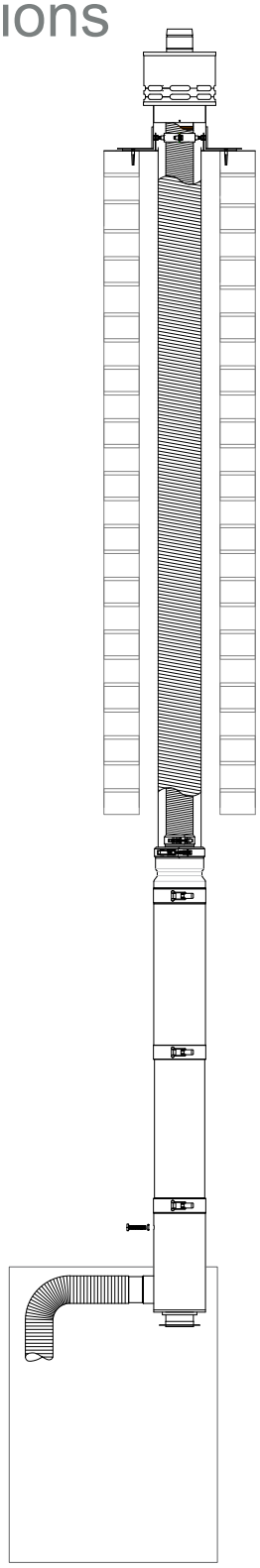
Red System

Flexible Vertical Balanced Flue

Incorporating smooth bore flexible flue liner

Installation Instructions



Suitable for Grant Vortex Condensing boilers with outputs up to 26kW

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1 GENERAL

The Grant RED flue system is a flexible vertical balanced flue system designed to be fitted inside an existing masonry chimney. It basically consists of three sections:

- Concentric white painted flue pipe connected to the boiler
- Vertical concentric flexible flue (flexible stainless steel inner flue liner inside a flexible stainless steel outer flue liner)
- Terminal assembly for chimney top mounting

The flue pipe seals are factory fitted and must be lubricated with the lubricant supplied before assembly.

The Grant RED flue system is supplied as a kit in two packs:
- Pack 1 - Flue components
  and
- Pack 2 - Flexible flue liners

Refer to kit contents for details of components included. Flue extensions and 45°elbows from the Grant 'White' system may be used to extend the flue system between the boiler and the flexible section of the system.

The maximum vertical straight length of flue, from the top of the boiler to the top of the terminal, is 20 metres – using no more than four 45° elbows. Deduct 1 metre of straight flue length for every elbow used.

! NOTE !

If the flexible liners have to pass around an offset inside the chimney deduct 2 metres of straight flue length to compensate for this.

The available flue extensions are shown in Figure 1-1.

Flue extensions cannot be cut, use adjustable extensions where required.

Four types of locking band are supplied with the kit.

The first type is painted white and is for connecting flue sections that butt together (2 of this type of locking band are supplied). Refer to item F in Figure 3-1.

The second type, also painted white, is to cover the joint on the adjustable (telescopic) section. Refer to item G in Figure 3-1.

! NOTE !

The locking band for the adjustable section is labelled for easy identification.

The third and fourth locking bands are constructed from unpainted stainless steel. One is to secure the outer flexible flue liner to the adaptor (refer to item J in Figure 3-1) and the other is to secure the inner flexible flue liner to the adaptor (refer to item I in Figure 3-1).

The flue kit includes a Black coated terminal with upstand and is designed to be fixed (using the screws provided) to the top of a masonry chimney.

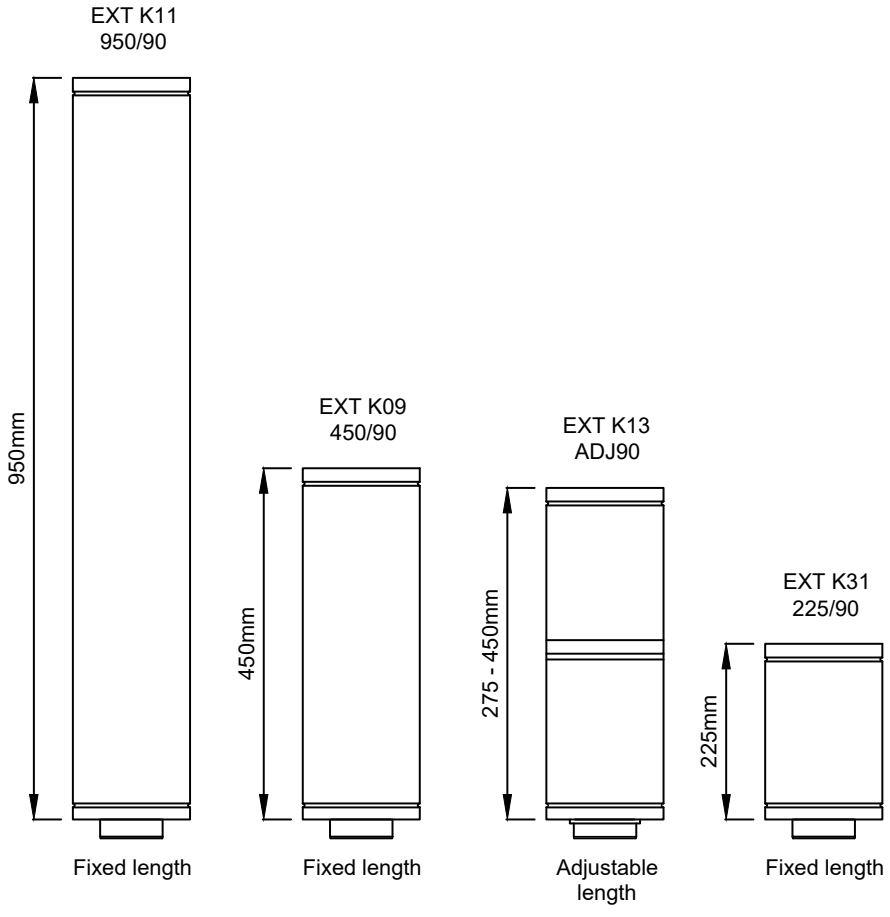


Figure 1-1: Red system flue extensions

2 DIMENSIONS

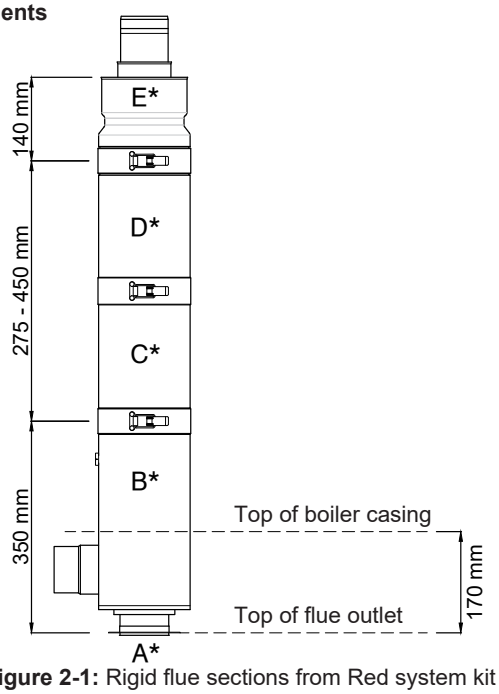
Outer diameter of Red system flue components

Rigid (White) flue sections 150mm

Flexible Stainless Steel outer 128mm

Vertical section

The dimensions shown in Figure 2-1 are measured from the top of the boiler flue outlet. The distance between the top of the boiler flue outlet and the top of the casing should be taken into consideration when working out flue length.



*Refer to Figure 3-1

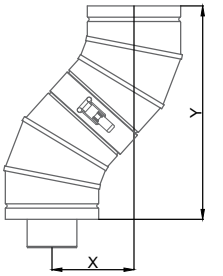
Figure 2-1: Rigid flue sections from Red system kit (pack 1) connected together

Elbows

The flue system may be offset using 45° elbows (ref. ELB K21 45/90).

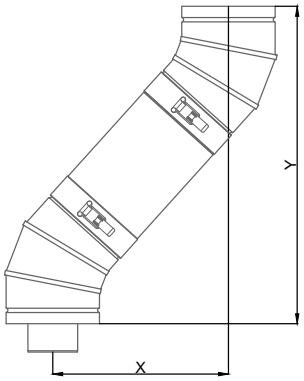
A maximum of four elbows should be used per system.

The elbows may be connected together or used individually to connect to additional extensions to form offsets as shown in Figures 2-2, 2-3 and 2-4.



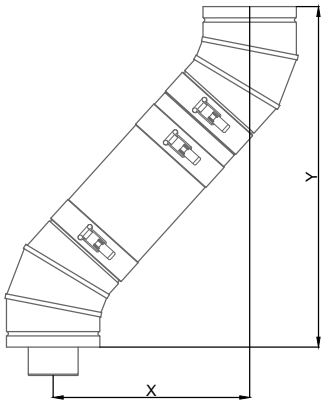
Y (mm)	X (mm)
340	130

Figure 2-2: Elbows directly connected



	Y (mm)	X (mm)
EXT-225	510	280
EXT-450	675	435
EXT-950	1050	770

Figure 2-3: Elbows connected to fixed extension



Y (mm)	X (mm)
545-675	315-435

Figure 2-4: Elbows connected to adjustable extension

Terminal

Dimensions of the terminal, mounted on the upstand, are given in Figure 2-5.

All dimensions are in mm.

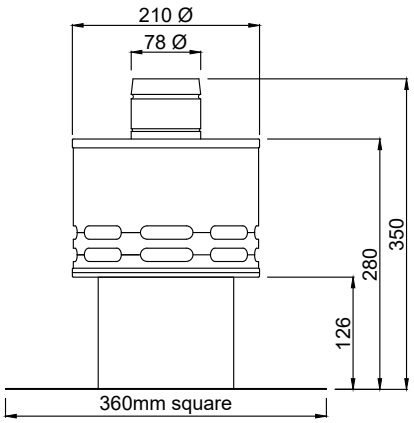


Figure 2-5: Terminal on upstand

3 KIT CONTENTS

Kit Contents

Pack 1 - Flue Components
(Refer to Figure 3-1)

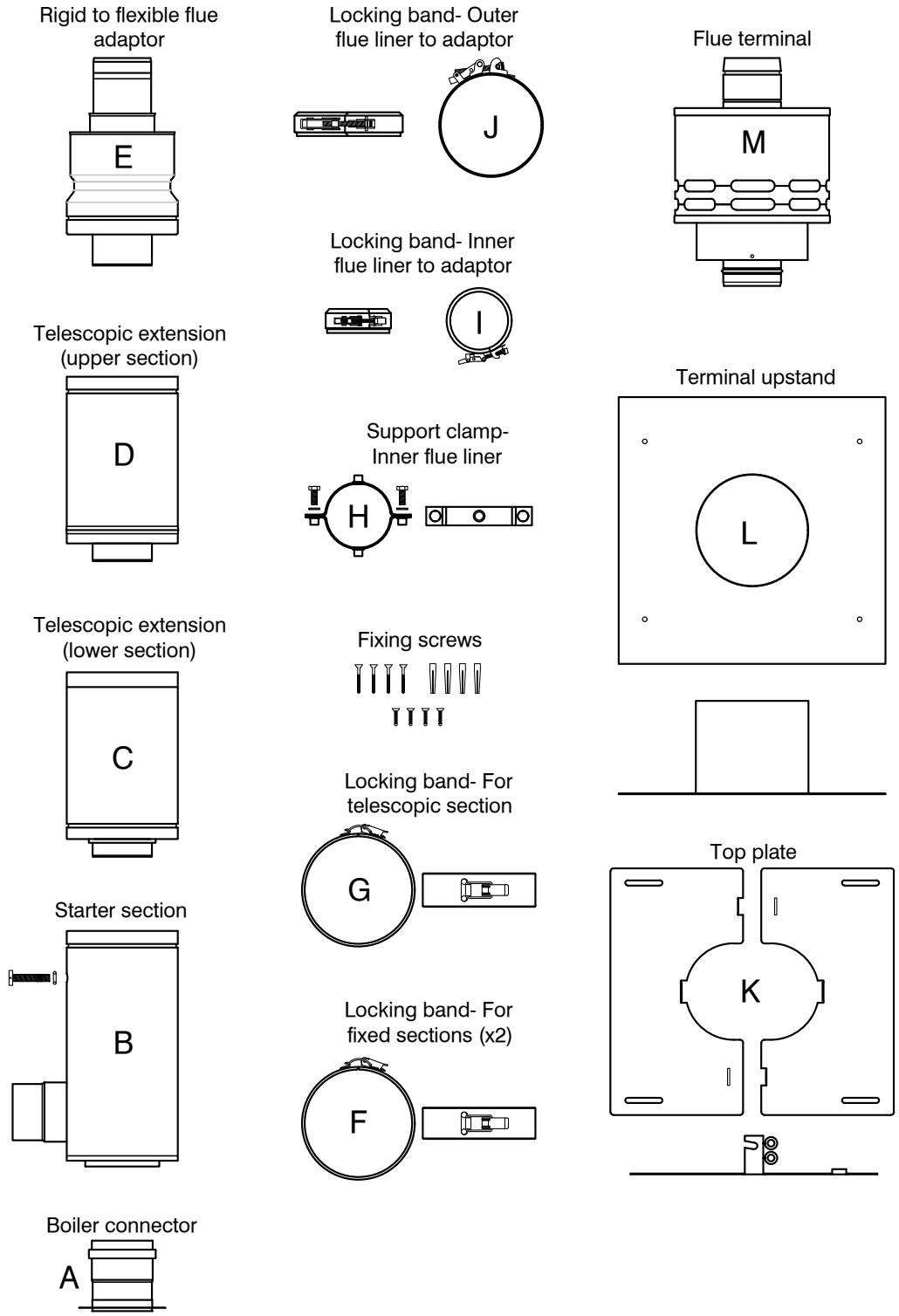


Figure 3-1: Pack 1 contents

Fixings (in poly bag with pack 1)

4 x Screws 5mm x 50mm – Stainless steel (to fix top plate)

4 x Masonry plugs (to fix top plate)

3 x Self tapping screws (for telescopic section)

1 x Self tapping screw (to fix terminal)

Pack 2 (not shown) - Flexible flue liners

80mm Ø smooth bore stainless steel inner flexible liner – length as per kit ordered

125mm Ø Stainless Steel outer flexible liner* – length as per kit ordered

*nominal overall diameter of outer liner is 128mm

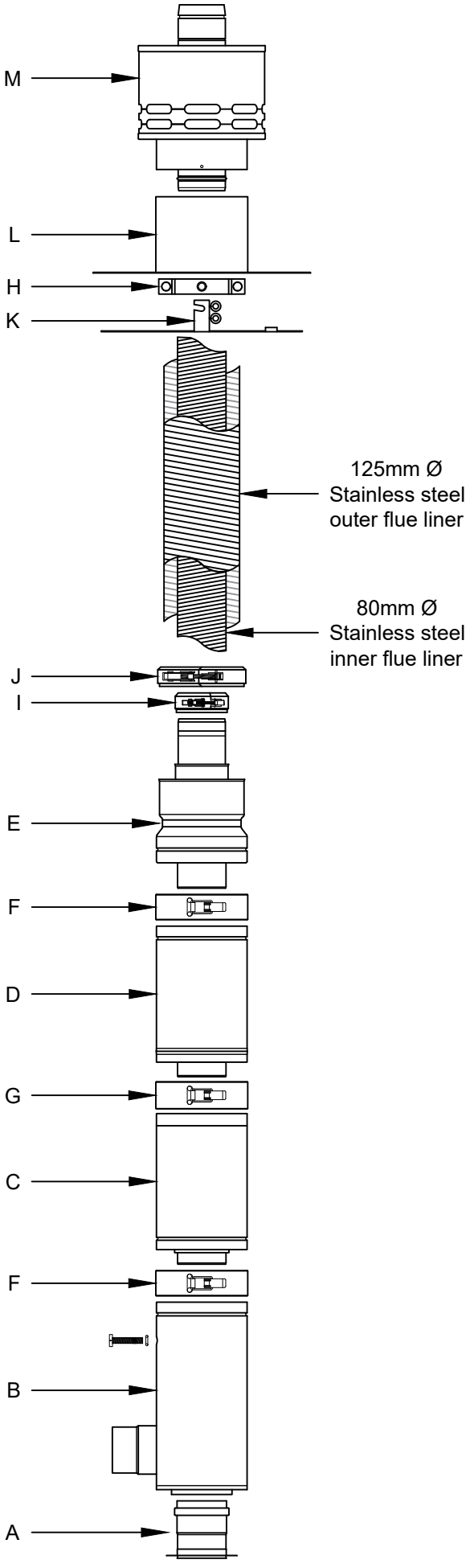


Figure 3-2: Exploded view of system

4 FITTING PROCEDURE

Before installing the flue system ensure that the chimney is thoroughly swept and check that there are no obstructions in the way of the intended flue route.

4.1 CONNECTION OF FLUE TO BOILER

1. Prepare boiler:
   - Remove the front boiler casing panel by pulling out at the top to disengage the fixing tabs and lifting upwards.
   - Remove both upper casing panels by lifting upwards to disengage the fixing tabs, starting with the front upper panel.
   - Remove insulation from the underside of the rear upper panel (do not discard it) and remove the round 'knock-out' panel.
   - Discard the round 'knock-out' panel.
2. Re-fit the insulation to the panel with the foil surface facing outwards. With a sharp knife, cut around the edge of the round opening in the panel to leave a round hole through the insulation for the flue to pass through.
3. Fit boiler connector:
   - Remove the connecting bolt fitted in the nut located in the centre of the boiler flue outlet.
   - Position the flange of the boiler connector onto the neoprene gasket around the boiler flue outlet.
   - Ensure that the small spigot on the base of the connector is located in the hole in the centre of the flue outlet.
   - Refer to Figure 4-1 (a) for guidance.

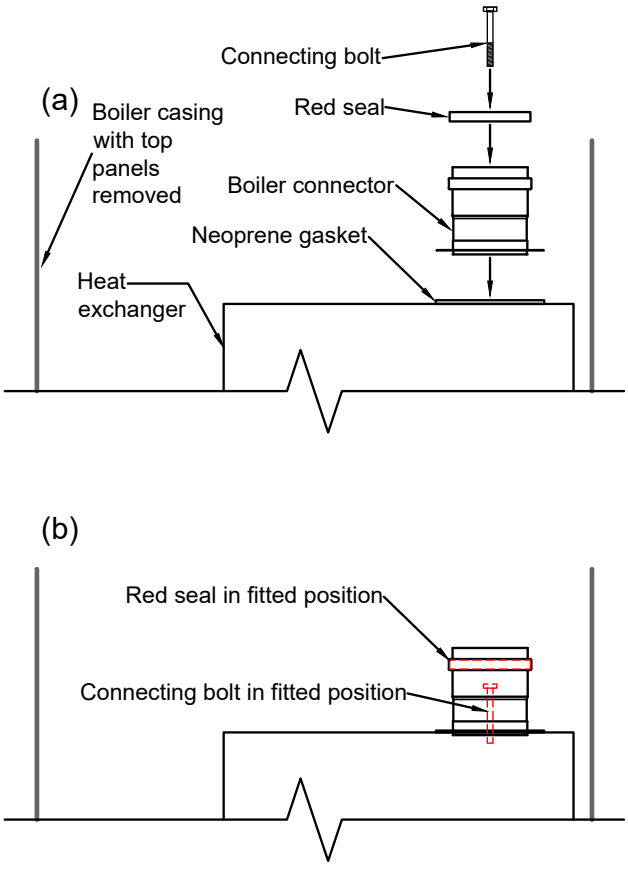


Figure 4-1: Fitting boiler connector

4. Re-fit the connecting bolt provided through the hole in the spacer bracket in the connector and into the nut in the flue outlet. Tighten to secure the connector.
   Refer to Figure 4-1 (b) for guidance.
5. Ensure that the red seal is fitted in the internal recess in the top of the boiler connector.
   Lubricate the interior edge of the seal using the silicone grease provided.
   Refer to Figure 4-1 (b) for guidance.
6. Fit the starter section of the flue system:
   - Locate the spigot in the bottom of the starter section into the boiler connector and push fully home.
   - Rotate the starter section so that the combustion test point is in an easily accessible location.
   - Remove combustion test point screw.
     Refer to Figure 4-2 for guidance.
7. Connect the flexible air inlet tube to the inlet spigot and secure with the wire hose clamp supplied with the boiler.
   Refer to Figure 4-2 for guidance.
8. Ensure that the red seal is fitted in the internal recess in the top of the starter section.
   Lubricate the interior edge of the seal using the silicone grease provided.

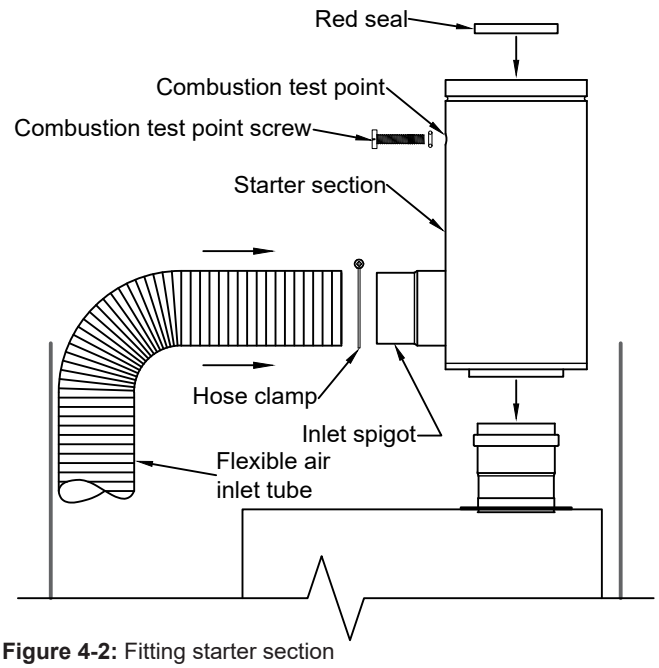


Figure 4-2: Fitting starter section

! NOTE !

Re-fit the rear upper casing panel before fitting any further flue components.

4.2 FITTING EXTENSIONS AND ELBOWS

4.2.1 TELESCOPIC EXTENSIONS

1. To fit the lower section of telescopic extension:
   - Refer to item C of Figure 3-1.
   - Ensure the section is the correct way up, with the spigot protruding from the bottom of the section.
   - Locate the spigot into the centre of the starter section (or other section, depending on intended location) and push fully home, using a twisting motion.
   - Fit one of the locking bands (item F of Figure 3-1) provided over the joint between the flue starter section and the lower section of the telescopic extension.
   - Ensure that the red seal is fitted in the internal recess in the top of the lower telescopic extension.
   - Refer to Figure 4-3 for guidance.

! NOTE !

When securing the lower section of the telescopic extension to the flue starter section, ensure that the correct locking band is used, and that the locking band provided to cover the sliding joint of the telescopic extension is not used.

2. To fit the upper section of telescopic extension:
   - Refer to item D of Figure 3-1.
   - Ensure the section is the correct way up, with the spigot protruding from the bottom of the section.
   - Locate the spigot into the centre of the lower section and fit together using a twisting motion.
   - Fit the upper section over the lower section and slide it down the lower section until the desired height has been achieved.
   - Secure the sliding joint using the intended locking band. Refer to item G of Figure 3-1.
   - Refer to Figure 4-3 for guidance.

! NOTE !

The two sections of the telescopic flue MUST overlap by at least 35mm.

! NOTE !

The locking band for the adjustable section (item G of Figure 3-1) is labelled for easy identification.

4.2.2 FIXED EXTENSIONS

1. To fit a fixed length extension:
   - Ensure the section is the correct way up, with the spigot protruding from the bottom of the section.
   - Locate the spigot into the centre of the preceding section (this could be another fixed extension, telescopic extension or an elbow) and push fully home, using a twisting motion.
   - Fit one of the locking bands provided with the extension over the joint between the fixed extension and the preceding section.
   - Ensure that the red seal is fitted in the internal recess in the top of the fixed extension.
   - Refer to Figure 4-4 (a) for guidance and Figure 1-1 for a representation of the fixed extensions available for this flue system.

4.2.3 ELBOWS

The fitting procedure for the elbows available for this flue system is the same as the fitting procedure for fixed extensions. Refer to Section 4.2.2 above.

Refer to Figure 4-4 (b) for guidance and Figures 2-2 to 2-4 for a representation of the elbows available for this flue system.

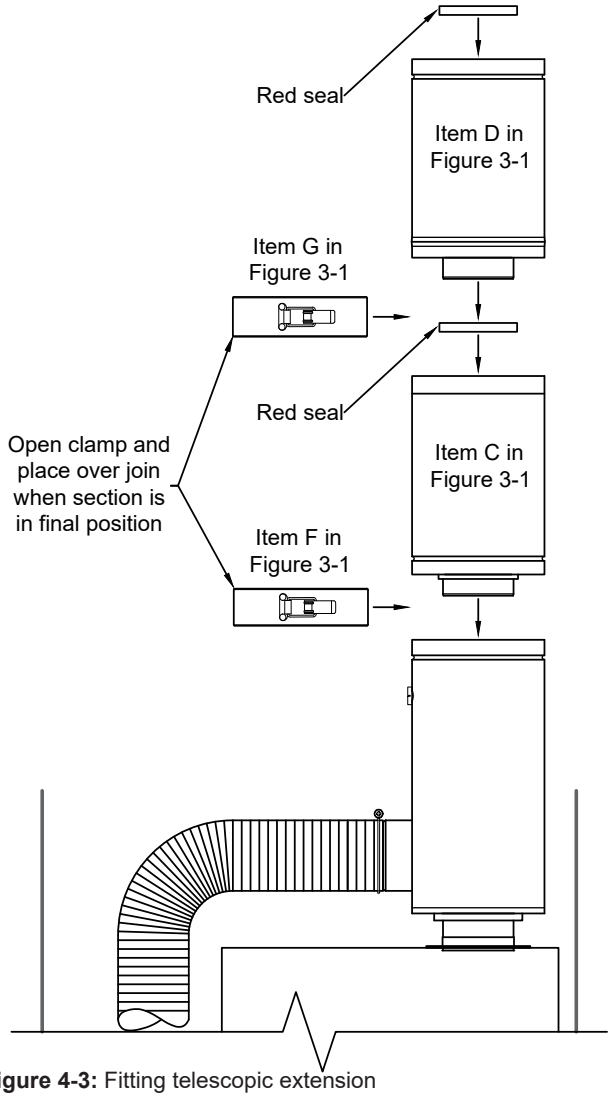


Figure 4-3: Fitting telescopic extension

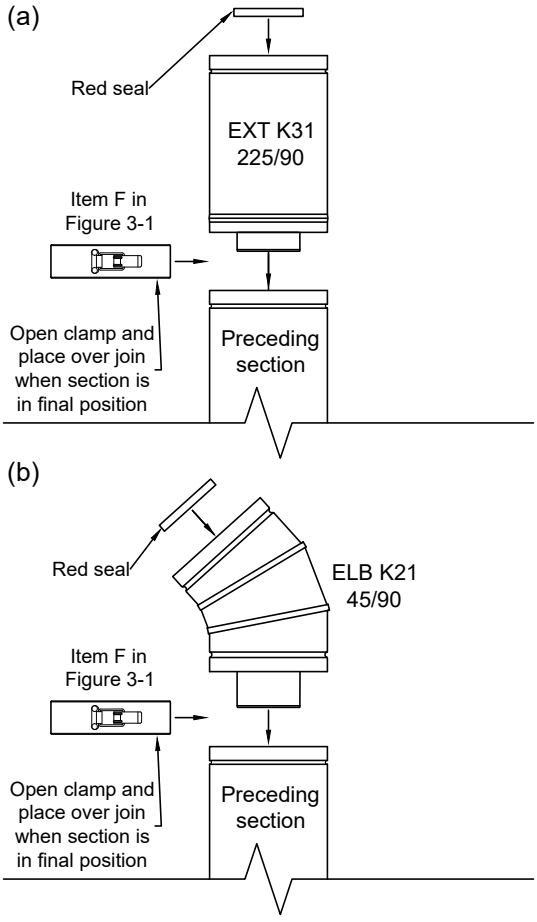


Figure 4-4: Fitting a fixed extension or elbow

4.3 FITTING FLEXIBLE FLUE LINERS

! NOTE !

Before installing the flue system, the chimney should be

a) Inspected for deterioration and, if necessary, any remedial work carried out.

b) Swept to remove any soot and other deposits.

1. Fit the outer stainless steel liner into the chimney. This outer flue liner should be pulled down the chimney using a nose cone and string/rope.

! NOTE !

The stainless steel outer liner is non-directional, and can be installed either way up.

! CAUTION !

Grant strongly recommend that, prior to the installation of the outer liner, a test length of outer liner is pulled through the chimney first to ensure it is of suitable size and free from internal obstructions that could either damage or prevent installation of the liner.

This test length should be approximately 1.5m in length and fitted with a nose cone and string/rope at each end.

If this guidance is not followed, any damage to the outer liner caused by internal obstructions in the chimney will NOT be covered by the product guarantee.

2. Cut off the bottom end of the outer liner square and remove ALL burrs and jagged edges.

   Do NOT cut off any excess outer liner at the top of the chimney at this time.

3. Fit the inner stainless steel liner down inside the outer liner.

   Do NOT cut off any excess inner liner at the top of the chimney at this time.

! NOTE !

The stainless steel inner liner is directional, and MUST be installed the correct way up.

Refer to the black arrows marked on the liner. These arrows indicate the direction of the flue gases and should point UPWARDS when this liner is installed.

4. Cut the end of the inner liner square and remove ALL burrs and jagged edges.
5. Place the two stainless steel clamp bands on the adaptor and ensure the straight edge of both clamp bands is pointing down (to fit onto the outer surface of the adaptor) and the angled edge is at the top (to fit onto the corrugations of the liner). Refer to Figure 4-5 (a).
6. Fit the end of the inner stainless steel liner onto the centre connection of the rigid to fliexible adaptor. Push inner liner down and into the socket. Refer to Figure 4-5 (a).
7. With the inner liner fitted fully into the inner socket of the adaptor, apply a bead of sealant (provided with the flue kit) all around the joint between the top edge of the socket and the inner flue liner and position the clamp band over the joint without disturbing the joint. Refer to Figure 4-5 (b).
8. Close the toggle clip of this clamp band ensuring that the sloping top edge of the clamp band grips into the corrugations of the inner liner and tighten the clamp band screw using a 3mm Allen key to firmly secure the inner liner to the adaptor. Refer to Figure 4-6.

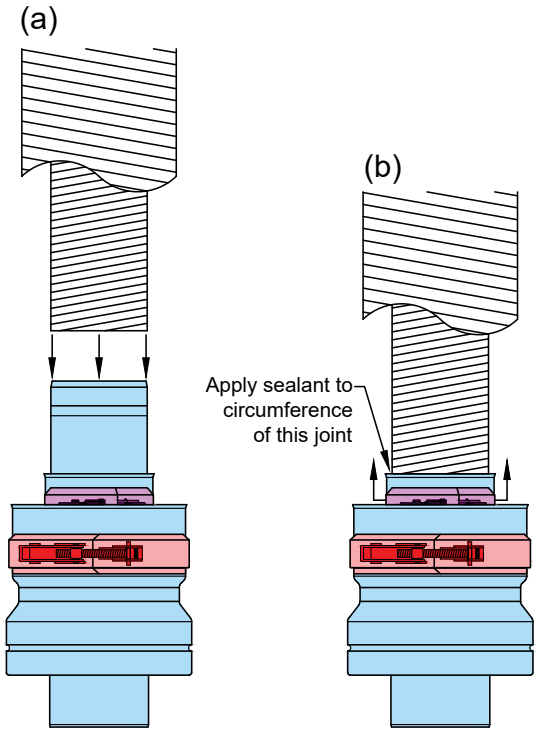


Figure 4-5: Fitting inner flue liner to adaptor

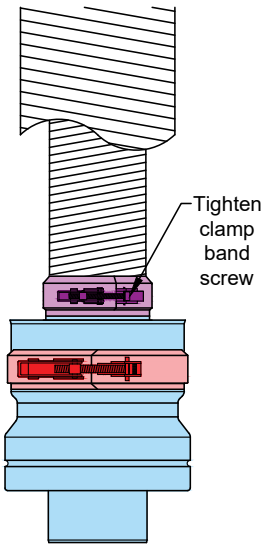


Figure 4-6: Fitting clamp band to secure inner flue liner to adaptor

9. Pull down the outer stainless steel liner to fit inside the outer socket of the rigid to flexible adaptor.

   Refer to Figure 4-7 (a).

10. Ensure the outer liner is inserted to the full depth of the adaptor socket.

11. Position the stainless steel clamp band provided over the joint between the outer liner and adaptor socket. Close the toggle clip ensuring that the sloping top edge of the clamp band grips onto the corrugations of the outer liner. Refer to Figures 4-7.

12. Tighten the clamp band screw using a 5mm Allen key to firmly secure the outer liner to the adaptor.

    Refer to Figure 4-7 (b).

! NOTE !

The rigid to flexible adaptor must always be fitted VERTICALLY as shown in Figures 4-5 to 4-7.

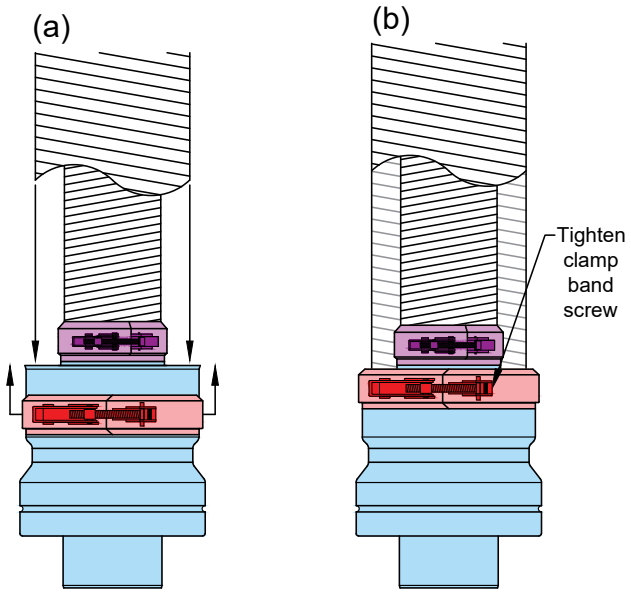


Figure 4-7: Fitting outer flue liner to adaptor

13. Position the adaptor such that it is inside the chimney - to leave a neat appearance at the bottom of the chimney when the hole is made good.

    To do this, the telescopic extension can be adjusted to give the required length and then fixed in place.

    ALWAYS use a twisting motion to adjust the telescopic extension to the required length.

    Spot drill through the pre-drilled holes in the outer pipe of the upper section of the telescopic extension and fix to the lower section using the small self tapping screws provided.

    Fit the “adjustable” section locking band (item G of Figure 3-1) over the joint once secured with self tapping screws.

! NOTE !

The two sections of the telescopic flue MUST overlap by at least 35mm.

- Straight flue extensions, adjustable flue extensions and 45° elbows (all of which are from the Grant “White” system) can be fitted between the flue starter section and the rigid to flexible flue adaptor, as required.
- Ensure that all flue components have the red seals fitted and that they are lubricated correctly before assembly, and that all joints are secured using the correct locking bands.

4.4 FITTING THE FLUE TERMINAL

1. Ensure that the top of the chimney is flat and level to accept the top plate and terminal assembly.

   It may be necessary to level the top of the chimney with mortar prior to installation of the flue system.

2. Remove the top plate from the flue pack (item K in Figure 3-1.)

3. Using your fingers (or pliers) break out the two 11mm diameter washers from the mounting bracket on each half of the top plate (four washers in total) and retain for later use.

4. Place the two halves of the top plate on top of the chimney to support the outer stainless steel flexible liner. Slide each half of the top plate into the corrugations level with the top of the chimney masonry.

   Locate the tab on each half of the top plate through the corresponding slot on the other half to secure the outer stainless steel flexible liner. Refer to Figure 4-8.

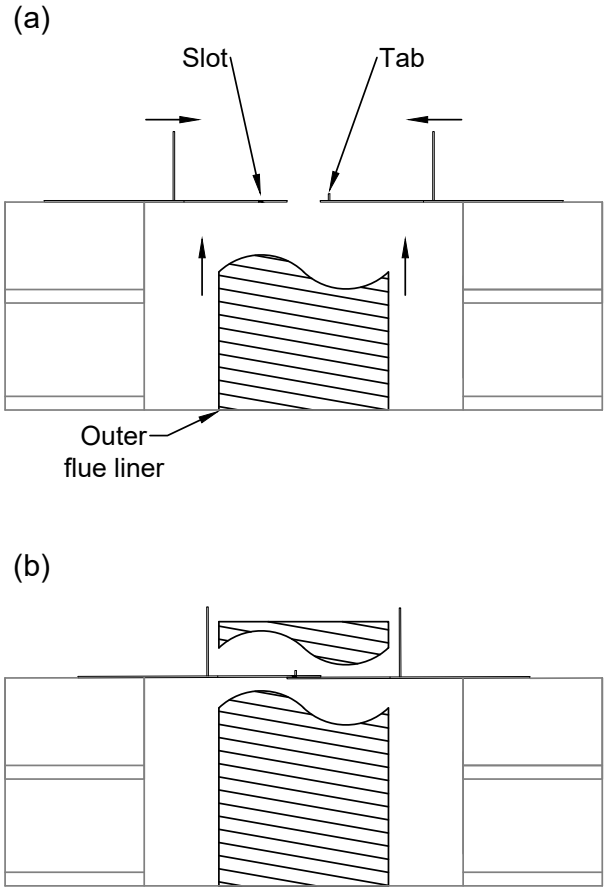


Figure 4-8: Securing outer flue liner to top plate

5. Manoeuvre the top plate into its final position on top of the chimney and bed it into a bead of mastic (not supplied) around the full perimiter of the plate.

6. Cut off any excess length of the outer flexible liner, leaving approximately 20mm (at least 2 corrugations) above the top plate. Refer to Figure 4-9.

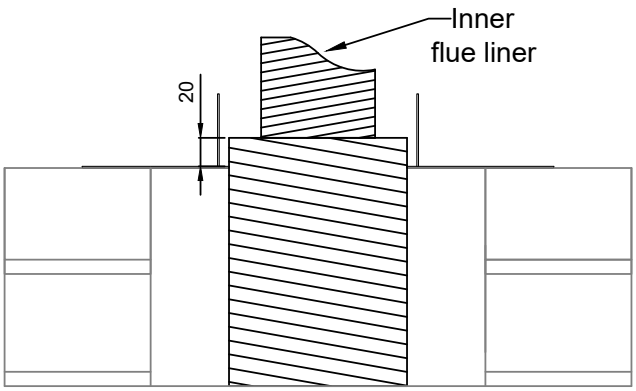


Figure 4-9: Outer flue liner and top plate in final position

7. Fit clamp collar (item H in Figure 3-1) onto the inner stainless steel flexible liner.
8. Rotate the clamp collar to locate the mounting bolts in the slots in the vertical brackets protruding from the top plate.
9. Tighten the locking nuts to secure the clamp coller to the top plate.
10. Tighten the clamp screws to secure the inner flexible liner to the clamp collar.

    Refer to Figure 4-10.

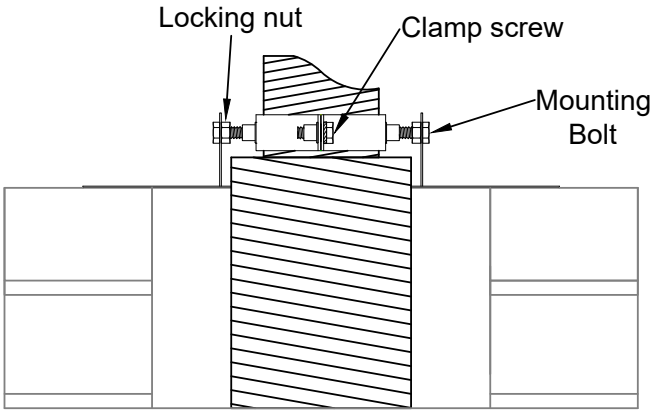


Figure 4-10: Fitting clamp collar to secure inner flue liner

11. Cut off any excess length of the inner flexible liner, leaving 100mm above the top plate.

! CAUTION !

Remove all burrs and sharp edges from the cut end of the stainless steel inner flexible liner to prevent damaging the seal on the terminal spigot when fitting the terminal.

12. Position upstand (item L in Figure 3-1) onto the top plate by aligning each of the four holes on the flat surface of the upstand with the corresponding machined slots in the top plate.
13. Mark and drill each of these four holes into the masonry of the chimney stack.
14. Remove the upstand and fit one of the four masonry plugs provided into each of the drilled holes.
15. Re-position the upstand and secure the upstand and top plate to the chimney stack using the four screws and washers provided.
16. Fit the terminal (item M in Figure 3-1):
    - Ensure that the red seal is fitted in the external recess on the terminal spigot.
    - Lubricate the outside face of the seal using the silicone grease provided.
    - Locate the spigot into the open end of the inner flexible liner and push fully home using a twisting motion.
    - Ensure the flange around the base of the terminal is correctly located on the upstand.
    - Spot drill through the upstand by using the fixing hole in the base of the terminal as a guide, and secure the terminal to the upstand with the self tapping screw provided.

      Refer to Figure 4-11 for guidance.

! NOTE !

The terminal upstand is designed to be used without mortar flaunching.

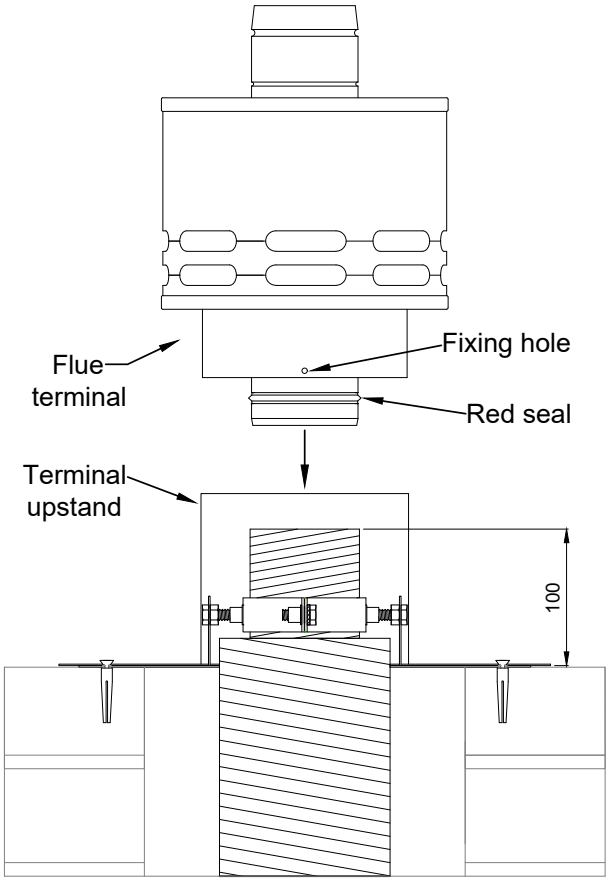


Figure 4-11: Fitting flue terminal

5 RED SYSTEM INSTALLATION EXAMPLES

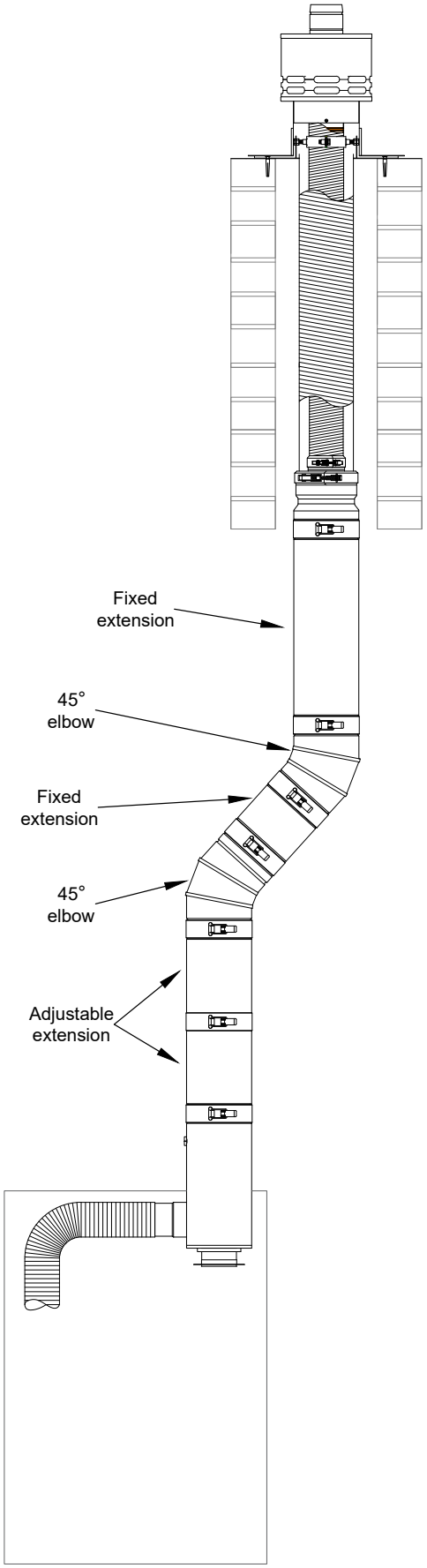


Figure 5-1: Flue system connects vertically to bottom of chimney

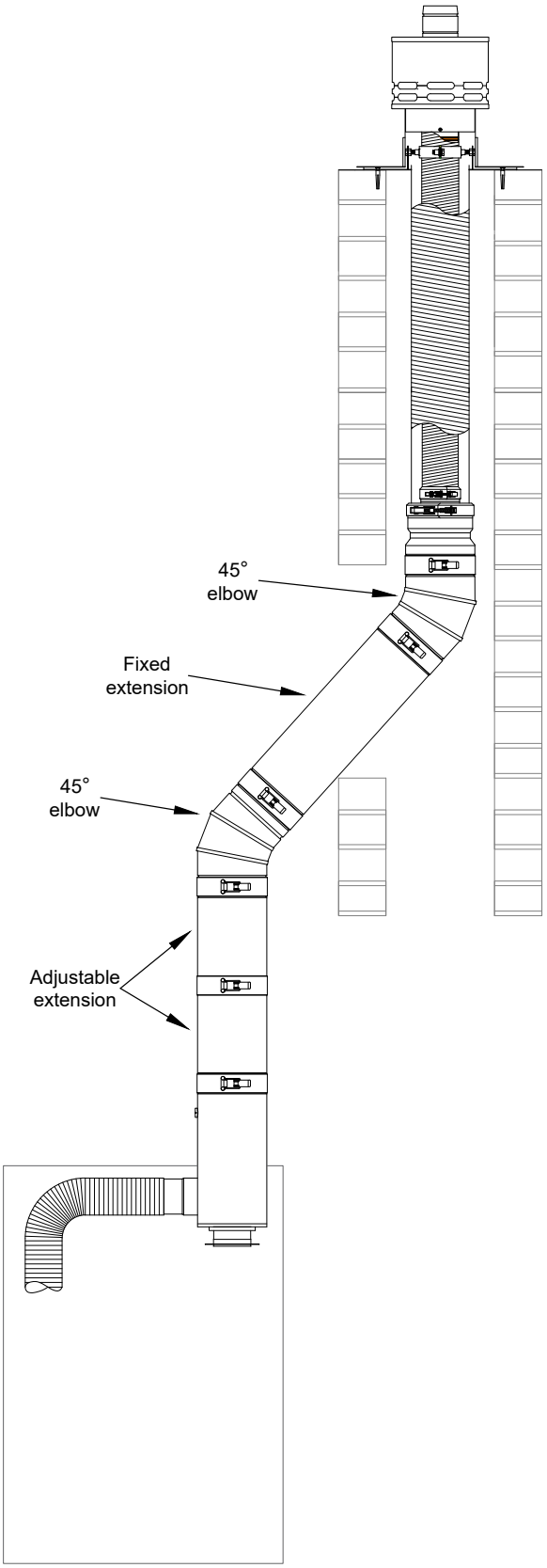


Figure 5-2: Flue system cuts into chimney stack

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