



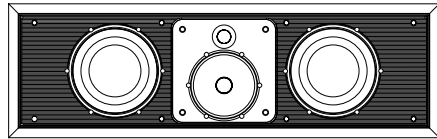
*Signature* **8NT**

Installation Instructions

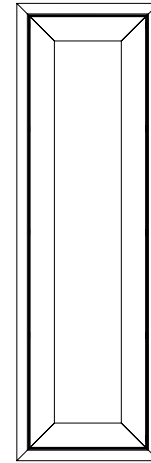
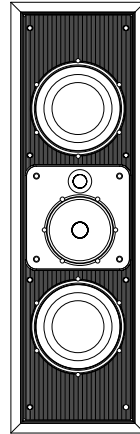
**B&W** Bowers & Wilkins

# Contents

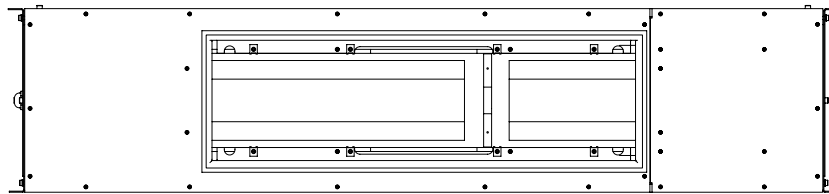
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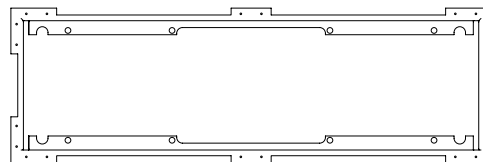
Baffle



Wall frame and grille



Back box



PMK

## **Cut-off diagrams**

# English

## INTRODUCTION

### Description

The Signature 8NT is a 3-way in-wall speaker capable of true audiophile performance. The total design is divided into four separate modules:

1. Wall frame and grille
2. Baffle with drive units and crossover
3. PMK (Pre/post Mount Kit)
4. Back box

Separately packing each module enables parts to be stored safely off site until they are needed. The first two modules are required for all installations and so are delivered together in a master carton. See below in this section to find out whether you need either the PMK or the back box for your particular application. You will need one of them, but not both.

The speaker may be bi-wired or bi-amplified if desired. On delivery, the two pairs of input terminals are shorted together for single wiring by two looped link wires on the crossover board. To bi-wire or bi-amplify, snip these link wires at the top of the loop. This will allow enough length for reconnection later if desired.

Do not begin the work until you have thoroughly read this guide.

To get the best from the speaker, it is important that it is installed in a proper manner. We suggest you familiarise yourself fully with these instructions before starting any work. If there is any point you do not understand, help and advice is available from the appointed B&W distributor/importer in your country.

### Installation options

#### Warning;

The speaker drive units create stray magnetic fields, which may affect televisions containing conventional cathode ray picture tubes. Keep the

speaker at least 50cm (20 in) clear of such devices. Some particularly sensitive televisions may require further spacing.

The Signature 8NT can be installed in drywall or solid construction in either vertical or horizontal orientation. With existing drywall construction, the speaker can readily be retrofitted in the vertical orientation. However, horizontal orientation requires cutting into vertical wall studs, so is a major job, more akin to new construction than normal retrofit.

#### The wall frame and grille

The wall frame is installed after final plastering, but before decorating. The grille mesh and frame may be painted as desired before the baffle and drivers are fitted.

#### The baffle

The baffle contains all the working parts of the system. Having it separate from the frame makes it easier to fit the frame and avoids possible damage to the drivers during decorating.

#### The back box

In drywall construction, the back box provides extra sound insulation between adjacent rooms and a safety barrier to the spread of fire between the wall cavity and the room. If you are working with solid walls, the back box gives a defined working volume that extends beyond the immediate area of the speaker itself. Any smaller volume and the speaker will have a restricted bass performance. For extra flexibility in installation, for example keeping clear of other objects in the wall, the speaker may be positioned either in the centre of the back box, or to one end. (Figure 16 )

#### The PMK

The PMK is used in drywall construction whenever the back box is not required, whether new construction or retrofit.

## PLANNING THE SPEAKER POSITION

### Overview

Consider carefully where the speakers are to be

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placed in the room according to the application. The following are guidelines but, as with any custom installation, specific on-site conditions may require adaptation. In particular, the position of wall studs in drywall construction may necessitate adjustment of the recommended speaker position.

The speaker may be installed in either vertical or horizontal orientation, the latter normally used for centre channel applications to allow positioning above or beneath the screen.

In order to maintain optimum horizontal dispersion through the upper crossover region and cover a spread of listeners, the centre portion of the baffle containing the midrange and tweeter should be rotated by 90° so that the drivers are positioned one above the other.

The summing axis of the midrange and tweeter is deliberately tilted 5° towards the midrange driver and this, together with the ability to rotate of the centre portion of the baffle, permits greater freedom when planning the vertical position of the speakers. If the speaker is to be mounted with its centre above ear height, turn the sub-baffle so that the tweeter is above the midrange. If it is to be mounted below ear height, have the tweeter below the midrange. Try to keep the centre within 10° of ear height for best results. Beyond 10°, a response dip at crossover will begin to develop, which will make the sound seem more recessed. Consider 15° the maximum to allow. (Figure 1)

In horizontal orientation, the speaker will cross normally spaced vertical drywall studs, so special stud construction will be required to give the necessary clearance, even if not using the back box.

### 2-channel audio

Aim to have the speakers and the front centre listener approximately at the corners of an equilateral triangle. The listening distance will then determine the speaker separation. If you are restricted, err on the side of having the speakers closer together to avoid the 'hole in the middle' effect. (Figure 2)

The height of the speakers should ideally be such that the centre of the baffle is within 10° of ear height.

### Multi-channel left/right front

The angle between the speakers at the listener is normally less than for 2-channel audio. Normally this means the speakers are within 0.5m (20 in) of the side of the screen.

The height should be chosen so that the centre of the baffle is as close to screen centre height as possible, while keeping within 10° of ear height.

### Multi-channel centre front

If using an acoustically transparent projection screen, position the speaker as close to screen centre as possible, while keeping within 10° of ear height. Use vertical orientation.

In all other cases, orient the speaker horizontally and place it either immediately above or below the screen.

### Multi-channel surround

Place the speakers with the centre of the baffle around 60cm (2 ft) above ear height to give a more diffuse sound than from the front speakers. For 5.1 channel systems, the two surround speakers should be positioned an angle of approximately 120° round from front centre. (Figure 3) For 6.1 EX systems, the two side speakers should be more forward than this, almost in line with the listeners. One speaker should be placed on the rear wall directly in line with the centre of the listening area. Alternatively two rear speakers may be used side by side, one either side of a stud in drywall construction. (Figure 4) For 7.1 systems, the two rear speakers should be further apart. A good guideline is for them to have an angular spread of about 40° to the listeners. (Figure 5)

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## CHECK THE CONTENTS

### Wall frame and grille pack

- Wall frame
- Metal grille with scrim attached
- 8x M5 x 30mm screws (frame to PMK or back box)

### Baffle assembly pack

- Baffle with drivers and crossover
- 8x M6 x 25mm screws (baffle to frame)
- Owner's Manual
- M6 Allen Key
- 4x Card spacers

### PMK pack

- PMK frame
- 6x brackets
- 12x self-tap screws
- Cut-out template

### Back box pack

- Back box
  - Front panel
  - Foam pad
  - 4x brackets
  - Cable entry gland
  - Rubber grommet
  - 2m foam gasket strip
  - 22x self-tap screws (front panel to back box)
  - 16x M6 screws (brackets to back box)
  - 16x M6 washers (brackets to back box)
  - M6 Allen key
- 

## INSTALLATION PROCEDURES

### Existing drywall construction (retrofit) without back box

#### Stage 1 – cutting the sheetrock (plasterboard)

Simple retrofitting is only possible with vertical orientation. For horizontal orientation, follow the instructions for new construction.

Use a stud-finding tool to find the position of the wall studs. Preferably choose a cavity that has no other services running through it in order to avoid the likelihood of rattles. There should be a minimum of 120cm (4 ft) between any cross studs to allow sufficient working volume behind the speaker.

Using the template provided and a spirit level, mark and cut out the hole for the speaker.

#### Stage 2 – preparing the cavity (Figure 6)

Pull the cable through to the top of the aperture plus 30cm (1 ft) to facilitate connection.

Insert suitable absorbent wadding into the cavity, but leave the area immediately behind the aperture clear. Glass or mineral fibre normally used for heat insulation and open cell foam are suitable for this purpose, but ensure they comply with the appropriate local fire and building regulations.

#### Stage 3 – fitting the wall frame

Have on hand the PMK frame, the wall frame (having removed the metal grille) and at least 2 screws from the wall frame module.

### New drywall construction without back box

#### Stage 1 – fitting the PMK

Ensure the wall studding is properly prepared.

In vertical orientation, the PMK fits between two adjacent studs on standard 40cm (16 in) spacing. The speaker needs a minimum of 40 litres (1.4 cu ft) operating volume, so ensure there is a minimum of 120cm (4 ft) clear height in the cavity not obstructed by cross studs. (Figure 9)

In horizontal orientation, it is necessary to cut through 2 vertical studs and therefore cross studs should be fitted above and below the speaker to support the wall. A clear vertical spacing of 38cm (15 in) between the cross studs is needed to provide the necessary volume for the speaker. (Figure 10)

Keep the whole of the cavity available to the speaker clear of services or ducting that may be induced to rattle.

Screw the 6 brackets to the front of the PMK frame using the self-tapping screws provided. In vertical orientation, use the 6 anchor positions down the long sides. (Figure 9)

In horizontal orientation, use the 4 anchor positions along the short sides and the 2 central ones along the long side. (Figure 10)

Screw or nail the brackets to the wall studs, using a spirit level to ensure the frame is properly square.

### New drywall construction with back box

#### Stage 1 – fitting the back box

Ensure the wall studding is properly prepared so that there is sufficient clearance for the back box and its cable entry gland. The speaker baffle may be positioned either in the centre or to one end of the back box, allowing greater flexibility in positioning the back box around the desired speaker position. (Figure 16)

In vertical orientation, the back box fits between two adjacent studs if on standard 40cm (16 in) spacing. (Figure 13)

In horizontal orientation, it is necessary to cut through 3 vertical studs and therefore cross studs should be fitted above and below the back box to support the wall. (Figure 14)

Attach the 4 brackets to the back box as required to fix to the wall studs. Use 4 M6 machine screws and washers per bracket. If the brackets are fitted to a short side, they overlap and only 6 screws are required to fix 2 brackets. Do not tighten the screws fully at this stage to allow the brackets to slide. (Figures 13, 14 & 15)

Knock out one of the circular cable entry discs in the back box and fit the cable entry gland. If using vertical orientation, knock out the disc in the short side at the open end. If using horizontal orientation, knock out one of the discs in a long side, preferably one nearest the open end.

### New solid wall construction with back box

#### Stage 1 – building in the back box

The back box is used to define the working volume of the speaker and should be built in to the brick or block work in a similar manner to a window frame. The brackets, machine screws and cable entry gland supplied will not be required. Care must be taken to avoid the back box rattling against the wall. It should therefore be wedged in position such as to give a clear gap all round. If it is desired to settle the back box onto the lower course of bricks, use a flexible mastic rather than cement or mortar. The back box is not designed to take the weight of the wall above, so a suitable lintel should be used. (Figure 18)

Before positioning the back box in the wall, knock out one of the circular cable entry discs in the back box and fit the rubber grommet to avoid chafing the cable. The cable entry gland is not required. If the wall is an internal, single thickness wall, it is probably easiest to use one of the cable entries in the back face and run the cable on the reverse side of the wall. (Figure 19) To aid alignment, temporarily fit the front panel to the back box the desired way round, using 2 of the self-tapping screws. (Figure 16) To prevent debris entering the back box, tape a sheet of polythene or similar over the aperture until all the brickwork is complete.

With retrofit applications, the brackets and screws provided in the PMK pack are not required.

**Warning:**

Beware of the edges of the sliding nuts when handling the PMK frame. You may wish to wear a glove.

Feed the PMK frame through the aperture in the sheetrock (plasterboard) and pull forward into position. (Figure 7)

With one arm passing through the wall frame, hold the PMK in place and offer the wall frame into position with the other hand. Pinching the parts to each side of the sheetrock with one hand, insert and finger tighten the 2 screws to hold the parts together. (Figure 8)

Insert the remaining 6 screws and level the frame before tightening the screws until the wall frame and PMK frame securely grip the sheetrock.

Feed the speaker cable (single or bi-wire) to the nearest end of the PMK frame to avoid having to pass the cable behind the speaker. Secure the cable so that it cannot rattle against the studding or drywall panels. Allow around 30cm (1 ft) of free cable to facilitate connection.

**Stage 2 – fitting the sheetrock** (Figure 11)

Attach the sheetrock (plasterboard) to the wall and cut out an aperture flush with the inner edge of the PMK front face.

Fill the cavity outside the area of the PMK with suitable absorbent wadding. Glass or mineral fibre normally used for heat insulation and open cell foam are suitable for this purpose, but ensure they comply with the appropriate local fire and building regulations.

**Stage 3 – fitting the wall frame** (Figure 12)

Fit the wall frame after the final plaster skim coat has been applied, but before decoration.

Remove the grille mesh from the wall frame and screw the frame to the PMK using the 8 screws provided.

Remove the nut at the short end of the entry gland and insert from the outside so the long end points out of the back box. Refit and tighten the nut on the inside of the back box. (Figure 15)

To aid alignment, temporarily fit the front panel to the back box the desired way round, using 2 of the self-tapping screws. (Figure 16)

Line up the back box and screw or nail the brackets to the wall studs. Use a spirit level to ensure the frame is properly level and tighten all the screws holding the brackets to the back box. (Figures 13 & 14)

Remove the front panel and feed the speaker cable (single or bi-wire) through the cable entry gland. Route the cable through the wooden bracing studs and pull through enough length to reach the nearest end of the opening in the front panel plus 30cm (1 ft) for ease of connection. Secure the cable so that it cannot rattle against the studding or drywall panels. Tighten the cable entry gland around the cable.

Position the foam pad in the back box so it will clear the aperture and screw the front panel securely in place in the desired orientation. (Figure 16 with foam position in grey) Use 16 self-tap screws round the outer edge, 4 in the recessed long sides of the aperture and 2 near one short side of the aperture.

Run the foam tape provided round the edge of the aperture to act as a seal to the sheetrock. (Figure 17)

**Stage 2 – fitting the sheetrock**

Attach the sheetrock (plasterboard) to the wall and cut out an aperture flush with the lip of the opening in the back box. (Figure 11)  
Remove debris from the inside of the back box with a vacuum cleaner.

**Stage 3 – fitting the wall frame** (Figure 12)

Fit the wall frame after the final plaster skim coat has been applied, but before decoration.

Remove the grille mesh from the wall frame and screw the frame to the back box using the 8 screws provided.

When the brickwork is complete, remove the front panel from the back box. Run the cable into the back box. Take it to where one end of the aperture will be, then leave an additional 30cm (1 ft) to aid connection.

Position the foam pad in the back box so it will clear the aperture and screw the front panel securely in place in the desired orientation. (Figure 16 with foam position in grey) Use 16 self-tap screws round the outer edge, 4 in the recessed long sides of the aperture and 2 near one short side of the aperture.

Run the foam tape provided round the edge of the aperture to act as a seal. (Figure 17)

**Stage 2 – finishing the wall**

Even if plastering the wall in the traditional manner, we recommend that, for vibration reasons outlined above, the surfaces of the back box (front and back) are covered by sheetrock (plasterboard) attached with mastic. On the front face, a hole should be cut in the sheetrock flush with the lip of the aperture in the back box. At the back, allow for the cable if necessary. If there is no option to wet plastering, pre-coat the back box with a suitable adhesive first.

Remove debris from the inside of the back box with a vacuum cleaner.

**Stage 3 – fitting the wall frame** (Figure 12)

Fit the wall frame after the final plaster skim coat has been applied, but before decoration.

Remove the grille mesh from the wall frame and screw the frame to the back box using the 8 screws provided.

## All applications

### Stage 4 – decorating

In preparation for painting, lightly abrade the flange of the wall frame with fine emery cloth to provide a key and remove the scrim from the back of the grille mesh.

The frame and grille may be painted using normal water-, oil- or enamel-based paint, applied by brush, roller or spray as desired. Spray painting the metal grille is preferred as there is less chance of blocking the holes.

Do not paint the grille mesh with the textile scrim in place as this will close the pores and impair the sound quality.

### Stage 5 – fitting the baffle and grille

The baffle assembly is supplied with a steel bar linking the magnets of the bass and midrange drive units. This bar is for protection against shock in transit and must be removed before fitting the baffle, by simply removing the central screw into the midrange drive unit. We suggest you retain the bar, spacer and screw should the baffle need to be transported at a later date.

Orient the baffle so that the terminals are close to the cable. Before fitting, make sure the central sub-baffle is the right way round. The tweeter and midrange should be one above the other, with the midrange nearer ear height. (Figure 1)

Tape the 4 card spacers in the bottom corners of the wall frame to give the correct vertical and horizontal alignment. Lodge the lower edge of the baffle in the wall frame and lean the top out while connections are made. Check to see that the wire loop links are cut if you are bi-wiring or remain connected for single wiring. Then push the baffle fully into place and secure with the screws provided. Remove the card spacers. (Figure 20)

Refit the scrim to the grille mesh and smooth down all bubbles before pushing the grille into position. If the scrim does not lie neatly on the grille, spray the back of the metal mesh (not the scrim) with a suitable adhesive such as 3M Spraymount.

## HANDING OVER

On completion of the job, fill in the dealer details section of the Owner's Manual/Warranty booklet from the baffle assembly pack and hand it to the client.

Figure 1

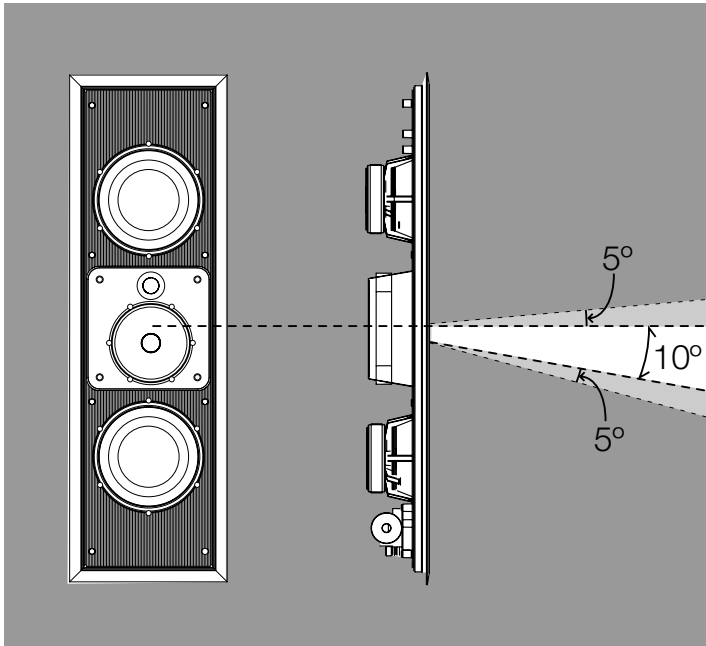


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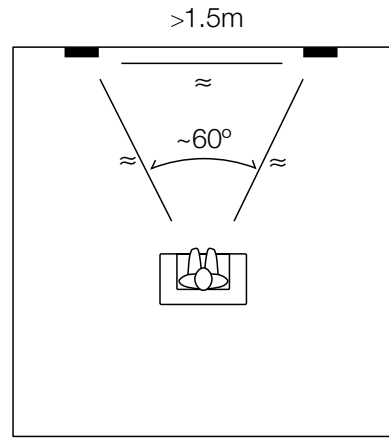


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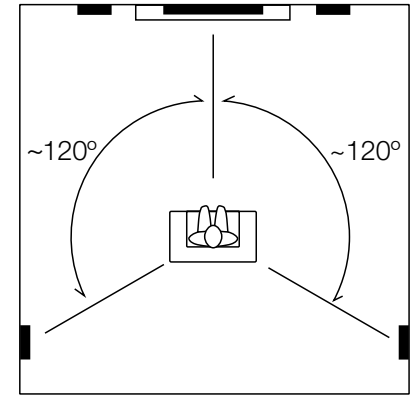


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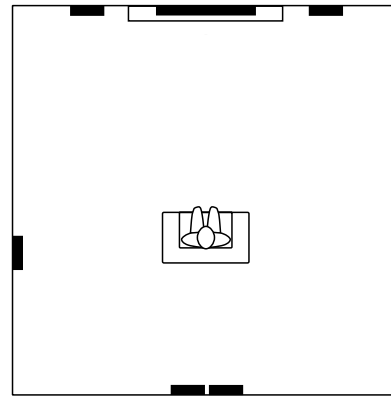


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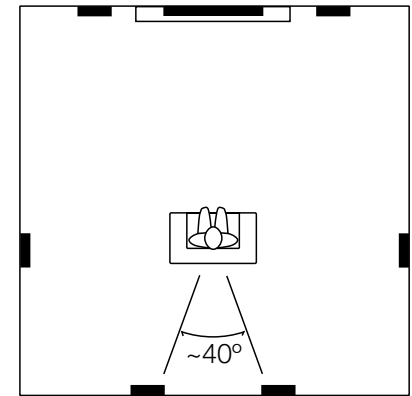


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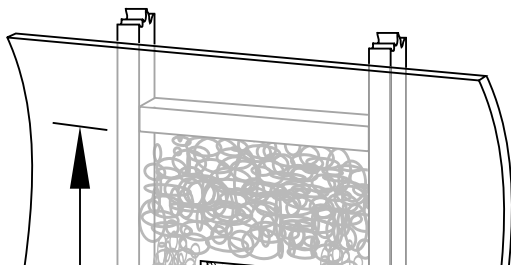


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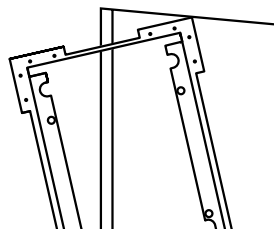


Figure 8

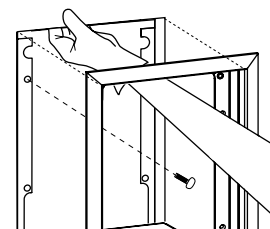
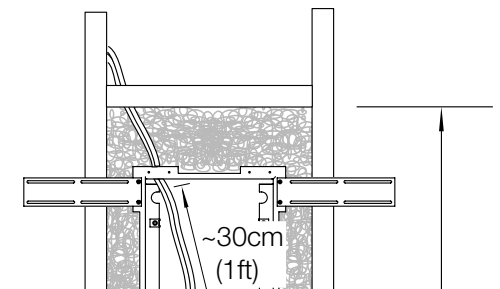


Figure 9



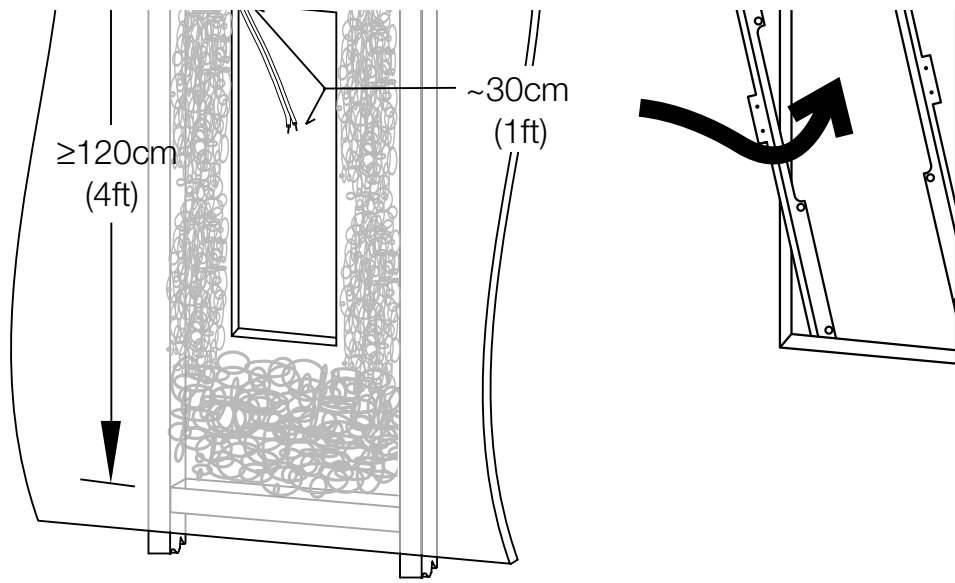


Figure 10

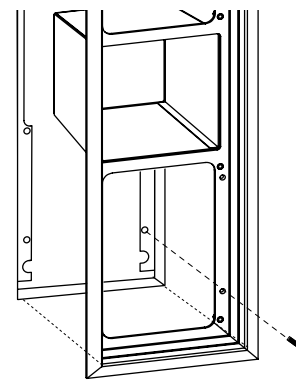


Figure 11

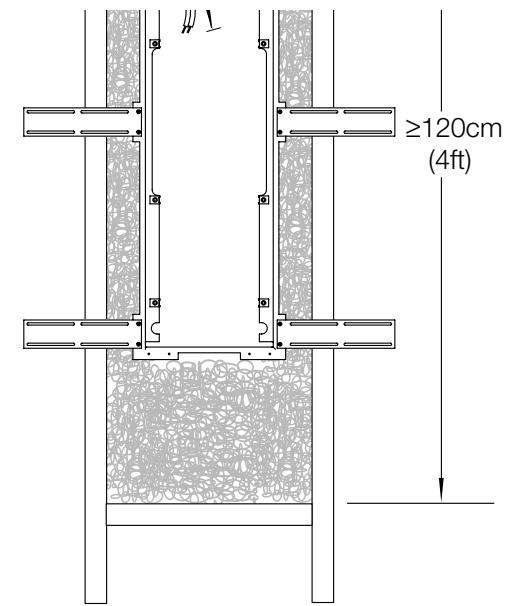


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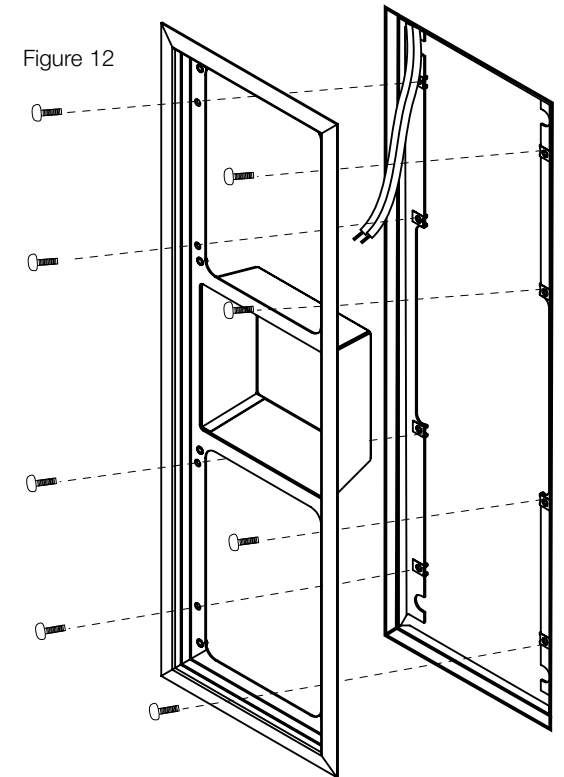
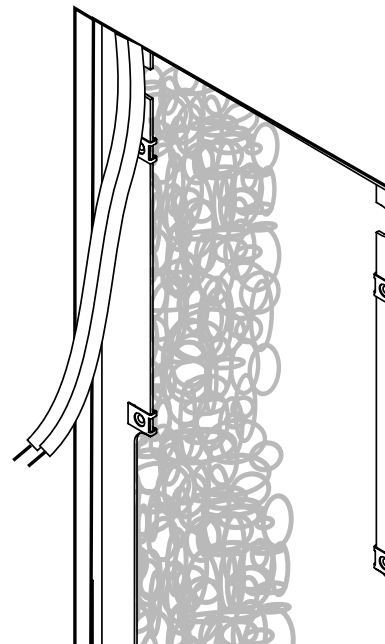
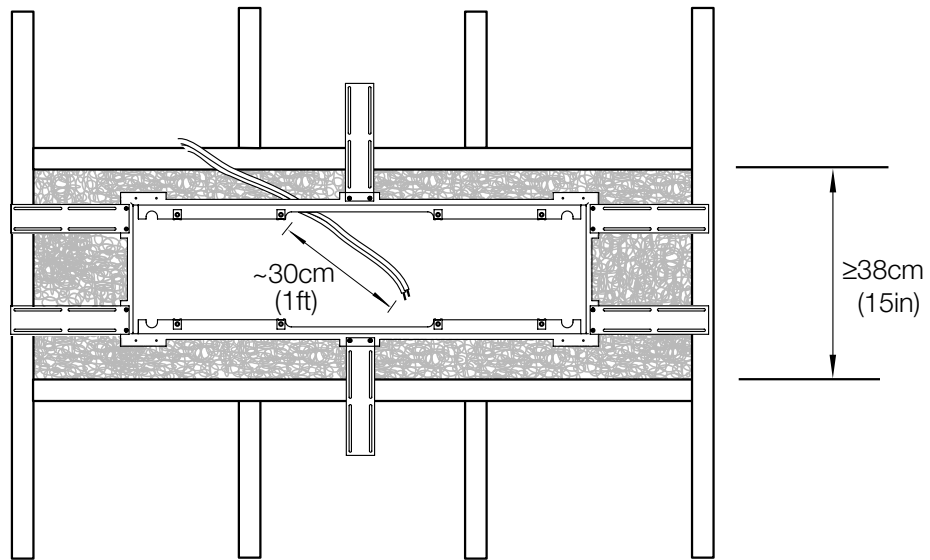


Figure 13

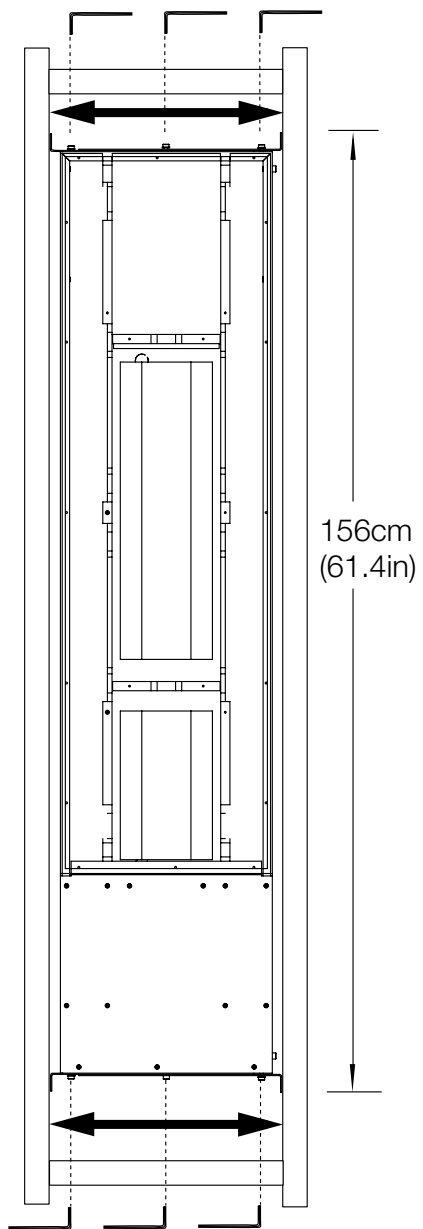


Figure 14

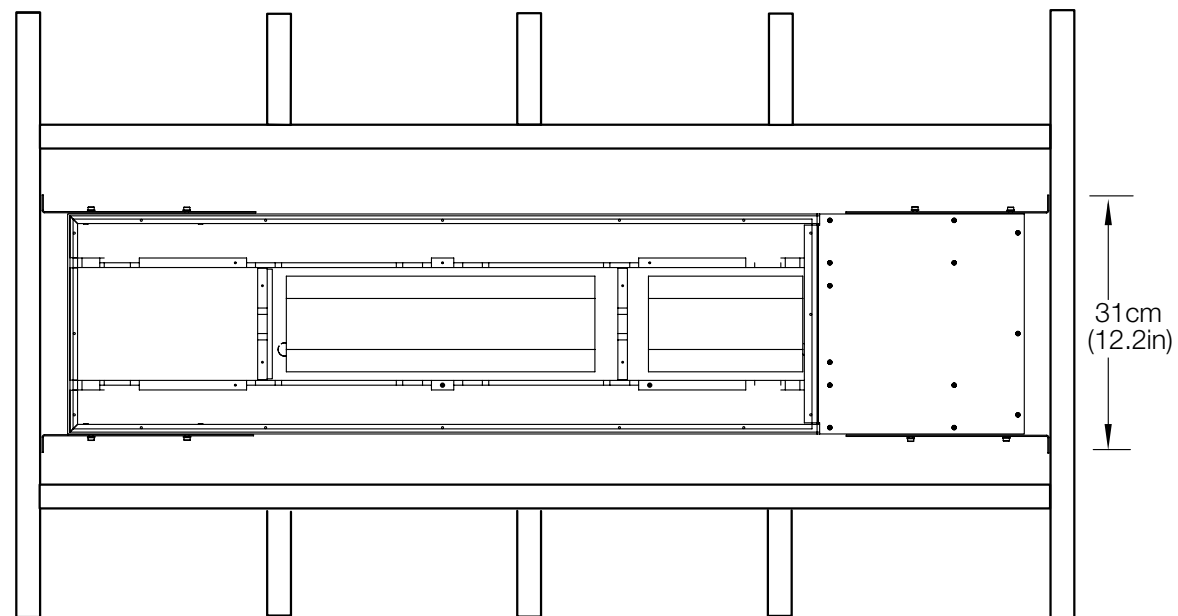


Figure 15

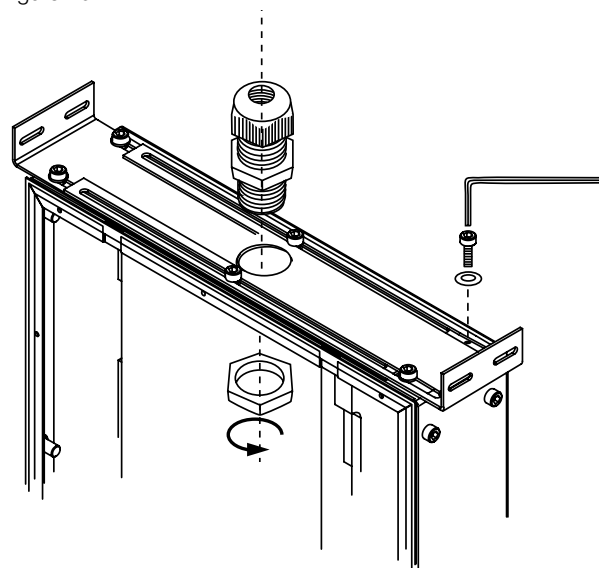


Figure 16

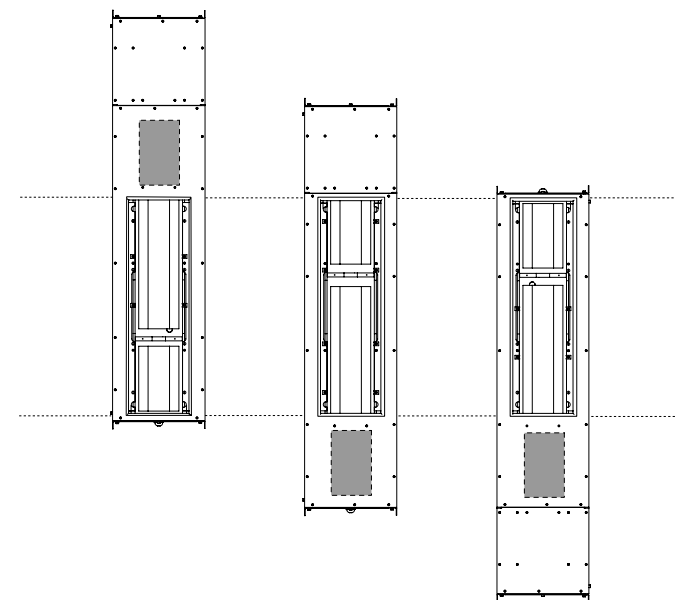


Figure 17

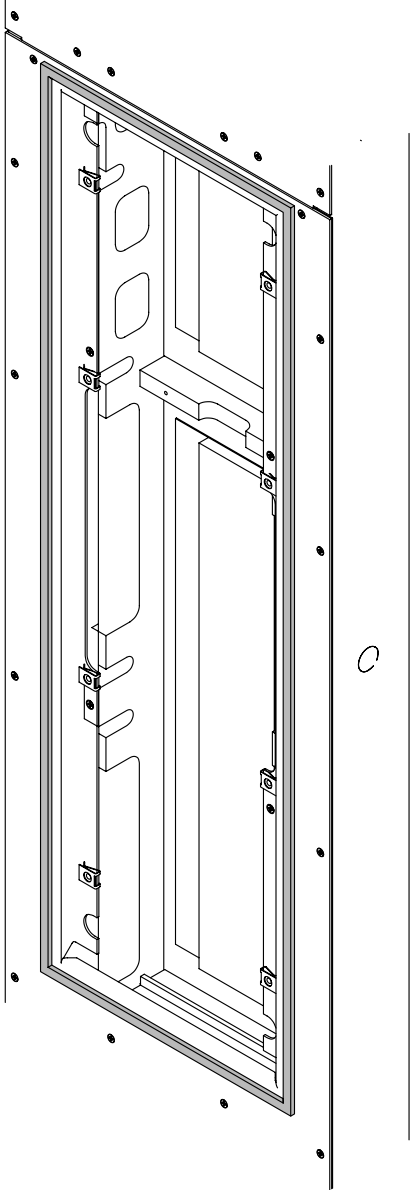


Figure 18

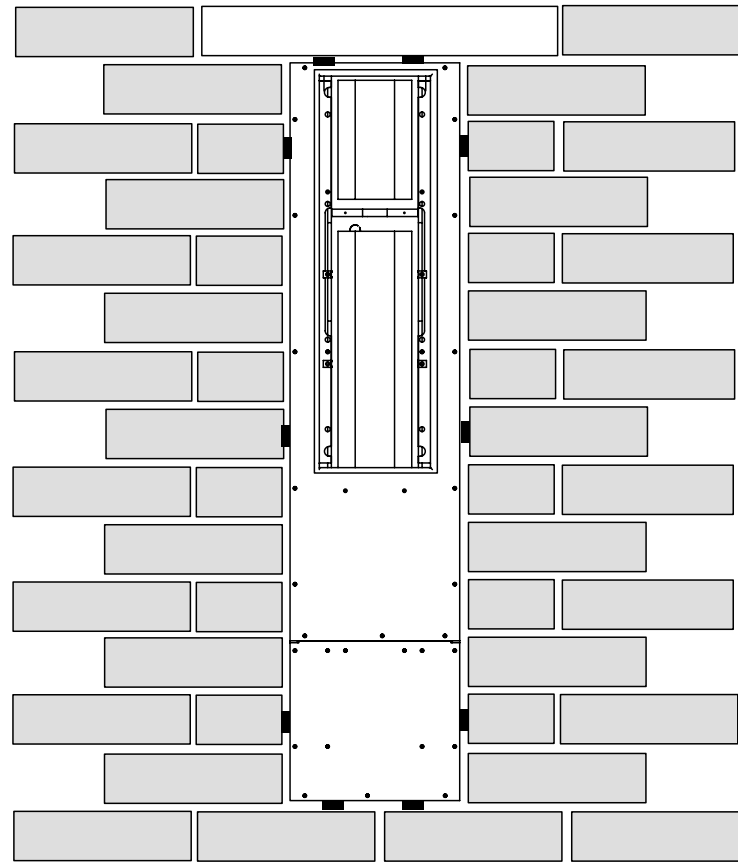


Figure 19

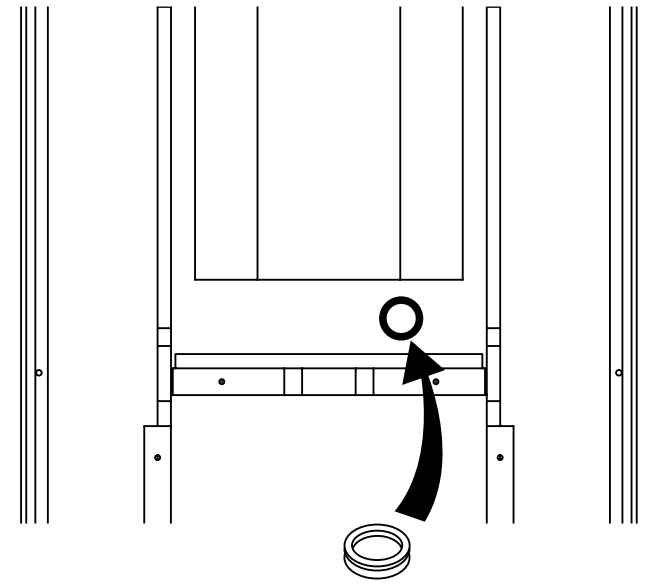


Figure 20

