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2022-2023**

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CREDAI-MCHI



Ref: MCHI/PRES/22-23/366

Date: 20.12.2022

To
Dr. Iqbal Singh Chahal (I.A.S.),
Municipal Commissioner,
Brihanmumbai Municipal Corporation,
Fort, Mumbai 400 0001

Subject: Fire Safety Advisory/ Guidelines for EV charging stations in BMC

Ref: Mumbai Fire Brigade Guidelines u/ No. FB/H/1035 dated 18.10.2022

Respected Sir,

- On 18.10.2022 Mumbai Fire Brigade issued Guidelines u/ No. FB/H/1035 for EV charging stations in Brihanmumbai Municipal Corporation to facilitate Govt of India's target to have at least 30% of new vehicle sales as electric vehicles by 2030.
- As per Sr. No. 1 of title 'General Fire Safety requirement' it is stated that "EV charging stations/points can be permitted in the car parking areas in the first basement with ramps, ground floor & firest podium level/First level car parking floor only, from a Fire risk point of view."
- However, for projects wherein NOC from MoEF is applicable, the MoEF committee insists on having minimum 25% of car parking spaces to have EV charging points for the project.
- Considering the space constraints in MCGM and limited basement footprint due to provision of open spaces required under Reg. 14, Reg 27, & Reg 37(7) of DCPR 2034, often the project proponents are forced to propose Automated mechanised car parking system/ stacked car parking car parking towers for the project so as to accommodate parking requirement as per regulations. Furthermore, no concessions in parking requirement is allowed by MCGM.
- In such a scenario complying with MOEF requirement of min. 25% EV charging points would not be possible.
- In view of above, instead of imposing a blanket restriction, we hereby request you to allow EV charging points in all car parking levels subject to appropriate measures in consultation with CFO officials by addressing their concerns so that MOEF requirement may be complied without compromising on fire safety.

Thank you and looking forward to hearing from you.

Yours faithfully,
For CREDAI-MCHI

Boman Irani
President

Dhaval Ajmera
Hon. Secretary

Maharashtra Chamber of Housing Industry

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BRIHANMUMBAI MUNICIPAL CORPORATION
MUMBAI FIRE BRIGADE

No: FB/H/1035

Date: 18/10/2022

**SUB:- Fire safety Advisory/Guidelines for EV charging stations in
Brihanmumbai Municipal Corporation .**

Preamble

The transition to electric mobility is a promising global strategy for decarbonizing the transport sector. India is amongst a handful of countries that support the global EV30@30 campaign, which targets to have at least 30% of new vehicle sales be electric by 2030.

An accessible and robust network of Electric Vehicle (EV) charging infrastructure is an essential prerequisite to achieving this ambitious transition. The Government of India has instituted various enabling policies to promote the development of the charging infrastructure network.

To align with the national level target, the Government of Maharashtra has issued "Maharashtra's Electric Vehicle Policy -2018", dated 14/02/2018, and subsequently brought in a revised policy – "Maharashtra Electric Vehicle Policy, 2021" dated 23/07/2021. Accordingly, Brihanmumbai Municipal Corporation (BMC) is preparing guidelines to establish EV charging infrastructure within the BMC limit. In order to address fire concerns related to EV charging the Mumbai Fire brigade has codified Fire Safety Requirements for EV charging infrastructure facility. This is in line with rising focus on safety of EV charging due to battery fire incidences.

To ensure a safe charging and above all to protect charging stations in existing residential buildings, Commercial Buildings, Hospital buildings, Educational buildings, a Public parking lot (PPL) and especially in the covered area and basements if any, from the effects of a devastating fire a specific approach is required. The protection of the load-bearing structure and the compartment elements is even more important when the parking area is located in a public or residential building. Electric vehicle fires in covered parking's, and garages are dangerous and may lead to construction disasters with irreversible effects.

This department has earlier issued Policy Guidelines u/No. FB/R-V/2169, dated 20/11/2019 for Fire safety measures to do the compliance for installation of Public Electric Vehicle Charging Station (PEVCS) in PPL/street parking/amenity parking sites in Greater Mumbai Municipal Corporation.

As per the Central Electricity Authority of India (CEA) guidelines 2019 amendments, Hand Book of Electric Vehicle Charging Infrastructure Implementation by NITI Aayog, Ministry of Power (MoP) Govt. Of India the definition of the following are:

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1. **“Charging point”** means a facility for recharging of batteries of electric vehicle for private or public non-commercial use, connected at 415/220 Volts (V). Charging points refer to normal power EVSE that can be accessed by a portable charging cable.
 2. **“Charging station”** means a facility for recharging of batteries of electric vehicles for commercial use and shall also include multiple charging points for non-commercial public use. Charging stations refer to high-power EVSE, typically Mode 3 or Mode 4 charging, often with multiple charging guns.

As per NITI Aayog's Handbook of Electric Vehicle Charging Infrastructure Implementation the following EV related definitions are:

1. **Private charging:** dedicated charging for personal EV or EV fleet owned by one entity (individual EV Owners, EV Fleet owners/operators), it is self-operated or is CPO-operated (for EV fleet charging). It can be placed in independent homes, dedicated parking spots in apartment/offices; for fleets – any location with land availability.
2. **Semi-public charging:** it is a shared charging facility for a restricted set of EV users and is owned by either host properties, Original Equipment Manufacturers (OEMs) & CPOs, it is managed by a CPO. It can be placed in apartment complexes, office campuses, gated communities, shopping malls, hospitals, universities, government buildings, etc.
3. **Public charging:** it is open for all EV users and is owned by either Municipal authorities, Public Sector Undertaking(s) (PSUs), Charge Point Operator(s) (CPOs) or host properties, it is managed by a CPO. It can be placed in public parking lots, on-street parking, charging plazas, petrol pumps, highways, metro stations

General Fire-safety requirement:

1. EV charging stations/points can be permitted in the car parking areas in the first basement with ramps, ground floor & first podium level/First level car parking floor only, from a Fire risk point of view.
2. **EV charging stations/points facility shall not be permitted in any kind of Automated mechanized Car parking system/stacked car parking/Car Parking Towers.**
3. All the EV charging stations/points shall be designed, installed, tested, certified, inspected and connected in accordance with provisions as per prevailing Electricity act & Rules, guidelines etc. and shall be as per Safety advisory issued time to time by Chief Electrical Inspector (Industry, Energy and Labour department, Maharashtra).
4. Power supply cables used in EV charging stations/ points shall conform to IEC 62893-1 and 17505(Part-1) (Standard For Fire Survival Cables) its relevant parts.(Ref: CEA notification dated 28/07/2019).
5. The charging device i.e. charger shall be certified by a nationally recognized testing laboratory such as National Accreditation Board for Testing & Calibration Laboratory (NABL).
6. Premises shall be kept well ventilated.
7. Natural/mechanical ventilation shall be provided to the basements as per norms if EV charging stations are permitted at the 1st level basement with a ramp.
8. Designated EV charging parking shall have adequate space for vehicle parking and EVSE installation.
9. Adequate space should be allowed to maneuver other vehicles around charging vehicles safely when necessary.

10. Storage of any combustible/inflammable substances shall not be allowed near the EV charging stations/points.
11. Adequate numbers of operators depending upon nature of use (private/semi public/public) shall be posted to those who have the knowledge of using fire extinguishers and summoning of Fire Brigade in case of an emergency on Tel. No. 101, 0222308 5991/2/3.
12. The Fire detection, Fire alarm, and control system installation shall be done by a government-approved licensed agency & Form-A issued by government-approved licensed agency shall be obtained as per MFP&LS-2006. Subsequently "Form-B" i.e a certificate in the prescribed form, twice a year in the months of January and July regarding the maintenance of fire prevention and life safety measures in good repair and efficient condition as specified in sub-section (1) shall be submitted to C.F.O. Department.

I. Private charging stations/points:

- 1) Slow/ Moderate Power charging stations/points shall be allowed only in the parking areas in the building.
- 2) For charging stations/points use of EVSE integrated with Internet of Things (IoT) -based micro controller devices safety devices can be insisted upon.
- 3) Enclosure of charging stations/points shall be made of fire-retardant material with self-extinguishing property and free from halogen.
- 4) It is recommended to provide EV charging points/stations in open/semi open/ non critical area.
- 5) For EV charging stations/points, fire detection, fire alarm, and fire control system shall be provided as per relevant Indian Standards.
- 6) Fire detection, Fire alarm, and control system installation shall be done by a government-approved licensed agency & Form-A issued by government-approved licensed agency shall be obtained as per MFP&LS-2006.
- 7) For EV charging stations/points no other service pipe and gas lines shall be taken along the ducts provided for laying power cables and all ducts provided for power cables and other services shall be provided with a fire barrier at each floor crossing.
- 8) Portable Fire Extinguishers : (Numbers and capacity of extinguishers may change case to case basis)
 - a. Adequate numbers of Dry Chemical Powder (ABC Type) extinguishers of 9 kg. capacity, each with BIS Mark, & sand buckets shall be kept at the prominent places near the EV charging points/ stations for every 100 sq. mtrs. of area.
 - b. Adequate numbers Chemical Powder (ABC Type) extinguishers of 9 Kgs. capacity, with BIS Mark, & two sand buckets shall be kept near the main electric switchboard.
 - c. Adequate numbers of Encapsulator Agent (F-500-EA) extinguishers of 09 Kgs. capacity each with BIS Mark shall be kept at a prominent places near the EV charging station for every 100 sq. mtrs. of area.

II. Semi-Public charging stations/points :

- 1) For charging stations/points use of EVSE integrated with Internet of Things (IoT) -based micro controller devices safety devices can be insisted upon.
- 2) Enclosure of charging stations/points shall be made of fire-retardant material with self-extinguishing property and free from halogen.
- 3) It is recommended to provide EV charging points/stations in open/semi open/ non critical area.

- 4) For EV charging stations/points, fire detection, fire alarm, and fire control system shall be provided as per relevant Indian Standards.
- 5) Fire detection, Fire alarm, and control system installation shall be done by a government-approved licensed agency & Form-A issued by government-approved licensed agency shall be obtained as per MFP&LS-2006.
- 6) EV charging stations/points with load capacity exceeding 11kW located in the **covered/enclosed area** then the flooring, side walls, and ceiling area in the proximity shall be provided with Cladding of the Fire resistance boards/material with at least 02 Hours of Fire resistance.
- 7) For EV charging stations/points no other service pipe and gas lines shall be taken along the ducts provided for laying power cables and all ducts provided for power cables and other services shall be provided with a fire barrier at each floor crossing.
- 8) The EV charging station/points located in the **covered/enclosed area**, shall be provided with addressable automatic fire alarm system with main control panel at Fire control room in the building / at ground floor level. The layout of fire alarm system shall be in accordance with I.S. specification.
- 9) An automatic sprinkler system conforming to the prevailing standards and relevant I.S. specifications shall be provided with a sprinkler head above each car parking space for semi public charging stations/points in **covered/enclosed areas**.
- 10) In case of absence of sprinkler system (**charging stations/points in the open area**), heat detectors shall be installed to detect any increased temperature beyond 70 degrees Celsius
- 11) For semi public charging stations/points beyond 11kW in the **1st level podium or 1st level basement with ramp**, wet riser of internal dia. of 10 cms. G.I. 'C' Class pipe shall be provided with a single hydrant outlet and connected to the fire service inlet on the external face of the building directly fronting the courtyards shall be provided to connect the mobile pump of the fire service to the wet riser-cum-down comer.
- 9) Portable Fire Extinguishers : (Numbers and capacity of extinguishers may change case to case basis)
 - d. Adequate numbers of Dry Chemical Powder (ABC Type) extinguishers of 9 kg. capacity, each with BIS Mark, & sand buckets shall be kept at the prominent places near the EV charging points/ stations for every 100 sq. mtrs. of area.
 - e. Adequate numbers Chemical Powder (ABC Type) extinguishers of 9 Kgs. capacity, with BIS Mark, & two sand buckets shall be kept near the main electric switchboard.
 - f. Adequate numbers of Encapsulator Agent (F-500-EA) extinguishers of 09 Kgs. capacity each with BIS Mark shall be kept at a prominent places near the EV charging station for every 100 sq. mtrs. of area.
- 12) The EV charging station/points area shall be provided with a public address system as per the rules with the main control operator and console panel in the Ground Floor area.

III. Public charging stations/points:

1. For charging stations/points use of EVSE integrated with Internet of Things (IoT) -based micro controller devices safety devices can be insisted upon.
2. Enclosure of charging stations/points shall be made of fire-retardant material with self-extinguishing property and free from halogen.
3. It is recommended to provide EV charging points/stations in open/semi open/ non critical area.
4. For EV charging stations/points, fire detection, fire alarm, and fire control system shall be provided as per relevant Indian Standards.
5. Fire detection, Fire alarm, and control system installation shall be done by a government-

- approved licensed agency & Form-A issued by government-approved licensed agency shall be obtained as per MFP&LS-2006.
6. The places where fast DC fast charging operating at 500V DC – are provided, should be differentiated from conventional charging points because of the hazards associated with the direct current.
 7. The EV charging stations/points located **in the covered/enclosed area**, then the flooring, side walls, and ceiling area in the proximity shall be provided with Cladding of the Fire resistance boards with at least 02 Hours of Fire resistance.
 8. For EV charging stations/points no other service pipe and gas lines shall be taken along the ducts provided for laying power cables and all ducts provided for power cables and other services shall be provided with a fire barrier at each floor crossing.
 9. The public charging station/points located **in the covered/enclosed area**, shall be provided with addressable automatic fire alarm system with main control panel at Fire control room in the building / at ground floor level. The layout of fire alarm system shall be in accordance with I.S. specification.
 10. An automatic sprinkler system conforming to the prevailing standards and relevant I.S. specifications shall be provided with a sprinkler head above each car parking space for public charging stations/points **in the covered/enclosed areas**.
 11. In case of absence of sprinkler system (**charging stations/points in the open area**), heat detectors shall be installed to detect any increased temperature beyond 70 degrees Celsius
 12. For public charging stations/points beyond 11kW in the **1st level podium or 1st level basement with ramp**, wet riser of internal dia. of 10 cms. G.I. 'C' Class pipe shall be provided with a single hydrant outlet and connected to the fire service inlet on the external face of the building directly fronting the courtyards shall be provided to connect the mobile pump of the fire service to the wet riser-cum-down comer.
 - 10) Portable Fire Extinguishers : (Numbers and capacity of extinguishers may change case to case basis)
 - a. Adequate numbers of Dry Chemical Powder (ABC Type) extinguishers of 9 kg. capacity, each with BIS Mark, & sand buckets shall be kept at the prominent places near the EV charging points/ stations for every 100 sq. mtrs. of area.
 - b. Adequate numbers Chemical Powder (ABC Type) extinguishers of 9 Kgs. capacity, with BIS Mark, & two sand buckets shall be kept near the main electric switchboard.
 - c. Adequate numbers of Encapsulator Agent (F-500-EA) extinguishers of 09 Kgs. capacity each with BIS Mark shall be kept at a prominent places near the EV charging station for every 100 sq. mtrs. of area.
 13. The public EV charging station/points area shall be provided with a public address system as per the rules with the main control operator and console panel in the Ground Floor area.


 Chief Fire Officer
 Mumbai Fire Brigade

NOTE:

1. Fire Brigade dept. reserves the right to change/alter/add/delete the terms and conditions of these fire safety remarks as per the situation permits with prior intimation.
2. These remarks are offered from a fire risk point of view only,

References

1. Circular No.12/2/2018-EV (Comp No. 244347) Govt. Of India, Ministry of Power (MoP) dated 14th January 2022. "Annexure V" i.e., Amendments in Model Building Bye-Laws(MBBL-2016 for Electric Vehicle Charging Infrastructure.
2. Hand Book of Electric Vehicle Charging Infrastructure Implementation by NITI Aayog, Ministry of Power (MoP) Govt. Of India, Department of Science & Technology (DST), WRI INDIA-ROSS Center.
3. Central Electricity Authority (CEA) Notification dated 28/07/2019
4. Maharashtra State Electric Vehicle Policy-2021 draft.
5. Maharashtra-283_CEI _ Safety Advisory_ Standard Operating Procedure for EV Charging Stations (EVCS) across Maharashtra organized
6. National Building Code of India-2016. Volume-1-Part-4-Fire & Life Safety.
7. Maharashtra Fire prevention & Life safety measures Act-2006.