia plate shall be provided without any extra cost, where ever required as / if directed by EIC.

[17] Permanent wiring in the lift machine room and lift well with proper numbers of light points, with fixtures, exhaust fan and plug points shall be provided by the agency. Power supply of 3 phase 440 V shall be made available by department in the lift machine room.

[18] Any civil/ electrical works for additional and alteration in the lift shaft and machine room related to erection of lift shall be made by lift agency without any extra cost. (granite/ marble fixing around all landing door openings are not in lift agency's scope)

[19] Agency has to provide all working drawings and documents and liaison services for obtaining all necessary permission from lift inspector and the authorities.

[20] As per statutory requirement of Got. Of Gujarat lift & escalator act 2000, lift agency has to provide

1. Car top safety barricade
2. Push & talk communication system
3. Fireman's switch operation of Ground floor

4/5/6 passengers ground plus 5 upper floors with Rated speed of 1.0m/sec. with micro price / PLC control and ACVVVF drive. Installation shall be in best workmanship like manner.

Unit of measurement shall be per no.

## 13.00 CCTV SYSTEM

### 13.01

Supply, Installing, testing & commissioning of C.C.T.V. system for complete school building with required no.of CCTV cameras in entrances, all floors & at strategic points with complete monitoring system.

Wiring, DVR system etc. as desired by Engineer in charge.

Contractor shall submit in detail the proposed scheme before installing the same.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per number for complete system.

#### 14.00 FIRE FIGHTING SYSTEM

##### 14.01

Provide & fixing of a fire fighting system, suited for this school building & comprising of all related items like pumps, pipes, hoses, initiation system, etc. including construction of Underground suitable Water tank.

System shall be as per prevalent norms of Municipal Corporation statutory authorities and as per relevant standards.

Contractor shall submit in detail the proposed scheme before installing the same.

Installation shall be in best workmanship like manner.

Unit of measurement shall be per number for complete system.