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Re Woollahra Council DCP 2015 Amendment 33

About Owners Corporation Network (OCN)

OCN is the independent peak consumer body representing and advocating the rights and interests of residential strata and community title owners and residents. OCN is a full member of the Consumers' Federation of Australia. OCN strives to create a better future for residential and community living and ownership. We support the transition to resilient, empowered communities living in climate ready, defect-free buildings. Strata is the fastest growing form of residential property ownership in Australia. Over half the new dwellings to be built in our metropolitan areas over the next decades will be strata titled.

EV Charging in Class 2 Buildings.

OCN supports a 'level playing field' for owners of EVs in apartment buildings (class 2 buildings), offering the same capability to charge EVs as afforded to standalone homeowners. In the case of owner's carparks this normally means the choice either level 1 or level 2 chargers.

Research shows around 80% of EV owners select the level 1 charging option. As Woollahra Council is very high density and toward the lower end of kilometres travelled per day, we would expect that this would be the case in Woollahra.

Future Charging requirements

The DCP is written toward future EV charging requirements. Consistent with the current overwhelming preference for level 1 charging at home, battery and battery charging technology continues to develop as does the efficiency of EV power trains and therefore EVs range. The inference here is that home charging requirements will become more efficient and require less power or charging time, over time.

NCC Section J9D4

There is no intent of the NCC to require a minimum of 7 kW charges to be installed in every car space, rather the infrastructure to support 7 kW charging should it be required. This is an important distinction to understand the intent of the NCC and to avoid over specifying EV charging electrical infrastructure, avoiding excessive additional costs to apartment buildings.

It is easy to conclude the inference of J9D4 is supporting 7Kw as a base level of charging for apartment buildings, but his is not the case:

J9D4 (2) (e*): be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in—*

1. *(i)100% of the car parking spaces associated with a Class 2 building;*

This means the infrastructure to the distribution board needs be sized to meet this requirement. It allows for, but does not specify, 7 kW chargers to be installed if that is what the end user requires.

Ross De Rango (EV Council Head of Infrastructure and part author of section J9D4):

"*The requirement of the code stops at the distribution board, because this is the most cost-effective way to take useful steps towards making the building EV ready.*" And

"The clause does not define the type of EV charging equipment that the building residents / owners have to install in future, or what is permissible/reasonable for buildings retrofitting EV charging to install."

J9D4 (2)(b): when associated with a Class 2 building, to have overall capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily.

The purpose of this section is to specify the overall electrical capacity requirements for the respective building and distribution boards and avoid over specifying total electrical capacity.

It can be confusing due to the use of technical terms, specifically the use of 7kW (measurement of power) and 12 kWh (measurement of energy used over time).

Worked Example:

If you consider a distribution board with 10 circuits, supporting 10 x 7 kw chargers, charging from 11.00 pm to 7.00 am, you would use 560 kWh (10 x 7kW x 8 hours), well over the specification which requires capacity for 120 kWh (10 x 12 kWh).

If you used the same distribution board supporting 10 x 2.4kw chargers, charging for the same period, you would use 192 kWh (10 x 2.4kW x 8 hours) still over the specification.

Any level 1 charger (2.4kW) connected to a circuit of a compliant distribution board can deliver 12kWh in 5 hours, so is compliant.

Ross De Rango: "*The 12kWh number is a touch under double the average daily energy requirement of a typical city-based EV, so, it's enough for most drivers. It's also been modelled against real historical data from a large number of relatively new buildings, to ensure that this level of energy usage spread across that time of night doesn't create a need for a bigger network connection, even in a future where 100% of the parking spaces are using 12kWh, during a heatwave*.

J9D4 (2) (a*): be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand*

This section provides for managing contention (or load control) if the number of chargers (irrespective of power consumption) exceeds the total capacity of n x 12kWh and therefore ensure the overall building energy supply is not exceeded.

Ross De Rango:

"The reason for this is that in the absence of a system to manage EV charging, the maximum demand section of the wiring rules (AS/NZS3000:2018, section 2.2.2, and appendix C) will lead the electrical designer to consider that at least three quarters of the EV charging equipment in the building might be operating at full power at the same time. That consideration will drive a requirement for massive increase in network connection, and main switchboard size, and hence cost.

The clause is there, in part, to enable the electrical designer to conclude that the EV charging will not be a significant contributor to building maximum demand, because the control system will prevent that from happening."

For further information please note:

https://www.linkedin.com/pulse/requirements-national-construction-code-2022-ev-ross-de-rango-mqkac/?trackingId=TzsvyzCjTyuEgsUesgydfw==

Responses to the DCP

As outlined above and in the context of the DCP, it is important to understand and communicate the intent of Section J9D4, to avoid misinterpretation as requiring 7kW charging to be installed each car space and consequential over specifying of electrical capacity.

As the DCP is written I feel it does tend to specify additional requirement above what the NCC intends, so I have proposed some amendments I think appropriate.

Section 2.4.2

Section 2.4.2 Refers to Section J9D4 of the NCC and that reference is consistent.

Section 2.4.4

C1 Ensure that 100% of car spaces in all off-street car parking of new residential and non-residential developments have electrical infrastructure to accommodate EV chargers in the future.

Note: Removes any requirement to install 7kW chargers, while leaving the requirement of the infrastructure to support 7 kW chargers

C1 b) Providing ~~underground~~ cable trays or buried cables to allow sufficient power and communications from a dedicated EV distribution board to within 5m of all car spaces.

Note: Cable trays do not need to be "underground". They can be anywhere in a carpark, eg attached to the car park ceiling.

Section 2.4.5

C2. Is redundant and should be deleted:

C1 describes the infrastructure requirement and

C2 infers the need for a minimum of 7kW chargers to be installed, which exceeds the requirement of the NCC.

Section 2.4.6

C3. Note the above commentary. There is no requirement for 7 kW charging in any dwelling. User experience and preference is for a normal power point – 2.4 kW. This section is not covered by the purview of OCN, but is a potential over specification, incurring unnecessary costs for homeowners and should be reconsidered.

Section 2.4.7

C4. May need to be change DA requirements, which in some councils specify that visitor car spaces must be for visitors and not residential use – that is if the intent is for residential use rather than visitor use, which is not clear.

Section 2.4.8

C6. Should read *"minimum rated power output equal to or greater than 22kW (32A)"*

Summary

OCN appreciates the opportunity to provide this submission for the Council's consideration. We would be pleased to expand upon its contents in more detail as otherwise required.

Yours sincerely,

Shari Driver

Shari Driver
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