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## **1. INTRODUCTION**

Unsafe incidents (such as overheating, short-circuiting, sparks, fusing, insulation failures etc.) in Electrical Installations/ appliances are a major root cause for occurrence of Fire incidents. With ongoing expansion of PB spaces in Metro station in paid/ unpaid areas, the number of electrical and combustible load inside the metro station premises has been increased. Specifications/ Guidelines for Electrical Appliances used in DMRC's commercial spaces is an effort for standardization and regularization to mitigate Fire risk and adopt Fire-safe measures.

## **2. BACKGROUND**

The need for the standardization of electrical appliances and installations in Eatery Commercial areas is paramount to ensure operational efficiency, and building better fire safety standards. Standardization plays a crucial role in maintaining uniformity and reliability of electrical equipment, reducing the risk of malfunctions or hazards. In such environments for cooking, frying of food or heating of precooked food or proper restaurant kitchen arrangements; diverse electrical appliances are being used for running of daily operations, adherence to standardized specifications ensures that all equipment meets the required performance criteria and safety standards.

This along streamlined maintenance practices will not only enhances the overall functionality and longevity of the appliances but also facilitates in better energy efficiency, maintaining hygiene and avoiding unsafe incidences such as Fire & Fusing.

## **3. SCOPE / OBJECTIVES**

- To ensure the safety, efficiency, and reliability of electrical appliances while minimizing potential hazards.
- To establish effective Fire Protection and Prevention measures for small commercial spaces within the metro station premise which the licensee intend to use for eatery kiosks, shops or restaurants purposes.

- To standardize electrical installations, equipment configurations, and operational protocols, fostering a secure environment for both passengers and staff.
- To streamline procedures for inspections and compliance checks, promoting adherence to regulatory standards and facilitating a seamless integration of electrical systems within eatery spaces.
- Systematic establishment of uniform norms and criteria governing the installation, usage, and maintenance of electrical appliances within restaurant premises

#### 4. COMPLIANCE AND ENFORCEMENT

To ensure the safety of metro passengers, staff, and the premises, fostering a secure environment in compliance with industry best practices, these guidelines shall be followed up across DMRC network for commercial spaces (Kiosks, Shops, Bare Spaces and others) serving eatables and carrying out cooking / heating activities for food items.

A declaration of compliance shall be sought from all DMRC's licensees holding such commercial spaces by respective PB/ PD offices to ensure enforcement of these guidelines. Moreover, all PD/PB premises shall be inspected by representatives from E&M, Fire & PB/PD departments bi-annually for adherence.

**On completion of the joint inspection, “Electrical & Fire Safety Inspection Report” shall be filled and jointly signed by all the parties. (Performa for inspection is placed at Annexure – A). The concerned PB/PD office shall be the coordinating agency for these inspections and will submit compliance to Safety Cell/ O&M.**

In addition, for major PD/PB premises, directives issued earlier vide “Performa for Joint Inspection of major Commercial areas in DMRC network” dated 15.02.2023 shall be followed. (Attached as Annexure- D for reference)

## **5. CATEGORISATION OF ELECTRICAL INSTALLATIONS, EQUIPMENTS & APPLIANCES:**

For the ease of understanding by everyone, entire electrical systems associated in such premises have been categorized in three sections:

### a. GENERAL ELECTRICAL WORKS (Installations & Lighting):

This includes general electrical wiring, cabling, GI conduit, Cable tray, Installation of Switch socket, Distribution board, Energy Meter & Lighting installations, electrical protections like MCB, MCCB with LSIG protection, RCCB and others. Requirements for securing wirings of lighting, power sockets etc. through GI (Galvanized Iron) metal conduit etc.

### b. STANDARD ELECTRICAL APPLIANCES:

This shall include all major/ minor electrical appliances which are used in daily operations by the Licensees for either heating or refrigeration purposes and are compliant with standard IS & EN requirements. Such appliances are manufactured and quality tested as per IS & EN standard from the manufacturer (OEM) and are reliable on aspects of performance and zero or low failure rates.

- Refrigeration equipment: - Refrigerators, Deep freezers, water cooler, Ice maker, Ice-cream machine etc.
- Air conditioning and Ventilation equipment: - AC's, VRV's, Fans, Exhaust hoods, Ducting etc.
- Kitchen equipment:- Cooking ovens/grill, Microwave Oven, Air fryers, Food processor, Mixer, Juicer, Grinder, coffee machine, Sandwich maker, cold drink machine, Griller etc.

### c. NON STANDARD/ CUSTOMIZED ELECTRICAL APPLIANCES:

As per the demand of Eatery Items (of different type & volume), Licensees intend to use various customized and non-standard electrical appliances. As per present ground survey for such installations, such as Patties Heater, Hotcase, Sweet Corn Maker & Momos Steaming Machine, Oil Fryers, Dosa makers, Food service and display counters, point of sale counters etc which are industrial quality and custom made or do not follow a single IS/ EN standard for this specific appliance.

To keep the document effective according to the evolving needs & usage of different electrical installations, equipment and appliances by PD/ PB licensees, the document should be subjected to revision every five years duration.

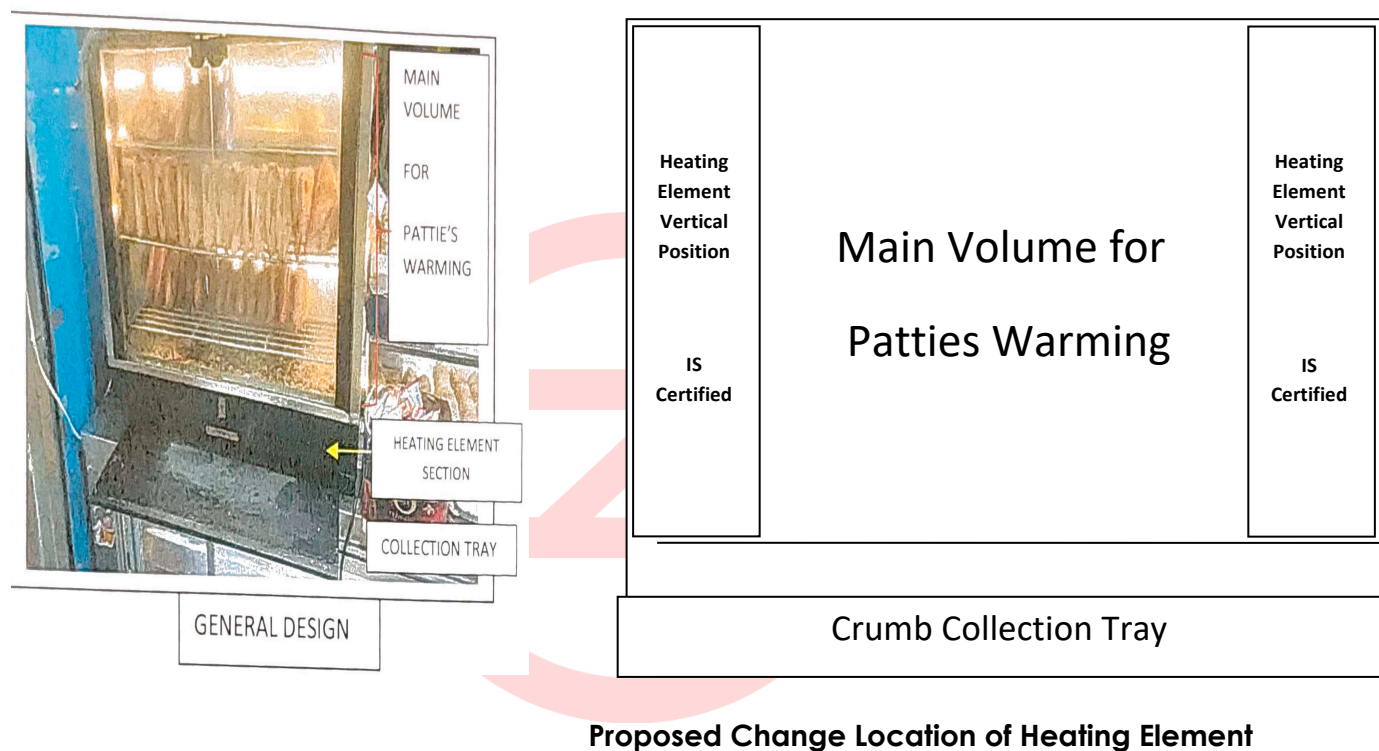
## **6. TECHNICAL SPECIFICATIONS & GUIDELINES**

### **6.1 NON STANDARD/ CUSTOMIZED ELECTRICAL APPLIANCES:**

General Requirement of Heating Equipment's viz. Patties Burner, Hot Case, Pav Maker, Sweet corn and Momos Machine (Steamer), Oil Fryer Machine, etc.

- Cabling must of LSZH Make conforming to IEC 60332-1 "governs the flame-retardant Grade specifications in reference to LSZH cable" and BS50525-3-41.
- All Heating Equipment's must have microprocessor-based Timer Cut-Out Provision. The Timer shall switch off the equipment's supply after every 120 minutes.
- In addition, Mechanical based Cut off to be provisioned, using thermal Cut-Off Switch (TCO).
- All appliances internal installations must have PTFE TEFLON Wiring with Jacketing.
- Dual Safety Thermostat must be provisioned.
- Basic Hygiene & Safety Instruction Slip in must be pasted on the equipment in English & vernacular Language.
- An information metallic plate shall be installed on the front of equipment stating its certifications, basic parameters and year of mfg.
- All heating equipment shall be replaced beyond the completion of 3years from its year of mfg. In case of refrigeration units the duration shall be 5 years.
- Heating element should preferably be in Vertical Position to avoid any chances of fire due to over-exposure of eatables to heat source in horizontal position. In case of horizontal heating elements being used, minimum gap between the Heating element and the Crumb Collection tray must be 6 inches (150mm).
- Vendor must submit the following IS certificates before installing the each heating equipments:
  - IS Certificate for Heating Element as per IS 4159
  - IS Certificate for Toughened Glass as per IS 2553
  - IS Certificate for Mains Cable with plug as per IS 1294 & IS 694

- o The external body of heating appliances must have basic Insulation Properties to deter heat dissipation to items placed in proximity.
- o Preferably, heating appliances shall be placed on an insulated surface (ceramic, stone base plate) to avoid propagation of heat to nearby stored materials.
- o Oven/patties heater may be of AKASA, Western Refrigeration, Frymaster or equivalent make.



## 6.2 **STANDARD ELECTRICAL APPLIANCES**

- 6.2.1 Refrigeration equipment: - Refrigerators, Deep freezers, water cooler, Ice maker, Ice-cream machine etc.
- 6.2.2 Kitchen equipment:- Cooking ovens/grill, Air fryers, Food processor, Mixer, Juicer, Grinder, coffee machine, Sandwich maker etc.
- 6.2.3 Air conditioning and Ventilation equipment: - AC's, Fans, Exhaust hoods, Ducting etc.

**Acceptable specifications for equipments under 6.2.1 & 6.2.2 are as under:**

Sr. No	Equipment detail	Relevant acceptable code/Standard	Acceptable Specifications
1	Refrigerator	As per IS 1476 (Part 1): 2000 Performance of Household Refrigerating Appliance — Refrigerators with or Without Low Temperature Compartment	Minimum Gross storage Capacity- as per requirement Voltage Range up to 40 Degree centigrade: - Capable of working on 220 volts + 12 % A.C 50 Hz Power Source- AC , 220 Volts , 50 Hz Method of Defrosting- Frost Free Insulation- Puff / Maxi 2 / Polyurethane Refrigerant Gas- CFC free Defrost system- Auto Defrost Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable Compressor-Power saver compressor <b>Metallic Plate indicating the Manufacturing date should be fixed behind Equipment.</b>
2	Microwave Oven	As per IS 302-1:1979 & IS 302-2-25 : 1994, Section 25 Microwave Ovens	The microwave oven should be operating at a voltage not exceeding 253 V ac, single phase 50 Hz and under *ISM (Industrial, Scientific and medical) bands of (91.5 or 50) MHz or (2 450 & 50 >MHz *ISM frequency bands are electromagnetic frequencies established by International Treaty for Industrial, Scientific and Medical Purposes. Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable Operation under overload conditions, Electrical insulation and leakage current, Moisture resistance, insulation resistance and electric strength of appliances with Heating element:- as per IS 302-1(1979) is applicable
3	Deep Fridge	As per IS 7872	Gross volume in Liters Construction internal:- 304 grade steel External :- corrosion resistance Chest type with CFC- free insulation Should have foam pad cover on top of the basket Solid door with lock and handle Type: - compression cycled, CFC free, all system tubing should be of minimum 99.97% of pure coil. Inlet of capillary should be outside the PUF body. Accuracy of digital controller: - +/- 0.5 degree centigrade. Microprocessor based control unit for setting of temperature and display Power supply:- 220-240V AC, 50Hz Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
4	Coffee Machine	As per IS 14144	Degree of protection: IPX0 Protection class: Protection class I Perceptible heat emission: 0.15 kWh/h in standby mode Perceptible heat emission: 7.0 kWh/h in maximum mode Cont. sound level (LpA) < 70 dB (A) Water connection: DN 15, (3/8") with stop cock

			Power Supply:- Single/Three phase Size of wire: - as per IS 9968 (part-1) or 694 whichever is applicable
5	Oil fryer machine	As per IS 302-2-13 : 1994 Section 13 Frying Pans, Deep Fat Fryers and Similar Appliances	Power Supply:- 220-240V AC, 50 HZ Control thermostat Safety thermostat Limit micro switch Line pilot lamp Operation pilot lamp Heating element as per machine design Contactor rating as per machine rating Change over switch Heating element surface temperature not exceeds 350 degree Celsius for Aluminum sheathing and 500 degree Celsius for other sheathing material as per IS 4159:2002 Heating element shall be provided with automatic temperature control and non self re-setting thermal cut out as per IS 4159:2002 Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
6	Ice making machine	As per IS 302-2-24 : 1994 Section 24 Refrigerators, Food-Freezers and Ice-Makers	Power Supply:- 220-240V AC, 50Hz Electrical safety class-I Climate class:- SN, N, ST or T the climatic class of the appliance; Refrigerant:- CFC free Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
7	Ice Cream Machine	As per IS 2802: 1964 Specification for Ice-Cream	Rated Power:- as per customer req Shock protection Type:- I Power Supply:- 220V AC, 50Hz Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
8	Mixer	As per IS 302 part 2 section 14 and IS 4250	Rated input shall not exceed with 600 watt. Power supply:- 220-240V AC, 50Hz Protection against electric shock as per relevant provision 8 of IS 302. Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
9	Water Dispenser	As per IS 1475 (Part 1): 2001 Self-Contained Drinking Water Coolers	Power Supply:- 220-240V AC, 50 Hz Refrigerant- CFC free Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable
10	Water Cooler	As per IS 1475 (Part 1): 2001 Self-Contained Drinking Water Coolers	Power supply:- 220-240V AC, 50 Hz Degree of protection :- IPXO Size of wire:- as per IS 9968 (part-1) or 694 whichever is applicable

### 6.2.3 SPECIFICATION OF AIR CONDITIONER

Split type air conditioners conforming to IS:1391(Part-2)-1992 with amendment No.1 fitted with hermetically sealed air compressor operating on refrigerant R-22/R-32 suitable for wall mounting and conforming to following specifications. Split AC shall be preferably five star rated. Approved names are Hitachi / O-general / Daikin / Carrier or similar equivalent.

#### **General Technical Requirements:-**

1. Air conditioners shall be suitable for 230V, 50 Hz single phase AC supply, capable of performing the functions as Cooling, Dehumidifying, Air circulating and Filtering.
2. The air conditioners shall be fitted with hermetically sealed type suction cooled reciprocating or discharge cooled rotary compressor (as applicable), compressor unit operating on Refrigerant R-22/R-32 with suitable rated capacitor start electric motor. It shall be equipped with overload protection. These shall be mounted on resilient mountings for quiet operation. The compressor shall conform to IS: 10617 part (1)-1983 (amendment 1 & 2). Rotary compressor shall be covered by manufacturers test certificate.
3. The air conditioners shall be complete with automatic temperature control and cut - in and cut out etc. for temperature range 16 degrees to 30 deg. C. The differential of the thermostat for cut-in and cut-out shall not be greater than +/- 1.75 deg. C. The Air conditioners may either be provided with adjustable step-less type mechanical thermostat or electronic thermostat as per IS: 11338:1985.
4. The filter pads provided shall be washable.
5. The cabinet of the evaporator unit and condensing unit shall be made from galvanized steel sheet of 1.0mm thick with galvanized coating thickness of 120 gm / sq. mtr and shall be provided with stiffness for robust construction and shall have rounded corners, steel parts/front panel etc. shall have stove-enameled finish preceded by undercoat of anti-corrosive primer paint phosphating and through cleaning-of the surface. Alternate methods of corrosion protection like plastic powder coating, electrostatic painting are-also acceptable in lieu of stove enameled finish.
6. Overall power factor of the unit shall be at least 0.85 at capacity rating test - conditions.
7. Maximum power consumption of the split air conditioners shall be at capacity rating test conditions.
8. Galvanized sheet shall conform to IS:277/2003.
9. Refrigerant used shall be R-134A, R-32, R-417A.
10. Inbuilt protection in IDU against electrical faults shall be provided. Compressor current shall not flow through Indoor units.
11. The indoor units made of ABS/HIPS shall be of flame retardant and impact resistant life. ABS/HIPS indoor unit cabinet shall pass inflammability test— requirement for

Grade V 0 as per UL-94. For impact resistance the unit duly packed, when dropped from a height of 1 Mtr. shall show no damage.

12. Display shall be LED/LCD and provided on indoor unit or on Handset or on both. These displays shall be selectable.
13. Remote control (Cordless) shall be provided with one On/Off timer, selecting Fan speed (Three speeds) and setting up of-temperature.
14. Installation of pipes, Insulation and cables beyond 6Mtrs, if required:
  - i) Suction line copper pipe of 0.70mm thickness.
  - ii) Liquid line copper pipe of 0.70mm thickness.
  - iii) Expanded polyethylene foam or other suitable insulation tubing for suction line copper pipe.
  - iv) Drain pipe (15mm dia flexible PVC pipe).
  - v) Suitable capacity 2 core PVC insulated copper wire 2.5mm to electrically connect both the units with each other.
16. Installation: Location of ODU is to be finalized after approval from DMRC. The installation at site shall comprise the following work:
  - (i) Mounting/Fitting indoor & outdoor units at the respective locations.
  - (ii) Laying refrigerant- piping and connecting both the units after drilling hole/holes in the wall, if required. The thickness of the copper tubing shall not be less than 0.70mm.
  - (iii) Insulating the suction pipe with expanded polyethylene foam 5mm tubing or other suitable.
  - (iv) Laying 15mm drain pipe to throw out the condensate water being formed in the indoor unit and connecting it to station drain.
  - (v) Leak testing the entire system.
  - (vi) Charging Refrigerant-gas in the unit.
  - (vii) Suitable electric wiring between indoor and outdoor, up to switch at location of indoor unit. Switch/Socket/Plug is also included.

### **6.3 GENERAL SPECIFICATIONS FOR ELECTRICAL WORKS**

#### (ELECTRICAL INSTALLATION & LIGHTING)

- i. Licensee is required to obtain prior approval of DMRC before carried out any work pertain to electrical & fire. The work is required to be executed as per IE rules and through a licensed Sub Contractor. All costs associated with provision of electric will be borne solely by the licensee. The licensee hereby voluntarily and unequivocally agrees not to seek any claim, damages, compensation or any other consideration whatsoever on account of time and cost associated in making provision of electricity.
- ii. For load up to 10 KVA shall given in single phase Load above this it shall only be given in three phase. License is required to balance load at his end so that no unbalancing occurs at DMRC end.
- iii. **Industrial socket along with industrial plug (GI box) to use instead of modular socket for cooking/heating/baking appliances.**
- iv. **Dedicated & Suitable rating MCB to be provided for the single circuit.**
- v. **In one circuit 2 no's of Power socket or 3 no's of light socket to be installed which shall not exceed the total rating of switchgear and cable.**
- vi. **All equipment should be connected with dedicated power/light socket according to their rating.**
- vii. **Licensee must ensure that single equipment connected with dedicated socket.**
- viii. **Licensee must ensure that ELCB (30ma) must be installed at their load end for electrical safety of equipment.**
- ix. Cables up to 6 Sq.mm. will be of copper conductor and above 6 Sq.mm Aluminum conductors may be used. However in case of underground station use of Aluminum conductor cable is not allowed. Cables for single phase shall be three cores, with one core as earth for the single phase, both for elevated and underground section of DMRC. For three phase load four core cables along with separate 2 nos. of 8 SWG GI wires shall be used for earthing. For underground stations 2 separate earth wire of 8 SWG copper conductor shall be used.

- x. For, elevated stations all wires shall be FRLS. Cables shall be armored, XLPE, FRLS. In case of Underground stations all wires shall be FRLSZH and cables shall be armored XLPE, FRLSZH and conform to NFPA-70, and BS-6724 standard.
- xi. The meter along with MCB-& ELCB box will be metallic and wiring should be done with proper glands, spare holes if any should be sealed. DP MCB & ELCB is required for single phase supply. TPN MCB and ELCB is required in case of three phases. ELCB, cables, MCB rating for main connection shall be as per sanctioned load.
- xii. Use of any PVC material is not permitted in the Elevated/underground stations.
- xiii. Licensee will provide a separate protection for their electric requirement with proper discrimination with upstream breaker.
- xiv. All materials specification must follow standards, codes and specification as specified in **Table-I**.
- xv. In case, the licensee draws power more than the sanctioned load, electricity connection may be disconnected. The electricity connection will be restored on first occasion only when licensee pays necessary penalty as per concern electricity regulatory commission norms and removes excess load. On the subsequent occasion, DMRC reserves the rights to revoke the license and forfeited the interest free security deposit.
- xvi. Only Galvanized Cable tray, Conduit, Ladder type cable tray shall be allowed.
- xvii. Internal wiring of luminaries (Light Fittings) and Signage in signage's panel shall also be FRLSZH in case of UG stations & FRLS in case of Elevated stations.
- xviii. All Plastic accessories used in luminaries shall be non-flammable material, meeting all the NFPA requirements, preferable by UV and shall be suitable for application at UG station conforming to UL - 94 standards on flammability of material.

**Table: 1 -- Rating of Electric Items**

	<b>Power Requirement (KVA)</b>	<b>Rating of MCB (A, 10kA)</b>	<b>Rating of ELCB (A, mA)</b>	<b>Cable Size (Sq.mm.) DB to Licensee premises</b>	
<b>ELEVATED STATIONS</b>	0 - 2	6	16, 30	3 Core x 2.5 sq.mm for single phase	3 core Armored Copper Conductor, FRLS
	2 - 4	16	16, 30	3 Core x 4.0 sq.mm for single phase	
	4 - 6	20	25, 30	3 Core x 6.0 sq.mm for single phase	
	6 - 8	32	32, 30	3 Core x 10 sq.mm for single phase	
	8 - 10	40	40, 30	3 Core x 16 sq.mm for single phase	
	6-8	16	16, 30	4 Core x 6 sq.mm for three phase	4 core Copper/Aluminum armored FRLS conductor
	8-10	16	25,30	4 core x 10 sq.mm for three phase	
	10-18	25	25,30	4 core x 16 sq.mm for three phase	
	18-25	40	40,30	4 core x 25 sq.mm for three phase	
	25-38	63	63,30	4 core x 35 sq.mm for three phase	
38-40	63	63,30	4 core x 50 sq.mm for three phase		
40-50	100	100, 30	3.5 Core x 70 sq.mm for three phase		
<b>UNDERGROU</b>	0 - 2	6	16, 30	3 Core x 4 Sq. mm Copper Conductor (for single phase)	
	2 - 4	16	16, 30	3 Core x 4 Sq. mm Copper Conductor	

			(for single phase)
4 - 6	25	25, 30	3 Core x 6 Sq. mm Copper Conductor (for single phase)
5.0 - 7.0	10	25, 30	4 Core x 6 Sq. mm Copper Conductor (for three phase)
7.0 - 10.0	16	25, 30	4 Core x 6 Sq. mm Copper Conductor (for three phase)
10.0 - 18.0	25	25, 30	4 Core x 10 Sq. mm Copper Conductor (for three phase)
18.0 - 25.0	40	40, 30	4 Core x 16 Sq. mm Copper Conductor (for three phase)
25.0 - 38.0	63	63, 30	4 Core x 25 Sq. mm Copper Conductor (for three phase)
38.0 - 40.0	63	63, 30	4 Core x 38 Sq. mm Copper Conductor (for three phase)
40.0 - 50.0	100	100, 30	4 Core x 50 Sq. mm Copper Conductor (for three phase)

S. No.	Item	Approved Makes
1.	GI Conduit Pipes, ISI mark	M/s BEC Industries, M/s AKG, M/s Steelkraft, M/s BEC Conduits, or any reputed make with prior approval of E&M department of DMRC.
2.	Cable Tray	M/s Bhart Export, M/s Bharat Export, M/s Equiptech, M/s Anil Steel, M/s Bharati, M/s Ratan Engineering, M/s MEM, M/s Unitech, M/s Steelways, M/s BEC, M/s KES Electrical Pvt Ltd, M/s BEC Conduits, M/s Shri Jagannath Engineering works (SJEW)
3.	FRLS PVC insulated Copper Conductor / Cable	Polycab, KEI, Finolex, Havells, Paragon Cable India. (Elektron), APAR Industries Ltd. (Unicab), Ravicab Cables Pvt Ltd., Gemscab Industries Ltd., Chandresh Cables Ltd (For FRLSH PVC Cables only), Ravi Industries, Fortuneart Wires and Cables Pvt Ltd., BMI Cables Pvt Ltd, Bonton, Tortek India Pvt Ltd, Rashi Cable Pvt. Ltd.
4.	LSZH PVC insulated copper wire/cable (For UG station)	Polycab, Ducab, KEI, Bonton, Paramount Cables, Havells India, Rashi.
5.	Modular system switches, socket outlet, with moulded cover plates	ABB, Northwest (Wipro), Anchor, Roma, Crabtree, L&T.
6.	GI Strip, BOX & Accessories	Confirming to relevant BIS/IS with samples need to be approved by DMRC Engineer In-charge
7.	Switches & Socket outlets	Crabtree, Anchor, MDS, LK (Schneider) or any reputed make with prior approval of E&M department of DMRC.
8.	MCB	L&T Hager, Legrand, Siemens, ABB, Schneider, MDS

9.	RCBO/RCCB	L&T Hager, Legrand, Siemens, ABB, Merlin Gerin, Schneider, MDS, Havells.
10.	Piano Type Switch/Socket	Crabtree, Legrand, Schneider, ABB, Northwest (Wipro)
11.	Distribution Boards	L&T-TERA, ABB-Elsteel, Schneider-BlokSeT, RitlallIndia Pvt. Ltd (With L& T Switchgear, L&T Electrical & Automation-Ti, Legrand (Novateur Electrical and Digital System Pvt Ltd), ABB India Ltd- ArTuk, & Siemens Ltd-Siepan or equivalent confirming to relevant IS.
12.	Energy Meters with MDI/TOD (pre-paid)	L&T, Secure, Ducati or any reputed make with prior approval of E&M department of DMRC.
13.	Luminaries (only LED Lights use)	Philips, Crompton, Bajaj, Wipro, Halonix Technologies, Havells India.

**Note:** - DMRC reserve the right to set tested all material from any govt. lab and licensee shall be bear cost of third party testing. Licensee is required to use only approved make as mentioned above.

## 7. SAFETY PROCEDURES:

- a. All attendants of the commercial spaces must be well aware of emergency protocols in case of any fire or electrical failure. (Standard Emergency Protocol order placed at Annexure B for reference)
- b. Last attendant shutting down the premises shall ensure thorough cleaning, safe segregation & de-energizing of electrical appliances prior to leaving. (Standard checklist points attached at Annexure C for reference).
- c. All heating appliances shall be thoroughly cleaned prior to shut down of space, ensuring no waste or ignitable material being present near-by heat source.
- d. **Repetitive to and fro movement damages the wiring arrangements. Hence, all electrical appliances should be kept at fixed designated places and should not be mobile.**
- e. A Stainless Steel plate of minimum size 150 mm X 250 mm (with engraved black/blue letters of font size 25 mm minimum) shall be displayed on the front façade of commercial space with following emergency information:
  - Name and Property No. of Commercial Space.
  - Name and Contact Details of Attendant/ Manager.
  - Name and contact details of Key Personnel.
- f. All PB/ PD licensee's staff shall have basic of Fire Equipment's Training- for selection and usage in case of Fire Emergency.

## 8. FIRE PROTECTION MEASURES IN EATERY KIOSK, SHOPS:

- a. **As per Delhi Fire Service Guidelines dated, any eatery shop/ restaurant above 90 sqm area must have Fire Safety Certificate from the local fire authority.**
- b. As commercial spaces having eatery or cooking facilities, have considerable fire load of material stored and have potential Fire risk, it is imperative to provide additional fire protection measures. Accordingly, minimum fire protection system is to be provided as per below table:

S.No.	Comm. Space Description	Fire Extinguishers	Fire Detection System	Fire Sprinklers	Modular based fire extinguisher	Smoke Ventilation
1.	Eatery Kiosks(RC)	Yes	No	No	Yes	No
2.	Eatery Kiosks(UG)	Yes	Yes	Yes	No	No
3.	Restaurants	Yes	Yes	Yes	Wet Chemical agent for Kitchen	Yes
4.	Eatery Kiosk (with cooking)	Yes	Yes	Yes	Wet Chemical agent for kitchen	Yes
5.	Non-Eatery Kiosk	Yes	No	No	No	No

- c. Additional Fire protection arrangements proposed by Fire Wing/E&M in compliance with IS codal provisions and statutory requirements shall be abided by PB/PD Licensees.
- d. In case of practical difficulty in connection to nearby fire pipelines, for small kiosks areas modular based fire extinguishers may be allowed in place of Fire sprinklers.
- e. In UG Stations, smoke/ heat detectors can be directly linked up with station FACP, depending on the availability of slots in the loop.
- f. In case of an independent Fire alarm panel for commercial space, same shall be integrated with Station's main panel.

\* The licensee shall execute the required work of Fire sprinklers and detection system on its own and E&M team shall facilitate in the integration of the systems. However, on licensee's request, the work may be executed by E&M and the licensee shall bear the cost for the said work.

Doc. No. DMRC/E&M/2023/

ANNEXURE - A

**FIRE & ELECTRICAL SAFETY INSPECTION REPORT**

Name of Station: \_\_\_\_\_

PD Licensee Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Inspection Representatives:**

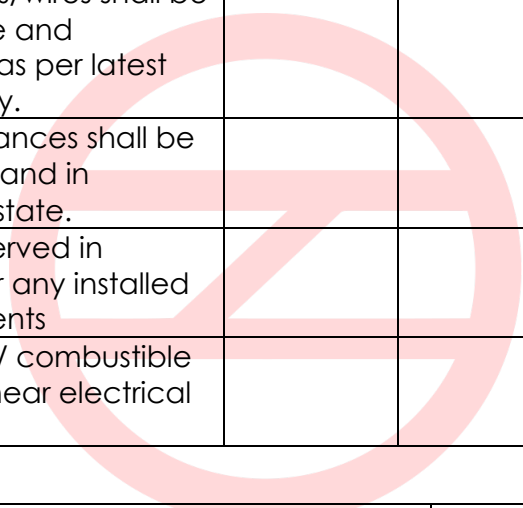
Department	Name	Designation
Fire Wing		
E&M		
PB / PD Dept		
Licensee Rep		

**1.0 FIRE SAFETY PARAMETERS**

SN	Fire Safety Requirements	Status		Healthiness
		Requirement † (YES/NO)	Provided/ Not provided	
<b>1</b>	<b>Automatic Fire Detection and Alarming System:</b>			
1.1	Working Condition of Smoke detectors			
1.2	Fire Panel & its integration			
1.3	Test with Fire alarm signal			
<b>2</b>	<b>Fire Protection System:</b>			
2.1	Availability of adequate nos, type of fire extinguishers & Healthiness of the equipment*			
2.2	Availability of Sprinkler system Physical Condition of Sprinklers Main Isolation Valve (Open/Close)			
2.3	Modular based Fire Extinguishers			
<b>3</b>	<b>Special Aspect Description</b>		<b>Status</b>	
3.1	<b>Kitchen areas:</b> <b>(Not required in case of no kitchen area)</b> Gas detectors for LPG/PNG& its functional status			
3.2	Kitchen hood provided with wet chemical agent protection system			
3.3	60 min compartmentation in between kitchen area and serving area			
3.4	Whether all kitchen hoods are cleaned regularly Last date of hood cleaning done		Last date :	
(*Refilling Due Date, Visible location, Physical Condition, Discharge Pipes etc.)				

**2.0 ELECTRICAL SAFETY PARAMTERS CHECKLISTFOR PB Kiosk**

SN	Electrical Safety Requirements	Status		Healthiness
		YES	No	
<b>1</b>	<b>Electrical panels/DBs:</b>			
1.1	Check for encroachment near electrical panels & DB, if any.			
1.2	Check the condition, earthing & locking arrangements of electrical panel.			
1.3	Check thimbles, lugs & glands in cable termination.			
1.4	Protection system installed in the circuit (RCCB/ELCB of appropriate rating or not more than 30 mA). Check /Operate from test Switch.			
1.5	Dedicated MCB to be used for dedicated circuit.			
<b>2</b>	<b>Cables &amp;Wiring:</b>			
2.1	Check for cable dressing in cable tray or conduiting			
2.2	Check for cable specification as per load			
2.3	Check for any hanging electrical wires, loose joints, extension boards or open wiring etc.			
<b>3</b>	<b>Switches &amp; sockets:</b>			
3.1	Check for condition & rating of plugs tops, switches, loose sockets/wire (If any).			
3.2	Check Industrial socket (GI box) installed in premises for electrical equipment			
3.3	Check supply taken from industrial socket through top plug of proper rating			
3.4	Check single equipment connected with single & dedicated industrial socket.			
3.2	Check all installed switch and sockets in PB premises securely fixed and undamaged.			
3.3	All main switches readily accessible and clearly identified.			

<b>4</b>	<b>Metering:</b>			
4.1	Energy meters in PD/PB premises should be properly sealed by DMRC authorized person/staff.			
4.2	MDI (Maximum demand) of previous month is within the sanction load.			
4.3	Energy meter shall measure reading in both KWH & KVAH.			
<b>5</b>	<b>Miscellaneous</b>			
5.1	All electrical equipment should be properly grounded to prevent electrocution or fire.			
5.2	Switchgear/Cables/wires shall be of approved make and specifications are as per latest DMRC PD/PB Policy.			
5.3	All electrical appliances shall be of standard make and in healthy/ cleaned state.			
5.4	Heating mark observed in socket, top plug or any installed electrical equipments			
5.5	Check flammable/ combustible material stacked near electrical points			
				
<b>A.</b>	<b>Serious Non- compliances directly affecting Occupant's Life Safety</b>	<b>Compliance Time to attend</b> (Immediate/ within a week/ etc.)		
<b>B.</b>	<b>Minor Non-compliances, (A separate list to be attached with joint signatures)</b>	Total __ Minor non-compliances		

E&amp;M

PD/PB

Licensee

Fire Wing

## ANNEXURE - B

### Fire Emergency Protocols/ अग्नि आपात कालीन प्रोटोकॉल:

#### 1. Stay Alert/ सतर्क रहें:

- Immediately activate the fire alarm system upon discovering a fire.

**आग लगने का पता चलने पर तुरंत फायर अलार्म सिस्टम का उपयोग करें।**

- In the absence of an automatic alarm, alert all individuals by shouting "Fire" to raise awareness.

**स्वचालित अलार्म की अनुपस्थिति में, चेतावनी देने के लिए "आग-आग" चिल्लाकर सभी व्यक्तियों को सचेत करें।**

#### 2. Cordon off/ घेराबंदी करना:

- Try to isolate the incident area and stop further propagation.

**घटना क्षेत्र को अलग करने और आगे प्रसार रोकने का प्रयास करें।**

- Try to electrically shut down the equipments & circuits in the incident area.

**घटना क्षेत्र में उपकरणों और सर्किटों को विद्युत रूप से बंद करने का प्रयास करें।**

#### 3. Fire Extinguisher Usage/ अग्निशामक यंत्रों का उपयोग:

- In the initial stages of a small fire, trained staff should attempt to use fire extinguishers and other means of fire fighting such as hose reels & fire hydrants.

**छोटी आग के शुरुआती चरणों में, प्रशिक्षित कर्मचारी अग्निशामक यंत्र और आग बुझाने के अन्य साधनों जैसे होज़ रील और फायर हाइड्रेंट का उपयोग करने का प्रयास कर सकते हैं।**

- Do not endanger personal safety; prioritize evacuation if the fire escalates. **व्यक्तिगत सुरक्षा को खतरे में न डालें; यदि आग बढ़ती है तो निकासी को प्राथमिकता दें।**

#### 4. Evacuate/ परिसर से निकास:

- Direct passengers and staff to egress from the nearest and safest exit routes. **यात्रियों और कर्मचारियों को निकटतम और सबसे सुरक्षित निकास मार्गों से जानेके लिए निर्देशित करें।**
- Avoid the use of elevators during a fire; only use stairs for evacuation. **आग लगने के दौरान लिफ्ट के उपयोग सेबचें; निकासी के लिए केवल सीढ़ियों का उपयोग करें।**

#### 5. Emergency Services Contact/ आपातकालीन सेवाओं से संपर्क:

- Call emergency services (dial 102) to report the fire and provide detailed information. **आग की रिपोर्ट करने और विस्तृत जानकारी प्रदान करने के लिए आपातकालीन सेवाओं (डायल 102) को कॉल करें।**
- Call Station Control Room (\_\_\_\_\_) and report the incident for support and response. **स्टेशन नियंत्रण कक्ष (\_\_\_\_\_) पर कॉल करें और समर्थन और प्रतिक्रिया के लिए घटना की रिपोर्ट करें।**

## **ANNEXURE- C**

Before closing a restaurant, eatery shop, food court or similar nature of commercial property, it is crucial to ensure the de-energization of non-essential appliances and lighting, as well as to implement fire safety measures. Here are standard checkpoints to follow for a comprehensive closing procedure:

### **De-Energization of Non-Essential Appliances and Lighting:**

#### **1. Kitchen Area:**

- Ensure that only essential appliances (storage units for perishable food items) shall remain ON, rest Turn off and unplug all non-essential kitchen appliances, such as blenders, ice machines, grills, fryers, ovens, and others.
- Recheck for cleaning of areas below and adjacent to heating appliances; such as patties heater, food warmer, hotcase etc.
- All hot surfaces must be secured/ cooled before closing.
- Ensure that gas connections are securely turned off, if applicable. Confirm that all gas shut-off valves in the kitchen are securely turned off.
- Verify that all kitchen hood and exhaust systems are powered down. Report for excess deposition of oil grit in hood and ductings, if present.

#### **2. Dining/ Common Area:**

- Switch off and unplug all non-essential electrical equipment in the area, including coffee machines, cash registers, and electronic point-of-sale systems.
- Recheck for cleaning of areas below and adjacent to heating appliances; such as patties heater, food warmer, hotcase etc.
- Turn off unnecessary lighting fixtures, HVAC & Ventilation systems.
- Remove all unnecessary wastage and combustibles from the area.

#### **3. Storage Areas& Office Spaces:**

- De-energize equipment and lighting in storage areas.
- Switch off all non-essential office equipment, including computers, printers, and scanners, office lighting and air conditioning systems.

- Ensure Clearance of spaces between electrical appliances and spillages.
- Ensure that emergency exit signs remain illuminated.

#### 4. **Electrical Panel Checks:**

- Conduct a visual inspection of the electrical panel to identify any signs of wear, damage, or loose connections.
- Ensure that all circuit breakers are in the "off" position for non-essential circuits.

#### 5. **Secure Flammable Materials:**

- Safely store and secure any flammable materials away from potential sources of ignition.
- Check that waste bins are emptied and cleared of any flammable debris.

#### 6. **Final Walkthrough:**

- Conduct a final walk through of the premises to confirm that all non-essential appliances, lighting, and equipment are de-energized.
- Verify that fire safety measures are in place and functioning as intended.

By systematically following these checkpoints, you can ensure the safe and efficient closure of the restaurant, minimizing potential hazards and contributing to overall safety and energy conservation.

#### **Documentation: (Recommended)**

- Licensee should keep a log of daily safety checks and closures, including any issues identified and corrective actions taken.
- Document the contact information for key personnel responsible for emergencies.

## अनुलग्नक- C

किसी रेस्तरां, भोजनालय की दुकान, फूड कोर्ट या इसी तरह की वाणिज्यिक संपत्ति को बंद करने से पहले, गैर-आवश्यक उपकरणों और प्रकाश व्यवस्था के डी-एनर्जाइज़ेशन को सुनिश्चित करना और साथ ही अग्निसुरक्षा उपायों को लागू करना महत्वपूर्ण है।

व्यापक समापन प्रक्रिया के लिए अनुसरण करने योग्य मानक जांच बिंदु यहां दिए गए हैं:

गैर-आवश्यक उपकरणों और प्रकाश व्यवस्था को स्विच ऑफ करना:

### 1. रसोई क्षेत्र:

- सुनिश्चित करें कि केवल आवश्यक उपकरण (नाशवान खाद्य पदार्थों के लिए भंडारण इकाइयाँ) चालू रहें, बाकी सभी गैर-आवश्यक रसोई उपकरणों, जैसे कि ब्लेंडर, फ्रीजर, ग्रिल, फ्रायर, ओवन और अन्य को बंद करें और अनप्लग करें।
- हीटिंग उपकरणों (जैसे पैटीज़ हीटर, फूडवार्मर, हॉटकेस आदि) के नीचे और आस-पास के क्षेत्रों की सफाई के लिए दोबारा जाँच करें।
- बंद करने से पहले सभी गर्म सतहों वाले उपकरणों को ठंडा किया जाना चाहिए, या किसी सुरक्षित स्थान पर अलग से रखना चाहिए।
- यदि लागू हो तो, सुनिश्चित करें कि गैस कनेक्शन सुरक्षित रूप से बंद कर दिया गया है। पुष्टि करें कि रसोई में सभी गैस शट-ऑफ वाल्व सुरक्षित रूप से बंद हैं।
- सुनिश्चित करें कि सभी रसोई हुड और निकास प्रणालियाँ बंद हैं। यदि मौजूद हो तो हुड और डक्टिंग में तेल ग्रीट के अतिरिक्त जमाव की रिपोर्ट करें।

## 2. भोजन/सामान्य क्षेत्र:

- कॉफी मशीन, कैश रजिस्टर और इलेक्ट्रॉनिक पॉइंट-ऑफ-सेल सिस्टम सहित क्षेत्र के सभी गैर-आवश्यक विद्युत उपकरणों को बंद करें और अनप्लग करें।
- हीटिंग उपकरणों (जैसे पेट्रीज़ हीटर, फ़ूडवार्मर, हॉटकेस आदि) के नीचे और आस-पास के क्षेत्रों की सफाई के लिए दोबारा जाँच करें।
- अनावश्यक प्रकाश व्यवस्था, एचवीएसी और वेंटिलेशन सिस्टम बंद करें।
- क्षेत्र से सभी अनावश्यक अपशिष्ट और ज्वलनशील पदार्थ हटा दें।

## 3. भंडारण क्षेत्र और कार्यालय स्थान:

- भंडारण क्षेत्रों में उपकरण और प्रकाश व्यवस्था को निष्क्रिय करें।
- कंप्यूटर, प्रिंटर और स्कैनर, कार्यालय प्रकाश और एयर कंडीशनिंग सिस्टम सहित सभी गैर-आवश्यक कार्यालय उपकरण बंद कर दें।
- बिजली के उपकरणों के बीच खाली स्थान और रिसाव (तेल इत्यादि) वाले क्षेत्र को साफ़ करना सुनिश्चित करें।
- सुनिश्चित करें कि आपातकालीन निकास साइनेज प्रकाशित रहें।

## 4. विद्युत पैनल की जाँच:

- टूट-फूट, क्षति या ढीले कनेक्शन के किसी भी लक्षण की पहचान करने के लिए विद्युत पैनल का निरीक्षण करें।
- सुनिश्चित करें कि सभी सर्किट ब्रेकर गैर-आवश्यक सर्किट के लिए "ऑफ" स्थिति में हैं।

5. ज्वलनशील पदार्थों को सुरक्षित रखें:

- किसी भी ज्वलनशील पदार्थ को ज्वलन के संभावित स्रोतों से दूर सुरक्षित रूप से संग्रहित और सुरक्षित रखें।
- जांच करें कि कूड़ेदान खाली कर दिए गए हैं और कोई भी ज्वलनशील मलबा साफ कर दिया गया है।

6. अंतिम पूर्वाभ्यास:

- यह पुष्टि करने के लिए कि सभी गैर-आवश्यक उपकरण, प्रकाश व्यवस्था स्विच ऑफ हैं, परिसर का अंतिम भ्रमण करें।

- सुनिश्चित करें कि सभी अग्निशमन के प्रावधान सुचारु रूप से काम करने की स्थिति में हैं और सक्रिय हैं ।

इन जांच बिंदुओं का व्यवस्थित रूप से पालन करके, आप रेस्तरां के सुरक्षित और कुशल समापन को सुनिश्चित कर सकते हैं, संभावित खतरों को कम कर सकते हैं और समग्र सुरक्षा और ऊर्जा संरक्षण में योगदान दे सकते हैं।

प्रलेखीकरण: (अनुशंसित)

- लाइसेंसधारी को दैनिक सुरक्षा जांच और समापन का एक लॉग रखना चाहिए, जिसमें पहचाने गए किसी भी मुद्दे और सुधारात्मक कार्रवाई भी शामिल है।
- आपात्कालीन स्थिति के लिए जिम्मेदार प्रमुख कर्मियों की संपर्क जानकारी का दस्तावेज रखें।