TECHNICAL GUIDANCE NOTE

Approved Document S: Infrastructure for charging electric vehicles

New suite of Building Regulations Approved Documents released (England only)

Key Information

- Approved document Part S covers the installation of Electric Vehicle Charge Points (EVCP) and/or cable routes in new buildings and buildings undergoing major renovation work
- The implementation date for the approved document is **15 June 2022** (unless planning is already granted and works have commenced prior to 15 June 2023)

1. Why the new approved document?

Approved document S has been released and is intended to aid in the adoption of electric vehicles and importantly, to ensure that the infrastructure and electric vehicle charge points (EVCP) are readily available, safe and fit for purpose. The new document is prescriptive in terms of how and where EVCPs should be installed and, where they are not specifically required, suitable cable routes and ducting are in place to facilitate their future installation.

2. Scope

Approved document S covers:

- New residential buildings
- New non-residential buildings
- Buildings undergoing a material change of use
- Residential buildings undergoing a major renovation
- Non-residential buildings undergoing a major renovation
- Mixed-use buildings undergoing relevant building work

3. Residential Buildings – New Build

New residential buildings with associated parking spaces must have access to electric vehicle charge points (EVCP) as per the following:

- The number of associated parking spaces that must have access to EVCP must be either:
  - All associated parking spaces where the number of spaces is less than the number of dwellings within the residential building
  - At least equal to the number of dwellings where associated parking spaces exceed the number of dwellings

- Cable routes for EVCP will need to be provided for associated parking spaces that do not, in accordance with the above, have access to EVCP **only when both of the following conditions apply**:
  - A new residential building has more than 10 associated parking spaces **AND**
  - There are more associated parking spaces than dwellings in the building.

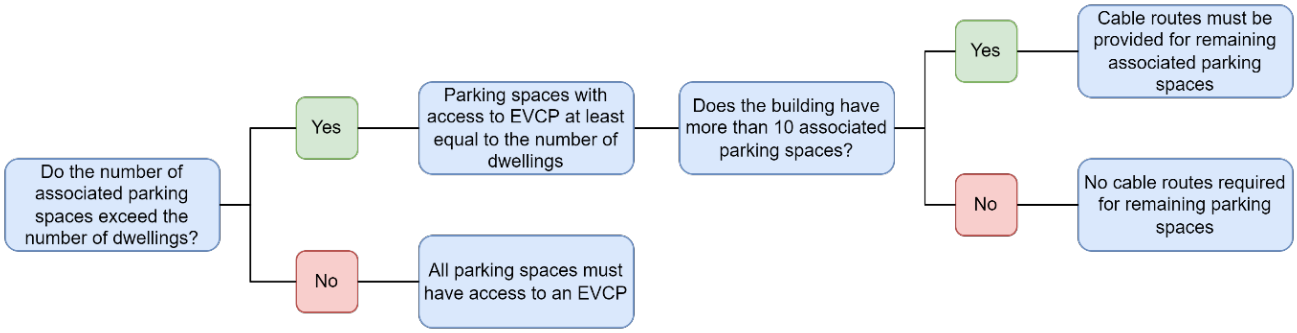

Figure 1 EVCP requirements for new residential buildings

Example: for a new house with 3 parking spaces, only 1 EVCP will be required. No additional cabling would be required for the remaining parking spaces as there are less than 10 associated parking spaces for that house.

Note: If no associated parking spaces are provided there is no requirement to install EVCP.

Connection cap

A £3600 **connection cost** cap is put on the cost of installing **each** EVCP and where multiple EVCPs are required due to multiple dwellings, this is the average cost per EVCP *and* is the extra cost of the incoming electrical supply per EVCP, compared to the cost without EVCP. If it is not possible to completely fulfil the above requirements due to the £3600 (average) cap, then cable routes may be provided for the remaining associated parking spaces that would require an EVCP.

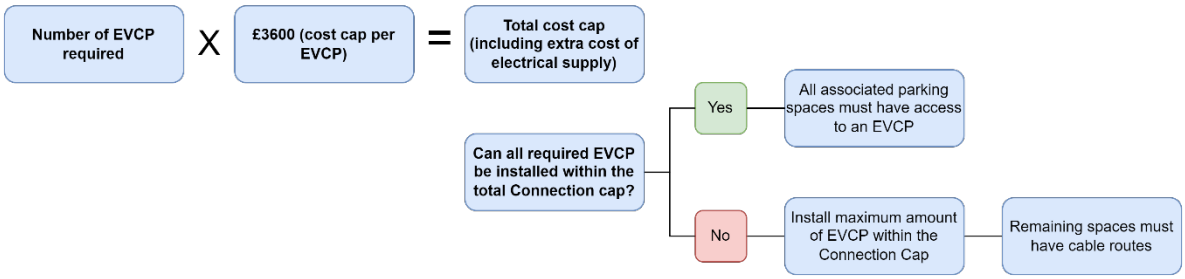

Figure 2 Connection Cap calculation

Considerations for covered car parks in addition to other associated parking

Where a new residential building has or will have associated parking situated within a covered car park ***and*** other associated parking, the required EVCP numbers should be allocated to the external parking spaces first. Cable routes will then need to be provided for:

- The remaining number of parking spaces in the covered car park that would equal the number of dwellings (taking into account the number of EVCP installed in the external parking spaces) where the total number of associated parking spaces is less than 10.
- **All** associated parking spaces, where the number of associated parking spaces is both less than the number of dwellings and less than 10
- **All** associated parking spaces where the total number of associated parking spaces is more than 10

If all associated parking spaces are situated in a covered car park, cable routes must be provided:

- For all parking spaces

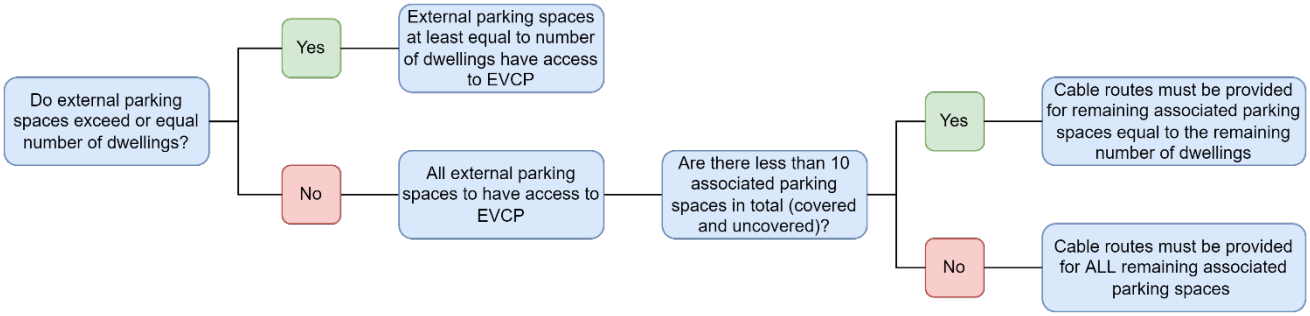

Figure 3 EVCP requirements for mixed covered/uncovered car parks

4. Dwellings resulting from a material change of use

Where a building undergoes a material change of use that results in the creation of one or more dwellings, at least one associated parking space for the use of each dwelling must have access to an EVCP, where associated parking is present.

Example: Change from office back to dwellings

This applies if the material work being done includes ***either***:

- Work being done on the car park located within the site boundary of the building, where it is reasonable to expect 'enabling' work for the EVCP (ie. Resurfacing)
- Work being done on the electrical infrastructure of the car park, where the car park is located within the boundary of the building
- Work being done on the electrical infrastructure of a building where the car park is located within the building

If the electrical power supply to the building or car park is not sufficient for the number of EVCPs required:

- Evidence from the DNO or suitable expert should be provided to the building control body
- As many EVCPs as possible within current constraints should in installed
- Cable routes should be provided for the additional parking spaces which would have required an EVCP

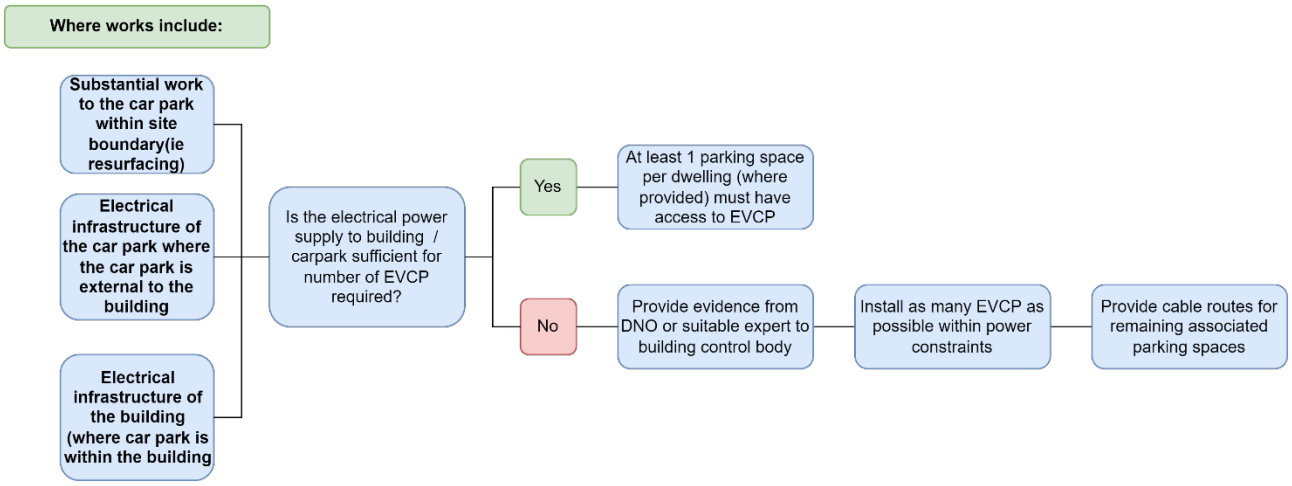

Figure 4 EVCP for dwelling resulting from change of use

5. Residential buildings undergoing major renovation work

Where a residential building undergoing major renovation will have **more than 10 associated parking spaces** after the major renovation is completed:

- at least one associated parking space for the use of each dwelling must have access to an electric vehicle charge point
- cable routes for electric vehicle charge points must be installed in all additional associated parking spaces

If the cost of installing the required EVCPs and cable routes **exceeds 7 % of the total cost** of the major renovations:

- The residential building is exempt from installing any EVCP
- Cable routes for EVCP must be installed in all associated parking spaces unless the costs **exceed 7 % of the total renovation costs**.

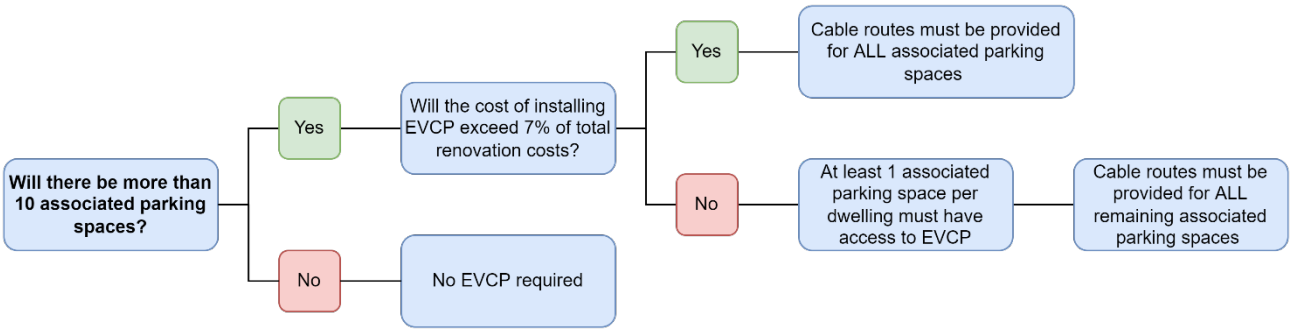

Figure 5 EVCP requirements for residential buildings undergoing major renovation work

If the electrical power supply to the building or car park is not sufficient for the number of EVCPs required:

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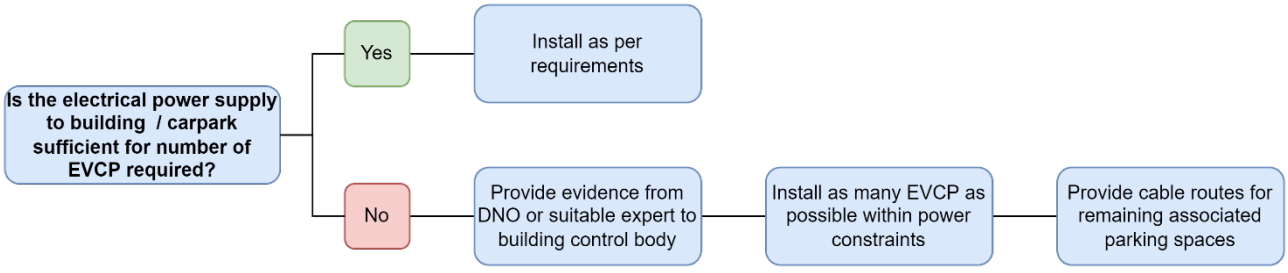

Figure 6 Sufficient sizing of electrical power supply for EVCP requirements

Note: The requirements for installation of EVCPs do not apply if the residential building is undergoing a major renovation for the principal purpose of improving the fire safety of the external walls or roof of the building.

Note: Major renovation is the renovation of a building where more than 25 % of the surface area of the building envelope undergoes renovation. The surface area of the whole building must be included when assessing whether the works constitute a major renovation, even if the building is mixed-use.

Note: Historic and traditional buildings undergoing a material change of use may receive special consideration by building control bodies regarding the requirement for EVCP installations.

6. New buildings other than residential or mixed-use buildings

For buildings other than residential or mixed-use buildings having **more than 10 parking spaces** both of the following apply:

- One parking space must have access to one EVCP **and**
- Cable routes for EVCP must be installed for a **minimum** of 20 % of the total remaining parking spaces

The requirement to install an EVCP should be met by installing an EVCP in a parking space, that is **not** within a covered area (ie external to a covered car park).

Where all parking spaces are within a covered car park, there is no requirement to install EVCP, but cable routes must be provided for a minimum of 20 % of the parking spaces.

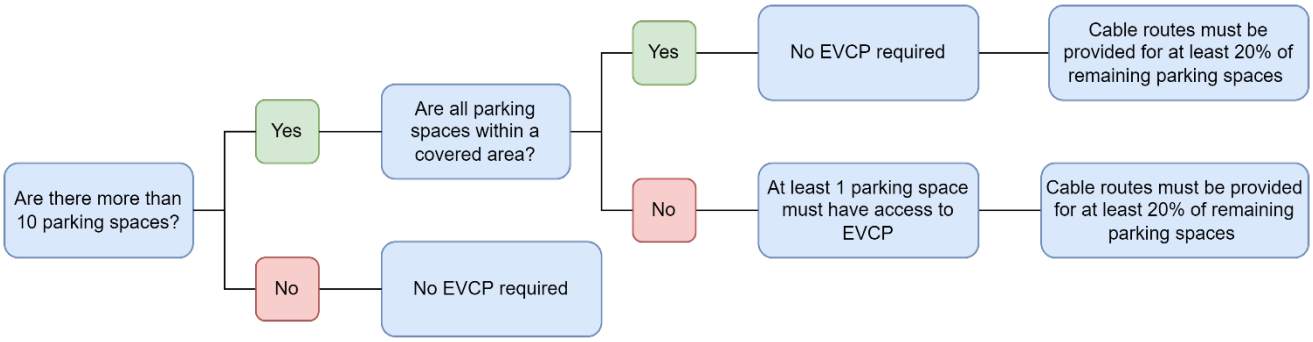

Figure 7 EVCP requirements for new buildings other than residential or mixed-use

Note: A mixed-use building is a building that contains:

- **One or more dwellings, and**
- **One or more premises that are not dwellings.**

7. Buildings other than residential buildings or mixed-use undergoing major renovation work

For buildings other than residential or mixed-use buildings having **more than 10 parking spaces** after major renovations which include either:

- Substantial work to the car park (such as resurfacing)
- The electrical infrastructure of the building where the car park is within the building
- The electrical infrastructure of the car park when the car park is outside the building

The following applies:

- One parking space must have access to one EVCP **and**
- Cable routes for EVCP must be installed for a **minimum** of 20 % of the total remaining parking spaces

If the cost of installing the required EVCPs and cable routes exceeds 7 % of the total cost of the major renovations:

- The residential building is exempt from installing any EVCP **and**
- Cable routes for EVCP must be installed in all associated parking spaces **unless the costs exceed 7 % of the total renovation costs.**

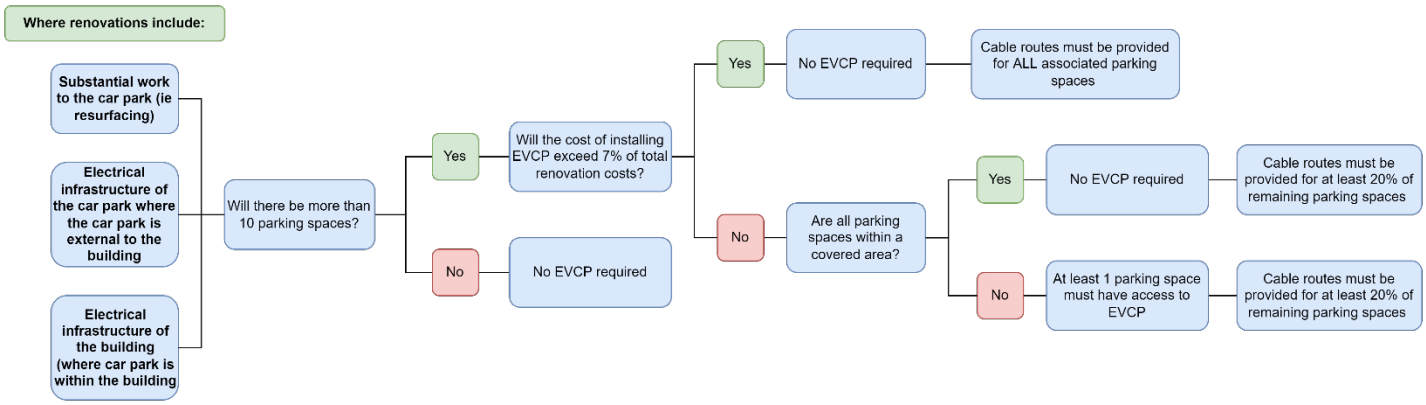

Figure 8 EVCP requirements for buildings undergoing renovations other than residential or mixed-use buildings

8. New mixed-use buildings

For mixed-use buildings, the relevant proportion of the allocation of parking spaces (dwellings/non-dwellings) should be calculated and relevant provisions installed.

9. Minimum standards of an electric vehicle charge point

- An EVCP must be capable of providing a reasonable power output for each parking space for which it is intended to be used
- It must reside on a dedicated final circuit
- It must be compatible with all vehicles that may require access to it

10. Electric vehicle charge point technical requirements

Each electric vehicle charge point should meet all the following:

- Be designed and installed as described in **BS EN 61851**.
- Have a minimum nominal rated output of **7 kW**.
- Be fitted with a universal socket (also known as an untethered electric vehicle charge point). Alternatively, in exceptional circumstances, such as for a self-build property, if the vehicle requirements are already known, a tethered electric vehicle charge point may be acceptable.
- Be fitted with an indicator to show the equipment's charging status that uses lights, or a visual display.
- Be a minimum of a **Mode 3** specialised system for electric vehicle charging running from a dedicated circuit, or equivalent, as defined in BS EN IEC 61851-1.
- The requirements of BS 7671.
- The requirements in the IET's *Code of Practice: Electric Vehicle Charging Equipment Installation.*

NOTE: Other legislation may also apply to the installation of electric vehicle charge points. For example, the Alternative Fuels Infrastructure Regulations 2017.

NOTE: All electric vehicle chargepoints sold after 30th June 2022 must conform with the Electric Vehicles (Smart Charge Points) Regulations 2021

11. Cable Routes

Cable routes are defined as:

A safe, unobstructed route from the power supply to the envisaged electric vehicle charge point location, for electrical cabling to be installed in the future.

In the AD, cable routes are described only in the context of where electric vehicle charge points have *not yet* been installed. Where electric vehicle charge points have been installed, they should be considered to have adequate cable routes.

The cable routes comply with all of the following:

- BS 7671
- BS 8300-1 (Design of an accessible and inclusive built environment - External environment Code of practice)
- The IET's Code of Practice: Electric Vehicle Charging Equipment Installation

The location of EVCP and future connection locations should be suitable for use by EVs with charging inlets in different places on the vehicle.

Where accessible parking spaces are associated with the building to meet the requirements of Approved Document S, at least one accessible parking space should have access to either:

- A future charging location
- An EVCP

Note: Standards for accessible parking spaces are described in Approved Document M

Future connection locations may be sited to serve more than one parking space as shown in Figure 9.

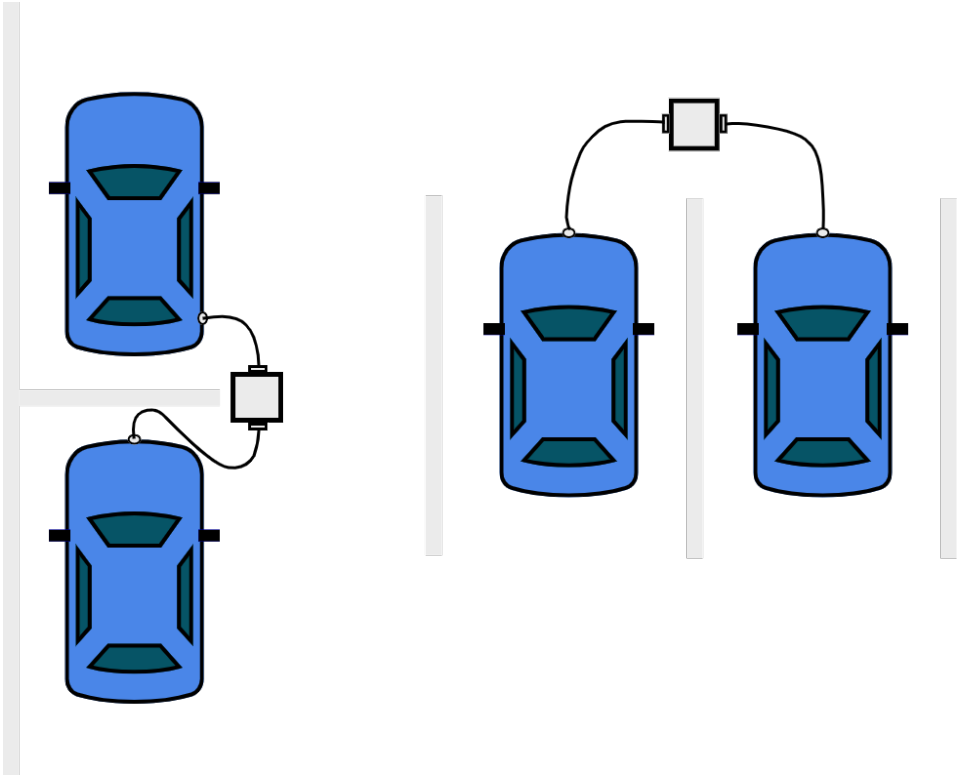

Figure 9 Chargepoint locations serving multiple chargepoints

Where cable routes are required, the following apply:

- Cable routes should be provided from a metered electricity supply point
- Sufficient space shall be provided for a new electrical connection at a metered supply point (i.e. from a consumer unit or feeder pillar)
- A dedicated safe and unobstructed route shall be provided to distribute electricity from the electrical supply point to the future connection location
    - These should allow for the installation of **cabling and/or busbar systems** to be installed in the future without the need for additional building work and may be achieved by:
        - Electric cable ducting including drawstrings
        - Electric cable trunking or conduits
        - Electric cable trays and cable ladders
    - Cable ducts should meet the positioning and colour-coding standards according to the NJUG's Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus

    - The size, specification and bend radius of all cable ducts should be suitable for the requirements of the EVCPs required.
    - Building works may be required for other aspects of the future EVCP installation
- The termination points of the cable duct shall be sited for unrestricted maintenance access
- The point where the cable duct enters a building should be sealed to prevent water ingress and attack by vermin and compliant with Building Regulations.
- There must be sufficient space to allow an EVCP to be installed and maintained
- Future connection locations must be suitably signed or labelled with:
    - Text stating: 'Dedicated position for electric vehicle charge point'
    - Letting 25 mm high
    - Text displayed over 3 lines
    - Weatherproof sign measuring 506 mm x 194 mm
    - Sited where a person installing and EVCP would see it

An example is shown in Figure 10

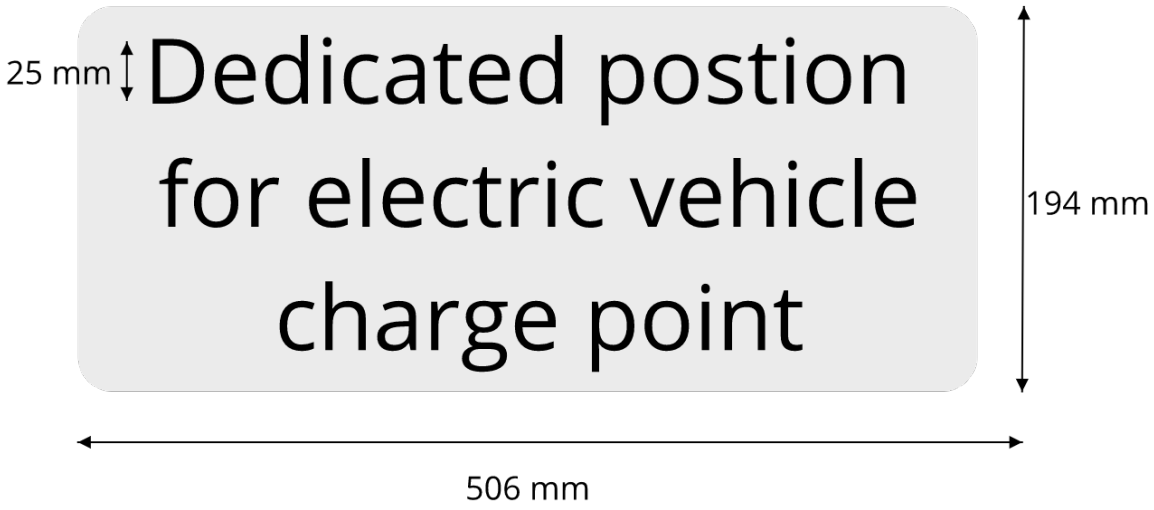

Figure 10 Example of Future Connection Location sign

- IF vehicle barriers will be required for future EVCP, sufficient space should be available around the intended vehicle location

12. Minimum space requirements for future locations

Minimum space requirements for floor-mounted charge point locations are shown in Figure 11

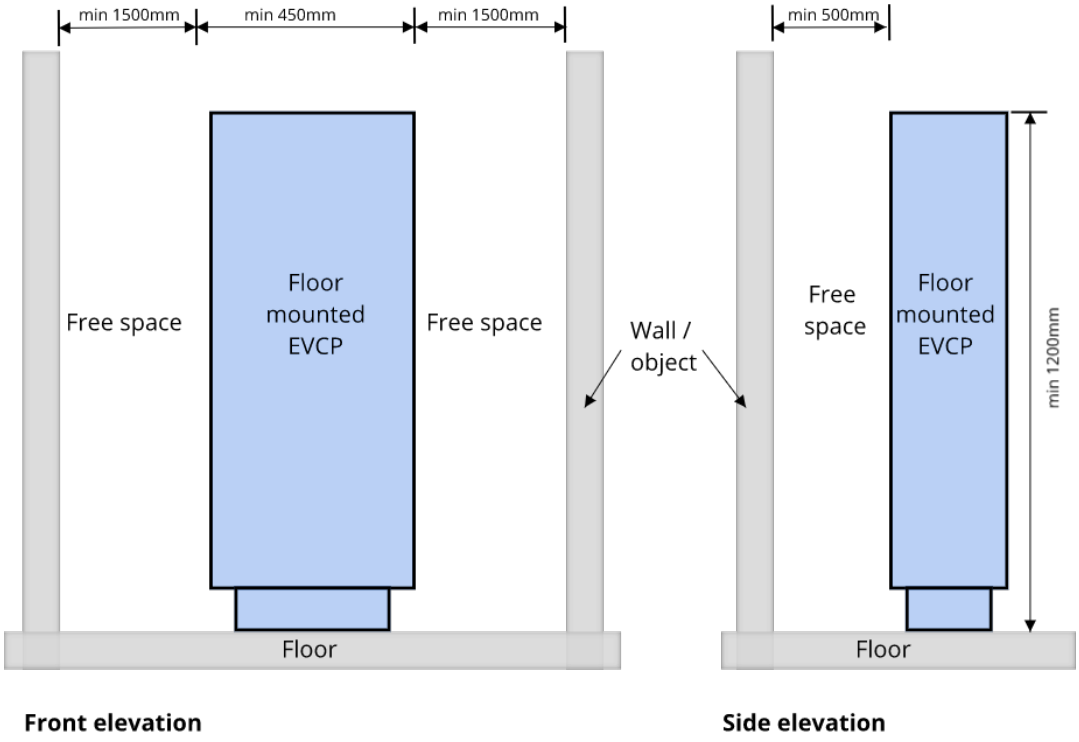

Figure 11 Minimum space requirements for floor-mounted charge point location

Minimum space requirements for wall-mounted charge point locations are shown in Figure 12

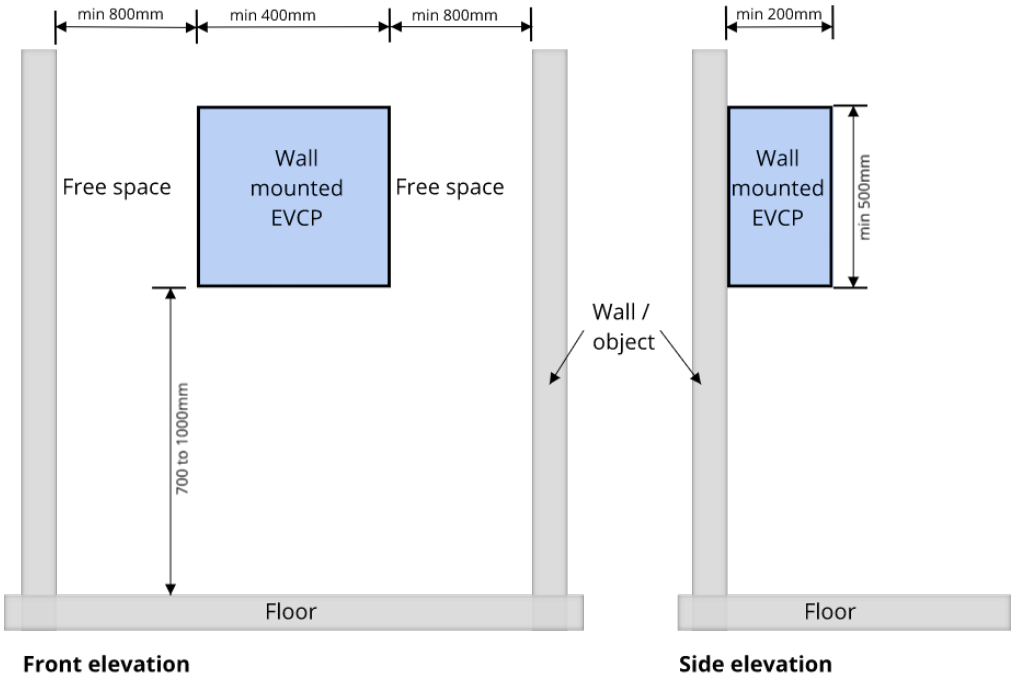

Figure 12 Minimum space requirements for wall-mounted charge point location

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