EVC response to the National Construction Code 2025 Public Comment Draft

July 2024

With reference to:

National Construction Code 2025 Public Comment Draft - Australian Building Codes Board - Citizen Space (abcb.gov.au)

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Introduction

The Electric Vehicle Council (EVC) is the national body representing the electric vehicle industry in Australia. As the market is emerging in Australia, our work is particularly aimed at increasing certainty for investment through policy, knowledge sharing and education.

The EVC welcomes the opportunity to provide feedback to the Australian Building Codes Board (ABCB) on the National Construction Code (NCC) 2025 Public Comment Draft (PCD). A well thought out and clearly worded NCC ensures building owners and residents enjoy the benefits that good buildings provide, at least cost and minimal future investment.

Broadly, the EVC strongly supports the changes to the provisions for electric vehicle (EV) charging in the PCD with some minor requests for adjustments as detailed below.

The EVC would welcome the opportunity to be involved in the development of these provisions and would be well placed to aid in the development of reference material to support those using the code to inform their planning and design work.

Clarification on 'special hazard'

The recommendation from the National Council for Fire and Emergency Services (AFAC) has been that building surveyors/certifiers, fire authorities, developers, building designers, engineers, legislative and regulatory consent authorities and insurers should consider clause E1D17 and Clause E2D21 of NCC 2022 on special hazards with respect to EVs and EV charging equipment in the built environment.[1] These clauses invoke additional provisions if "special problems of fighting fire could arise" or additional smoke hazard management if there's a "special function or use of the building", amongst other possibilities. Although the opinion of AFAC does not have the weight of regulation, the effect of AFAC (to which the various jurisdictional emergency service agencies are members) publishing various guidelines[2] on the safety of EVs, EV chargers and Lithium-ion batteries generally, is;

- to influence emergency service agencies who reference the guidelines in their own position statements, eg. FRNSW[3], QFES[4], then,
- the relevant position statements are referenced by strata committees in formal communications with lot owners, (example letter in Appendix A) and
- the EV charger installations are prevented. On occasion the lot owner's right to park an EV in the building car park is challenged.

In summary the AFAC guidelines have a quasi-regulatory impact.

The EVC was pleased to see clarification from the Chief Executive Officer of the ABCB, Gary Rake on the intended interpretation of special hazard in the NCC,[5] which is that the presence of EVs and EV chargers is now common, should not be considered special and therefore is not sufficient to invoke the 'special hazard' clauses.

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[1] afac_evs-in-built-environment_2024-01-09_v1-5.pdf
[2] afac_doctrine_incidents-involving-pv-and-bess_v0-2.pdf
Incidents involving Electric Vehicles (afac.com.au)
afac_lithium-ion-batteries_2024-5-6_v1-0.pdf
[3] Fire and Rescue NSW
[4] https://www.qfes.qld.gov.au/sites/default/files/2022-07/Electric-vehicle-carpark-and-charging-stations.pdf
[5] Vehicle or hazard: New rules treat EV chargers like firework factories (thedriven.io)

The EVC recommends that the ABCB provide clarification to this effect in the NCC normative text, the online guidance materials around NCC that reside on the ABCB website[6] and in standalone guidance relating to EV charging eg. ABCB advisory note on EV charging | ABCB.

Response(s)

NCC Volume(s): ☒ One ☐ Two ☐ Three ☐ Housing Provisions ☐ Livable Housing Design Standard

Clause/Figure/Table: Clause J9D4

Recommended change to draft:

It is recommended J9D4 have an additional sub-clause eg. (6)

"(6) The presence of electric vehicles or electric vehicle chargers is not sufficient to invoke 'special hazard' clauses."

Comment/reason for change:

As above

Carpark fire safety improvements

The EVC recognises the evidence-based approach to adjustments made to clauses E1D5, E1D9, S17C2, S5C19 and S5C22 where consultation from a wide range of stakeholders has resulted in the understanding that modern carparks contain vehicles of an increased size, increased fuel load due to more plastic used in construction and new energy sources and vehicle parking/storage methods. This warrants the revocation of concessions on sprinkler systems for open deck carparks, implemented in the 1980s.

When decisions are made or consultations are held that are not evidence-based, we see outcomes that are not in the public's best interests, such as that discussed in the topic above.

Individuals or companies that are denied permission to install EV chargers, due to uncertainty about consequences for building occupancy certificates, expensive remediation, insurance premiums etc. brought about by implications from fire authority publications, delays EV uptake. Concomitantly, government emissions reduction targets are jeopardised as well as keeping poor air quality, particulate pollution levels, noise/vibration levels and expenditure on foreign oil higher for longer.

Adjustments to J9D4

The EVC applauds the adjustments to clause J9D4 such as the addition of busduct as a compliance pathway for supplying EV chargers [J9D4 (1)(b)or(c)] and the inclusion of EV chargers in a proportion of car parks in building Classes 3, 5, 6, 7b, 8 or 9 [J9D4 (3) and (4)].

[6] Resource library | ABCB

Regarding building Classes 3, 5, 6, 7b, 8 & 9 the clause mandates a minimum percentage of carparks shall have EV chargers of at least 7kW capacity installed [J9D4 (3)]. This is a vast improvement on the previous NCC which mandated no EV chargers, however, may be restrictive to the capacity of EV chargers that will actually be deployed. The amount of energy that could be served though, seems reasonable.

The EVC would ask the ABCB to consider an alternative compliance pathway if the premise could be served by a d.c. EV charger or multiple d.c. EV chargers of a higher capacity.

For example, a Class 5 building with 100 carparks, requires at least 10 x 7kW EV chargers to be installed. If it is determined the drivers could be served by 2% of carparks with at least 24kW d.c. EV chargers or 1% of carparks with at least 50kW d.c. fast chargers, or a combination of percentages for a.c. and d.c., then this should be compliant as well.

Another example, a shopping centre (Class 6) has 200 carparks. In consultation with the building owner it is determined that about half of the EV designated carparks will be used by long time dwellers and half by short time dwellers. Therefore 10% of 100 carparks will be subject to the at least 7kW (32A) chargers for a sub-total of 10 carparks and 2% of carparks will get chargers of at least 24kW d.c. chargers for a sub-total of 2 carparks.

Response(s)

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Clause/Figure/Table: Clause J9D4

Recommended change to draft:

It is recommended J9D4 have an additional sub-clause eg. (3)(b)

(3) In a carpark or carparking area with more than 40 carparking spaces, electrical vehicle charging equipment (IEC62196), must be installed—

(a) in a class 5 or 6 building
(i) with a capacity of at least 7kw (32A) to serve at least 10% of carparking spaces; or

(ii) with a capacity of at least 24kW d.c. to serve at least 2% of carparking spaces if agreed to by the owner; or

(iii) with a capacity of at least 50kW d.c. to serve at least 1% of carparking spaces if agreed to by the owner; or

(iv) any combination of (i) (ii) and/or (iii).

(b) in a Class 3, 7b, 8 or 9 building

(i) with a capacity of at least 7kW (32A) to serve at least 15% of carparking spaces; or

(ii) with a capacity of at least 24kW d.c. to serve at least 3% of carparking spaces

(iii) with a capacity of at least 50kW d.c. to serve at least 2% of carparking spaces if agreed to by the owner; or

(iV) any combination of (i), (ii) and/or (iii)

(c) 10% of carparking spaces required to be accessible associated with a Class 3, 5, 6, 7b, 8 or 9 building.

Comment/reason for change:

As above

Text in green represent parts of the clause added or changed.

The EVC also advocates for the additional requirement of spatial allowance for the future installation of cable tray. This would be required in the carparks of buildings that must have capacity in EV distribution boards to support the future installation of EV chargers. The spatial allowance would extend from the EV distribution board to within 10m of the respective carparks agreed upon by the customer and the developer.

Spatial allowance enables the quick and cost-effective installation of cable tray in future without being blocked by services or structures and the like, that may be within the service layer above the vehicle clearance height in a carpark.

The design stage of a building is the best time to leave a path clear for future services and will not meaningfully increase cost of construction.

Response(s)

NCC Volume(s): ☒ One ☐ Two ☐ Three ☐ Housing Provisions ☐ Livable Housing Design Standard

Clause/Figure/Table: Clause J9D4

Recommended change to draft:

It is recommended J9D4 have an additional sub-clause eg. (4)

"(4) Subject to (2)(e), spatial allowance must be left for the future installation of cable tray to within 10m of the respective car-parking spaces, if supplied by a distribution board and will not already be served by cable tray installed to meet the requirements of (3).

(5) A carpark or carparking area with 40 or less carparking spaces associated with a Class 3 building or Class 5 to 9 building must have at least one electric vehicle charger with a capacity of at least 7kW (32A).
(6) The electric vehicle charging equipment required by (3) and (5) must incorporate or be connected to—
(b) the distribution boards or busduct required by (1); and
(c) the charge control equipment required by 2(a).

Comment/reason for change:

As above

EV readiness in the Housing Provisions Standard

We were also pleased to see requirements for an EV circuit written in for class 1 buildings [13.7.10]. Provision of a cable from the main switchboard to the car parking space/s, with at least one circuit capable of carrying 32A will ensure the future installation of EV charging equipment will be quick and cost less. This is a minimum standard and customers could have a 3-phase circuit ran instead should they wish. Running cables in modern houses is much easier, cheaper and potentially more aesthetically pleasing when done at frame stage.

The requirement that the cable be terminated with at least a 15A general purpose outlet, if not EV charging equipment, will see the majority of Australians served with enough energy to fuel their daily driving needs.[7]

We note that by using the 'Limitation' method of determining maximum demand, there is no need to increase the consumer mains capacity to accommodate EV charging.

The EVC encourages questions on anything discussed above and would welcome the opportunity to participate in further development of the code.

Appendix A

FIRE AND RESCUE NSW

Electric vehicles (EV) and EV charging equipment

FRNSW endorse the position on Electric Vehicles (EV) and EV charging equipment in the built environment as published by the Australasian Fire and Emergency Service Authorities Council, as the appropriate guidance to practitioners who design and certify any building that incorporates EV parking and/or charging.

FRNSW consider EVs and EV charging stations to be special hazards under E1D17 and E2D21 of the National Construction Code (NCC) 2022. As such, the certifier should identify what additional provisions are being provided, if any, and whether the fire safety measures in the building are commensurate to the hazard and risk(s) associated with the proposed EV parking and/or charging, when certifying any related building application.

Note: FRNSW considers incidents involving electric vehicles (EVs) and EV infrastructure to currently be low frequency, but potentially high consequence, incidents that require enhanced fire safety measures in place to facilitate safe and effective fire brigade operations. Whilst all aspects of the

[7] https://www.abs.gov.au/statistics/industry/tourism-and-transport/survey-motor-vehicle-use-australia/latest-release

AFAC Position should be considered and addressed, as a minimum, FRNSW recommend that EV parking and/or charging be:

▪ located externally or in open air where possible
▪ located close to the main vehicular entrance/exit if internal
▪ located away from any doors or services (building access, emergency exits, lifts, building utilities, critical infrastructure, etc.)
▪ protected by an AS 2118 automatic fire sprinkler system if internal ▪ protected by fire hydrant coverage
▪ protected by enhanced smoke detection and alarm systems and smoke hazard management systems
▪ provided with automatic or remote emergency shutdown of charging stations
▪ not permitted within an automated vehicle parking system (AVPS).

Note: FRNSW does not recommend EV parking and/or charging within any building not protected by an AS 2118 fire sprinkler system, including a building protected by an FPAA101D or FPAA101H fire sprinkler system which have lesser performance.

Any request for consultation or referral to FRNSW relating to any new building that intends to incorporate EV parking and/or charging, should adequately identify the hazards and risks and demonstrate how they are being addressed within the design. The 'recognised person' should address the special hazards and how the provisions of the AFAC Position have been considered and addressed.

Note: A 'recognised person' means a person who is both an accredited practitioner (fire safety) and a fire safety engineer under the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021.

Position statement summary

[Last updated: 29 April 2024]

The request from the owner of unit 5 to allow EV parking and charging in the common carparking space of the Strata is not supported by the Strata Executive of the Owners Corporation.

The reasons for not supporting this request is presented below.

The carparking area of the 43 years old [REDACTED] strata building is located in the partial basement below 5 townhouses. The carparking area is very small, it has a one narrow vehicular access from the street and it has direct egress from each of the 5 townhouses to the carparking area.

Each townhouse has timber/fire doors opening directly into the carpark area through which the residents must enter a narrow corridor to gain access the outside and to the street.

The ceiling of the carpark area is very low about 2.2m and there is currently only a basic mechanical and natural ventilation provided, no smoke detectors, alarm systems, no fire hydrant coverage or fire sprinklers to satisfy the requirements of the Fire and Rescue NSW in respect of the EV parking and charging installations.

The tandem parking area of unit 5 is tucked in the far corner of the small carparking area within 5-8m to the doors of the townhouses and is the furthest away, about 30m, from the main vehicular entry door. The adjoining private tandem car parking space of townhouse no 4 is only few centimetres away from the proposed EV parking space and this location does not offer any possibility

of insulating the EV and the charger in case of catastrophic fire which could endanger lives and the properties of all residents.

The fumes from the burning of the EV batteries are very toxic and the battery fire is almost impossible to put down without the removal of the entire vehicle from the garage area and wetting it with water for many hours.

It is very clear that the physical restrictions of the design of our strata garage area are not conducive to the parking and charging of the EV vehicles due to the potentially significant hazard to the life of the residents and the safety of our property.

The installation of all the fire safety systems as required by the FRNNSW for the benefit of one resident is considered by the Strata as not reasonable and would be very costly.

The cost of the additional insurance premiums must also be considered and who will pay.

[REDACTED]
Chair
Executive Committee
Strata SP [REDACTED]

19 May 2024