

Electric Vehicles (EVs) and EV Charging Equipment in Carparks

Introduction

The inclusion of modern EVs (including hybrids) into building carparks introduces an additional fire hazard for building occupants and firefighters. The presence of lithium-ion batteries in these vehicles means their fire hazards differ from those associated with traditional internal combustion engine vehicles.

Given the absence of specific 'Deemed-to-Satisfy' (DTS) provisions in the National Construction Code (NCC) addressing EV fire hazards, Queensland Fire Department (QFD) requests that EVs be considered under NCC Clauses E1D17 and E2D21 (special hazard provisions).

QFD endorses the Australasian Fire and Emergency Service Authorities Council (AFAC) position on [Electric Vehicles \(EV\) and EV charging equipment in the built environment \(v1.5, 2 October 2023\)](#) as appropriate guidance for relevant stakeholders, including those who design and certify any building incorporating EVs and EV charging equipment.

Scope

This position statement applies to building development applications for building work referred to QFD for advice under applicable planning and building legislation, where there is a carpark located within the subject building. Detail on QFD's referral agency jurisdiction is provided below.

Note: This position statement assumes EVs and hybrids will be present in all carparks, unless expressly prohibited.

NCC 'Special Hazard' Provisions

QFD considers EVs and EV charging equipment to be special hazards requiring specific consideration under NCC 2022 Clause E1D17 (provision for special hazards – firefighting), which states that.

Suitable additional provision must be made if special problems of fighting fire could arise because of — (a) the nature or quantity of materials stored, displayed or used in a building or on the allotment; or (b) the location of the building in relation to a water supply for fire-fighting purposes.

As the fire authority and agency responsible for fire brigade intervention in Queensland, QFD confirms that an EV-related fire incident has significant potential to cause special problems for firefighting.

Additionally, QFD considers that NCC clause E2D21 (provision for special hazards – smoke hazard management) should also be considered due to the presence of EVs and EV charging equipment.

QFD Referral Jurisdiction

QFD has jurisdiction to provide referral advice on services required to address special hazards under the *Planning Regulation 2017*, which is subordinate legislation to the *Planning Act 2016*.

The *Planning Regulation 2017* identifies QFD (as a referral agency to provide advice on building work if the building work requires 'special fire services' – see [Schedule 9, Part 3, Division 3, Table 1, Column 2, clause \(a\)\(i\)](#)). Special fire services are outlined in the [Schedule 19, Part 1](#), and include services required under the Building Code, volume 1, part E1.10 (provision for special hazards – now under NCC 2022 Clauses E1D17).

Fees associated with assessment of special fire services, including special hazards, are set out in the *Building Fire Safety Regulation 2008*, [Schedule 2, Part 2, Section 16](#).

Special Hazards Assessment

For applicable projects that include a carpark, it is requested that the documentation submitted to QFD includes a 'Special Hazard Assessment' (SHA) Report, which addresses the special hazards associated with EVs and EV charging in accordance with NCC 2022 Clauses E1D17 and E2D21.

QFD recommends that the SHA be prepared by a suitably experienced and qualified person e.g. a Registered Professional Engineer of Queensland in the fire/fire safety engineering category.

QFD recommends that the SHA.

- evaluates the fire hazards associated with the presence of EVs within the subject building
- assesses the suitability of proposed fire safety installations
- determines any necessary additional safety measures to mitigate the EV fire hazards and achieve NCC compliance.

Reference should be made to the aforementioned AFAC position for further important information on key fire safety considerations for EVs and EV charging equipment within the built environment.

QFD will review the SHA with particular consideration of the AFAC position and provide referral advice on the proposals in the context of the specific building.

Failure to provide a suitable SHA may result in 'Not Suitable' advice being provided in the context of QFD's special fire services jurisdiction.

Note: QFD considers that SHA reports need not be considered as Performance Solution reports, as they are being requested in relation to the NCC's DTS Clauses E1D17 and E2D21. However, QFD recognises that practitioners may elect to integrate the SHA into a Performance Solution report, where the subject building is already adopting a performance-based approach.

Existing Carparks – EVs and EV charging equipment

When considering the inclusion of EVs and EV charging equipment in existing buildings, QFD recommends that building owners/occupiers engage suitably qualified fire safety professionals to consider the AFAC position, evaluate the suitability of existing fire safety installations, and determine additional safety measures necessary to mitigate EV-related fire hazards.