



# Quick guide to duct laying

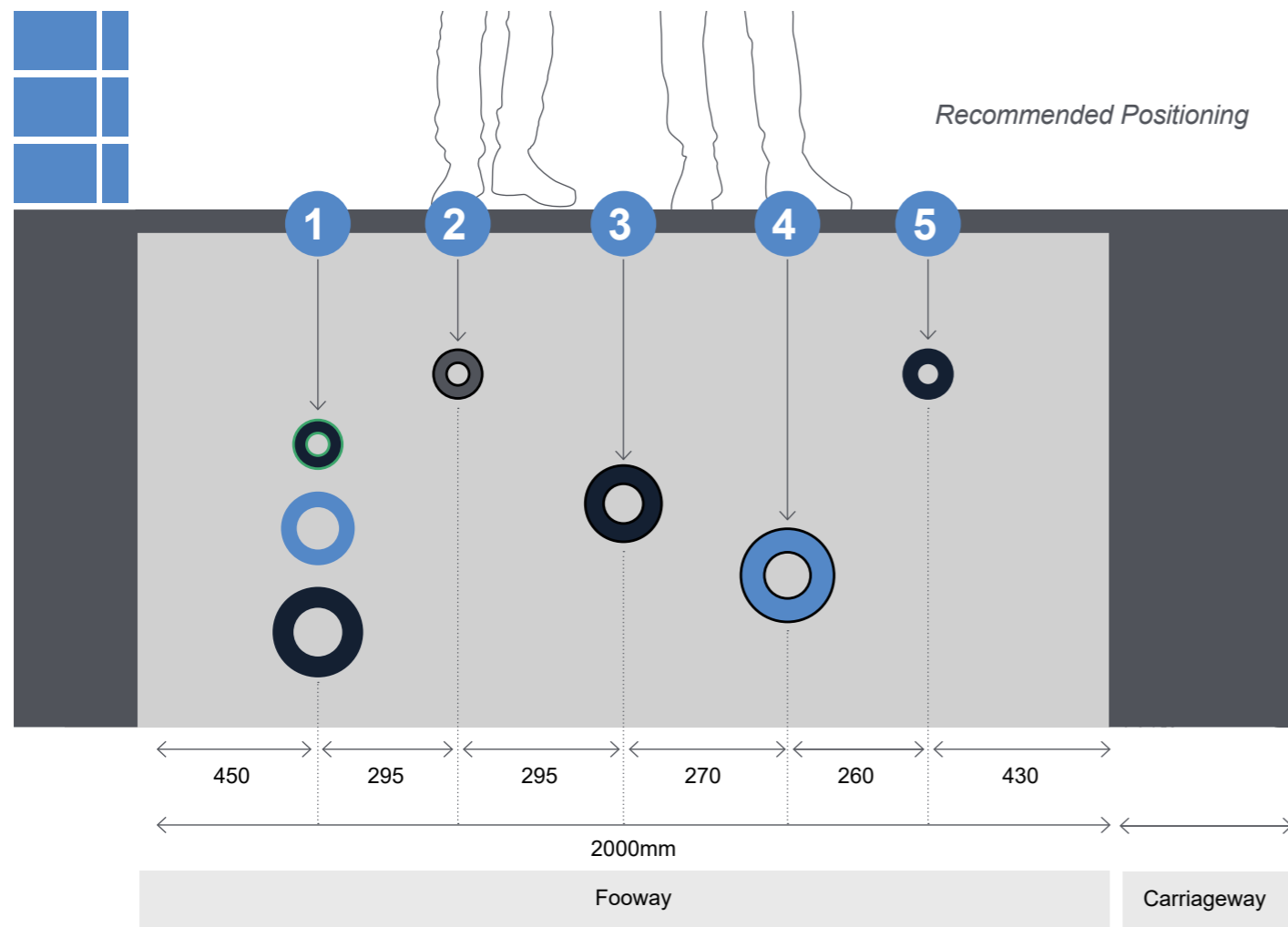
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openreach

# General duct guidelines

## Utility positioning and colour coding

The latest guidelines on the positioning and colour coding of underground utilities' apparatus can be obtained from Streetworks UK: [streetworks.org.uk](http://streetworks.org.uk)



### Key

1. Electricity Depth HVHV 450mm - 1200mm / LV 450mm
2. Cable TV / Communications Depth 250mm - 350mm
3. Gas Depth 600mm
4. Water Depth 750mm
5. Telecommunications Depth 350mm

## Avoiding damage to Openreach network

Openreach has an extensive network that is vulnerable to damage unless appropriate precautions are taken. The best two precautions to take are:

1. Find out if you are working within the vicinity of our network
2. Let us know about your plans as soon as you can

HSG47 outlines unseen dangers arising from working near underground services, with guidance advice on risk reduction. Further information can be obtained from the HSE: [hse.gov.uk/pubns/books/hsg47.htm](http://hse.gov.uk/pubns/books/hsg47.htm)

Failure to do any of the above could result in a sizeable repair bill and delays to your works.

## Are we in your way?

Our maps on demand can be obtained here:

[openreach.co.uk/mapsondemand/home](http://openreach.co.uk/mapsondemand/home)

We also have a "Click Before You Dig" service who can be contacted here:

[cbyd@openreach.co.uk](mailto:cbyd@openreach.co.uk)

This service offers professional advice and assistance, including the onsite mark up of Openreach network within your area of interest.

If Openreach network is in your way then get in contact with us here:

[openreach.com/building-developers-and-projects/altering-our-network](http://openreach.com/building-developers-and-projects/altering-our-network)

Further information can be found about unsafe, damaged, or vandalised Openreach network here:

[openreach.com/help-and-support/damage-health-and-safety](http://openreach.com/help-and-support/damage-health-and-safety)

# General duct guidelines

- All duct runs must be laid as straight as possible. If bends are needed, once connected, ducts have a natural bending radius, or you can use pre-formed bends supplied by Openreach.
- There must be no more than one pre-formed 90° bend in any single duct run.
- Pre-formed 90° bends must not be installed in any duct run that links joint boxes.
- Duct runs to a building, in a footway, verge, or service strip, the minimum depth of cover shall be 250mm.
- All duct installed shall be covered by a layer of "Earth Free From Stones" and compacted to a thickness of not less than 75mm
- For all single dwelling units (SDU) duct must be terminated on the external surface of the property.
- Duct runs that terminate inside any structure must be sealed against the egress of gas or water from the duct into the structure.
- The duct termination point must be in a location that will allow unrestricted access for future maintenance.
- All ducts must be provided with a draw rope after installation, unless it's agreed locally to substitute the draw rope with a cable.
- Please notify your Field Based Co-ord (FBC) when the duct has been laid and is ready for inspection.

## Service warning tape

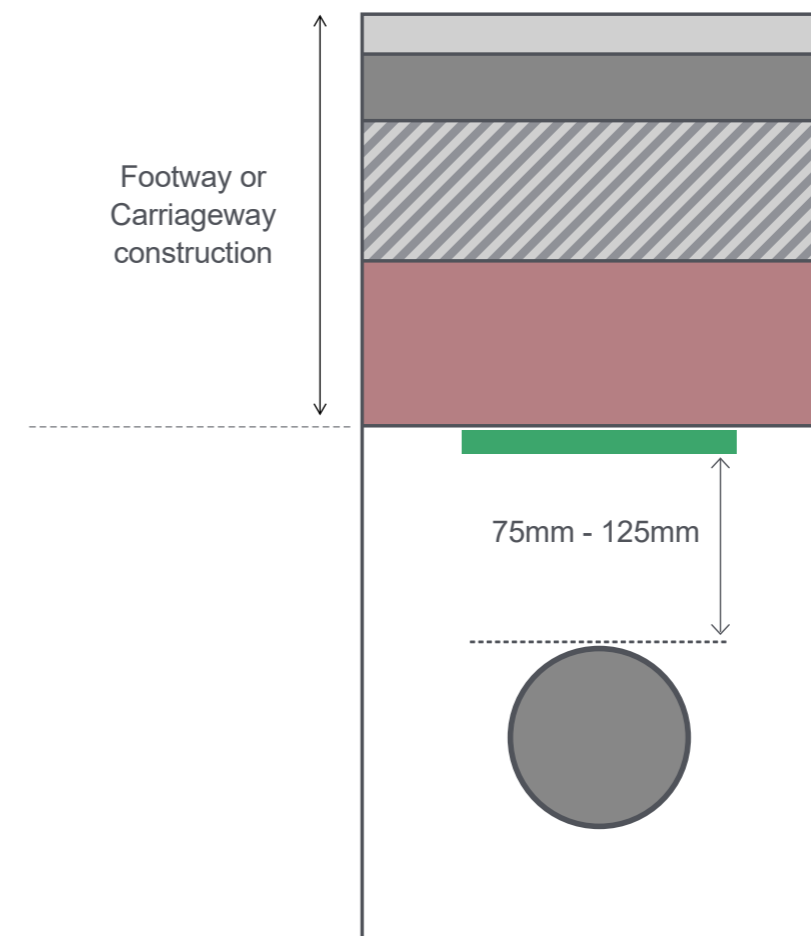
Service warning tape is to be installed above all new duct and direct-in-ground cable installations.

Warning tape should contain a traceable wire, allowing other people to induce a locator signal for future tracking purposes.

Warning tape should be placed between 75mm - 125mm above the installed duct or cable.

Depending on the circumstances, correct installation is required for a Service on Demand (SOD) payment.

Warning tape will be ordered by your FBC alongside other free issue materials.



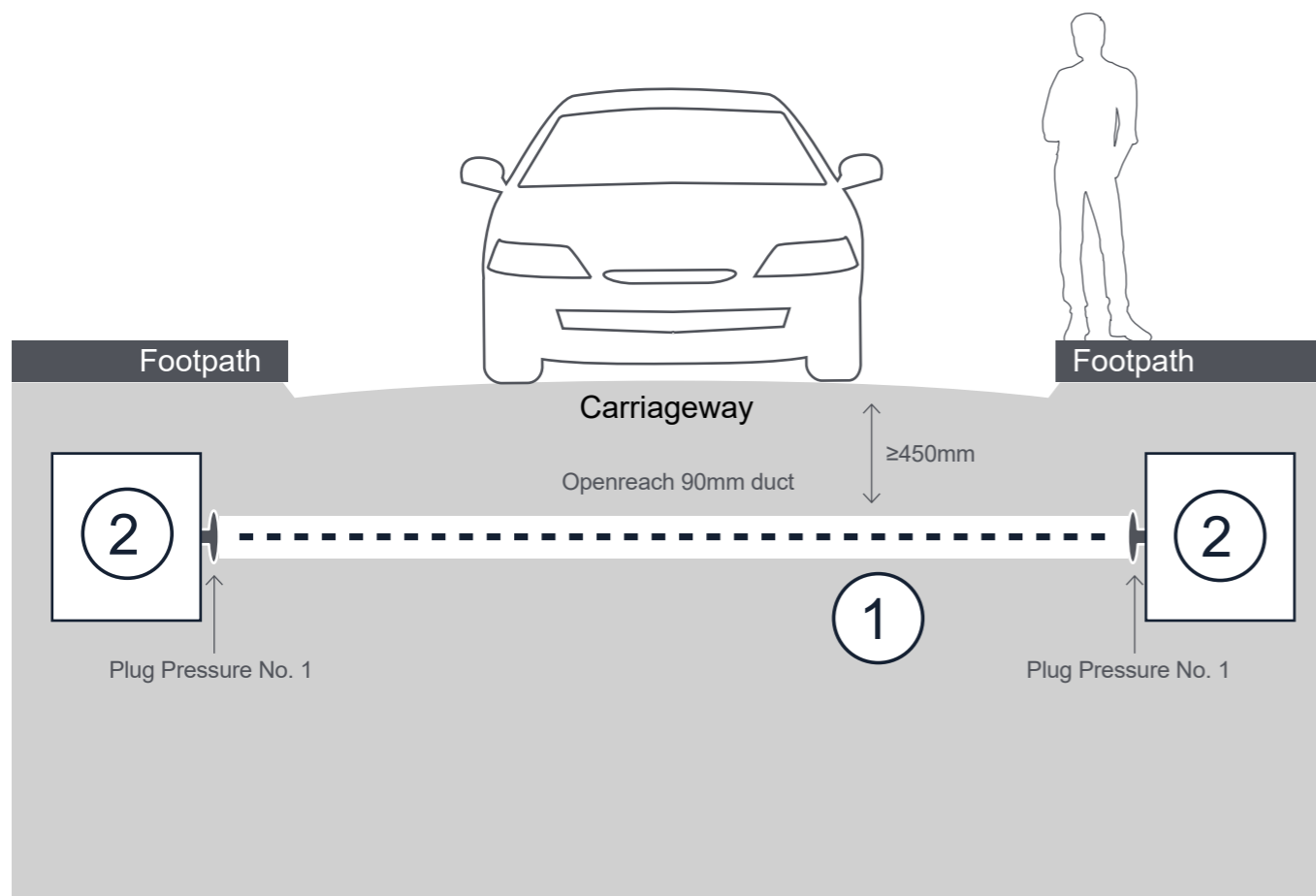
# Carriageway duct crossings

## Carriageway locations

Where Openreach duct is to cross a carriageway, adjoining kerbs must be marked to note distances. If the same crossing point is to be used for multiple utilities, then Openreach duct must be laid on the outer edge of the service trench to enable box building.

Plug Pressure No.1 should then be installed at either end of the 90mm duct as a temporary seal.

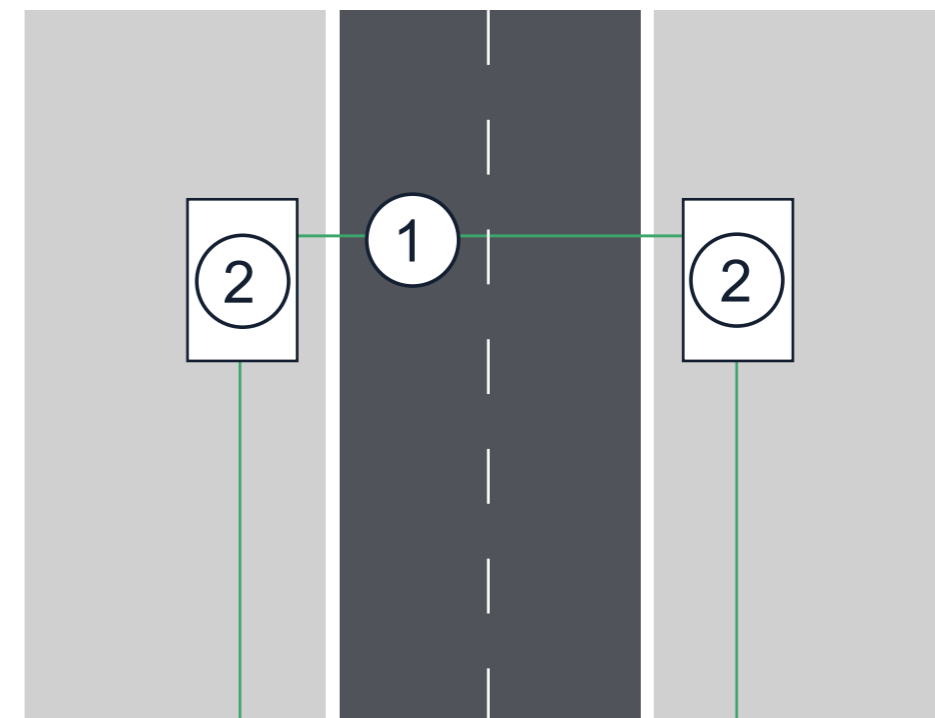
Carriageway cross section



## Depth of cover

The minimum carriageway depth of cover shall be 450mm. However, some road categories, or existing carriageways, may require Openreach duct to be installed at a greater depth to comply with the Department for Transport (DfT) Specification for the reinstatement of Openings in Highways.

Correct duct layout from above



- 1. Line of Openreach duct
- 2. Joint box

# Duct to a building

## Duct Installation

- Install rider and main duct runs from serving joint box
- Install swept reducer tees as required to serve each plot
- Place 50mm 90° radius house bend 350mm long so that it is touching the wall of the building and directly under the cable entry point. This **MUST** be in line with the swept tee branch off as this is a common snagging point.
- Install 50mm duct lengths from house bend and connect to swept tee
- At the end of the rider duct install a 90mm to 50mm reducer and a 50mm 90° radius bend 450mm long
- From the last plot on the rider duct install 50mm duct lengths from house bend to the 50mm 90° radius bend 450mm long.
- Installing duct in this order will ensure the 50mm house bend is tight against the plot wall. **No other diameters or bends are to be used.**



1. 90mm rider duct to building
2. 90mm main duct between joint boxes
3. 90mm to 50mm swept reducer tee
4. 90mm to 50mm reducer

5. 50mm lead in
6. 50mm 90° radius house bend 350mm long
7. 50mm 90° radius bend 450mm long
8. Cable entry directly in line with duct end

# Duct to a building

## Order of installation



# Duct to a building

## Duct installation

- The top of the duct must be cut back at the wall so that no more than 50mm is showing above finished ground level
- Once the duct installation is complete, it should be roped from the building end back to the serving joint box
- 3m of rope must be left at either end of the duct run, tied off in the chamber and secured at the building using a 50mm off cut to prevent rope being pulled back
- A foam grommet should be installed in the top of the duct to prevent debris getting inside the duct and causing blockages



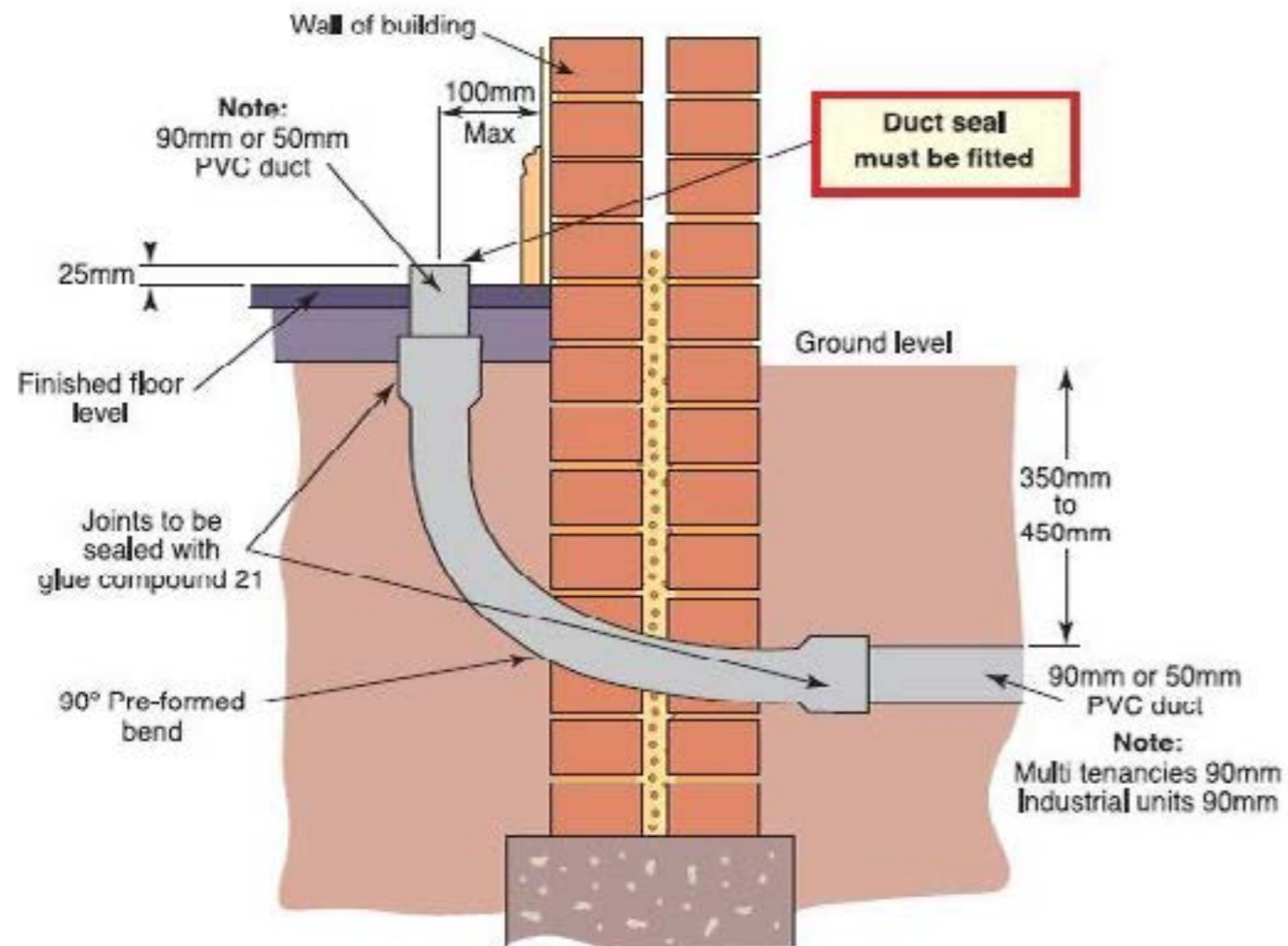
## Avoiding obstacles

- In this example, install the 90mm rider duct as normal with a 90mm to 50mm swept reducer tee positioned so the branch duct can run parallel to the building beyond the obstacle
- Install 50mm 90° radius house bend 350mm long tight against the building wall, at an angle to create a line past the obstacle.
- Install additional 50mm duct at the bottom of the house bend as required to avoid the obstacle.
- Install 50mm 45° radius bend as required to bring the duct back in line with the swept reducer tee branch.

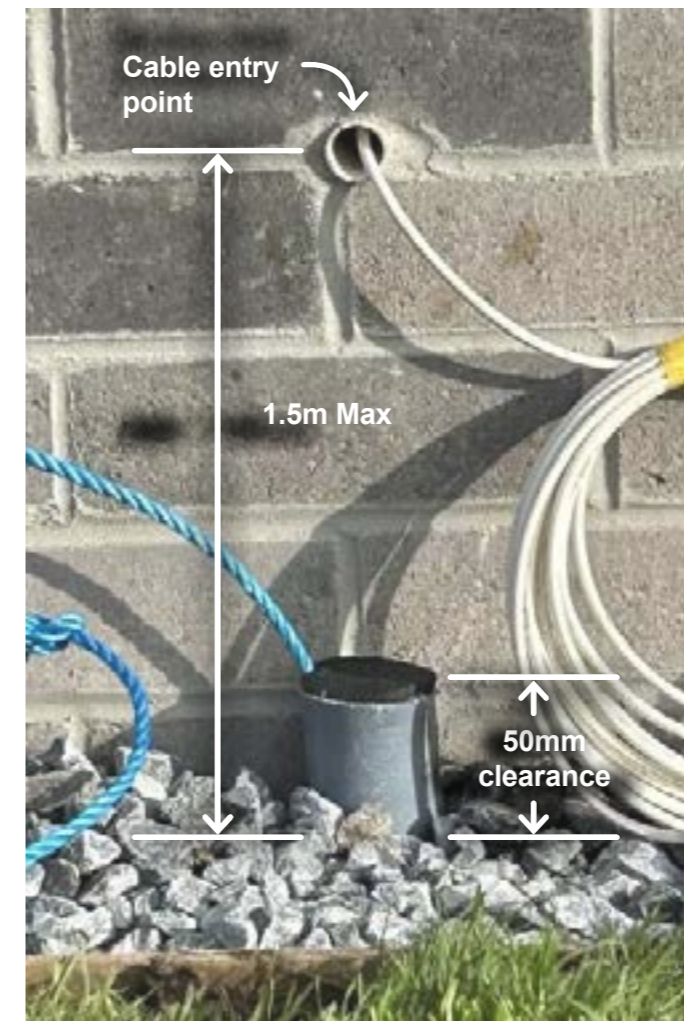


# Duct to a building

- Multi Dwelling Unit (MDU)



# External duct presentation



## Optical Network Termination (ONT) in the default position

When the ONT is to be fitted in the default position on an internal wall directly behind the cable entry point, the required amount of external capping will be fitted to project the cable feed. To keep things tidy, make sure that the cable entry point is drilled in line with the duct and in keeping with the dimensions shown on this guide. The duct will be sealed with a grommet or mastic before any external capping is fitted.

Do not position duct or capping so that air bricks are covered.



## Complying with building regulations

If you are not working with Openreach or another infrastructure company to provide functioning telecommunication services to the building, then Part R regulations require the installation of duct to be in the default position so that such services can be installed in the future.





**[www.openreach.co.uk](http://www.openreach.co.uk)**

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