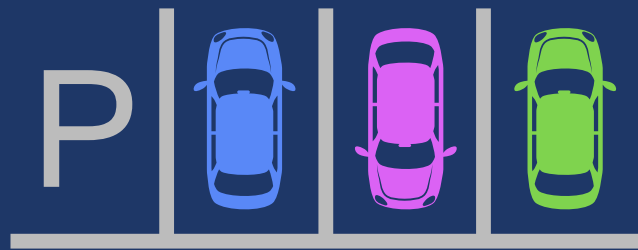


Busduct to meet the Performance Requirements of NCC 2022



October 2024

Disclaimer: The Electric Vehicle Council (EVC) is not a regulator. Therefore, this guidance should be considered in combination with input from your relevant electrical regulator and/or building authority. It is not to be interpreted as legal guidance. If in doubt, please contact the relevant body in your region and/or the Australian Building Codes Board (ABCB) for clarification.

This guidance may be of assistance in demonstrating that a busduct solution complies with the requirement of the 2022 edition of the National Construction Code (NCC).(1)

As per clause A2G1 of NCC 2022:

(1) Compliance with the NCC is achieved by complying with-

- (a) the Governing Requirements of the NCC; and
- (b) the *Performance Requirements*.

(2) *Performance Requirements* are satisfied by one of the following:

- (a) *Performance Solution*.
- (b) *Deemed-to-satisfy Solution*.
- (c) A combination of (a) and (b).

Many practitioners would be familiar with designing and assessing a building using Deemed-to-satisfy (DTS) provisions. An alternative approach as listed above, is to demonstrate compliance via a Performance Solution.

Clause A2G2 states that:

(1) A *Performance Solution* is achieved by demonstrating-

- (a) compliance with all relevant Performance Requirements; or
- (b) the solution is at least equivalent to Deemed-to-satisfy Provisions.

The 2022 edition of the NCC introduced several new energy efficiency requirements including provisions for future uptake of electric vehicles. Clause J1P4 Renewable energy and electric vehicle charging, a *Performance Requirement*, requires that “a building must have features that facilitate the future installation of on-site renewable energy generation and storage and electric vehicle charging equipment.”

Demonstrating that the proposed busduct solution meets the *Performance Requirement* of J1P4 would meet the governing requirement of clause A2G1. This could be achieved by demonstrating a *Performance Solution* as detailed in clause A2G2.

1. This document was conceived with the help of Lucy Finlay at Schneider Electric.



The use of one or a combination of the following assessment methods may be used to demonstrate a Performance Solution -

A2G2 part (2) states;

A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of the following Assessment Methods:

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements.

(b) A Verification Method including the following:

(i) The Verification Methods provided in the NCC.

(ii) Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements.

(c) Expert Judgement.

(d) Comparison with the DTS Provisions.

Clause J9D1 provides the list of DTS clauses that must be met where a DTS solution is proposed to meet the Performance Requirements J1P1 to J1P4. J9D4 Facilities for electric vehicle charging equipment, is the relevant DTS clause for electric vehicle charging equipment. Comparing the proposed busduct solution to the DTS provision J9D1 is one way to demonstrate a Performance Solution. Table 1 provides the details that demonstrate the proposed busduct solution meets the requirements of a Performance Solution.

| J9D4 Section | Requirement | Busduct Comparison |
|---------------------|--|---|
| (1) | Subject to (d), a carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging- (a) in accordance with Table J9D4 in each story of the carpark; and (b) labelled to indicate use for electric vehicle charging equipment. | A busduct solution originates from an electrical distribution board. Table J9D4 specifies a minimum number of electrical distribution boards per storey based on the number of carpark spaces per storey. The minimum numbers were determined to minimise the voltage drop between the distribution board and the electric vehicle charger. A busduct solution overcomes the challenge due to its capacity. |

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| (2) (a) | <p>Electrical distribution boards dedicated to servicing electric vehicle charging in a carpark must be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand.</p> | <p>A busduct solution does not inhibit the installation of a charging control system. The communication channel between the charging control system and the electric vehicle charger is independent of the electrical distribution.</p> |
| (2) (b) | <p>Electrical distribution boards dedicated to servicing electric vehicle charging in a carpark must, when associated with a class 2 building (eg. apartment building), have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12kWh from 11:00pm to 7:00 am daily.</p> | <p>This requirement places a minimum demand of 6.25A per car parking space on a Busduct solution. This is less than the 32A per car parking space required in (e).</p> |
| (2) (c) | <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must, when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12kWh from 9:00 am to 5:00 pm daily.</p> | <p>This requirement places a minimum demand of 6.25A per carparking space on a Busduct solution. This is less than the 32A per car parking space required in (e).</p> |
| (2) (d) | <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must, when associated with a Class 3 building (eg. hostel), have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48kWh from 11:00 pm to 7:00 am daily.</p> | <p>This requirement places a minimum demand of 25A per carparking space on a Busduct solution. This is less than the 32A per car parking space required in (e).</p> |

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| (2) (e) | <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must be sized to support the future installation of 7kw (32A) type 2 electric vehicle charger in-</p> <ul style="list-style-type: none"> (i) 100% of the car parking spaces associated with a Class 2 building; or (ii) 10% of car parking spaces associated with a Class 5 (eg. office) or 6 building (eg. shop); or (iii) 20% of car parking spaces associated with a Class 3, 7b, (eg. warehouse) 8 (eg. factory) or 9 building (eg. hospitals, schools, residential care). | <p>The current carrying capacity of a busduct solution can meet this requirement with less infrastructure than what is required for individual sub-circuits.</p> |
| (2) (f) | <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must contain space of at least 36mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment.</p> | <p>This requirement is based on the premise of final sub-circuit originating from the distribution boards. Many Mode 3 and Mode 4 Electric vehicle chargers have metering capabilities that can deliver the intent of these two requirements.</p> |
| | <p>Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.</p> | <p>We expect the availability of this capability to increase in coming years.</p> |

The draft 2025 edition of the NCC will include busduct as a DTS to the Performance Requirement of J1P4. It is expected that this proposed change will be delivered in full when the 2025 edition is published.