

Electric Vehicle Design and Installation Guidelines for Public Use

VERSION NO. 7.0

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REVISION RECORD	Version	Revision Description
14-09-2023	2.0	Incorporated comments from Traffic & Transport
23-10-2023	3.1	Incorporated references from Mornington Peninsula Shire and feedback from City Works
21-11-2023	4.0	Incorporated feedback from ELT, the Institute of Sensible Transport, and references to federal guidelines.
21-03-2024	5.0	Added Standard Operating Procedure for design and installation which includes OHS Added United Energy Grid Connection Process Added Electrical Wiring Standards (Flood Mitigation) Added Victorian Building Authority notes for solar PV and battery systems Added EV Firesafe 2023 recommendations Consulted Municipal Buildings Surveyors on Standard Operating Procedure

Electric Vehicles (EVs) are a small but rapidly growing segment of vehicles in Australia and have the potential to significantly reduce transport emissions. Charging opportunities are one of main perceived barriers for Australians interested in EVs. The City of Kingston (herein also referred to as Council) is well placed to help facilitate the development of the EV charging network, as Council manages much of the land allocated to parking within the municipality. Having declared a Climate & Ecological Emergency, Council recognises that EV charging infrastructure will play an important role in fostering a more sustainable transport system.

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1. Purpose

This Design and Installation Guideline, herein referred to as the ‘guideline(s)’ seeks to provide guidance for the technical site selection, energy assessment, installation, management, maintenance, and removal of Electric Vehicle (EV) charging infrastructure in the City of Kingston, Victoria. This guideline seeks to complement the recently adopted Australian Government guidelines for [Low and Zero Emission Vehicle Charging Infrastructure Installation \(AP-G98-22 2023\)](#).

Intended User	Use Case
Residents, local businesses, or developers	Planning to install EV charging
Electric Vehicle Charge Point Operators (CPO) / Installers / Providers	Planning to install EV charging
Statutory Planners and Transport Planners	Reviewing planning permit applications with parking or development referrals
Architects, Engineers and infrastructure teams	Planning to install civil infrastructure
Consultants, Electricians, and Contractors	Advising or installing EV infrastructure design and installation
Councils or government agencies	Seeking EV infrastructure guidance

2. Scope

This guideline is applicable to EV charging infrastructure on public land in the City of Kingston. This includes Council projects on public or private land such as EV charging within (but not limited to):

- Roads reserves
- Council buildings and facilities
- Council leased or controlled car parks.

While these design and installation guidelines can be referenced by developers requiring planning permits and homeowners installing EV charging they are not the intended audience. These guidelines are intended for designers, engineers and contractors who are required to seek approval for or review / approve planning permits; and/ or deliver or install EV charging infrastructure on Council owned or controlled land.

3. Design and Installation Guidelines for Public EV Chargers

This guideline provides design and installation information specific to the City of Kingston. It summarises key learnings from Council and best practice guidance to ensure the successful rollout of EV chargers.

This section outlines technical considerations and requirements for both installation and future proofing of parking bays for future installation of EV chargers. All aspects of EV car parking spaces / charging bays are to be designed and constructed in accordance with relevant national, state, and local policies.

The guideline is to be reviewed in conjunction the following documents which provide critical compliance requirements:

1. The City of Kingston’s [Electric Vehicle](#) (City of Kingston 2023)
2. The Australian Government’s [Guidelines for Low and Zero Emission Vehicle Charging Infrastructure Installation](#) (Austroads 2022)
3. [The National Construction Code Advisory Note J9D4 Facilities for Electric Vehicle Charging Equipment](#) (ACBC 2023).

In addition to adhering to the Australian and New Zealand standards listed in the federal guidelines, the following documents should also be reviewed:

- Parking Management Policy (City of Kingston 2020; 2023 under review)
- Wayfinding Strategy (City of Kingston 2024)
- Electric Vehicles in Buildings Advisory Notice (ACBC 2023)
- Electric Vehicle & Charging Safety for Emergency Response (EV Firesafe 2022)
- Electrical Installations “Wiring Rules” (AS/NZS 3000: 2018)
- Accessibility Guidelines for EV Charging Infrastructure (iMove 2023)
- Design for Everyone Guide – Car Parking (Victorian Government 2017)
- Parking facilities - Off-street Parking for People with Disabilities AS/NZS 2890.6 Cl. 2.2.2 or AS/NZS 2890.6 Cl. 2.2.1, Cl.3.2 b) 11) as applicable
- Design for access and mobility - General Requirements for Access - New Building Work (2009) AS 1428.1
- Design for access and mobility - Enhanced and Additional Requirements - Buildings and Facilities (1992) AS 1428.2
- Tactile Ground Surface Indicators for the Orientation of People with Vision Impairment (2009) AS/NZS 1428.4.1
- Slip Resistance Classification of New Pedestrian Surface Materials (2013) AS 4586
- Lighting for Roads and Public Spaces (AS/NZS 1158 Set: 2010)
- Victorian Road Safety Rules (S.R. No. 41/2017)
- Enhancing Fire Safety at EV Charging Hubs for Victorian LGAs – report (EV Firesafe 2024)
- Fifth Edition Code of Practice for Electric Vehicle Charging Equipment Installation (UK Institute of Engineering and Technology 2023).

The following sections highlight areas of particular significance to support the successful installation of EV infrastructure in the City of Kingston.

3.1 Standard Operating Procedure

The following standard operating procedure or process for planning and installing public EV supply equipment and chargers is required by Council:

1. Undertake a preliminary assessment and submit functional layout plans for the appropriate charging equipment based on location and expected usage. Check relevant permit requirements.
2. Liaise with Council to receive approval to proceed with investigations for EV charger installation.
3. Review the Safer EV Charging recommendations (Australian Buildings Code Board 2023, see Appendix). Also refer to best practice EV installation standards from UK Institute of Engineering and Technology (2023).
4. Consult an electrical consultant or engineer to advise on existing supply, need for augmentation and upgrade requirements behind or in front of the meter.
5. Notify Council’s Building Infrastructure and City Works if works to existing switchboards are required. In most cases a dedicated switchboard and meter is recommended, and the City Works maintenance team will need to be consulted.
6. Confirm whether a building permit for retrofitting or base-building may be required through a private building surveyor or Council process for a building application.
7. Confirm whether other Council approval is required for planning permits and asset protection permits.
8. Undertake site investigations (including service conflicts) which includes preparing and submitting detailed design plans for Council approval, including any supporting infrastructure. e.g Parking bays, pram ramps, and landscaping.
9. If subcontracting an EV supply equipment installer, ensure they are a licensed with Energy Safe Victoria.
10. Follow the Electrical Supply Authority’s grid connection requirements (see section 3.3 Grid Connection Process below).
11. Establish Green Energy Contract with a supplier of renewable energy.
12. If installing an EV charger near vegetation or within 5m proximity of a significant trees (more than 10m high) this may require an arborist report which would include a tree management plan and

- contractor construction method. Consult Council's vegetation compliance team.
13. If footpath or traffic interruptions, or street closures are required then prepare a *Traffic Management Plans* (TMP).
 14. Ensure all Council *Occupational Health and Safety* (OHS) conditions are met:
 - (1) Complete Contractor Notice of Assessment Request Form (18/73829).
 - (2) Onboard as Contractor by completing Hazard Identification Form (Notice to Contractors 18/73827).
 - (3) Submit Safe Work Method Statement (SWMS) for review. Council will use SWMS Review Checklist (18/73822).
 - (4) Participate in Contractor On-Boarding Checklist onsite prior to commencing works (18/74879).
 15. Prior to commencing works prepare a community information notice board and get Council sign-off.
 16. Complete site inspection at the time of commencing works and install EV charging infrastructure. This will involve Roads and Drains and potential stakeholders such as: Statutory Planning, Open Space, and Parking Services.
 17. Complete the *EV Firesafe EV Charging Site Pre-Incident Plan* and ensure easy access in an emergency storage box that is installed near an entrance to the car park or building.
 18. If required, submit all relevant documentation as part of the building permit to a private building surveyor.
 19. Submit Pre-Incident Plan to local fire authority (See Appendix 4).
 20. Display the *Electric Vehicle Charge Safety laminated poster* in a visible location to each charging bay. This could be on the charge unit or a wall near the charger (see EV Safety posters, Appendix 5).
 21. Complete final inspection with building surveyor who will then certify installation.
 22. Sign off completion with relevant Council officers. This will involve Roads and Drains and potential stakeholders such as: Statutory Planning, Open Space, and Parking Services.

**Note: this process does not specify the additional project management steps in situations where Council has engaged a supplier or contractor. i.e Compliance with contract requirements on managing costs, timeframes and quality control.*

3.2 Electrical Capacity and Infrastructure Power Availability and Distribution

EV chargers have varying levels of energy demand. It is essential to select the right charger type for the right location. This will typically consider how long vehicles are parked and the end user. Charge Point Operators must ensure sufficient electrical supply exists or can feasibly be sourced from the Distribution Network Service Provider (DNSP). In the City of Kingston, the DNSP is United Energy. Where possible, Council will provide information regarding spare power capacity and infrastructure on site.

3.3 United Energy Grid Connection Process

United Energy provide connections for anything from a basic residential all the way through to large high voltage customers. To facilitate dedicated EV charger connections, they will need to understand the following:

1. Complete load details for the charger
 - a. Loads up to 100A per phase can be supplied by underground service pit with relatively low effort
 - b. Loads 100A < 170A will require a circuit loading review
 - c. Loads 170A> will most likely lead to network augmentation.
2. Location of the proposed connection point, noting VSIR compliance
3. REC or consultant that you are proposing to use
4. Details of where the meter will be
5. For more information visit United Energy's [How to Request an Underground Supply](#) webpage.

United Energy can provide a service to advise locations that will be suitable, VSIR compliant and lower cost connections, i.e. supply assessments. Zinfra are United Energy's agent that completes pit installations and general connections of this type.

3.4 Renewable Energy and Smart Energy Load Management Systems

EV chargers present an opportunity to support Victorian government and Council goals aimed at net zero. For chargers installed on public land, Council requires that chargers are supplied with 100% renewable energy. Council also recommends installers:

- Provide appropriate integration with energy management systems.
- Consider integrating the charging infrastructure with smart charging systems to optimise power usage, implement load management strategies
- As technology continues to evolve consider EV supply equipment that will enable vehicle-to-home (V2H) and vehicle-to-grid (V2G)
- These could be integrated with battery storage systems or load managed solar panel charging.

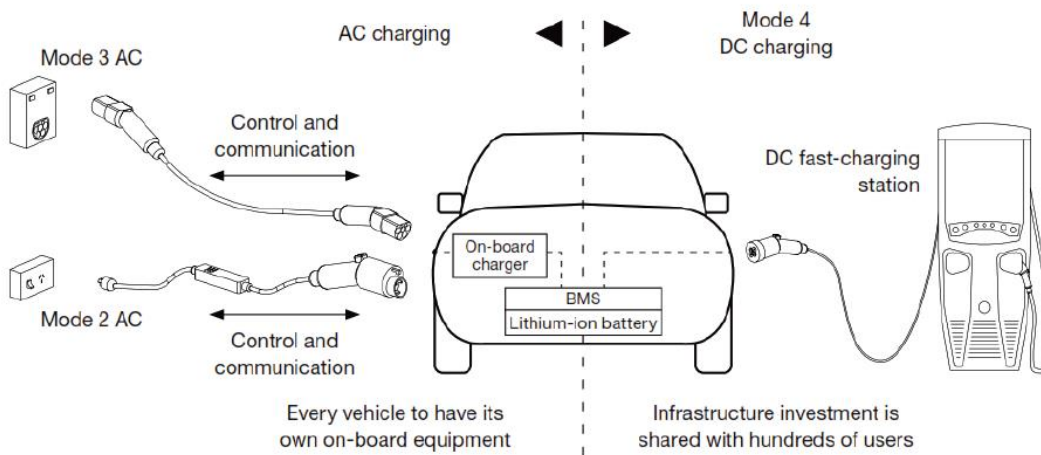
3.5 Provisions for solar PV and battery systems

If applicable to installation, Building Practice Note Energy Efficiency EE01-2022 Victorian Building Authority (2023), J9D5 sets out the requirements for buildings to have facilities for solar PV and battery systems. These include requirements for the main electrical switchboard and building roof area such as:

- Two empty three-phase circuit breaker slots and four DIN rail spaces labelled for solar PV and battery systems; and
- At least 20% of the roof area to remain clear for the installation of solar PV.

For more detailed information refer to [Building Practice Note Energy Efficiency EE01-2022](#) Victorian Building Authority (2023).

3.6 Site Assessment and Service Proving



Source: SNZ PAS 6010

Electric Vehicle Supply Equipment (Diagram 1)

Proper site assessment and service proving ensures that civil works complement any existing or future infrastructure at a site. Council recommends installers:

- If installing a DC faster charger, ensure enough space for the charger, potential transformer, and expected vehicle type, so that the charging station does not encroach on other nearby uses or create

a safety hazard.

- Conduct a comprehensive site assessment to determine the feasibility of installing charging infrastructure and that existing services such as electricity and water are not in conflict. This includes consideration of flood levels.
- Note that civil works associated with installation of EV chargers, e.g., concrete footings, trenches, and traffic management during installation, should be considered as part of the design.

3.7 EV Ready Infrastructure: Conduit, Cabling, Switchboards, and Plug Types

In some cases, an installer may only be future proofing the car parking bay. “EV Ready” means development that has been constructed to include the enabling infrastructure for EV charging facilities through the installation of end point charging infrastructure to be provided at a future point in time. Council recommends installers:

- Assess charging station compatibility.
- Ensure compatibility with current and emerging charging protocols (e.g., CHAdeMO, CCS 2, Tesla Supercharger, see Appendix Table 3).
- Ensure the charger is open to all EVs and can charge with a CCS plug.

EV Ready infrastructure will typically include:

- Cabling, cable tray, conduits, and bus ducts
- Space for switchboards
- Dedicated and labelled electrical distribution boards for EV charging
- Labelled DIN rail space for future installation of metering equipment
- In apartments, offices, Council buildings, train and bus stations, and commercial buildings:
 - An electrical infrastructure and a load management plan
 - A charging control system to manage charging in response to total building demand and to manage and schedule.

3.8 Scalability and Modularity

Scalability and modularity ensure that charging bays and infrastructure can expand as future demand increases. Council recommends installers:

- Design the parking bay layout to accommodate potential future expansion.
- Use modular charging equipment and infrastructure to allow for easy reconfiguration or addition of charging stations as demand grows.
- Consider future load management techniques to optimise the power allocation among multiple charging stations.
- Dynamic Load Control or smart charging can assist to overcome supply restrictions when charging vehicles by optimising available supply use and/or reducing total electrical demand. This should be considered when supply limitations are seen as a barrier to implementation.

3.9 Placemaking, Payments and User Experience

Installation of EV charging infrastructure offers opportunities to design for placemaking and incorporate urban amenity. Council recommends installers:

- Maximise potential to include trees that increase canopy, vegetation, and garden bed coverage, which includes managing tree roots.
- Consider pavement materials that are identifiable as EV charging bays.
- If repaving the parking bays, consider materials that allow permeability and that can provide passive irrigation of plants in the vicinity.
- The designs should also reference existing or future streetscape projects, guidelines, materiality, and street furniture guidelines where relevant.
- Ensure charging stations and associated infrastructure comply with accessibility guidelines and

regulations.

- Include user-friendly features such as clear signage, wayfinding, well-marked parking spaces, and intuitive charging station interfaces.
- If installing lighting or digital advertising boards, consider appropriate environmentally sensitive lighting (minimal impact on urban habitats) and follow state lighting regulations.
- Ensure usability and reliability of service for charging stations and users.
- It is required that the payment system and method installed onsite includes credit or debit card and preferably interoperable mobile payment platforms (Google, Apple, WeChat Wallets, Chargefox, etc.).
- Ensure consistent signage and wayfinding Council strategies including *Kingston Wayfinding Strategy* and relevant streetscape or placemaking guidelines applicable to the area.

3.10 Future Communication Standards

EV charging presents an opportunity for smart energy management and data capture that can inform decision-making. Council recommends installers:

- Incorporate communication interfaces and protocols that support future connectivity requirements.
- Consider RFID (swipe card) and mobile app activation capabilities.
- Use a widely accepted open-source software and ensure the chargers are visible on EV service platforms and payment gateways (e.g., Chargefox and Plugshare). Please reference Kingston's EV Charging Infrastructure Policy for what data should be provided.
- Test and ensure the mobile and network data requirements for payment methods and the potential for access to cellular / WiFi / Ethernet connections are sufficient on site prior to installation.

3.11 Safety and Compliance

The risk from batteries or charging systems malfunctioning can lead to devastating chemical fires and are a major risk when charging facilities and buildings are not well designed with safety as a fundamental consideration. Council insists installers:

- Adhere to the most updated and relevant electrical and building codes, safety regulations, and certifications for charging infrastructure installation.
- Implement proper grounding, surge protection, and fault detection systems to ensure safe operation.
- Detail fire safety measures and emergency shutdown mechanisms to mitigate potential risks.
- Provide a risk management evaluation for the EV charging infrastructure to adequately identify and mitigate all risks.
- Provide reports of mandatory maintenance every six months and follow AS/NZS3000 wiring rules.
- Consider software systems that constantly monitor charging stations and trigger alerts to the maintenance team in real time.
- Review the Australian Building Code Board and publication of the ABCB Advisory Notice 'Electric Vehicles in Buildings.'
- Consider EV FireSafe's preference for a master isolation switch that will provide emergency responders with a safe shut-down of electricity to a whole charging site in the event of an incident. (see Enhancing Fire Safety at EV Charging Hubs for Victorian LGAs – report 2023)
- Consider well-ventilated areas and places where the fire brigade can easily access in the event of a fire.

Electric Vehicle Supply Equipment Standards

- Electrical product compliance as per AS/NZ 4417
- Regulatory Compliance Marking of Electrical & Electronic Equipment
- All EVSE should be electrically compliant with the RCM Tick.
- All Councils will check delivered/installed EVSE for the RCM Tick logo.

Installation to Australian Standard

- Electrical Installations "Wiring Rules" (AS/NZS 3000: 2018 Appendix P)
- Each connecting point should be provided with one socket outlet or vehicle connector complying with

either IEC 62196-1 or IEC 62196-3.

- Minimum Height: 800mm from ground (AS/NZS 3000: 2018 Appendix P)
- Installation should be carried out by a suitably qualified person
- An isolation switch within 2 metres of the EVSE should be installed (however this is not outlined in Appendix P, but elsewhere in AS/NZS 3000)
- This is a legacy of 'hard-wired' equipment and may not best address EVSE in all installation designs and situations in the current addition of the Standard.

In relation to Vehicle-to-Grid installations

- Relevant Standard is AS4777 (still under review)

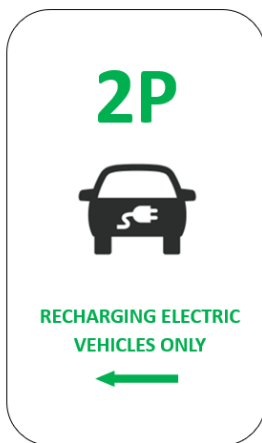
In relation to AS2419.2021 Fire Hydrant Installations

- EVSE should not be within 10m of a fire hydrant or booster system*
- HV distribution boards should not be within 10m of fire hydrants*
- *Refer to AS2419.2021 3.5.3.1 for specifications and exemptions.

3.12 Visibility, Identification and Parking Restrictions

The facility and all ancillary infrastructure (including signage, parking bays, and charging infrastructure) must be easily visible and accessible for users to find, with consideration of the following:

- All EV car charging bays are to incorporate a permissible parking sign which clearly displays the time limit (e.g., 30mins, 1, 2, 3P) and includes the electric powered vehicle charging symbol below.
- For public chargers, the maximum duration of stay within an EV parking space will generally be consistent with the restrictions in the area and/or a typical charge duration.
- These recommendations will also be guided by updates to Council's Parking Management policy and Victorian Road Safety Rules.



Electric-powered vehicle charging symbol and reference sign (S.R. No. 41/2017).

4. Review Period

As EV technology and charging is constantly upgrading, Austroads will continue to monitor and research developments, with a view to updating the federal guidelines on a regular basis.

Council's guidelines will be reviewed in December 2024 and subsequently every two years.

Appendix

1. Three levels of EV Charging

Three levels of EV charging



1. Level 1 - AC single or three phase powerpoint

Slowest rate of charge, approximately 10-25kms of range per hour of charging.

Using an 'electric vehicle supply equipment' (EVSE) cable, an electric vehicle can be connected to a normal household powerpoint. Usually 10 to 15 amps.

Power is supplied by the EVSE cable to the vehicle's onboard inverter, which converts AC grid power to DC power, the type stored by the traction battery.



2. Level 2 - fixed AC charging unit, 7kW or 22kW

Faster rate of charge, approximately 30-40kms of range per hour of charging.

A connected wall-mounted charging alternating current (AC) unit at 7kW (single phase) or 22kW (three phase). Installed in homes, apartment buildings, shopping centres & other public spaces. May be installed close to solar panels & domestic battery energy storage systems.

Level 2 chargers require 40amps per phase x the number of ports (single or dual port units are both available).

Power is supplied by the unit to the vehicle's onboard inverter, which converts AC grid power to DC power, the type stored by the traction battery.



3. Level 3 - DC charging unit, 25kW to 350kW

Fastest rate of charge, upwards of 150kms of range per hour of charging.

Known as rapid or ultra rapid, DC units are large, floor mounted chargers popular in commercial locations or roadside services. May be installed near large scale solar carports & battery energy storage systems.

Level 3 chargers require 50 to 500amps per phase x the number of ports (single or dual port units are available).



AC grid power is supplied to the DC unit, where it is converted to DC power before being supplied directly to the vehicle traction battery. This speeds up the charging process.

Table 1 EV Firesafe (2024)

2. Recommended connector and plug types

Number of parking bays / charging ports	CHAdEMO plugs	CCS plugs
1-5	0	1-5
6-10	1	2
10+	1	4+ (Up to a 1:10 ratio)

Table 2 CHAdEMO vs CCS

Type	Inlet	Connector	Vehicle Compatibility
CHAdEMO Plug	Extension of Type 2		<ul style="list-style-type: none"> • Kia • Mazda • Mitsubishi • Nissan • Toyota
<ul style="list-style-type: none"> • CCS/SAE Combo 	Combination of Type 1 and 2		<ul style="list-style-type: none"> • Audi • BMW • Porsche • Volkswagen • Kia • Hyundai • Next Gen Mitsubishi models

Source: Modified from L.E.K Consulting, 2018 and Everyt, 2018

Table 3 Plug Types in Australia

3.Safer EV Charging (Australian Buildings Code Board 2023)

To support safer EV charging, the ABCB recommends:



Master isolation

Provide a master isolation switch with signage at fire indicator panel/Fire Detection Indicator Control Equipment (FDICIE) or building entrance.



RCM Tick compliance

Use chargers that have the Regulatory Compliance Mark (RCM).



Emergency services information pack (ESIP)

ESIPs developed for each site and provided for first responders.



Break glass fire alarm

Provide additional break glass unit (BGU).



Placarding site

Provide placarding/signage to identify each EV charge points.



Collision protection

Provide vehicle impact bollards or stops.



Block plans

Block plans should be updated for existing sites and implemented for new builds to clearly show the location of charging hubs and master isolation.



AS/NZS 3000 App P compliance

Mode 3 and 4 chargers should only be installed by a qualified person and in accordance with AS/NZS 3000 Appendix P.



Proximity to evacuation routes and flammable risks

Carefully assess proximity to avoid blocking evacuation routes or placing chargers too close to other flammable risks.



Regular maintenance

Ensure the owner of the charging unit understands and meets their maintenance obligations.



Complex buildings

Complex buildings and higher-risk environments should seek comprehensive, specialist fire safety assessment and advice.



Directional signage

Directional signage to be provided – to the charging units and to the emergency exits.



Smart charging

Where possible, prioritise the use of 'Smart charging' to enable remote monitoring and access to disconnect power supply to a connected EV. This gives emergency responders another potential method of shutdown from unit to EV. Encourage operators to monitor for faults and provide early intervention when detected.



Placarding at site entrance

Sites with 5 or more Mode 3 or 4 chargers to install ground level or other appropriate level placards to indicate which entrance is most closely located to EV charging hub.



Pre-incident plans (PIP)

Where 5 or more chargers are installed, then building owners should invite local fire crews to attend a site familiarisation visit in order to develop a pre-incident plan (PIP).

The National Council for Fire and Emergency Services (AFAC) has also issued a position statement "[Electric Vehicles \(EV\) and EV charging equipment in the built environment](#)". Proponents of development applications that are subject to fire authority review, should familiarise themselves with the AFAC position statement and any additional advice issued by their local fire authority.

4. Pre-incident Plan

Electric Vehicle Charging Site Pre-Incident Plan Information



Complete the details & supply this to your local fire & rescue crews.

Site :

Address :

Site contact :

Phone :

Information required	Write details & description here
Address of best entry point?	
Is there a gate/door with code/pin? Is security onsite 24/7? Contact no?	
What is the main use of the site? Site manager contact details?	
Is there a fire alarm? Fire indicator panel? Where are they located?	
Where is an isolation point for EV charging?	
Usual hours site is occupied? By whom? How many people?	
Sprinklers/ventilation? Location of hydrants/fire water?	
What hazards are onsite? Any dangerous goods?	
Any special instructions?	
Do you have SDS or response guide for your EVSE? Hotline for operator?	
Site map/s & schematics of existing fire protection?	Where possible: Provide an overall site with best entry point, location of Fire Indicator Panel, Fire Control Room, EV charging isolation, EV charging site itself.
When should this PIP document be reviewed?	Suggest every 12 months

evfiresafe.com

evfiresafe.com



This checklist is designed for use in conjunction with the online course EV Charging Hubs & Fire Safety at evfiresafe.business. It cannot be reproduced in any way. It is general guidance only & should not be considered regulatory in any way. EV FireSafe & EV FireSafe for Business accepts no liability for losses caused to any entity from an EV or charging unit fire or incident. EV FireSafe is an Australian company funded by the Department of Defence to research electric vehicle battery fires & emergency response. See our research at evfiresafe.com & train with us at evfiresafe.business



Download from [EV Firesafe \(2024\)](#)

Electric Vehicle safety at charging sites



It's good to know EV incidents & fires at charging sites are rare, but it's important to be aware of the hazards & know what to do.

Do not charge your EV if it:



Has been involved in a road traffic collision where emergency help was required, submerged in flood water, exposed to fire or has been recalled by the manufacturer

Get EV checked by dealer or service centre

Before & after charging:



Check for fault or warning lights on dashboard or app
Check the charging unit, plug & cable for wear & tear
Do not use damaged charging equipment

Review user manual or notify charging site owner



Ensure cables are not at risk of causing a trip or snip hazard
Where possible, minimise use of extension cords & power boards
After charging, place cables in a safe place to reduce risk of damage, wear & tear

Know the signs of EV battery fire



EV battery fires are very rare, but be alert to the signs of:
Loud popping, hissing or whistling noises
Large clouds of dark & light gases (looks like smoke)

Evacuate & call for emergency help



This poster is designed for general guidance only & should not be considered regulatory in any way. EV FireSafe & EV FireSafe for Business accepts no liability for losses caused to any entity from any EV incident. EV FireSafe is an Australian company funded by the Department of Defence to research electric vehicle battery fires & emergency response. See our research at evfiresafe.com & learn with us at evfiresafe.business



6. EV Ready Infrastructure Technical Notes

EV Ready infrastructure will include:

- Cabling, cable tray, and conduits to support at least moderate speed (7kW – 22kW) efficient EV charging (with / without the EV charger unit) in each garage / carport
- Switchboards
- Dedicated and labelled electrical distribution boards or bus duct for EV charging
- Dedicated branch circuits, circuit breakers, and inclusion of electrical outlet
- Enclosed conduit (pathway that protects wiring from damage) and provision of sufficient panel capacity
- Labelled DIN rail space for future installation of metering equipment
- The mix of EV chargers assumed (e.g., 7kW - 22 kW) must be stated.
- The electric vehicle charging equipment required must incorporate or be connected to:
 - the distribution boards or busduct required and
 - the charge control equipment required (see J9D4, NCC 2025).
- In apartments, offices, Council buildings, train and bus stations, and commercial buildings:
 - An electrical infrastructure and a load management plan
 - A charging control system to manage charging in response to total building demand and to manage and schedule.

Table J9D4 Electric vehicle distribution board requirement for each storey of a carpark

Carpark spaces per storey for electric vehicles	Electrical distribution boards for electric vehicle charging per storey
0 - 9	0
10 - 24	1
25 - 48	2
49 - 72	3
73 - 96	4
97 - 120	5
121 - 144	6
145 - 168	7

[Deemed to Satisfy Provisions J9D4](#) (NCC 2022)