

Quick Guide

Joint boxes, footways and frames & covers

Footway (JBF104/106)

Joint box designs and specifications may vary depending on the duct layout and whether multi-way ducts or major road crossings need to be incorporated into the network design.

Full technical drawings and specifications for all joint and footway boxes can be found at: openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks

Materials

- **Bricks:** BS EN771-1. Stretcher Bond.
- **Cement:** BS EN197-1:2000 ordinary mix. Three parts sand to one part cement.

Specifications

- **Base:** 150mm concrete, clean and level.
- **Brickwork:** Keyed in at the corners and pointed.
- **Frame and cover:** Set on a mortar bed and fitted squarely to the box structure. You can purchase lifting keys for the covers from TW Engineering Co Ltd at www.twtools.co.uk (tel: 0115 932 3223).
- **Duct entries:** Must not enter through corners and be no less than 75mm from the side wall. They shall enter wall at a minimum depth of 250mm from the top of the frame, cut flush and clear the base by a minimum of 100mm.
- **Bolts:** Must be fitted in each box to allow ironwork to be installed by the developer.
- **Step(s):** One step is required in all boxes deeper than 700mm.
- **JBF104(C):** 915mm(L) x 445mm(W) x 750mm(D).
- **JBF104(D):** 915mm(L) x 445mm(W) x 900mm(D) the minimum depth for boxes either side of road crossings.
- **JBF106(C):** 1310mm(L) x 610(W) x 750(D).
- **JBF106(D):** 1310mm(L) x 610(W) x 900(D) the minimum depth for boxes either side of road crossings.
- **All backfill material** to be class 6N type.
- **Workmanship, materials and method of construction** are to comply with all current relevant contract documents, British Standards and codes of practice for the construction industry.
- **Concrete** to be grade C32/40 with a water cement ratio 0.4 minimum. Cement content 380kg/m. Aggregate maximum size 20mm. All in accordance with BS8500.
- **All ducts** shown are based on maximum recommended values for Duct Type 54D.
- **End ducts** to be inline.
- **Ducts** to be positioned not less than 75mm from a side wall.
- **Mesh** to be grade B500B or B500C conforming to BS4483.
- **Short lengths of Duct 54D 90mm** to be used on non-ducted routes. Appropriate duct to be used on ducted routes.
- Where instructed to do so drill one set of three holes using a 12mm **masonry drill** bit to a depth of 80mm for future fitting of equipment mounting bracket.
- For details and specs on using corbelling visit the **link** at the top of this page.

Please note

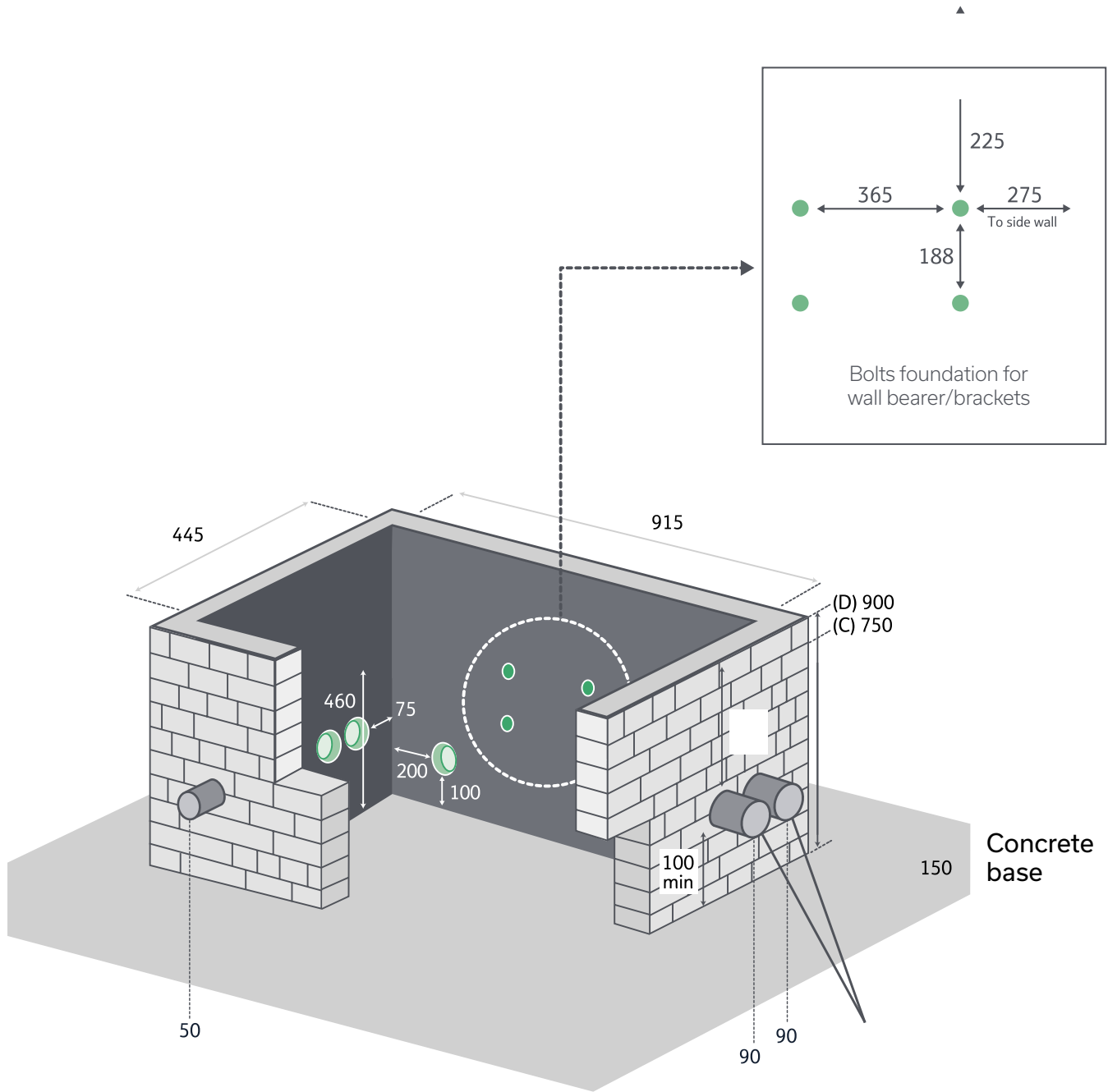
At no time must minimum box depth be compromised. Consult your FBC if the minimum depth cannot be achieved.

Joint box footway 104 – the preferred option

Internal dimensions. Brickwork Stretcher Bond.

Dimensions in mm (not to scale).

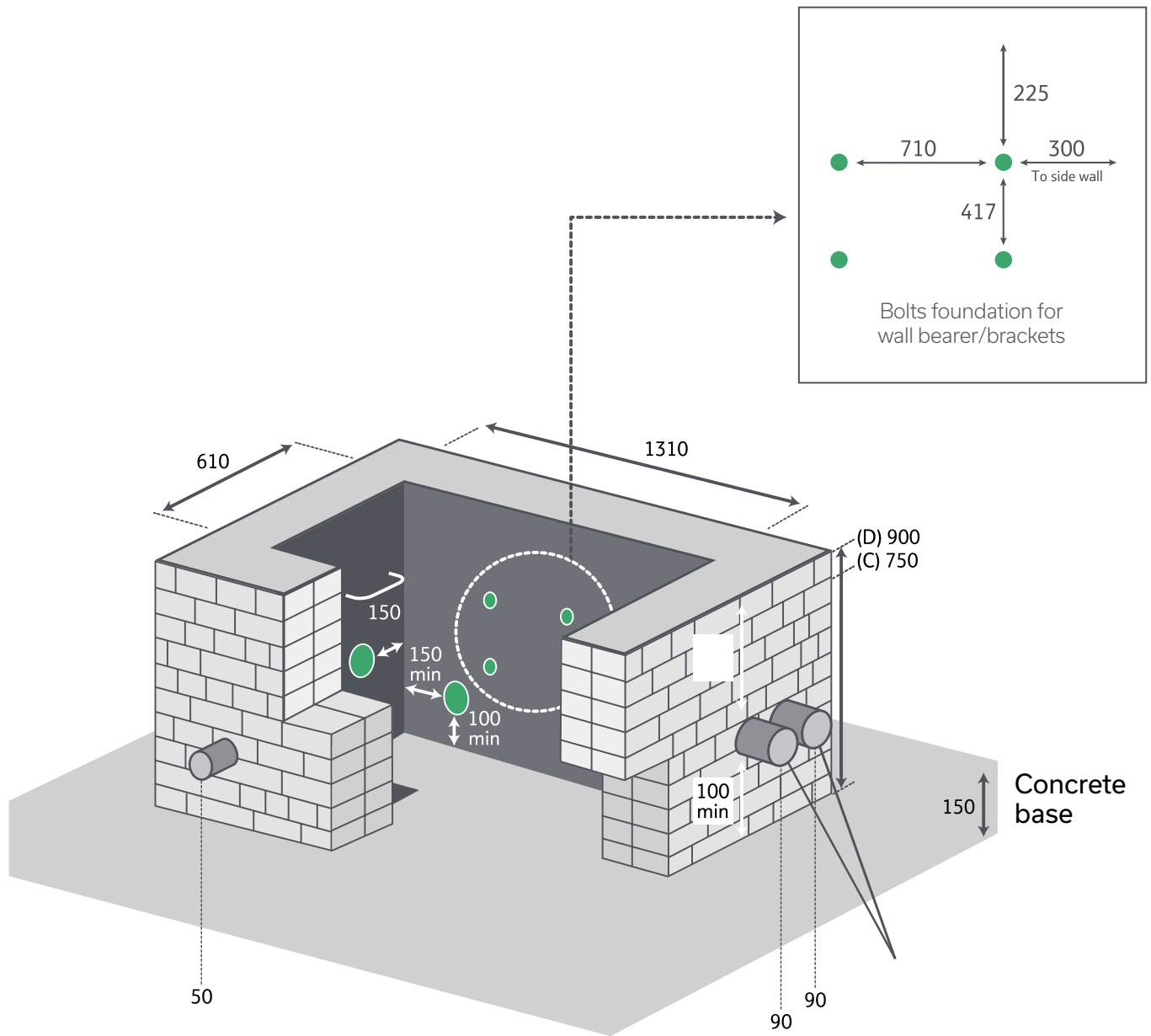
- Maximum depth 900mm



Joint box footway 106

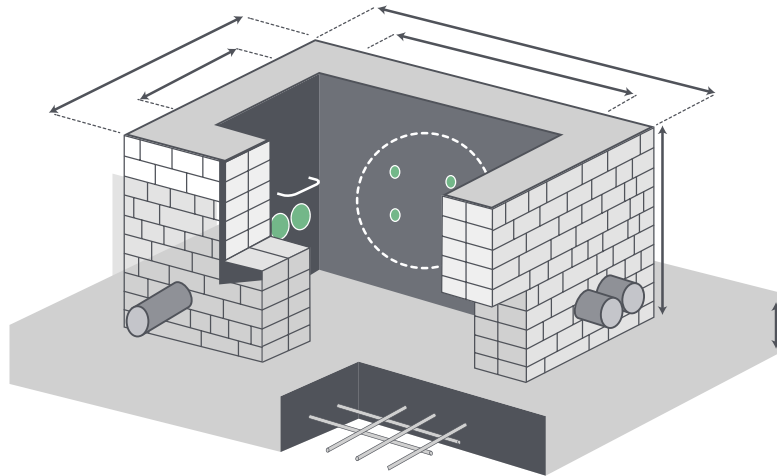
Internal dimensions. Brickwork Stretcher Bond.
Dimensions in mm (not to scale).

- Minimum depth for road crossing 600mm
- Sump to be fitted in boxes deeper than 700mm



Carriageway boxes

Full technical drawings and specifications for all carriageway boxes can be found at openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks



Box Dimensions (mm)

Box Type	Excavation Size		Box Opening Size		Z	a
	X1	Y1	X2	Y2		
JBC2(N)	1650	1110	1220	680	Min Depth 635 Max Depth 900	225
JBC3(N)	1040	1040	610	610		150
JBC4(N)	1345	875	915	445		200

Materials

- **Bricks:** Minimum Class B Engineering Bricks, BS EN1996
- **Cement:** BS12:1996 – Specification for Portland cement
- **Concrete:** C35/45, BS EN206
- **Mortar:** Class (iii), 1:5 CEMENT:SAND ratio (max) or 1:1:5 CEMENT:LIME:SAND

Base

- **Cement:** BS12:1996 – Specification for Portland cement
- **Concrete:** 1 layer of A393 mesh to top face of base slab. Minimum 55mm cover to any face. B500B or B500C, BS4483

Brickwork

- English bond, flush pointed

Frame and cover

- Frame cover to be installed to DMRB CD534 installation practices

Lifting keys

- Key Joint Box Lifter should be used to lift the cover and can be purchased from TW Engineering Co Ltd at www.twtools.co.uk (tel: 0115 932 3223) or similar supplier of your choosing

Ducting

- Duct to be cut flush to the internal box wall
- Duct must not enter through corners and be no less than 75mm from the side wall
- Duct to enter wall no less than 450mm from the top of the frame

Frames and Covers

Cubis Industries is the only supplier of these Openreach approved products.

Only approved frames and covers shall be fitted on your site. They are identifiable by the following markings; 'EN24 B125' the British Standards kitemark the Manufacturer Mark (SID), the year of manufacture and the BT identifier.

The 'standard frames and covers' are supplied by Openreach. They consist of a galvanised steel fabricated frame, fitted with unfilled galvanised steel fabricated cover trays and cross-beams.

All covers can be fitted to brick or concrete.



Please note

Where there's evidence or high risk of vehicles using the soft verge e.g. as an undertaking area opposite a T-Junction, a passing point on a narrow road or a parking area, it will be necessary to install a 'carriageway chamber, frame and cover'. **There is also an optional 'recessed frame and cover'.**

Recessed frames and covers

These can be purchased by the installer as an option to the 'standard frame and cover'.

Each cover tray has two key-hole fittings (in the centre of the short side) one of which carries a BT identity mark and the manufacturers' three letter identification 'SID'. The other key-hole fitting displays EN124 and B125 together with the BSI Kite mark certifying the covers to BS EN124: 1994. Recessed frames and covers will accommodate infill blocks to a maximum depth of 60mm. If you're planning to install frames and covers that aren't supplied by Openreach e.g. for block paving, or you have any doubts about what frames and covers to use, please speak to your FBC.



Installation

All frames and covers shall be levelled to the final running surface.

Where a box is located within grass, soft or unmade surfaces, the frame shall be surrounded with a 100mm wide strip of minimum grade C25/30 concrete, to the full depth of the frame, finished level with the top edge of the frame and the outside edge. It must be straight and parallel to the frame.

Unapproved frames and covers

Unapproved frames and covers must not be fitted. Openreach will take any necessary action against any developer who fits unapproved frames and covers within the network, including any potential claim for damages and costs, with possible delayed Service On Demand (SOD) payments. If you're unsure how to specify approved covers, please contact your FBC.



Dropped kerb and shared surface chamber boxes

If your site has shared surfaces for roads and footways, please ensure the correct joint box is installed based on the following guidelines.

- There must be a defined kerb line between the road and footway to install a footway spec box or modular quadbox in the footway area
- If no defined kerb line is present, a carriageway spec box must be installed as regular traffic could pass over these areas
- Driveways attached to houses and entrances to service areas do not require a carriageway spec box, so footway and modular quadboxes can be used for these areas



Example of a defined kerb line on a shared surface

Modular jointing chambers – Quadbox™

The optional approved pre-formed chamber system Quadbox™ can be used to speed up the installation process and bring significant productivity benefits as there is no need for specialist box building teams and concrete backfill to be used.

The Quadbox™ is not a free stores item from Openreach, but can be purchased directly from our two approved suppliers, Radius Systems and Cubis. These suppliers provide modular boxes in both black and grey and are the only approved suppliers for Openreach. For purchasing enquiries please contact the sales and marketing manager for Radius at the following details:

Sandra Davoust McCann

Email: Sandra.DavoustMcCann@radius-systems.com

Tel: +44 (0)28 3844 6060

Quadboxes can also be sourced from a number of nationwide builders' merchants. This may be more suitable for smaller sites that need lower quantities.

Joint box modular footways 104 and 106 are the Openreach approved versions (BT specification LN712). Box furniture items slot into moulded pockets within the chamber, eliminating the need to cast-in fixings or drill on site. Duct entries are also easy to achieve, using a standard hole saw mounted on a cordless drill.

The lightweight high-strength system is supplied as 150mm deep twin wall high-density polyethylene (HDPE) rings to provide maximum flexibility and strength which are simply stacked on a prepared base and backfilled with suitable as-dug or Type 1 material.

See the suppliers Installation Guide which comes with your box. If purchasing a pre-formed chamber please speak to your FBC who can order all associated box furniture.



Furniture

Cable brackets and steps (where required) are supplied in a bagged kit and easily slot into purpose designed pockets in the chamber. The brackets and steps drop into preformed slots.



Available Size Range		
Product Code	Clear opening	Depth Per Section
JMF104	915x445mm	150mm
JMF106	1310x610mm	150mm

At least 5 sections are needed to meet the minimum box depth of 750mm.

Duct entries

Duct entries can be cut as and where required using a hole saw mounted on a cordless drill.

The chambers incorporate guides which identify drilling points to ensure correct duct spacing.

A maximum of 4 duct entries can be made into a single wall of the Quadbox™.



Camber Adjustment

If the frame requires levelling to the ground surface, or to a newly raised surface level, rising frame units (as shown) are available as an option. These should be used in conjunction with mortar to build the frame up to the required level. Where levels mean that the cover needs raised by more than the 50mm allowable mortar bed, bricks, quarry tiles etc. should not be used to adjust the height of the cover.

A further Quadbox section should be cut horizontally (minimum depth to be a 40mm wall section), with the voids of the cut chamber filled with C32/C40 concrete or mortar.

Quadbox points of note

- As with brick built chambers, care should be taken to make sure:
- The box is set at the correct depth and the base/plinth is installed correctly.
- The side wall is not damaged/misshapen due to over compaction.
- The frame is level with the surface and a core drill is used for cutting duct entries.
- The wall bearers are provided by Openreach and can be ordered by your FBC.

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