

Draft technical guidance for Building Regulations requirements for EV charging

Performance

In the Secretary of State's view, [the regulations for dwellings or buildings containing dwellings] will be met if building work is carried out so that:

- a. For new dwellings or buildings containing dwellings, an electric vehicle chargepoint is installed, where technically feasible, for each dwelling which has an associated parking space, as set out in paragraph 1.25, subject to paragraphs 1.1 and 1.2.

NOTE: Where the installation of an electric vehicle chargepoint is not technically feasible, the requirements of b. still apply.

- b. For new dwellings or buildings containing dwellings, with a minimum of 11 parking spaces, each parking space associated with the dwellings must be provided with either:
 - i. an electric vehicle chargepoint
 - ii. enabling infrastructure, as set out in paragraphs 1.17 to 1.24 (for example, where installing an electric vehicle chargepoint is not technically feasible).
- c. For major renovations to buildings containing dwellings, with a minimum of 11 parking spaces, each parking space associated with the dwellings must be provided with either:
 - i. an electric vehicle chargepoint;
 - ii. enabling infrastructure, as set out in paragraphs 1.17 to 1.24 (for example, where installing an electric vehicle chargepoint is not technically feasible).
- d. For new dwellings created through a material change of use, a minimum of one electric vehicle chargepoint is installed, where technically feasible, for each dwelling which has an associated parking space, as set out in paragraph 1.25, subject to paragraphs 1.1 and 1.2.

In the Secretary of State's view, [the regulations for buildings other than dwellings] will be met if building work is carried out so that;

- a. For new buildings other than dwellings with a minimum of 11 parking spaces, *both* of the following are provided:
 - i. a minimum of one electric vehicle chargepoint, as set out in paragraphs 1.25 and 1.26 subject to paragraphs 2.1 and 2.2;
 - ii. enabling infrastructure for a minimum of one in every 5 parking spaces, as set out in paragraphs 1.17 to 1.24, subject to paragraphs 2.1 to 2.3.
- b. For major renovations to buildings other than dwellings with a minimum of 11 parking spaces, *both* of the following are provided:
 - i. a minimum of one electric vehicle chargepoint, as set out in paragraph 1.25 and 1.26, subject to paragraph 2.4;
 - ii. enabling infrastructure for a minimum of one in every 5 parking spaces, as set out in paragraphs 1.17 to 1.24, subject to paragraph 2.4

Section 1: Dwellings

Introduction

New dwellings

- 1.1 For new dwellings or buildings containing dwellings, the number of parking spaces which have access to an electric vehicle chargepoint should be a minimum of either:
- a. the total number of parking spaces;
 - b. the total number of dwellings served by the car park.

The electric vehicle chargepoints should meet the specification set out in paragraph 1.25.

NOTE: where no parking spaces are provided there is no requirement to install an electric vehicle chargepoint

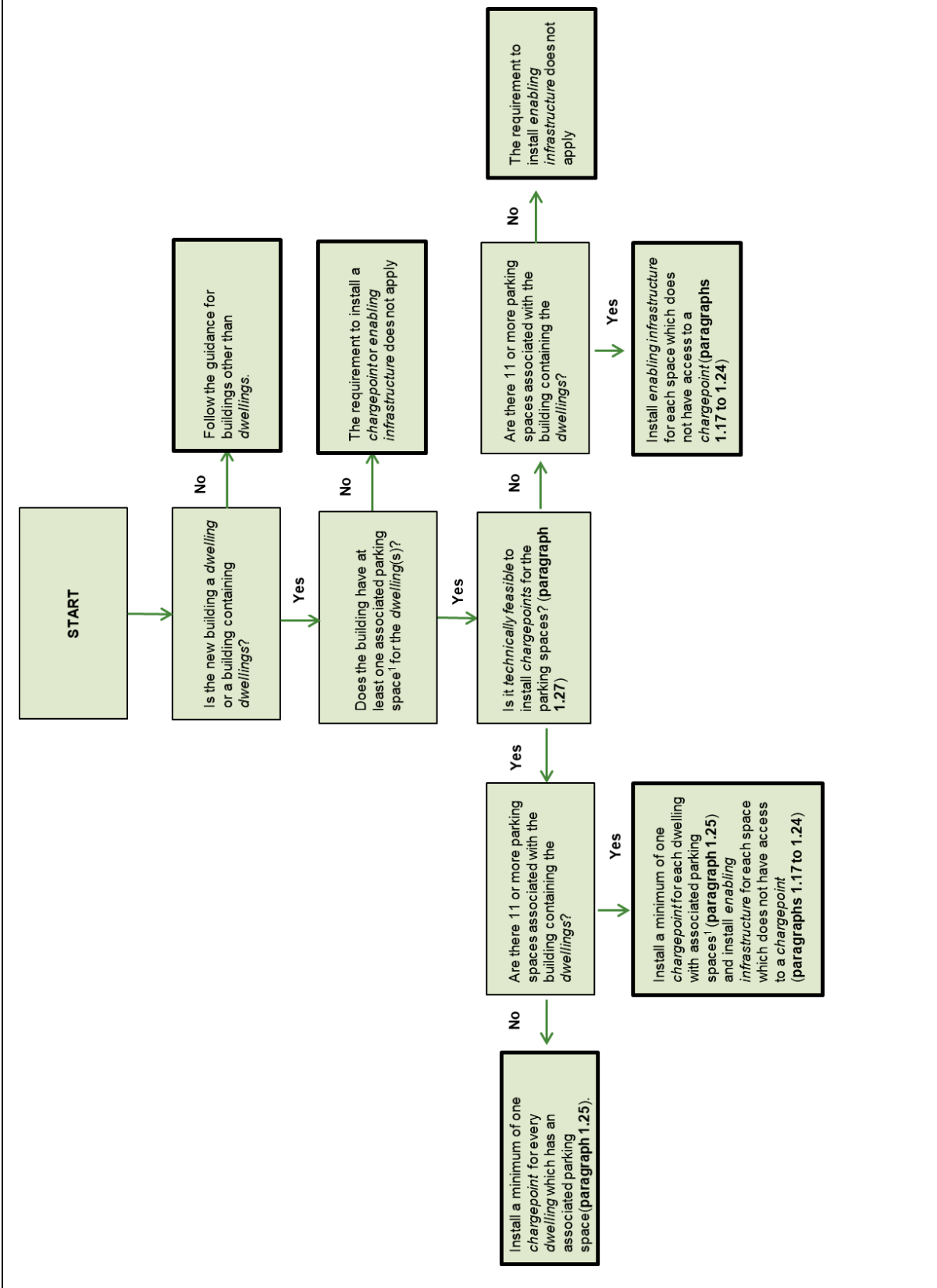
- 1.2 The standards in paragraph 1.1 apply only if compliance with the standards is technically feasible, as set out in paragraph 1.27.

NOTE: If compliance is not technically feasible, paragraph 1.3 would still apply.

- 1.3 For new dwellings or buildings containing dwellings where a minimum of 11 parking spaces are provided, each parking space provided for the dwellings, must be provided with either:
- a. an electric vehicle chargepoint;
 - b. enabling infrastructure to facilitate the future installation of an electric vehicle chargepoint. The enabling infrastructure should meet the standards in paragraphs 1.17 to 1.24.

NOTE: Diagram 1 sets out a summary of the guidance relating to new dwellings

Diagram 1 – Summary of requirements for new buildings (dwellings)



Notes:

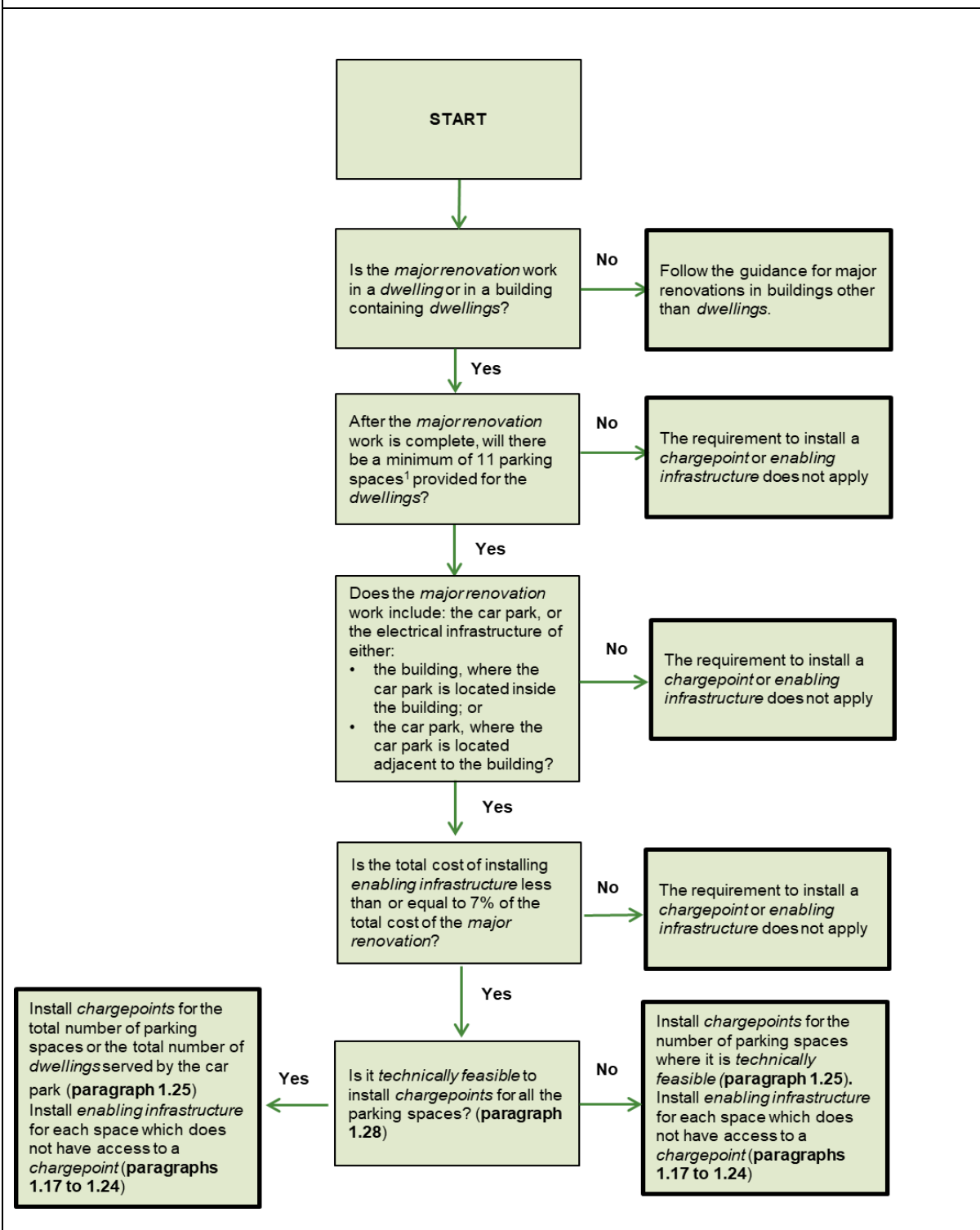
1. includes only parking spaces within the site boundary of the building, for the use of the dwelling occupants.

Major renovations

- 1.4 For a building containing dwellings where all of the following apply, enabling infrastructure must be provided for any parking spaces which do not have access to an electric vehicle chargepoint:
- a. major renovation works are being carried out;
 - b. after the work is complete there will be a minimum of 11 parking spaces provided for the dwellings;
 - c. the renovation work includes any of the following:
 - i. the car park;
 - ii. the electrical infrastructure of the building, where the car park is located inside the building;
 - iii. the electrical infrastructure of the car park, where the car park is located within the site boundary of the building.
 - d. the total cost of installing the enabling infrastructure does not exceed 7% of the total cost of the major renovation of the building.
- 1.5 Enabling infrastructure should meet the standards in paragraphs 1.17 to 1.24.
- 1.6 For a building containing dwellings where all of the following apply:
- a. all of the paragraph 1.4 requirements apply;
 - b. the installation of electric vehicle chargepoints is technically feasible
- after the work is complete, the number of parking spaces which have access to an electric vehicle chargepoint, of the specification given in paragraph 1.25, should be a minimum of either:
- a. the total number of parking spaces;
 - b. the total number of dwellings served by the car park.
- 1.7 Where the installation of electric vehicle chargepoints for a major renovation is not technically feasible, electric vehicle chargepoints should be installed for the number of parking spaces where it remains technically feasible. Where an electric vehicle chargepoint has not been installed, ducting infrastructure should be installed for all parking spaces where the building has 11 or more parking spaces.

NOTE: Diagram 2 sets out a summary of the guidance relating to major renovations in dwellings

Diagram 2 – Summary of requirements for major renovations (dwellings)



Notes:

1. includes only parking spaces within the site boundary of the building, for the use of the dwelling occupants.

Application

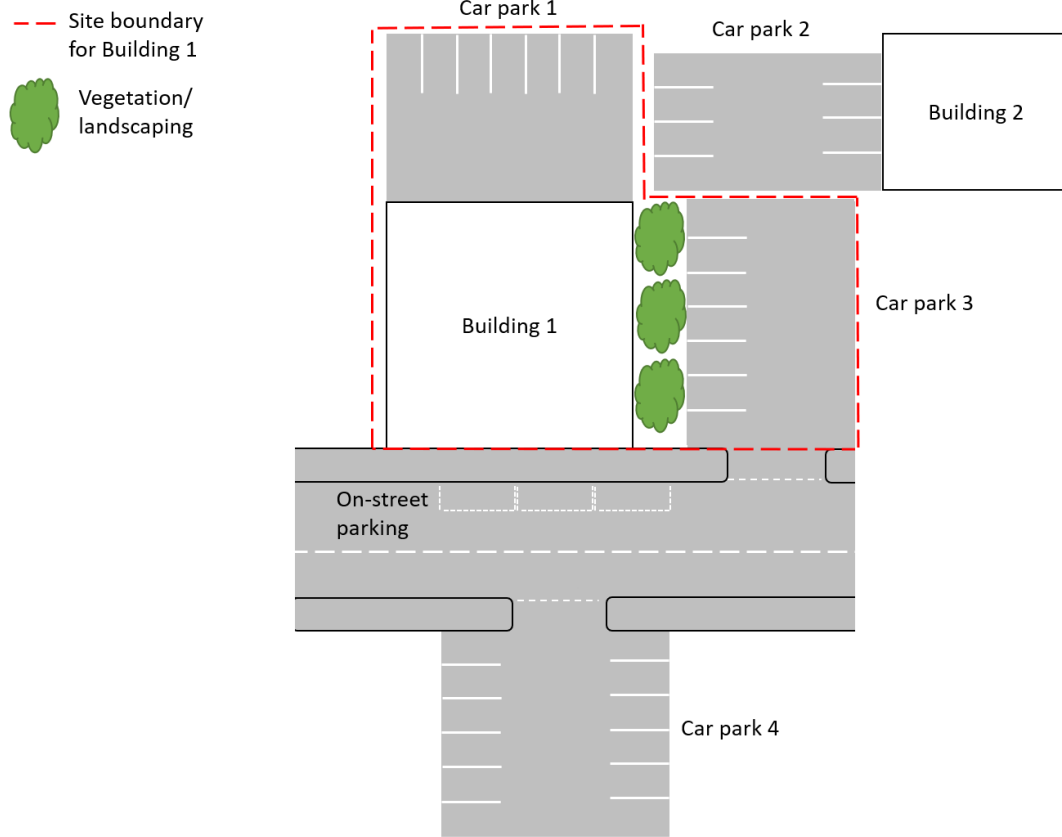
- 1.8 The provisions of [the regulations] apply to car parking spaces which serve the dwellings, and the parking spaces are either:
- a. within the building containing the dwelling;
 - b. within the site boundary of the building containing the dwelling.

Diagram 3 and **Diagram 4** give some examples of parking spaces which would fall within this definition.

NOTE: the addition of a parking space to an existing building does not trigger the requirements of the regulations, unless it is part of a major renovation and the resulting building has more than 10 parking spaces.

- 1.9 The provisions of [the regulations] apply to dwellings or buildings containing dwellings.

Diagram 3 – Site boundary example 1



In this example:

Car park 1 is within the site boundary, and contains parking spaces associated with Building 1.

Car park 2 is outside the site boundary, and the parking spaces do not therefore need to be considered. This would typically be the case where a car park is associated with a different building or is under different ownership to Building 1.

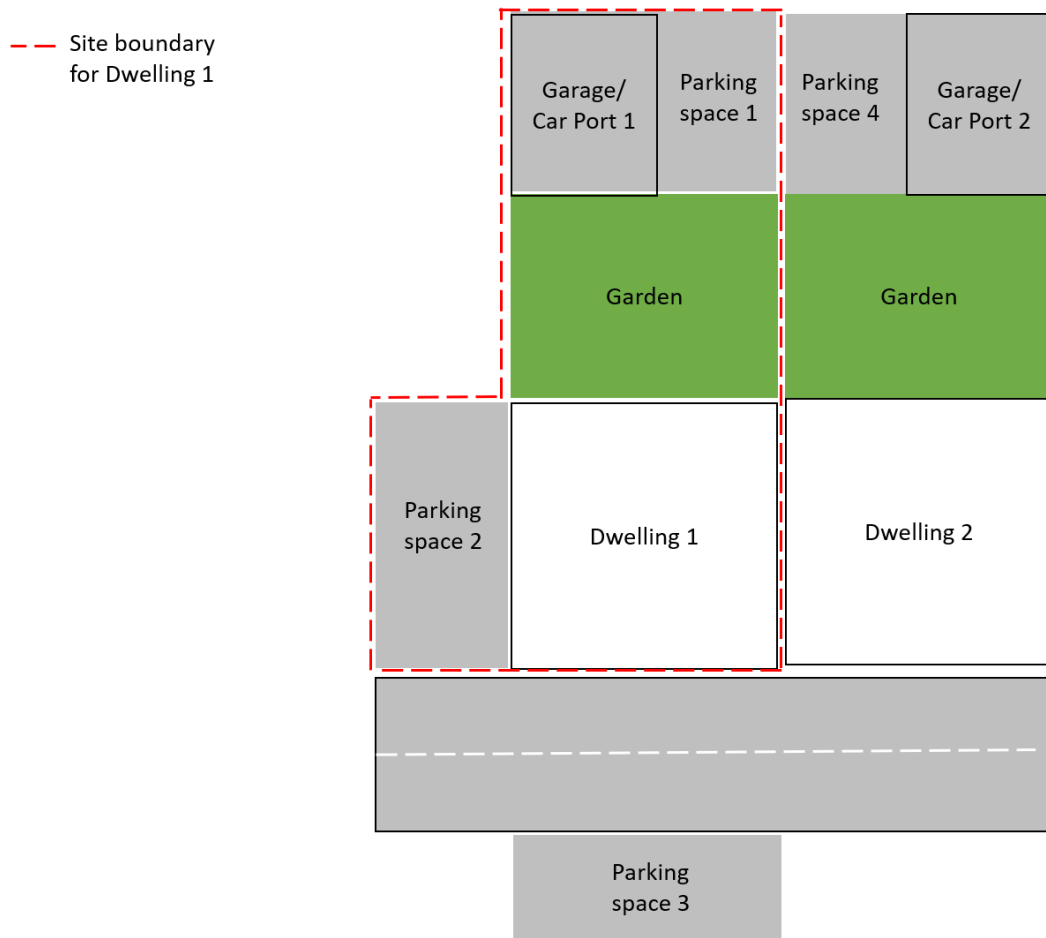
Car park 3 despite being physically separated from the building by vegetation/landscaping is still within the site boundary and, so long as the parking spaces are for the use of the occupants/users of Building 1, therefore contains parking spaces associated with the new building.

Car park 4 is outside the site boundary, and therefore should be considered outside the site boundary of the building. This would typically be the case where a car park is separated from the building by a public highway or a road under different ownership to the building.

The **on-street parking** is outside the site boundary of the building. This would typically be the case for parking spaces located on a public highway or a road under different ownership to the building.

Car park 1 and **car park 3** each contain 7 parking spaces. The new building should therefore be considered to have 14 associated parking spaces. In this case the requirements for buildings with a minimum of 11 associated parking spaces would be triggered.

Diagram 4 – Site boundary example 2



In this example:

Parking space 1 despite being physically separated from the dwelling by a garden it is still within the site boundary, and contains a parking space associated with Dwelling 1.

Parking space 2 is within the site boundary, and contains a parking space associated with Dwelling 1.

Parking space 3 is outside the site boundary of Dwelling 1. This would typically be the case where the car park is separated by a public highway or road which is under different ownership to the dwelling.

Garage/Car Port 1 is still within the site boundary, despite being physically separated from the building by a garden, and therefore any parking space within the garage/car port is associated with the new building. Note that some garages may not contain parking spaces (for example, if a car cannot reasonably be expected to be parked inside the garage).

Parking space 4 is outside the site boundary of Dwelling 1. This would typically be the case where the parking space is under different ownership to the dwelling. In this case, parking space 4 would be part of the land under the ownership of Dwelling 2.

Mixed use buildings

- 1.10** For buildings which contain both dwellings and buildings other than dwellings:
- a. **Section 1** should be used for guidance in relation to the dwellings and parking spaces provided for the dwellings.
 - b. **Section 2** should be used for guidance in relation to buildings other than dwellings and parking spaces provided for the buildings other than dwellings.

NOTE: When determining whether a major renovation has been triggered for a mixed-use building, the surface area of the whole building should be assessed.

Material change of use

- 1.11** The material change of use requirements are intended to apply in circumstances where a new dwelling or dwellings are formed by a material change of use.
- 1.12** For a building undergoing a material change of use, where all of the following apply, an electric vehicle chargepoint should be provided for the parking spaces:
- a. a material change of use is being carried out of either of the following types:
 - i. the building is used as a dwelling, where previously it was not (class 5.a);
 - ii. the building contains a flat, where previously it did not (class 5.b);
 - b. the material change of use include any of the following:
 - i. creating new car parking spaces for the dwellings;
 - ii. work on the electrical infrastructure of the building, where a car park for the dwellings is located inside the building;
 - iii. work on the electrical infrastructure of the car park, where a car park for the dwellings is located within the site boundary of the building.
- 1.13** Where a material change of use is carried out and all of the paragraph 1.12 requirements apply, an electric vehicle chargepoint of the specification given in paragraph 1.25 should be installed for each of the parking spaces provided for the dwellings. Where it would not be technically feasible, as described in paragraph 1.27, to install an electric vehicle chargepoint for each parking space provided for the dwellings, electric vehicle chargepoints should be installed for the number of parking spaces where it remains technically feasible.

Historic and traditional buildings undergoing material change of use

- 1.14** When undergoing a material change of use, an exemption from compliance with the electric vehicle chargepoint installation requirements may be applied to any of the following building types if compliance with [the electric vehicle chargepoint installation regulations] would unacceptably alter the character or appearance of the building or its surroundings:
- a. buildings which are listed in accordance with section 1 of the Planning (Listed Buildings and Conservation Areas) Act 1990;
 - b. buildings which are in a conservation area designated in accordance with section 69 of that Act;
 - c. buildings which are included in the schedule of monuments maintained under section 1 of the Ancient Monuments and Archaeological Areas Act 1979.

- 1.15** There are two further classes of buildings where special considerations in installing electric vehicle chargepoints may apply:
- a. buildings which are of architectural and historical interest and which are referred to as a material consideration in a local authority's development plan or local development framework;
 - b. buildings which are of architectural and historical interest within national parks, areas of outstanding natural beauty, registered historic parks and gardens, registered battlefields, the curtilages of scheduled ancient monuments and world heritage sites.
- 1.16** When undertaking a material change of use that falls within one of the classes listed in paragraph 1.15, the aim should be to install electric vehicle chargepoint infrastructure as far as the work does not prejudice the character of the host building. This may, for example, mean that electric vehicle chargepoints are not installed in parking spaces which are set against an important elevation of the building.

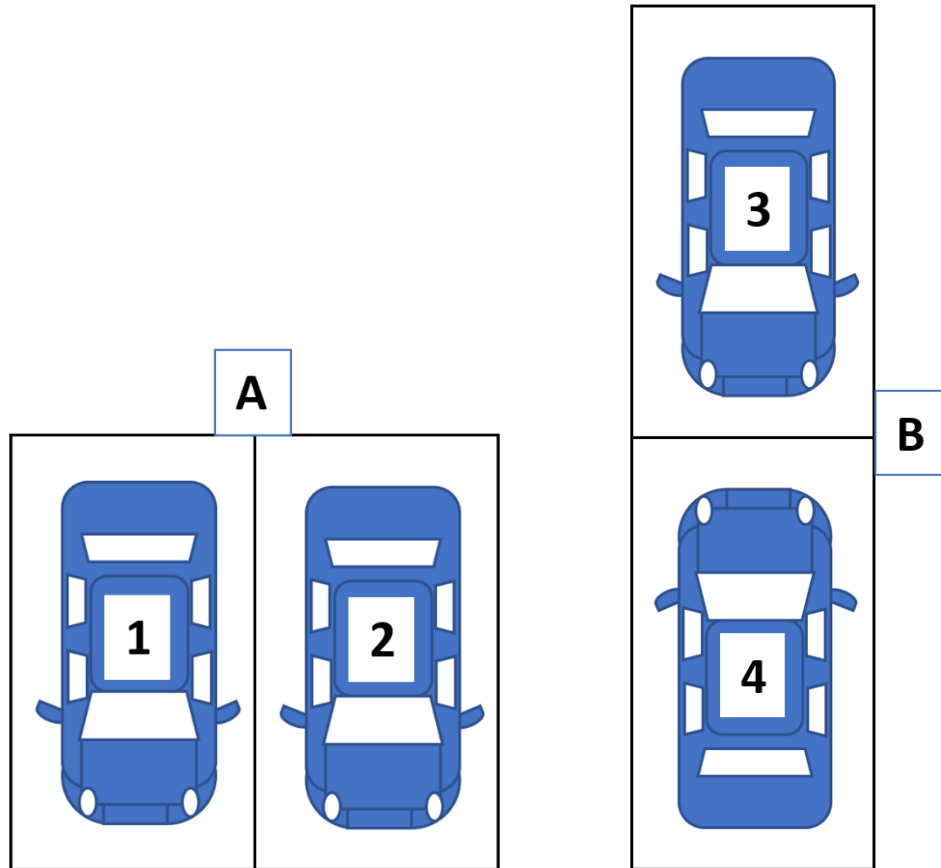
Enabling infrastructure for electric vehicle chargepoints

- 1.17** For each parking space which requires enabling infrastructure, a future connection location for an electric vehicle chargepoint should be identified. The future connection location should be suitable for use for electric vehicles with different charging inlet locations.

NOTE: In many cases, the optimum position for a future connection location will be at one corner of the parking space.

- 1.18** A future connection location may be positioned to serve more than one parking space provided that the enabling infrastructure is adequate for the future installation of electric vehicle chargepoints which allow each space to be used simultaneously for recharging (for example, an electric vehicle chargepoint with multiple outlets). Each outlet should meet the same functionality as given in paragraph 1.25. **Diagram 5** shows two possible arrangements.

Diagram 5 – Future connection locations which may serve more than one parking space



Position A may serve parking spaces 1 and 2

Position B may serve parking spaces 3 and 4

Notes:

1. The future connection point should be located so that charging cables are not likely to present trip hazards or restrict pedestrian/vehicle access routes.
2. The future connection point should be located so that the installation of an electric vehicle chargepoint will not unduly restrict access to the parking space

1.19 For each parking space which requires enabling infrastructure, the enabling infrastructure should be provided from a metered electricity supply point up to the future connection point. The enabling infrastructure should include all of the following:

- a. sufficient physical space for a new electrical connection at a metered supply point, such as a consumer unit or feeder pillar;

- b. a dedicated, safe, unobstructed route for electrical cabling from the electrical supply point to the future connection location;
- c. a future connection location to meet paragraphs 1.23 and 1.24;
- d. provisions to facilitate the safe installation of an electric vehicle chargepoint, to meet paragraphs 1.20 to 1.22.

NOTE: The following items may facilitate a future electric vehicle chargepoint installation but are not considered to be part of the enabling infrastructure as defined in this document:

- a. concrete plinths or footings for future chargepoints;
- b. vehicle barriers;
- c. electrical cabling;
- d. upgrades to existing electrical infrastructure.

1.20 When installing enabling infrastructure, a suitable strategy should be identified to ensure that a future electric vehicle chargepoint installation can meet the standards given in **BS 7671**, including both:

- a. earthing;
- b. simultaneous contact with extraneous conductive parts.

The strategy should be specific to the location at which a vehicle is likely to be recharged, and any existing earthing arrangements.

1.21 If the strategy identified in paragraph 1.20 identifies that a new earth electrode would need to be installed to meet the standards in **BS 7671**, a suitable location should be identified for an earth electrode, with sufficient space for both:

- a. the future installation of the earthing arrangements;
- b. periodic inspection and testing of the earthing arrangements

1.22 As part of the enabling infrastructure, a dedicated, safe, unobstructed route should be made from the electrical supply point which allows for the future provision of all necessary electrical cabling to each identified future connection location without the need for builders work in connection to the electrical cabling installation. This may be achieved using any combination of electrical containment systems, such as:

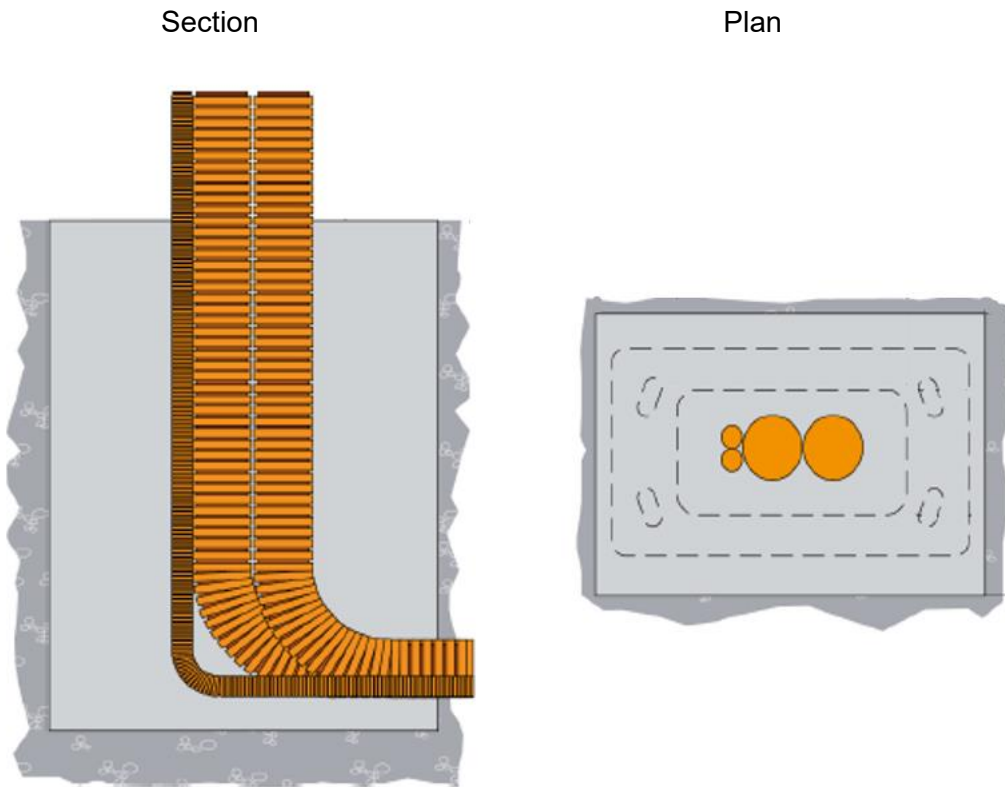
- a. electric cable ducting including drawstrings;
- b. electric cable trunking or conduits;
- c. electric cable trays and cable ladders.

An example of electric cable ducting for a floor-standing electric vehicle chargepoint is shown in **Diagram 6**.

NOTE 1: Builders work may still be required for aspects of the chargepoint beyond the installation of the electrical cabling.

NOTE 2: Guidance on working safely on or near underground services is given in **HSG47**.

Diagram 6 – electrical ducting as part of the enabling infrastructure for a floor-standing electric vehicle chargepoint to serve two parking spaces



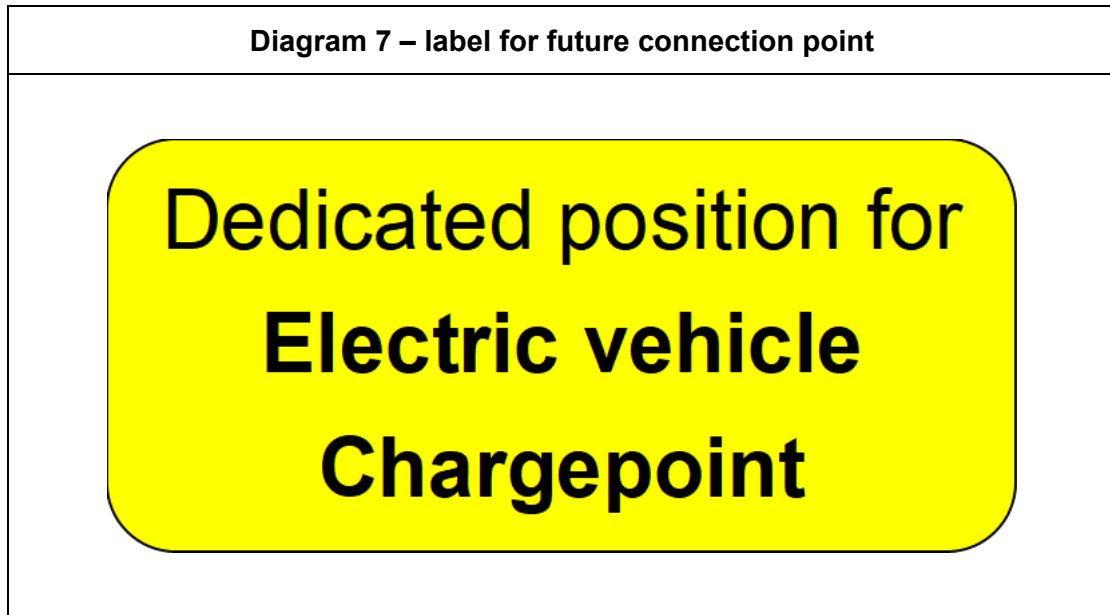
Notes:

1. This diagram shows two ducts for electrical cabling and two smaller ducts for communications cables.
2. Dimensions should be compatible with the technical requirements for electric vehicle chargepoints given in paragraph 1.24 and 1.25 as applicable.

Future connection location

1.23 The future connection location should be clearly identified and labelled. **Diagram 7** shows an example of a label for a future connection location. The label or sign should be both:

- a. reasonably weatherproof, as appropriate for its location;
- b. of an appropriate size and location to be read by a person installing an electric vehicle chargepoint in future.



- 1.24** The future connection location should be designed with adequate space for the full installation of an electric vehicle chargepoint of the type described in paragraph 1.25, incorporating the necessary space for all of the following:
- a. access for the purposes of recharging an electric vehicle;
 - b. access for installation and maintenance of the electric vehicle chargepoint;
 - c. vehicle barriers as necessary.

Diagram 8 and **Diagram 9** show the minimum space requirements for a floor-mounted and a wall-mounted electric vehicle chargepoint, not including vehicle barriers.

NOTE: Guidance on the accessibility requirements of the Building Regulations, including the location of sockets and switches, is given in **Approved Document M**.

Diagram 8 – Minimum space requirements for floor-mounted chargepoint

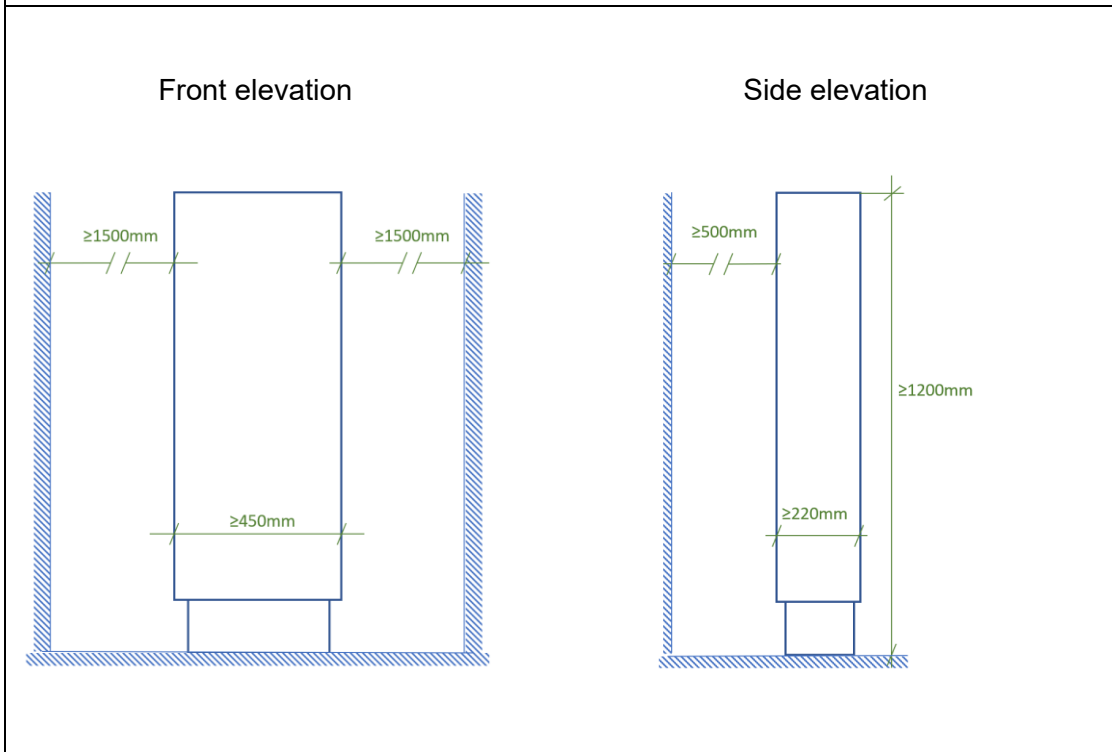
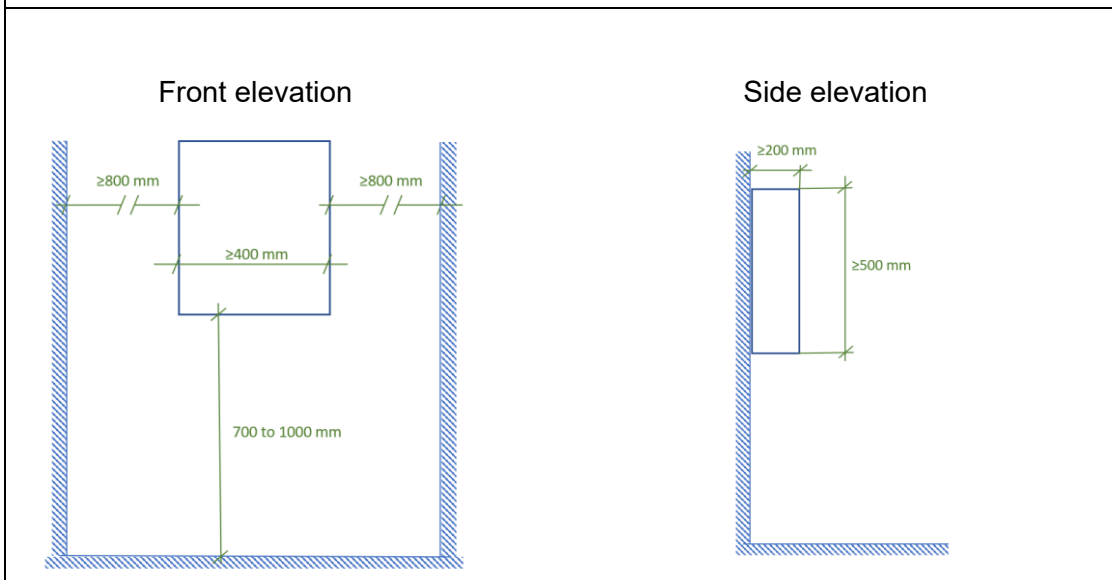


Diagram 9 – Minimum space requirements for wall-mounted chargepoint



Technical requirements for electric vehicle chargepoints

- 1.25 Each electric vehicle chargepoint should meet all of the following:
- a. be designed and installed in accordance with the appropriate parts of **BS EN 61851**;
 - b. have a minimum rated output of 7 kW, measured or calculated at a nominal supply voltage of 230VAC;
 - c. be fitted with a universal socket (known as an untethered electric vehicle chargepoint);
 - d. be fitted with a charging equipment status indicator using lights, LEDs or display;
 - e. a minimum of Mode 3 or equivalent.
- 1.26 For buildings other than dwellings, in addition to paragraph 1.25 each electric vehicle chargepoint should meet the requirements of **The Alternative Fuels Infrastructure Regulations 2017**

NOTE: This document does not provide guidance on electrical safety. Electrical safety requirements are likely to apply when carrying out electrical work. Relevant regulations include Building Regulations Part P (electrical safety – dwellings) and the Electricity at Work Regulations 1989. Guidance is given in **Approved Document P**, and **HSR25** respectively.

Technical feasibility

Technical feasibility for new dwellings

- 1.27 For new dwellings, the installation of an electric vehicle chargepoint should be considered technically feasible if the additional costs of reinforcement and upgrades to the local electrical distribution network would not exceed [£x] per dwelling. This cost should be calculated as the additional capital cost for electrical infrastructure, as compared to that which would be required without the chargepoints. This cost may be calculated either:
- a. for a development containing multiple new dwellings; or
 - b. for an individual dwelling.

NOTE: For new dwellings where the installation of an electric vehicle chargepoint is not technically feasible, enabling infrastructure might be required. See paragraph 1.3.

Technical feasibility for major renovations

- 1.28 For a dwelling undergoing a major renovation, the installation of electric vehicle chargepoints to meet [the electric vehicle chargepoint regulations for dwellings] should be considered technically feasible if the existing electrical supply to the building or car park is sufficient to serve the electric vehicle chargepoints.

NOTE: For dwellings undergoing major renovation where the installation of an electric vehicle chargepoint is not technically feasible, the enabling infrastructure guidance in paragraph 1.3 still applies.

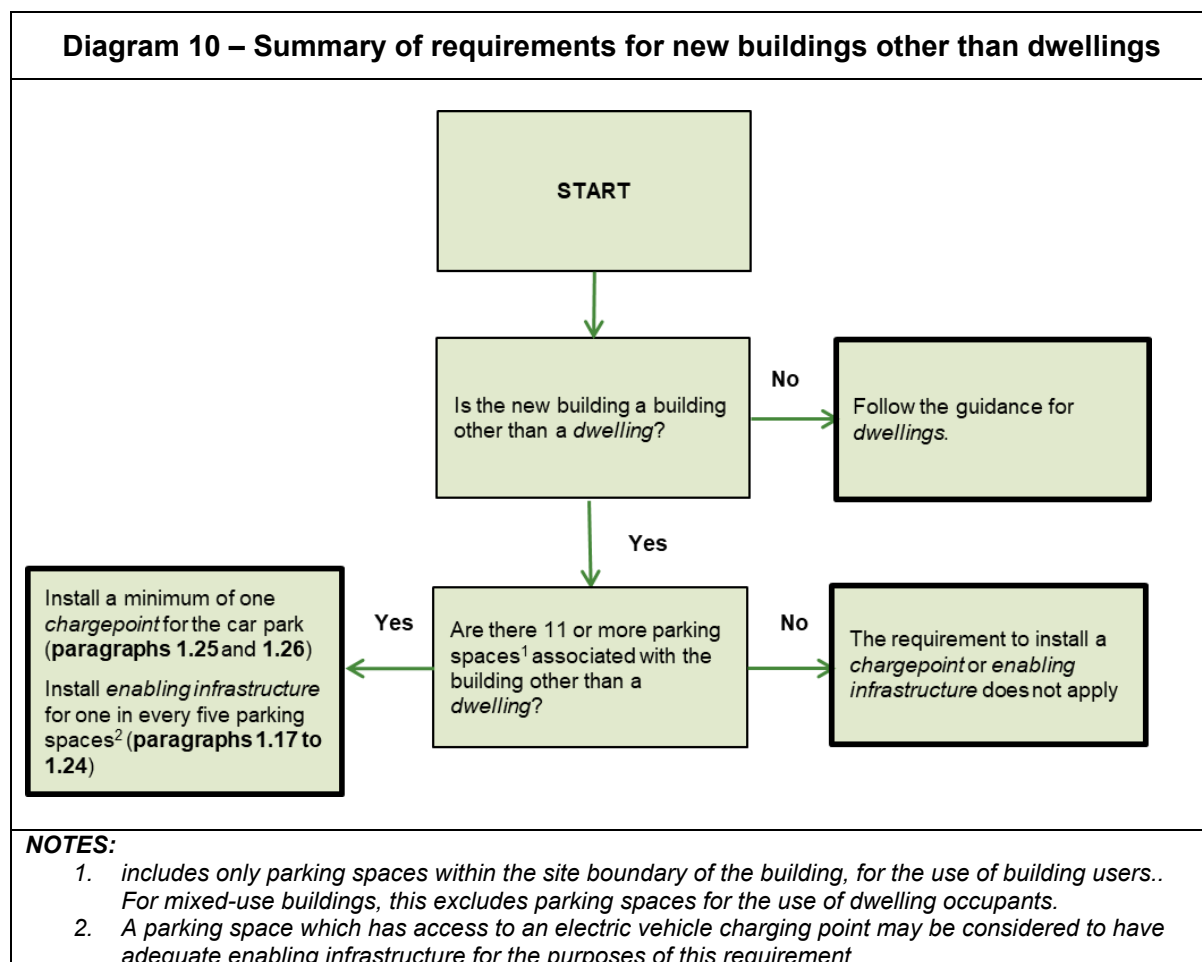
Section 2: Buildings other than dwellings

Introduction

New buildings other than dwellings

- 2.1 For new buildings other than dwellings where a minimum of 11 parking spaces are provided, both:
 - a. a minimum of one electric vehicle chargepoint must be provided;
 - b. a minimum of one in every five parking spaces must be provided with either:
 - i. an electric vehicle chargepoint;
 - ii. enabling infrastructure.
- 2.2 All electric vehicle chargepoint installed to meet [the regulations for buildings other than dwellings] should meet the standards in paragraphs 1.25 and 1.26.
- 2.3 Enabling infrastructure should meet the standards in paragraphs 1.17 to 1.24.

NOTE: Diagram 10 sets out a summary of the requirements for new buildings other than dwellings

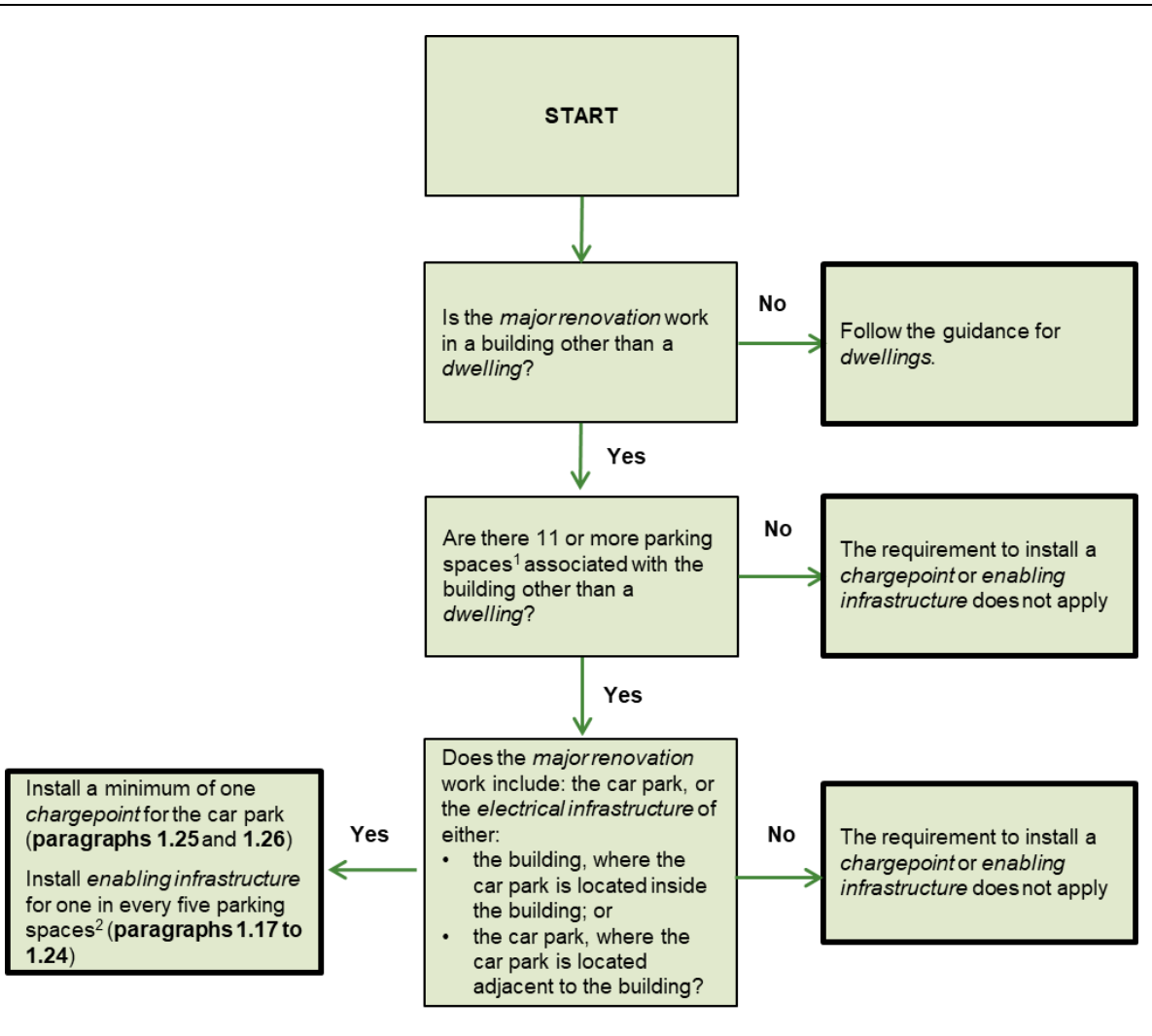


Major renovations

- 2.4** For a building other than a dwelling where all of the following apply, enabling infrastructure or a chargepoint must be provided where:
- a. major renovation works are being carried out;
 - b. after the work is complete there will be a minimum of 11 parking spaces within the site boundary, for the use of building users. For mixed use buildings, this excludes parking spaces for the use of dwelling occupants;
 - c. where the renovation work includes any of the following:
 - i. the car park;
 - ii. where the car park is located inside the building, the electrical infrastructure of the building;
 - iii. where the car park is located within the site boundary of the building, the electrical infrastructure of the car park.
- 2.5** Where a major renovation is carried out and all of the paragraph 2.4 requirements apply, a minimum of one electric vehicle chargepoint must be provided and a minimum of one in every five parking spaces must be provided enabling infrastructure.

NOTE: Diagram 11 sets out a summary of the requirements for major renovations in new buildings other than *dwelling*s.

Diagram 11 – Summary of requirements for major renovations (buildings other than dwellings)



NOTES:

1. Includes only parking spaces within the site boundary of the building, for the use of building users.. For mixed-use buildings, this excludes parking spaces for the use of dwelling occupants.
2. A parking space which has access to an electric vehicle charging point may be considered to have adequate enabling infrastructure for the purposes of this requirement

Application

- 2.6** The provisions of [the regulations] apply to car parking spaces which serve buildings other than dwellings, and the parking spaces are either:
- a. within the building;
 - b. within the plot or site boundary of the building.
- 2.7** The provisions of [the regulations] apply to both:
- a. buildings for which energy is used to condition the indoor climate;
 - b. buildings which are car parks.

Mixed use buildings

- 2.8** For buildings which contain both dwellings and buildings other than dwellings:
- a. **Section 1** should be used for guidance in relation to the dwellings and parking spaces provided for the dwellings, and [the regulations for electric vehicle charging provision for dwellings] will apply;
 - b. **Section 2** should be used for guidance in relation to the buildings other than dwellings and parking spaces provided for the buildings other than dwellings, and [the regulations for electric vehicle charging provision for dwellings will apply].

Appendix A: Key terms

The following are key terms used in this document:

Boundary

The boundary of the land or buildings belonging to and under the control of the building owner

Dwelling

A self-contained unit designed to accommodate a single household.

Parking space

A space which may reasonably be expected to be used for the purpose of parking a passenger car, for the use of the occupants of, or visitors to, the building.

Electric vehicle chargepoint

Equipment for the dedicated purpose of recharging electric vehicles.

Enabling infrastructure

A safe, unobstructed route for electrical cables from a metered electrical supply point to a future connection location, to enable the installation of an electric vehicle chargepoint, of the type specified in paragraph 1.25, in future without the need for builders work in connection. This may include electric cable containment systems to facilitate the installation of electrical cabling in future, or the full installation of all necessary electrical cabling.

Note: the full installation of an electric vehicle charging point will de facto have all necessary electrical cabling installed and should therefore be considered to have adequate enabling infrastructure.

Future connection location

An identified location at which an electric vehicle chargepoint may be installed in future to serve the relevant parking spaces.

Major renovation

The renovation of a building where more than 25% of the surface area of the building envelope undergoes renovation.

Note: For a major renovation to a mixed-use building, the surface area of the whole building should be assessed.

Material change of use

For the purposes of paragraph 8(1)(e) of Schedule 1 to the Act and for the purposes of these Regulations, there is a material change of use where there is a change in the purposes for which or the circumstances in which a building is used, so that after that change—

- (a) the building is used as a dwelling, where previously it was not;
- (b) the building contains a flat, where previously it did not;
- (c) the building is used as an hotel or a boarding house, where previously it was not;
- (d) the building is used as an institution, where previously it was not;
- (e) the building is used as a public building, where previously it was not;
- (f) the building is not a building described in classes 1 to 6 in Schedule 2, where previously it was;
- (g) the building, which contains at least one dwelling, contains a greater or lesser number of dwellings than it did previously;
- (h) the building contains a room for residential purposes, where previously it did not;
- (i) the building, which contains at least one room for residential purposes, contains a greater or lesser number of such rooms than it did previously;
- (j) the building is used as a shop, where previously it was not; or
- (k) the building is a building described in regulation 7(4)(a), where previously it was not

Appendix B: Standards Referred to

BS EN 61851

Electric vehicle conductive charging system [2017]

BS 7671

Appendix C: Other documents referred to

Legislation

Building Regulations 2010 (SI 2010/2214)

The Alternative Fuels Infrastructure Regulations 2017 (SI 2017/897)

Other documents

HSG 47 – Avoiding danger from underground services, third edition, Health and Safety Executive [2014]

HSR 25 – Guidance on the Electricity at Work Regulations 1989, third edition, Health and Safety Executive [2015]

Approved Document P