

Technical Guidelines for Electric Vehicle (EV) Charging-enabling for Car Parks of New Building Developments

Purpose

The Development Bureau announced in October 2010, in its package of measures to foster a quality and sustainable built environment, that in future concessions on Gross Floor Areas (GFA) for car parks will only be granted, inter alia, where car parks are “EV charging-enabling”. The technical guidelines below prescribe the requirement for being EV charging-enabling, which comprises the “General Requirements” and the “Specific Requirements”.

General Requirements

2. “EV charging facilities” shall mean (a) fixed electrical installations (FEI) on the consumer side including, but not limited to, switchboards, distribution boards, electricity meters¹, cabling, conduits and trunking; and (b) socket outlets¹.
3. The EV charging facilities shall be designed, installed, tested and certified by registered electrical contractor and registered electrical worker of the appropriate grade in accordance with the relevant provisions of the Electricity Ordinance (Cap. 406) and its regulations.
4. FEI of EV charging facilities shall be installed in compliance with the relevant requirements of the Code of Practice for the Electricity (Wiring) Regulations and Technical Guidelines on Charging Facilities for Electric Vehicles published by the Electrical and Mechanical Services Department and prevailing at the time of submission of Building Plans.

Specific Requirements

5. Each and every car parking space in the concerned car park, regardless of the types of vehicle they serve, should be fit with FEI of EV charging facilities.
6. The main switchboard(s) shall be designed and installed with sufficient capacity and compartments to supply power to distribution boards for simultaneous charging at all EV parking spaces equipped with

¹ The provisions of electricity meter(s) and socket outlets are optional for the purpose of EV charging-enabling for car parks of new building developments.

BS1363 13A socket outlets as a basic layout. No diversity factor shall be applied to the design of the electrical loading of the main switchboard(s) for the purpose of EV charging-enabling in new building developments.

7. The design of FEI for the EV charging facilities shall not, in any way, cause undue interference that impairs the safety and stable operation of the FEI of the building and the electricity supplier's power supply system.

8. Distribution board(s) shall be of suitable design and shall be installed at strategic locations on each level of a car park covering EV charging facilities. The power supply to the distribution boards should be designed for charging at all EVs parking spaces at the same time.

9. All final circuits² shall be designed and installed up to the socket outlet interface with suitable circuit protective devices, residual current devices and electrical cabling of suitable design in accordance with the Code of Practice for the Electricity (Wiring) Regulations and Technical Guidelines on Charging Facilities for Electric Vehicles. The electric cable of each final circuit shall be sized to carry a minimum charging current of 32A single phase to allow flexibility of installing socket outlets of different rating up to 32A to suit charging requirement of various types of electric vehicles.

Other considerations

10. Socket outlets shall comply with either BS1363 13A single phase, IEC 60309 16/32A single phase or three phase, or other international standards for EV charging. The installation of socket outlets shall be optional.

11. Electricity meter(s) and meter room(s) may be provided in consultation with electricity company and their provisions are dependent on the metering method for the charging facilities. The installation of electricity meter(s) shall be optional. If provided, such details shall be incorporated into the building plans during planning stage.

12. Quick charging facilities are not covered by this set of guidelines. Property developers may consider installing quick charging facilities out of commercial or other considerations.

² Final Circuit: A circuit connected from a local distribution board to a current-using equipment, or to a socket-outlet or socket-outlets or other outlet points for the connection of such equipment.

Submission

13. In support of the application for GFA concession, the following design information together with the Building Plans shall be submitted by the Authorized Person to the Buildings Department:-

- (i) Schematic diagram(s) of FEI for EV charging facilities indicating main switchboard(s) and distribution board(s) arrangement, & termination method of final circuits for which socket outlets are optional;
- (ii) Calculation of electricity loading and cabling schedule;
- (iii) Locations of final circuit termination points at all car parking spaces where the provisions of socket outlets shall be optional; &
- (iv) Location of meter room(s), if any. The provision of electricity meter(s) within the meter room(s) shall be optional.

14. The design of FEI under paragraph 13 shall be certified, before submission, in accordance with the General and Specific Requirements as set out above by a Registered Professional Engineer (RPE) under the Engineers Registration Ordinance (Cap. 409) of either the Electrical or Building Services discipline.

Installation and Certificate of Completion

15. The EV charging facilities as submitted under paragraph 13 shall be fully installed, tested and commissioned before occupation of the building. Completion of the works for the EV charging facilities shall be certified by the RPE and the certificate shall be submitted to the Buildings Department through the Authorized Person prior to the application for occupation permit of the building. The certificate should state:-

- (i) The address at which the inspection by the RPE was carried out;
- (ii) Whether or not the FEI for the EV charging facilities are in accordance with the design information previously submitted to the Building Authority through the Authorized Person;
- (iii) Whether or not the FEI for the EV charging facilities have been fully installed, tested and commissioned; &
- (iv) The name of the RPE.

16. A sample format of the certificate is at Appendix.

**Environment Bureau/Electrical and Mechanical Services Department
April 2011**

**Certificate of Completion
Provisions for Electric Vehicle (EV) Charging-enabling
for Car Parks of New Building Developments**

To: the Building Authority,

In accordance with the requirements of the Technical Guidelines for Electric Vehicle (EV) Charging-enabling for Car Parks of New Building Developments, I (name in full) _____, registered professional engineer, hereby confirm that I have inspected the car park(s) of the new building at (address of site)

_____ on (Lot No.) _____ and the provisions for EV charging-enabling at the above car park(s) have been fully installed, tested and commissioned. I certify that the completed works of the fixed electrical installations for the provisions of EV charging-enabling in the car park(s) of the above new building are in accordance with the design information of EV charging-enabling facilities submitted to the Building Authority on _____ through the Authorized Person of this building (Your Ref. No. _____).

Date _____

Signature of Registered Professional Engineer

Registration No. : _____

Date of expiry of registration : _____