

**Subhead -21**  
**Miscellaneous**  
**Fan, IPS, Dehumidifier, Geyser, Energy Meter, UPS Etc.**

Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.1	<b>CEILLING FAN</b>					

Supplying & fixing AC capacitor type ceiling fan (without regulator) of following specifications and sizes complete with minimum 305 mm (1 ft) long and 0.75 -1.0" dia, 2.3 mm thickness MS pipe down rod, tempered cast aluminum blades, 2.5  $\mu$ f 400V AC capacitor, canopy, double Z ball bearing, best quality silicon sheet core, best quality copper made super enamel wire, aluminum alloyed casting body / metal body having safety pin with powder coated heat / docu paint as required as per BDS 818 etc. connecting PVC wire complete as required.

Rated voltage : 230 volts

Rated frequency : 50 Hz

Rated speed : 300 rpm  $\pm$  5 %

Service value : Minimum 3.5 m<sup>3</sup> / min / watt

Temperature rise : Maximum 55°C

Class of Insulation : Minimum E

Noise level : Maximum 60 dB at a distance of 1 meter.

**21.1.1 1442 mm. (56") Sweep**

21.1.1.1 Input power : Maximum 65 watt.

	Each	3,914.00	3,911.00	3,898.00	3,898.00
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21.1.1.2 Input power : Maximum 70 watt.

	Each	3,730.00	3,727.00	3,714.00	3,714.00
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**21.1.2 1220 mm. (48") Sweep**

21.1.2.1 Input power : Maximum 65 watt.

	Each	3,620.00	3,616.00	3,604.00	3,604.00
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21.1.2.2 Input power : Maximum 70 watt.

	Each	3,497.00	3,493.00	3,481.00	3,481.00
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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
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**21.2 EXHAUST FAN**

Providing and fixing of following axial flow AC capacitor type wall mounted exhaust fan complete with blade, steel frame standard wall louver shutter, PVC insulated connecting wire etc. complete as required including cutting wall and mending good the damages as per direction of the Engineer.

21.2.1	8" Exhaust fan plastic body (foreign made accepted / approved by the Engineer).	Each	1,337.00	1,333.00	1,317.00	1,317.00
21.2.2	10" Exhaust fan plastic body (foreign made accepted / approved by the Engineer).	Each	1,411.00	1,406.00	1,390.00	1,390.00
21.2.3	12" Exhaust fan plastic body (foreign made accepted / approved by the Engineer).	Each	1,583.00	1,578.00	1,562.00	1,562.00

**21.3 WALL BRACKET FAN**

Providing and fixing of wall bracket fan of following sizes complete with blade, frame, built-in regulator, PVC insulated connecting wire etc. as required as per direction of the Engineer. (Foreign made)

21.3.1	12" sweep (Plastic body and blade)	Each	2,380.00	2,377.00	2,365.00	2,365.00
21.3.2	16" sweep (Plastic body and blade)	Each	2,687.00	2,684.00	2,671.00	2,671.00
21.3.3	16" sweep (steel body and blade)	Each	3,301.00	3,297.00	3,285.00	3,285.00

**21.4 FAN CLAMP**

21.4.1 Providing & fixing box type fan clamp made of 25.4 mm. x 6.35 mm. (1"x  $\frac{1}{4}$ ") MS flat bar using a 12 mm. dia MS rod having at least 750 mm clearance around and shall be placed above the MS rod mesh of the roof slab including necessary bolts, nuts etc. as required as per sample approved by the Engineer.

Each	172.00	172.00	171.00	171.00
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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.4.2	Providing & fixing U type fan clamp made of 12 mm. dia MS rod having at least 750 mm clearance around and shall be placed above the MS rod mesh of the roof slab including necessary bolts, nuts etc. as required as per sample approved by the Engineer.	Each	135.00	135.00	134.00	134.00
<b>21.5</b>	<b>HEAVY DUTY INDUSTRIAL EXHAUST FAN</b> Supply and installation of Wall mounted heavy duty industrial exhaust fan: Type 230V-240V / 400V-415V, 50 Hz, complete with stainless steel blade, steel frame, standard wall louver shutter with necessary accessories (specially used for kitchen of hospital, student hostel / hall, prison cell, barrack, large auditorium etc).					
21.5.1	16"	Each	3,436.00	3,435.00	3,431.00	3,431.00
21.5.2	18"	Each	3,681.00	3,680.00	3,676.00	3,676.00
21.5.3	24"	Each	4,479.00	4,477.00	4,474.00	4,474.00
<b>21.6</b>	<b>PEDESTAL FAN</b>					
21.6.1	16" Sweep with remote control	Each	4,970.00	4,970.00	4,970.00	4,970.00
21.6.2	22" Sweep without remote control	Each	7,056.00	7,056.00	7,056.00	7,056.00
21.6.3	24" Sweep without remote control	Each	7,424.00	7,424.00	7,424.00	7,424.00
<b>21.7</b>	<b>FAN REPAIRING</b> Full-re-winding the fan by required size of super enameled copper wire, ampere tube, cotton tape, leatheroid paper including heating, varnishing, testing etc. complete as required (dismantle wires shall be taken by the contractor).					
21.7.1	56" AC ceiling fan	Each	1,288.00	1,287.00	1,283.00	1,283.00
21.7.2	48" AC ceiling fan	Each	1,104.00	1,103.00	1,099.00	1,099.00

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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.7.3	Pedestal fan	Each	1,227.00	1,226.00	1,222.00	1,222.00
21.7.4	Exhaust fan	Each	1,043.00	1,042.00	1,038.00	1,038.00
21.8	Spray painting the 56" / 48" AC ceiling fan body with blade, canopy, down rod after scraping out the old paint, with anti-corrosive enamel paint etc. with replacing the defective split pin, jam nut, screw etc. including dismantling and re-fixing the fan to the existing place with proper electrical connection.	Each	270.00	269.00	264.00	264.00
21.9	Brush painting AC ceiling fan body with blade, canopy, down rod after scraping out the old paint, with anti-corrosive enamel paint etc. with replacing the defective split pin, jam nut, screw etc. including dismantling and re-fixing the fan to the existing place with proper electrical connection.	Each	221.00	220.00	215.00	215.00
21.10	<b>LABOUR CHARGE</b>					
21.10.1	Labour charge for re-metalling, smoothing the bearing housing or fixing sleeves in the bearing housing of fan.	Each	141.00	137.00	129.00	129.00
		pair	102.00	99.00	93.00	93.00
21.10.2	Labour charge for fixing bearing.					
21.11	<b>CAPACITOR FOR FAN</b>					
	Supply & installation of the following size fan capacitor (foreign made or equivalent brand accepted / approved by the Engineer).					
21.11.1	2.5 $\mu$ F	Each	153.00	152.00	148.00	148.00
21.11.2	2.8 / 3.5 $\mu$ F	Each	160.00	158.00	155.00	155.00
21.12	<b>IPS</b>					

Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
Supply and installation of following capacity instant power supply (IPS / EPS) complete with central processing unit for 2 hrs. back up service suitable for input supply 220 volt ± 27%, single phase 50 Hz for output voltage 220 volt ± 5%, 50 Hz single phase with necessary wiring for light & fan by supplying & fixing all materials as required & complete in all respect as per sample approved by the Engineer.						
21.12.1	350 VA	Each	30,799.00	30,796.00	30,788.00	30,788.00
21.12.2	600 VA	Each	36,321.00	36,318.00	36,310.00	36,310.00
21.12.3	1000 VA	Each	47,364.00	47,362.00	47,353.00	47,353.00
21.12.4	1500 VA	Each	67,610.00	67,608.00	67,599.00	67,599.00
21.12.5	2000 VA	Each	79,881.00	79,878.00	79,870.00	79,870.00
21.12.6	3000 VA	Each	128,963.00	128,960.00	128,952.00	128,952.00

**21.13 IPS BATTERY**

Supply of the following IPS batteries inconformity with BDS IEC standard accepted / approved by the Engineer.

21.13.1	Volt:12V, Amp:70-80AH	Each	11,902.00	11,900.00	11,891.00	11,891.00
21.13.2	Volt:12V, Amp:100-110AH	Each	12,240.00	12,237.00	12,229.00	12,229.00
21.13.3	Volt:12V, Amp:120-130AH	Each	15,338.00	15,336.00	15,327.00	15,327.00
21.13.4	Volt:12V, Amp:150-165AH	Each	18,651.00	18,649.00	18,640.00	18,640.00
21.13.5	Volt:12V, Amp:180-200AH	Each	21,719.00	21,716.00	21,708.00	21,708.00

**21.14 AUTOMATIC VOLTAGE STABILIZER**

Supply & fixing of Automatic Voltage Stabilizer of following capacities suitable for Input Voltage 140 to 260 Volt, single phase, 50 Hz. for output- 220 Volt + 5%, 50 Hz. response within 0.02 sec. with digital control circuit complete as required as per sample accepted / approved by the Engineer.

21.14.1	500 VA	Each	5,276.00	5,274.00	5,265.00	5,265.00
21.14.2	1000 VA - 1200 VA	Each	5,457.00	5,454.00	5,446.00	5,446.00

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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.14.3	2000 VA	Each	6,871.00	6,869.00	6,860.00	6,860.00
21.14.4	3000 VA	Each	11,166.00	11,164.00	11,155.00	11,155.00

**21.15 DEHUMIDIFIER**

Supply & installation of automatic dehumidifier of following water / moisture extraction capacity workable with relative humidity range 30 - 100% complete with hermetically sealed compressor, thermal & overload protector, blower fan, copper made evaporation & condenser coil with aluminum fins protection, stainless steel moisture container, automatic humidistat to turn the unit "ON" or "OFF" at preselected moisture level, adjustable moisture controller & all other standard accessories suitable for operation at 220 / 240 V, 50 Hz, single phase, AC supply complete as per sample accepted / approved by the Engineer. Major components shall be or made in USA / JAPAN /AUSTRALIA/ EU Countries or equivalent accepted / approved by the Engineer.

21.15.1	16 - 20 litres / 24 hr. (suitable for 2000 cft area) Outer body made of stainless steel	Each	22,210.00	22,207.00	22,199.00	22,199.00
21.15.2	25 - 35 litres / 24 hr. (suitable for 3000 cft area) Outer body made of stainless steel	Each	24,664.00	24,661.00	24,653.00	24,653.00
21.15.3	40- 50 liters / 24 hr. (suitable for 4000 cft area) Outer body made of stainless steel	Each	34,480.00	34,478.00	34,469.00	34,469.00
21.15.4	70 -80 liters / 24 hr. (suitable for 5000 cft area) Outer body made of stainless steel	Each	55,340.00	55,337.00	55,329.00	55,329.00

**21.16 WATER HEATER / GEYSER**

Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
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Providing & installation of following capacity electrically operated water heater containing blue diamond inner tank made of minimum 14 SWG, magnesium anode rod , non- magnetic rust proof galvanized steel & outer jacket, body made of minimum 22 SWG mild steel sheet & 20 mm polyurethane thermal insulation with automatic thermostatic switch with suitable wattage range of stainless steel Incoloy 800 glass line immersion heating element , thermal cut-out , on-off indicating lamp, Earth Leakage Circuit Breaker (ELCB), safety valve 0.8 MPa, inlet and outlet water connection pipe including fixing accessories all complete as required with adequate safety measures in conformity with codes and specification of international standards. Suitable for use in tropical country like BANGLADESH. Model and sample to be approved by competent authority.

#### 21.16.1 Suitable for maximum six storied building

21.16.1.1 30 liter / hr. (1000 ~ 1500 watt) wall mounting type.

Each	8,712.00	8,703.00	8,670.00	8,670.00
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21.16.1.2 45 liter / hr. (1000 ~ 1500 watt) wall mounting type.

Each	9,939.00	9,931.00	9,897.00	9,897.00
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21.16.1.3 65 liter / hr. (1500 ~ 2000 watt) wall mounting type.

Each	11,166.00	11,158.00	11,124.00	11,124.00
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21.16.1.4 90 liter / hr. (2000 ~ 2500 watt) wall mounting type.

Each	14,234.00	14,225.00	14,192.00	14,192.00
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21.16.1.5 110 liter / hr. (2000 ~ 2500 watt) wall mounting type.

Each	21,596.00	21,587.00	21,554.00	21,554.00
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#### 21.16.2 Suitable for above six storied building

21.16.2.1 30 liter / hr. (1000 ~ 1500 watt) wall mounting type.

Each	9,939.00	9,931.00	9,897.00	9,897.00
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21.16.2.2 45 liter / hr. (1000 ~ 1500 watt) wall mounting type.

Each	11,166.00	11,158.00	11,124.00	11,124.00
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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.16.2.3	65 liter / hr. (1500 ~ 2000 watt) wall mounting type.	Each	12,393.00	12,385.00	12,351.00	12,351.00
21.16.2.4	90 liter / hr. (2000 ~ 2500 watt) wall mounting type.	Each	15,461.00	15,452.00	15,419.00	15,419.00
21.16.2.5	110 liter / hr. (2000 ~ 2500 watt) wall mounting type.	Each	22,823.00	22,815.00	22,781.00	22,781.00

**21.17 COMPONENT OF WATER HEATER**

Providing & fixing the following component (USA / UK / ITALY / GERMANY) of the electrically operated water heater or equivalent as per sample approved by the Engineer.

Brass / stainless steel immersion heating element.

21.17.1	1000 ~ 1500 watt	Each	2,724.00	2,724.00	2,722.00	2,722.00
21.17.2	1500 ~ 2000 watt	Each	3,338.00	3,338.00	3,335.00	3,335.00
21.17.3	2000 ~ 2500 watt	Each	4,565.00	4,565.00	4,562.00	4,562.00

21.18	Adjustable type thermostat control (30° to 80°C) for electrically operated water heater.	Set	2,111.00	2,111.00	2,108.00	2,108.00
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21.19	Temperature & pressure relief valve 125 psi, 99°C for electrically operated gas fired water heater.	Set	5,792.00	5,792.00	5,789.00	5,789.00
		Set	2,565.00	2,565.00	2,563.00	2,563.00

21.20	Pilot lamp	Set	2,565.00	2,565.00	2,563.00	2,563.00
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21.21	Thermocouple	Set	6,405.00	6,405.00	6,403.00	6,403.00
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21.22	ENERGY METER	Set	1,681.00	1,681.00	1,679.00	1,679.00
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21.22.1	Providing & fixing 230V, 50Hz, single phase, 10 – 40 Amps electric energy meter (KWH meter) steel body with glass cover on prepared board in conformity with BDS IEC standard accepted/approved by engineer in charge.	Each	1,681.00	1,681.00	1,679.00	1,679.00
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Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.22.2	Providing & fixing 230 V, 50 Hz, single phase 10-40 Ampere electronics digital energy meter (KWH meter) steel body with glass cover on prepared board inconformity with BDS IEC standard.	Each	2,172.00	2,172.00	2,169.00	2,169.00
21.22.3	Providing & fixing 415V + 10%, 50Hz three phase electronics digital energy meter (KWH meter) steel body with glass cover on prepared board inconformity with BDS IEC standard.					
21.22.3.1	10-100 Amps (Single Tariff )	Each	6,589.00	6,589.00	6,587.00	6,587.00
21.22.3.2	10-100 Amps (Double Tariff )	Each	8,430.00	8,430.00	8,427.00	8,427.00

## 21.23 UPS (Off LINE)

Supply of following uninterruptible power supply (UPS) complete with central processing unit suitable for input supply 160 - 275 volt AC single phase, 50 Hz for output voltage 220 volt  $\pm$  5%, 50 Hz single phase having protection for lightning & surge, blackout, over & under voltage, overload, battery low and over-charge etc. complete as required as per sample approved by the Engineer.

### 21.23.1 Back-up time : 15 minutes at full-load

21.23.1.1 600 / 650 VA	Each	<b>5,583.00</b>	<b>5,582.00</b>	<b>5,578.00</b>	<b>5,578.00</b>
21.23.1.2 1000 VA	Each	<b>9,264.00</b>	<b>9,263.00</b>	<b>9,259.00</b>	<b>9,259.00</b>
21.23.1.3 1500 VA	Each	<b>15,461.00</b>	<b>15,458.00</b>	<b>15,450.00</b>	<b>15,450.00</b>
21.23.1.4 2000 VA	Each	<b>20,369.00</b>	<b>20,367.00</b>	<b>20,358.00</b>	<b>20,358.00</b>

### **21.23.2 Back-up time : 30 minutes at full load.**

Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.23.2.1	600 / 650 VA	Each	6,847.00	6,846.00	6,838.00	6,838.00
21.23.2.2	1000 VA	Each	10,553.00	10,550.00	10,542.00	10,542.00
21.23.2.3	1500 VA	Each	18,528.00	18,526.00	18,517.00	18,517.00
21.23.2.4	2000 VA	Each	27,731.00	27,729.00	27,720.00	27,720.00
<b>21.23.3 Back-up time : 60 minutes at full load.</b>						
21.23.3.1	600 / 650 VA	Each	8,074.00	8,073.00	8,065.00	8,065.00
21.23.3.2	1000 VA	Each	13,007.00	13,004.00	12,996.00	12,996.00
21.23.3.3	1500 VA	Each	24,664.00	24,661.00	24,653.00	24,653.00
21.23.3.4	2000 VA	Each	39,388.00	39,386.00	39,377.00	39,377.00
<b>21.23.4 Back-up time : 120 minutes at full load.</b>						
21.23.4.1	600 / 650 VA	Each	37,176.00	37,175.00	37,171.00	37,171.00
21.23.4.2	1000 VA	Each	47,682.00	47,679.00	47,671.00	47,671.00
21.23.4.3	1500 VA	Each	96,575.00	96,572.00	96,564.00	96,564.00
21.23.4.4	2000 VA	Each	111,390.00	111,388.00	111,379.00	111,379.00

#### 21.24 UPS (ON LINE) SINGLE PHASE TO SINGLE PHASE

Supply of following uninterruptible power supply (UPS) complete with central processing unit suitable for input supply 160 - 275 volt AC single phase 50 Hz for output voltage 220 volt  $\pm 1\%$ , 50 Hz single phase having protection for lightning & surge, blackout, over & under voltage, overload, battery low and over-charge etc. complete as required as per sample approved by the Engineer.

##### 21.24.1 Back-up time : 15 minutes at full-load



Item No.	Description of Items	Unit	Unit Rate in Dhaka & Mymensingh Zone (Tk)	Unit Rate in Chattogram & Sylhet Zone (Tk)	Unit Rate in Khulna,Barishal & Gopalganj (Tk)	Unit Rate in Rajshahi & Rangpur (Tk)
21.24.4.1	1 KVA					
21.24.4.2	2 KVA	Each	92,151.00	92,149.00	92,140.00	92,140.00
21.24.4.3	3 KVA	Each	178,045.00	178,042.00	178,034.00	178,034.00
21.24.4.4	6 KVA	Each	221,114.00	221,109.00	221,093.00	221,093.00
21.24.4.5	10 KVA	Each	415,659.00	415,653.00	415,627.00	415,627.00
		Each	583,216.00	583,210.00	583,184.00	583,184.00

**Subhead-21**  
**Annexure-21**

**RECOMMENDED FAN SIZES IN ROOMS**

Room Area (metre <sup>2</sup> )	Fan Sweep
Up To 6	915 mm
Over 6 to 9	1220 mm
Over 9 to 12	1442 mm

**Note :-**

- \* Fan Spacing : 3.0 to 3.5 m (both direction).
- \* Fan Height : 2.5 m from the floor.



## APPENDIX - A

The following things are to be considered during electro-mechanical works:

1. The minimum height for substation and Generator room is 12 feet (3-3.6 m). Each room should have 7ft width door. There should be a trench having width of 1.5ft and depth of 3.0ft around three or four sides of the room. Louvre type window and door is recommended in substation and Generator room. Adequate space (minimum 8 ft road) is required for easy and free movement of equipment in the room.
2. Adequate suitable place should be kept in the building for the solar panel system.
3. The ground station for the communication of fire-fighting should always be on the ground floor, which will simultaneously act as CCTV control, server station (if applicable), PABX, PA system control room. The staff of the Electro-Mechanical Maintenance Section should be provided with one or more rooms for seating.
4. For centrifugal pump motor, water reservoir should be adjacent to the pump room/ place, for positive pressure, the location of the room may be next to the reservoir. Adequate open space should be reserved for submersible Pump motors for boring or maintenance. Fire pumps should always be under positive pressure. If positive pressure is not possible then a turbine pump can be used.
5. The fire hydrant steel cabinet water pipe should be placed in the stairs or lift lobby.
6. Ceiling height has to be determined carefully for HVAC installation. For the central air conditioning system, the distance between the floor and the bottom of the beam is a minimum of 11ft. For hospitals, 10' X12' room/space should be kept for placing AHU on that floor. For VRF, arrangements should be made on the roof or split type on the outer wall near the room.
7. When installing other types of air conditioners, easy heat dissipation of outdoor units should be ensured.
8. One or more ducts for the medical gas pipeline should be ensured. Minimum 30' X30' room for the installation of medical gas and air plants should be provided in or near the building.
9. Lift: At least one stretcher/bed lift should be provided for ten storied or higher height buildings. A fireman lift (separately with shear wall and fire-rated core) should be arranged. There is no way the fire elevator can get to the basement. Adequate space for pit and machine room should be kept. The door should be provided according to the lift size.



**APPENDIX - B****TABLE : LOAD DENSITY**

Minimum Load Densities		
Type of occupancy	Unit Load ( Watt/sqm )	
	Non A.C.	A.C.
Residence/Dwelling: single family	20	75
Residence/Dwelling: Multi- family (other than Hotels)	20	75
Hospitals	32	80
Hotel including apartment house (Excluding any provisions for electric Cooking)	24	75
Office and commercial multi-storied buildings	28	75
Industrial Bldgs. ( Excluding the loads for machines)	16	-
Departmental Stores	28	75
Banks	20	75
Restaurants (excluding any provisions for Electric Cooking)	16	75
Restaurants ( Excluding Electric Cooking )	20	95
Barber Shops & Beauty Parlors	16	75
Schools and Colleges	12	70
Parking area in Commercial Bldg.	4	-
Warehouses, large Storage areas	2	-

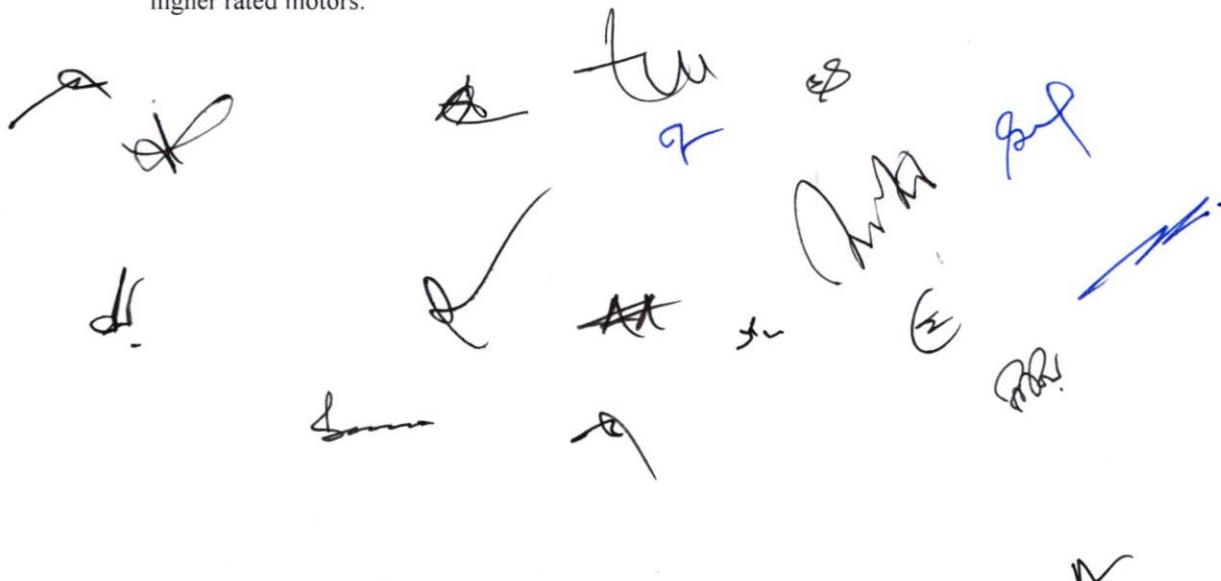

 A large, handwritten mark or signature is present at the bottom of the page, written in blue ink. It consists of several loops and strokes, with some numbers like '3' and '4' visible. There is also a small circle with a 'B' inside it to the right of the main mark.

**APPENDIX - C****TABLE : FITTINGS LOAD**

Fitting / Fixture	Watt	Fitting / Fixture	Watt
CFL	5-65	Pedestal fans	120 (Max)
LED and Solar Panel Powered	10-60	Exhaust fans	100 (Max)
LED Security/Street Lights		5A socket	300
Fluorescent lamp with Accessories:		15 A socket	1500
Nominal length 600 mm	20	Microwave	1200-1500
Nominal length 1200 mm	40	Washing	350-500
Photocopiers	1200	Television	120-200
Ceiling fans	100 (Max)	Computer	700-800
Electric	1500	Window	1500
Table fans	85 (Max)	Split type	1300
Geyser (water heater, domestic)	1000-1200	Electric	700-1000
Toaster (domestic)	800-1000		

**Calculation :**

For the calculation of current (for the selection of cables and breakers) of the fluorescent Lamps, the ceiling fans, table fans, pedestal fans, exhaust fans, inductive loads (up to 1.0 kW), the ratings are to be multiplied by a factor of 1.65 to take care of the power factor and the starting current situation. The factor shall be higher for higher rated motors.



**APPENDIX - D****Enclosure Sizes for MCB's and Fuses**

Dimensions (mm)		No. of MCB's or Fuses	
Height	Width	Depth	
350	390	120	up to 12
480	390	120	up to 24
610	390	120	up to 36
740	390	120	up to 48

**APPENDIX - E****Height, area, floor level and other requirements of a substation room**

(a) The minimum height of a substation room should be 3.0 m to 3.6 m depending upon the size of the transformer.

(b) The recommended area required for substation and transformer rooms for different capacities are given in below table for general guidance. Minimum recommended

spacing between the transformer periphery and walls should be :

(i) 0.75 m for Transformer installed in a room with a wall on two sides.

(ii) 1.0 m for Transformer installed in a room with a wall on three sides.

(iii) 1.25 m for Transformer installed in an enclosed room.

(iv) 1.5 m distance from one to another transformer for multiple transformers in room for 11 kV voltage level and 2.5 m distance for higher voltages.

(c) For transformers having large oil content (more than 2000 litres), soak pits are to be provided.

The areas given in below Table hold good if they are provided with windows and independent access doors in accordance with local regulations

*Handwritten notes and signatures:*

The handwritten notes appear to be a summary of the information in Appendix D, specifically regarding the number of MCBs or fuses based on enclosure dimensions. The notes are written in blue ink and include:

- Up to 12 fuses for 350 mm height
- Up to 24 fuses for 480 mm height
- Up to 36 fuses for 610 mm height
- Up to 48 fuses for 740 mm height

## APPENDIX - F

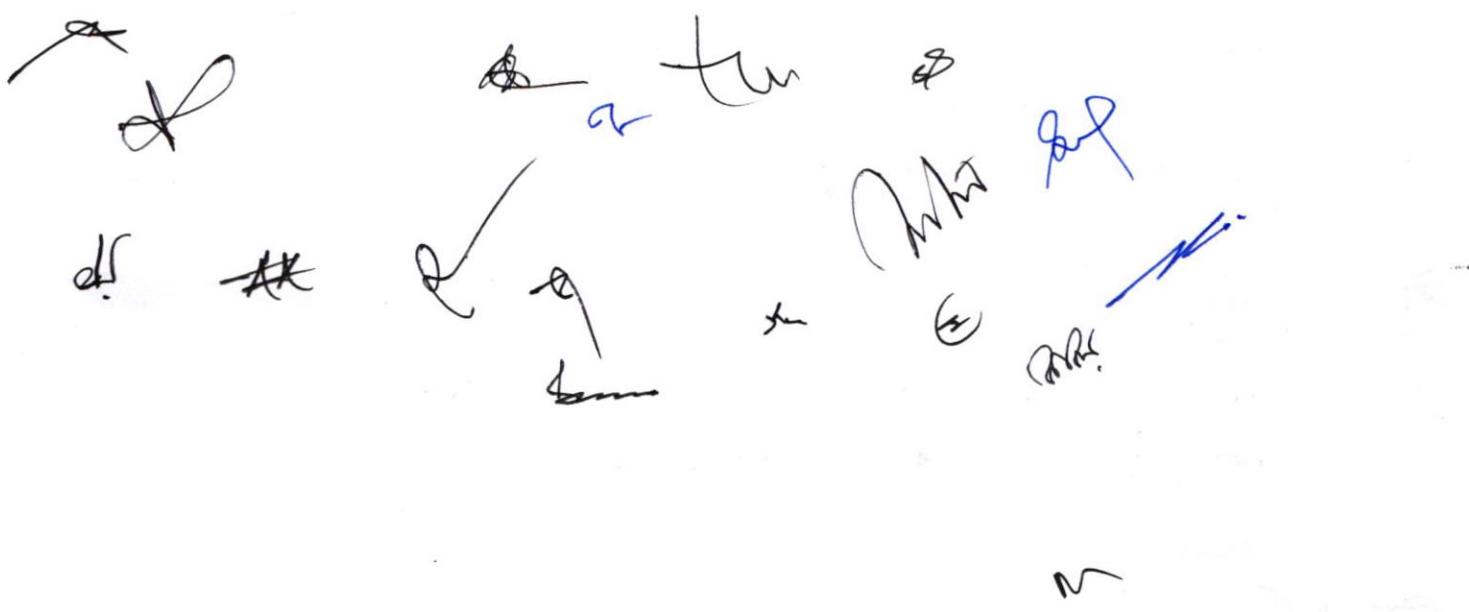
### **Changeover switch of a generator:**

A standby generator, if needed, is to be connected at the supply input point after the energy meter and after the main incoming switch or the main incoming circuit breaker, but through a changeover switch of appropriate rating. The rating of such a switch shall be at least 1.25 times the rating of the main incoming circuit breaker. The changeover switch shall be of such a type so that when moved to the main position, there is no chance that the generator will be connected and vice versa.

## APPENDIX - G

### **Minimum Cross-sectional Area of Copper ECCs in Relation to the Area of Associated Phase Conductors**

Cross-sectional Area of Phase Conductor(s) (mm <sup>2</sup> )	Minimum Cross-sectional Area of the Corresponding Earth Conductor (mm <sup>2</sup> )
Less than 16	Same as the cross-sectional area of phase conductor
16 or greater but less than 35	16 mm <sup>2</sup>
35 or greater	Half the cross-sectional area of phase conductor



**APPENDIX - H****PWD CIVIL LABOUR RATES**

<b>LABOUR &amp; MAN-POWER:</b>	<b>Unit</b>	Dhaka & Mymensingh Zone in Tk.	Chattogram & Sylhet Zone in Tk.	Khulna , Barishal & Gopalganj Zone in Tk.	Rajshahi & Rangpur Zone in Tk.
Field Engineer ( minimum BSc in Eng. with 3yrs exp OR Diploma in Eng. with 8yrs exp)	per day	1,900.00	1,900.00	1,900.00	1,900.00
Head mason / Mosaic head mistry	per day	800.00	800.00	750.00	750.00
Foreman/Supervisor	per day	850.00	850.00	800.00	800.00
Polish mistry	per day	700.00	700.00	650.00	650.00
Carpenter / Painter/ Welder / Machine operator	per day	700.00	700.00	650.00	650.00
Plumber	per day	700.00	700.00	650.00	650.00
Mason / Mosaic mistry	per day	700.00	700.00	650.00	650.00
Semi skilled technician	per day	800.00	800.00	750.00	750.00
Rod binder	per day	700.00	700.00	650.00	650.00
Helper to Rod binder/Carpenter/ Plumber/Painter/Polish Mistry	per day	550.00	540.00	500.00	500.00
Ordinary labour	per day	550.00	540.00	500.00	500.00

**PWD ELECTRICAL LABOUR RATES**

<b>LABOUR &amp; MAN-POWER:</b>		Dhaka & Mymensingh Zone in Tk.	Chattogram & Sylhet Zone in Tk.	Khulna , Barishal & Gopalganj Zone in Tk.	Rajshahi & Rangpur Zone in Tk.
Skilled technician	per day	1,200.00	1,200.00	1,200.00	1,200.00
Electrician	per day	700.00	700.00	650.00	650.00
Ordinary Labour	per day	550.00	540.00	500.00	500.00
Mason	per day	700.00	700.00	650.00	650.00
Asstt. Electrician	per day	575.00	560.00	525.00	525.00
Skilled labour	per day	600.00	580.00	550.00	550.00
Helper to Eletrician	per day	550.00	540.00	500.00	500.00

## APPENDIX-I

### ABBREVIATIONS OF STANDARDS AND CODES

- 1 BSTI-BANGLADESH Standards & Testing Institute
- 2 ISI-Indian Standard Institution
- 3 BSI-British Standard Institution
- 4 IEC-International Electro-technical Commission
- 5 ISO-International Organization for Standardization
- 6 CEE-International Specifications relating to Wiring Accessories
- 7 CIE-International Commission on illumination
- 8 ANSI-American National Standard Institution
- 9 NEMA-National Electrical Manufacturers Association(USA)
- 10 UL-Underwriter's Laboratories(USA)
- 11 ASTM-American Society for Testing Materials
- 12 ASHRAE-American Society of Heating, Refrigeration and Air-conditioning engineers
- 13 SAE-Society of Automotive Engineers(USA)
- 14 CSA-Canadian Standards Association
- 15 CEMA-Canadian Electrical Manufacturers Association
- 16 CEN-European Committee for Standardization
- 17 CENELEC-European Committee for coordination of Electro technical Standards
- 18 EN-Normale European(for Lifts & Escalators)
- 19 VDE-Association of German Electrical Engineers
- 20 DIN-German Industrial Standards
- 21 JIS-Japanese Industrial Standards
- 22 JEAS-Japan Elevator Association Standards(for lift)
- 23 SAA-Standards Association of Australia
- 24 BNBC-BANGLADESH National Building Code
- 25 IEE-Institute of Electrical & Electronic Engineers(UK)
- 26 IEEE-Institute of Electrical & Electronic Engineers(USA)

## APPENDIX - J

### SOME IMPORTANT RELATIONS

Dry volume of constituents of concrete, mortar etc. = 1.5 x wet volume

100 mounds of slaked lime or sand or surki = 225 cft

100 cft of khoa required 850 Nos of bricks

Brick 1000 Nos = 3.5 tons

Lime (Sylhet) 2.25 cft = 1 maund

1 bag of cement (British) = 1.25 cft = 112 lbs = 1 cwt

1 ton of C.I. sheet (24 B.W.G.) = 10 Bundles

1 Bundle = 12 Nos 6'-0" long = 10 Nos 7'-0" long = 9 Nos 8'-0" = 8 Nos 9'-0" long = 7 Nos 10'-0" long

Width of C.I. sheet (24 B.W.G.) = 32 inch

950 rft off barbed wire (16 B.W.G.) = 1 cwt.

200 Nos of 2.5" nails = 1 seer

1 gallon of plastic emulsion paint/synthetic enamel paint covers 300 sft of new surface

1 gallon of distemper covers 250 sft of new surface

1 tin (40Kg) of snowcem covers 275 square yards

Brick soling

Single flat soling	300 Nos.	Per % sft
Double flat soling	600 Nos	Per % sft
Herring bone bond	500 Nos	Per % sft
Brick on end edging	250 Nos	Per % rft

## **APPENDIX - K**

## **DIFFERENT CONVERSION TABLE & CHART :**

**CONVERSION TABLE 1 : FPS AND METRIC SYSTEMS**

<b>FPS Unit</b>	<b>Metric Unit</b>	<b>Metric Unit</b>		<b>FPS Unit</b>	
1 inch	25.40mm=2.540cm	1	mm	0.03937	inch
1 foot	30.48cm=0.3048m	1	m	3.281	foot
1 mile	1.609 Km	1	km	0.6214	mile
1 gallon (UK)	4.546litre	1	litre	0.22	gallon (UK)
1 pound	0.4536Kg	1	kg	2.205	pound
1 seer	0.9331Kg	1	kg	1.072	seer
1 maund	37.324Kg	1	kg	85.74	tolas
1 ton	1.016 tons	1	tons	0.984	ton = 1000kg
1 cwt	0.508 quintal	1	quintal	1.969	cwt
1 acre	0.405 hectare	1	hectare	2.471	acre
1 in <sup>2</sup>	6.452 cm <sup>2</sup>	1	cm <sup>2</sup>	0.155	in <sup>2</sup>
1 ft <sup>2</sup>	0.093 m <sup>2</sup>	1	m <sup>2</sup>	10.764	ft <sup>2</sup>
1 in <sup>3</sup>	16.39 cm <sup>3</sup>	1	cm <sup>3</sup>	0.061	in <sup>3</sup>
1 ft <sup>3</sup>	0.028 m <sup>3</sup>	1	m <sup>3</sup>	35.315	ft <sup>3</sup>
1 lb- in	1.15 kg-cm	1	kg-cm	0.87	lb- in
1 lb. ft	0.138 kg-m	1	kg-m	7.23	lb- ft
1 ton-ft	0.33 tonne-m	1	tonne-m	3.03	ton-ft
1 lb/ft	1.488 kg/m	1	kg/m	0.672	lb/ft
1 ton/ft	3.333 tonne/m	1	tonne/m	0.30	ton/ft
1 lb/in <sup>2</sup>	0.07 kg/cm <sup>2</sup>	1	kg/cm <sup>2</sup>	14.286	lb/in <sup>2</sup>
1 lb/in <sup>2</sup>	0.00689 Mpa	1	MPa	145.038	lb/in <sup>2</sup>
1 lb/ft <sup>2</sup>	4.883 kg/m <sup>2</sup>	1	kg/m <sup>2</sup>	0.205	lb/ft <sup>2</sup>
1 ton/in <sup>2</sup>	0.1575 tone/cm <sup>2</sup>	1	tonne/cm <sup>2</sup>	6.349	ton/in <sup>2</sup>
1 ton/ft <sup>2</sup>	10.937 tonne/m <sup>2</sup>	1	tonne/m <sup>2</sup>	0.0914	ton/ft <sup>2</sup>
1 lb/ft <sup>3</sup>	16.018 kg/m <sup>3</sup>	1	kg/m <sup>3</sup>	0.0624	lb/ft <sup>3</sup>

TABLE-2 : LENGTH

Unit	Meter (m)	Inch (in)	Foot (ft)	Yard (yd)
1 m	1	39.3701	3.2808	1.0936
1 in	0.0254	1	0.0833	0.0277
1 ft	0.3048	12	1	0.3333
1 yd	0.9144	36	3	1

Unit	Kilometer (km)	Furlong (fur)	Mile (mile)	Nautical mile (N mile)
1 km	1	4.971	0.6214	0.5400
1 fur	0.2012	1	0.125	0.1086
1 mile	1.6093	8	1	0.8690
1 naut. Mile	1.852	9.2062	1.1508	1

1 fathom = 2yd

1 link = 0.201168m

1 chain = 4 rods = 22 yd = 100 links = 20.1168m

1 mile = 0.001 in

TABLE 3 : AREA

Unit	Square meter (m <sup>2</sup> )	Square inch (in <sup>2</sup> )	Square foot (ft <sup>2</sup> )	Square yard (yd <sup>2</sup> )
1 m <sup>2</sup>	1	1550	10.7639	1.196
1 in <sup>2</sup>	0.645 X 10 <sup>-3</sup>	1	6.9444 X 10 <sup>-3</sup>	0.7716 X 10 <sup>-3</sup>
1 ft <sup>2</sup>	0.0929	144	1	0.1111
1 yd <sup>2</sup>	0.8361	1296	9	1

1 Circular mil =  $\pi/4 \times 10^{-6}$  in<sup>2</sup> = 5.06707 X 10<sup>-4</sup> mm<sup>2</sup>1 acre = 4840 yd<sup>2</sup> = 4046.856 m<sup>2</sup>1 km<sup>2</sup> = 100 hectare1 ft<sup>2</sup> = 144 in<sup>2</sup> = 0.093 m<sup>2</sup>

**Local and measurement unit :**

1 ganda = 2.25sq.ft

1 chattak = 20 ganda = 45 sq.ft

1 katha = 16 chattak = 720 sq.ft

1 bigha = 20 kathas = 33 decimal

1 acre = 60.50 katha = 100 decimal

**TABLE 3 : VOLUME /CAPACITY**

Unit	Cubic decimeter dm <sup>3</sup> (litre)	Cubic inch (in <sup>3</sup> )	Cubic ft (ft <sup>3</sup> )	Cubic yd (yd <sup>3</sup> )
1 dm <sup>3</sup>	1	61.0237	35.3147X 10 <sup>-3</sup>	1.3080 X 10 <sup>-3</sup>
1 in <sup>3</sup>	0.0164	1	0.5787 X 10 <sup>-3</sup>	21.4335 X 10 <sup>-6</sup>
1 ft <sup>3</sup>	28.3168	1728	1	37.0370 X 10 <sup>-3</sup>
1 yd <sup>3</sup>	764.5549	46656	27	1

1 US gallon = 3.7854 litres

1 Imperial gallon = 4.5461 litres

1 Litre = 0.2642 US gallon

1 Litre = 0.2200 Imperial gallon

1 m<sup>3</sup>/hr = 990 litre/hr = 220 gal/hr

1 ft<sup>3</sup> = 6.23 gallons = 28.317 litres

1 metre/sec = 3.6 km/hr = 2.2369 mile/hr

1 foot/sec = 0.68 miles/hr = 1.1km/hr

**MASS**

1 tonne = 0.9842 ton = 19.6841 cwt.

1 kg = 2.2046 lb (av) = 2.6792 lb (troy) = 68.5218 X 10<sup>-3</sup> Slug

1 gm = 5 metric carat = 35.274 X 10<sup>-3</sup> ounce (av.) = 32.1507 X 10<sup>-3</sup> Oz (troy)

1 ton = 2240 lb (av), 1 cwt = 112 lb (av)

1 lb (av) = 0.4536 kg = 1.2153 lb (troy)

tdw = ton deadweight marine unit of mass for carrying & loading capacity = 1016 kg

**PRESSURE**

1 N/mm<sup>2</sup> = 145.038 pound force per sq.inch (PSI)

1 Psi =  $6.8948 \times 10^{-3}$  N/mm<sup>2</sup> = 0.068 atmosphere

1 millibar =  $1.0197 \times 10^{-3}$  atmosphere = 0.7501 TORR = 10.1972mm water gauge

1 Atmosphere = 980.665 millibar = 28.95 inch of mercury = 32.8084 foot of water gauge

1 Pascal = 1 pa = 1 N/m<sup>2</sup> =  $10^{-5}$  bar , 1 atm = 760 Torr

**FORCE**

1 Newton (N) = 0.22481 pound-force (lb-f)

1 lb-f = 4.44822 N

**TABLE 4 : POWER**

Unit	Watt (W)	Kilo calorie per hour (Kcal/hr)	British thermal Unit per hour (Btu/hr)	Foot pound force per sec (Ft-lb /sec)
1 W	1	0.8598	3.4121	0.7376
1 Kcal/ hr.	1.163	1	3.9683	0.8578
1 Btu/ hr.	0.2931	0.2520	1	0.2162
1 ft-lb /sec	1.3558	1.1658	4.6263	1

1 KW = 1.3410 hp

1 hp = 0.74570 KW = 550 ft. lb. f/Sec = 746 W = 2545.6 Btu/hr.

1 ton of Refrigeration (RT) = 12000 Btu/hr.

**TABLE 6 : WORK, ENERGY, QUANTITY OF HEAT**

Unit	Kilojoule (kJ)	Kilocalorie (Kcal)	British thermal Unit (Btu)
KJ	1	0.2388	0.9478
Kcal	4.1868	1	3.9683
Btu	1.0551	0.2520	1

SI Unit of energy = Joule

1 MJ = 0.2777 kilowatt-hour

1 kilowatt-hour = 3.6 Mega joules (MJ)

1 Kcal = 1.163 watt-hour

**APPENDIX - L****METRICATION TABLES**

Conversion to Metric Units

Conversion from Metric Units

**TABLE 1 : LINEAR MEASURE (LENGTH)**

To Convert	Multiply by	To Convert	Multiply by
Inches to millimeters	25.4	millimeters to Inches	0.039
Inches to centimeters	2.54	centimeters to Inches	0.394
feet to meters	0.305	meters to feet	3.281
yards to meters	0.914	meters to yards	1.094
miles to kilometers	1.609	kilometers to miles	0.621

**TABLE 2 : SQUARE MEASURE (AREA)**

To Convert	Multiply by	To Convert	Multiply by
sq. inches to sq. centimeters	6.452	sq. centimeters to sq. inches	0.155
sq. feet to sq. meters	0.093	sq. meters to sq. feet	10.764
sq. yards to sq. meters	0.836	sq. meters to sq. yards	1.196
acres to hectares	0.405	hectares to acres	2.471

**TABLE 3 : CUBIC MEASURE (VOLUME)**

To Convert	Multiply by	To Convert	Multiply by
cu. Inches to cu. Centimeters	16.387	cu. Centimeters to cu. Inches	0.061
cu. Feet to cu. Meters	0.028	cu. Meters to cu. Feet	35.315
cu. Yards to cu. Meters	0.765	cu. Meters to cu. Yards	1.308

**TABLE 4 : LIQUID MEASURE (CAPACITY)**

To Convert	Multiply by	To Convert	Multiply by
fluid ounces to liters	0.03	liters to fluid ounces	33.814
quarts to liters	0.946	liters to quarts	1.057
gallons to liters	3.785	liters to gallons	0.264
imperial gallons to liters	4.546	liters to imperial gallons	0.220

**TABLE 5 : WEIGHTS (MASS)**

To Convert	Multiply by	To Convert	Multiply by
ounces (avoirdupois) to grams	28.35	grams to ounces (avoirdupois)	0.035
pounds (avoirdupois) to kilograms	0.454	kilograms to pounds (avoirdupois)	2.205
tons to metric tons	0.984	metric tons to tons	1.102

**TABLE 6 : TEMPERATURE**

Fahrenheit Scale	Stage	Celsius (or Centigrade) scale
32°F	freezing point of water	0°C
212°F	boiling point of water	100°C
98.6°F	human body temperature	37°C

To find degrees Celsius, subtract 32 from degrees Fahrenheit and divide by 1.8

To find degrees Fahrenheit, multiply degrees Celsius by 1.8 and add 32

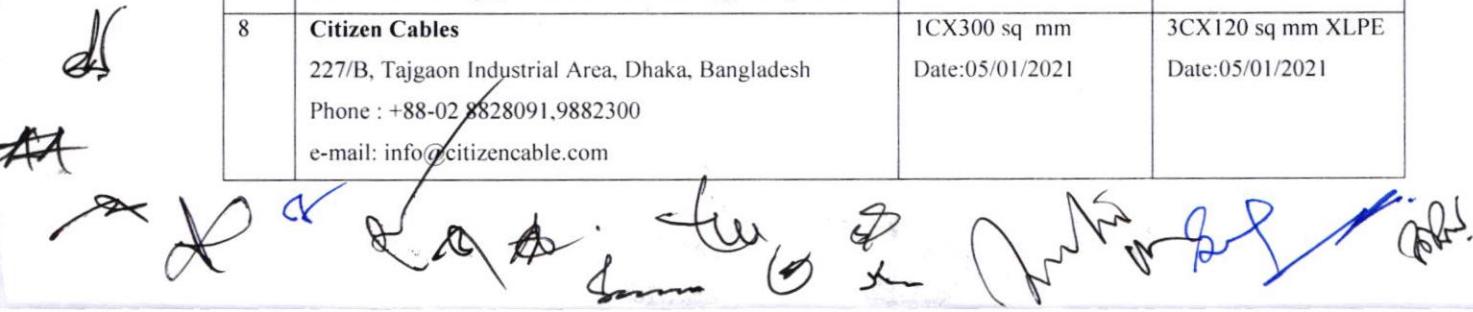
### APPENDIX - M

ADDFD RATE FOR Difficulty AREAS				
Category	Upazilla area	District	Added % rate	
A (Accessibility with moderate difficulty)	Lama	Bandarban	5%	
	Ali Kadam			
	Naikhongchori			
B (Accessibility with high difficulty)	Roangchori	Bandarban	10%	
	Ruma			
	Thanchi			
	Barkal			
	Juraichari			
	Bilaichari	Rangamati		
	Longodu			
	Baghaichari			
	Hatiya			
	Nijhum Dwip			
C (Accessibility with extreme difficulty)	Kutubdia	Cox's Bazar	15%	
	Sandeep	Chattogram		
Saint Martin's Island	Cox's Bazar			

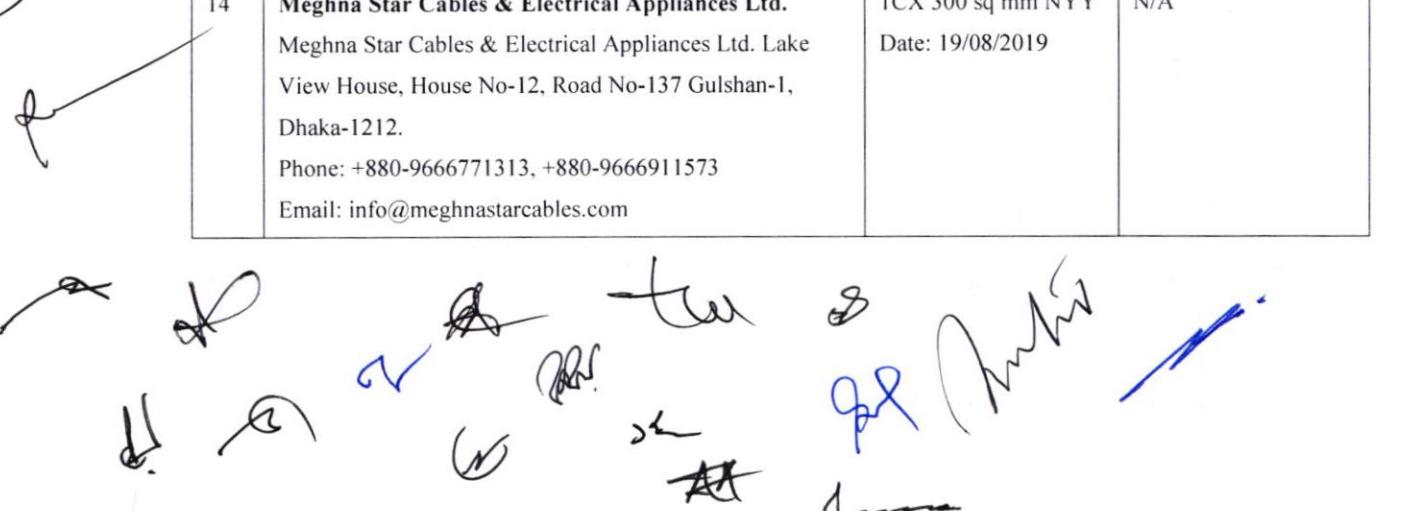
END OF APPENDIX

**APPENDIX – N****Test Report List****SH-1: Wiring and Cables****Type Test Report**

Sl. No.	Cable company name	LT Cable Size & Date of Test Performed	HT Cable Size & Date of test performed
1	<b>Paradise Cables</b>  Head office: Awal Cente (10th 11th & 12th floor) Banani C/A ,Dhaka-1213.Bangladesh.  Phone : +88-02-9861597, 9861598 98,629,459,861,918  Fax. : 8802- 8829785,883-1769  Email:paradise@paradisecables.com  Web : www.paradisecables.com	1CX240 sq mm XLPE  Date : 07/01/2018	3CX300 sq mm XLPE  Date :28/01/2016
2	<b>BRB Cables</b>  BSCIC Industrial Estate, Kushtia-7000, Bangladesh.  Phone: +88 071-61600, Fax: +88 071-73641  e-mail: brbcables@gmail.com	1CX240 sq mm XLPE  Date:06/08/2018	3CX185 sq mm XLPE  Date:06/08/2018
3	<b>BBS Cables</b>  Corporate office :  House # 26, Road # 03, Block # 1 Banani, Dhaka-1213  Contact no. : +880-2-9872083, 9872183  Email : info@bbscables.com.bd	1CX800 sq mm XLPE  Date:02/12/2019	3CX300 sq mm XLPE  Date:02/12/2019
4	<b>Partex Cables</b>  Address: Santa Western Tower, Level-13, 186 Tejgaon I/A, Bir Uttam Mir Shawkat Road, Dhaka-1208.  Mob: +8801708808144, +8801777795430	1CX500 sq mm XLPE,  Date:11/05/2018  1CX400 sq mm XLPE	3CX185 sq mm XLPE  Date:02/12/2019
5	<b>Poly Cables</b>  Corporate Office : Sena Kalyan Bhaban, Suite # 902 , Level # 09 195 , Motijheel C / A, Dhaka – 1000 PHONE : +88-02-7121493, 7120862 ,Fax : 880 – 2 – 9556431	1CX800 sq mm XLPE  Date:10/12/2019	3CX185 sq mm XLPE  Date:01/01/2018
6	<b>SQ Cables</b>  Head office : 31, Lake drive road, Nikunjo,Dhaka.  Phone : +88-02-8900240 Hot line : 01755661166	1CX 500 sq mm NY <y>  Date: 23/07/2021</y>	3CX185 sq mm XLPE  Date:23/07/2021
7	<b>Supersign Cables</b>  Head office :108, BCC Road,Thatari Bazar, Wari,Dhaka- 1203, Bangladesh.  Phone : +88-02-7118852, 7115193, 7112734, 7118390, 7118391.Fax. : 02- 7118394  Email : sscables@spaninn.com , sscables@vasdigital.com	1CX500 sq mm XLPE  Date:06/09/2018	3CX185 sq mm XLPE  Date:18/11/2020
8	<b>Citizen Cables</b>  227/B, Tajgaon Industrial Area, Dhaka, Bangladesh  Phone : +88-02 8828091,9882300  e-mail: info@citizencable.com	1CX300 sq mm  Date:05/01/2021	3CX120 sq mm XLPE  Date:05/01/2021


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Sl. No.	Cable company name	LT Cable Size & Date of Test Performed	HT Cable Size & Date of test performed
	web: www.citizencable.com		
9	<b>MEP Cables</b> Head office: Swarup Ali Cairman Lane, Hatkhola, Barisal-8200, Bangladesh. Telephone : +88-0431-63864; Fax : +88-0431-62763	1CX300 sq mm XLPE Date:21/05/2015	3CX185 sq mm XLPE Date:16/03/2021
10	<b>Bizli Cables</b> Head Office : PRAN-RFL Centre, Middle Badda, Dhaka-1212, Bangladesh. Tel : +880-2-9881792 Fax. : +880-2-8837464 E-mail : ceo@prangroup.com & rfl755@rflgroupbd.com Web : www.rflbd.com	1CX 500 sq mm NYY Date: 23/04/2021	N/A
11	<b>RR Cables</b> Head Office : RR Imperial Electronics Limited House 52 (1st floor) Road- 2A Dhanmondi R/ A Dhaka - 1209	1CX300 sq mm XLPE Date:21/04/2015	N/A
12	<b>Evana Cables</b> Head Office : Chowdhury Electric Market (2nd floor) 27, Nawabpur, Dhaka-1100. Phone : +88-02-7117382, 7121872 Fax : 880-2-7117382, Ex- 107	1CX300 sq mm NYY Date: 25/01/2021	N/A
13	<b>ELCO Wires and Cables Ltd.</b> House: 64/B, Road: 8/A, Dhanmondi, Dhaka-1209, Bangladesh. Tel: +88-02-55000644	1CX300 sq mm NYY Date:20/02/2019	N/A
14	<b>Meghna Star Cables &amp; Electrical Appliances Ltd.</b> Meghna Star Cables & Electrical Appliances Ltd. Lake View House, House No-12, Road No-137 Gulshan-1, Dhaka-1212. Phone: +880-9666771313, +880-9666911573 Email: info@mehgnastarcables.com	1CX 300 sq mm NYY Date: 19/08/2019	N/A


 A series of handwritten signatures and initials are written over the bottom right portion of the table. The signatures include 'Md. Md. Md.', and 'Md. Md. Md.'. There are also several blue ink marks, including a large 'X' and some wavy lines, appearing to cross out or mark specific parts of the table.

## SH-2.1: Sub-Station and Related Works

Sl. No	Company Names	Type Test From Internationally Accredited Organization				Routine Test from BUET/CUET/DUET/KUET/RUET/MIST			
		Certificate No & Date		Capacity		Certificate No & Date	Capacity		
		Oil Type	Dry Type	Oil Type	Dry Type		Oil Type	Dry Type	
1	Energypac Engineering LTD Energy Centre, 25,Tejgoan I/A,Dhaka.	CPRIB PLSTN C1819T 0070 Dated: May 11,2018	20/28 MVA	1 MVA	BRTC – 1102- 26318/EEE/ 2020-21 Dated:October10,21	2.5 MVA	2 MVA		
2	Adex Corporation Ltd 374 (4th Floor), Tejgaon I/A Dhaka-1208, Bangladesh	CPRIBPLSTN C 21T0045 Date 19/03/21	10/14 MVA	N/A	CRTS/EE E/2020/48 Date-01/09/2020	2000 KVA	N/A		
3	TS Transformers Limited Suvastu Suraiya Trade Centre,L#11,57,Kemal Ataturk Avenue,Block#B, Banani,Dhaka.	2017/STN-1/392 24.07.2017	10 MVA	N/A	1102- 33661/EEE/2020- 21/11.04.2021	315 KVA	N/A		
4	Reverie Power & automation Engineering ltd. 260/B, Tejgoan I/A,Dhaka	CPRIBPLSTNA20T 0213 22-03-2021	10/14 MVA	N/A	MIST/EECE (CATS)/Trx/37	12.5 MVA	N/A		
5	JRC POWERTECH H-6/4, Block-D,Lalmatia, Mohammadpur,Dhaka.	CPRI Certificate- HVD21S0032 Date- Junuary 25.2021	315 KVA	N/A	Certificate- DUET/EEE/2021/10( ii) Date- March 9,2021	2000 KVA	N/A		
6	Navana Electronics Ltd. 113/B, Tejgoan I/A,Dhaka.	CPRIBLRS CL19T091 8 Date- 27-11-2019	250 KVA	N/A	BUET: BRTC. Ref No: 1101- 93749/E EE/201 9-20 Date- 21-08- 2019	1250 KVA	N/A		
7	Automation Engineering AKH Tower,3rd Floor, Plot#10,lane#5,Road301,Blo ck#L,Barapole, Chattogram.	CPRIBLRHV1819T 0082 CPRIBLRSCL1819 T0088 Date: 03.07.2018	250 KVA	N/A	MIST/EECE (CATS)/TRANSFOR MER/88 Date:25.04.2022	1250 KVA	N/A		
8	Electropac Engineering Ltd. House #28, Road # 2, Block #C (1st Floor), Bonoshree,Rampura,Dhaka.	CPRIBLRSCL20T0 083, Dated- 18 February 2020 CPRIBLRSCL20T0 107, Dated- 28 February 2020 CPRIBLRHVD20T 0056, Dated- 13 February 2020	200 KVA	N/A	EEE/Test-01/2019, Dated:07/04/2019 (RUET)	250 KVA	N/A		

*[Handwritten signatures and initials follow the table]*

Sl. No	Company Names	Type Test From Internationally Accredited Organization				Routine Test from BUET/ CUET/ DUET/ KUET/ RUET/ MIST			
		Certificate No & Date	Capacity		Certificate No & Date	Capacity			
			Oil Type	Dry Type		Oil Type	Dry Type		
9	Powermann Bangladesh Limited House #30 (4th floor), Road#18, Block#A, Banani, Dhaka.	CPRIBLRHV1819T 0177 Date: 25/06/2018	250	N/A	DUET/EEE/2021/20, Date: 02/06/2021	1250 KVA	N/A		
10	Protec Electronics Ltd. CNS Tower, Panthapath, Dhaka	CPRI-BLRSCL1819T022 8, 27th June, 2018	250	N/A	DUET/EEE /2018/70 , 08/02/2018	2000 KVA	N/A		

- N.B :**
1. All the above Type test and Routine test certificates will be valid for 5 years from the date of issue.
  2. If any false/fake certificate is ever found after verification of the certificate, then at any time that company/brand will be banned from Public works Department E/M schedule of rates.
  3. The certificate has to be updated before it expires and it has to be submitted to the Chief Engineer of PWD.

A series of handwritten signatures and initials in blue ink, likely representing approvals or signatures of officials. The signatures are somewhat stylized and vary in style, including some in black ink.

**Test Report of Ceiling Fan  $\leq 65$  W**

	Brand	FAN SWEEP	Input power Maximum (watt)	Test Institution and Date
1	Jamuna	56" (1400mm)	60	BUET, 05 January,2020
2	Jamuna	48" (1200mm)	64	BUET, 05 January,2020
3	SEC (Diamond/Super)	56" (1400mm)	60	MIST, 27January,2021
4	Energypac	48" (1200mm)	58	BUET, 26 December,2020
5	MEP (Premium Plus)	56" (1400mm)	65	MIST, 07 March,2021
6	BRB (Lovely)	56" (1400mm)	63	MIST, 14,February,2021
7	BRB (Lovely)	48" (1200mm)	63	MIST, 14,February,2021
8	Click	56" (1400mm)	64	MIST, 03 May,2021
9	SQ (SRN)	56" (1400mm)	63	MIST, 20 July,2021
10	Supersign (Mustang)	56" (1400mm)	62.1	MIST, 12June,2021
11	Prodip Super Deluxe	56" (1400mm)	60	MIST, 08 November ,2021

**Test Report of Ceiling Fan  $> 65$  W &  $\leq 70$  W**

	Brand	FAN SWEEP	Input power Maximum (watt)	Test Institution and Date
1	SEC (Gold)	56" (1400mm)	66	MIST, 27,January,2021
2	Energypac	56" (1400mm)	68	BUET, 26,December,2020
3	MEP (Premium)	56" (1400mm)	69	MIST, 10,February,2021
4	Vision	56" (1400mm)	68	MIST, 15,March,2021
5	Superstar (Sultan),	56" (1400mm)	67	MIST, 10February,2021
6	Al Madina (AERIAL CLASSIC)	56" (1400mm)	66	BUET, 23January, 2021
7	Haiko (Holly)	56" (1400mm)	69	BUET, 26September,2020
8	Konka (Rose)	56" (1400mm)	70	BUET, 26 September,2020
9	Zaman/Conion (Minar) (Zaman Electronics)	56" (1400mm)	70	MIST, 06 October,2020
10	Union (VIP) Union Electronics Ltd.	56" (1400mm)	70	BUET, 01February,2021
11	Priya (Sharif Smart fan)	56" (1400mm)	66	BUET, 24March,2021

END OF APPENDIX