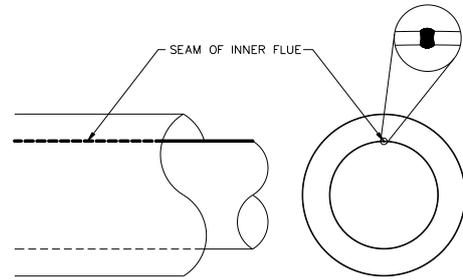


**HORIZONTAL FLUE RUNS**

There are a number of basic installation requirements which must be followed for a flue installation incorporating horizontal flue runs.

**Failure to observe these precautions can lead to the premature failure of the flue system and / or water heater.**

- The flue must be installed with the seam of the inner flue toward the top of the installation.
- A horizontal section of flue must be installed with a gradient of 20 mm per metre (1 in 50 or 1° fall) of horizontal run.
- A horizontal run of flue between two bends, where the bend closest to the flue terminal is **orientated upward**, must have a gradient upward to the flue terminal.



- Condensate will drain back toward the water heater. A Condensate Trap and drain line must be installed where the horizontal flue is installed with an upward gradient. Refer to [“Draining the Condensate”](#) on page 62.

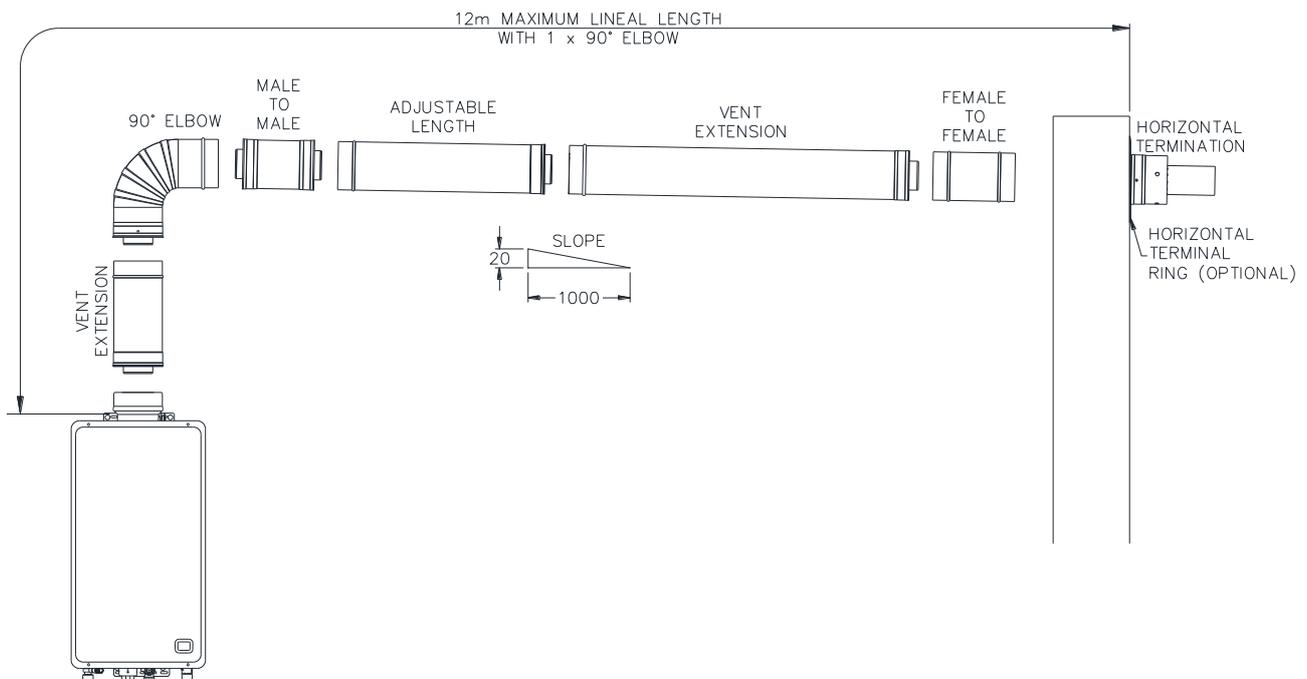
This ensures any condensate formed during operation of the water heater is prevented from draining back into the water heater.

- A horizontal run of flue connecting directly to a Horizontal Flue Terminal must have a gradient downward to the flue terminal.

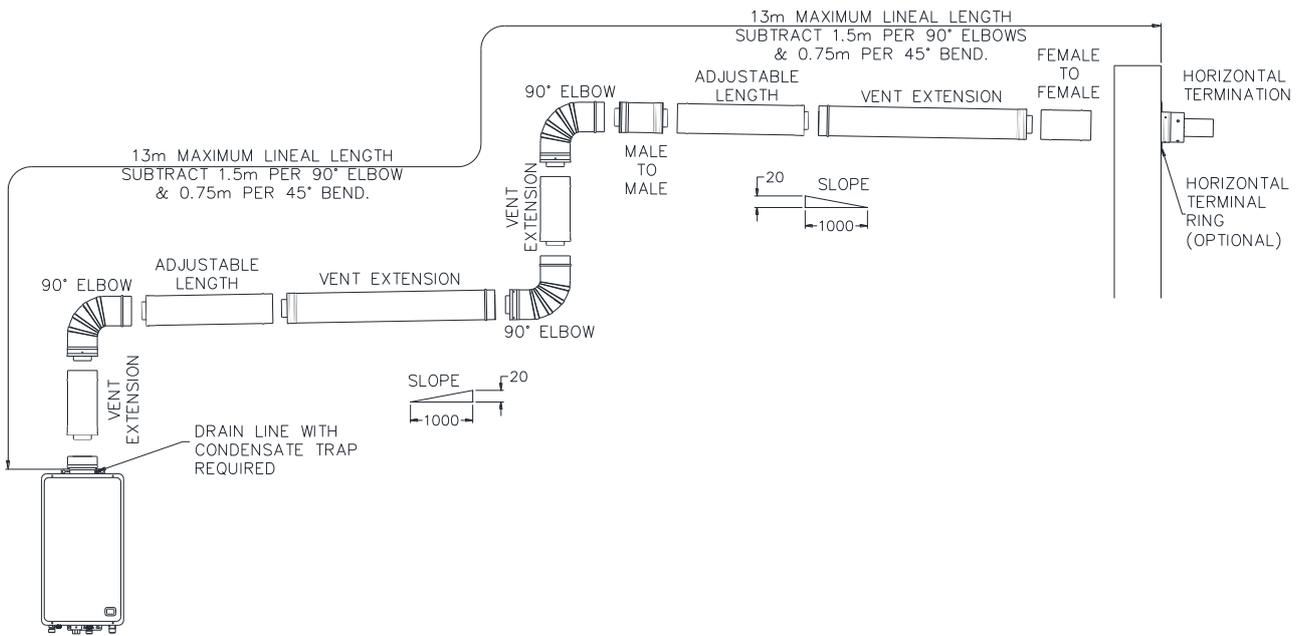
This prevents rainwater from entering the flue draining back into the water heater.

- Use Male to Male and Female to Female Adapters to reverse the direction of flue insertion where three or more sections of flue are used in a horizontal flue run and the flue drains toward the flue terminal. Refer to the diagram [“Typical Installation – Horizontal Terminal with One Bend”](#) on page 64.

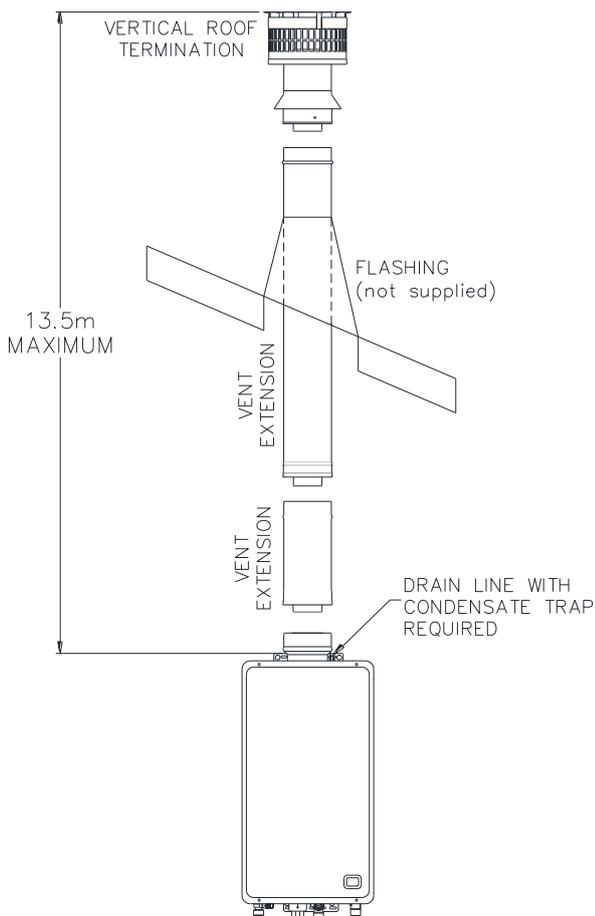
This provides for proper draining of condensate without pooling at the flue component joins.



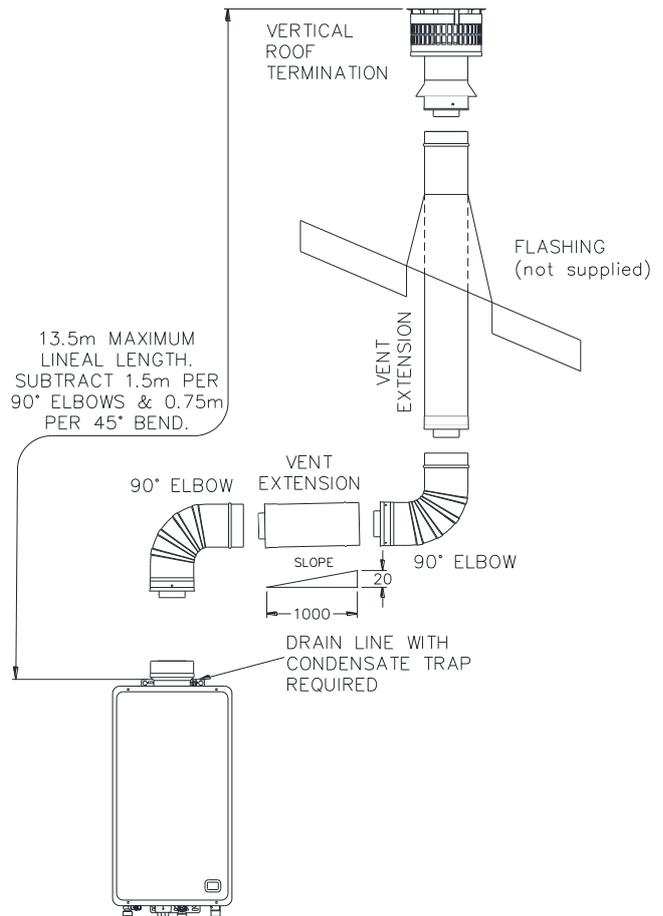
**Typical Installation – Horizontal Terminal with One Bend**



**Typical Installation**  
**Horizontal Terminal with Multiple Vertical and Horizontal Sections**



**Typical Installation**  
**Vertical Flue**



**Typical Installation**  
**Vertical Terminal with Vertical and Horizontal Sections**

## HORIZONTAL FLUE INSTALLATION

### Horizontal Flueing – Directly Behind Water Heater

This method of flue installation is used where the secondary flue is to penetrate and terminate immediately behind the wall on which the water heater is mounted.

Do not plumb the water heater prior to this type of flue installation, as the water heater (if mounted) requires to be removed from the wall prior to the final installation of the flue.

#### Notes:

- Ensure each flue component is fully engaged and the rubber seal on the inner duct is well seated at each joint.
- Each flue component is supplied with screws to connect to the adjacent flue component. The screws are located in a bag taped to the outside of the flue component.

To install a horizontal flue and termination directly behind the water heater:

1. Carefully remove the template inserted as the middle pages of this installation instructions booklet.
2. Align the mounting bracket holes on the template exactly over the upper wall mounting bracket holes on the water heater.

This step presumes the water heater is hung on the wall.

- It may be convenient to tape the template to the wall.

**Note:** Ensure there are no studs, noggins, pipes or electrical cables located in the wall where the flue is to penetrate

3. Mark the pilot hole location through the centre of the template.

- Remove but **DO NOT DISCARD** the template.

4. **Remove the water heater from the wall.**

**Note:** It is necessary to remove the water heater from the wall to allow the fitting and installation of the flue. It is also good practice so no debris from the drilling operation enters the water heater flue outlet.

5. Drill a pilot hole using a 6.5 mm diameter or smaller drill bit.

The drill bit must be long enough to penetrate completely through the outer skin of the external wall.

**Note:** Ensure the drill remains level and straight during this step.

6. Cut along the middle of the **bold** circle marked “Cut Line” on the template.

7. Align the centre of the template with the pilot hole on the wall surface and scribe around the template onto the wall.

The circle should be 150 mm in diameter.

- Remove but **DO NOT DISCARD** the template.

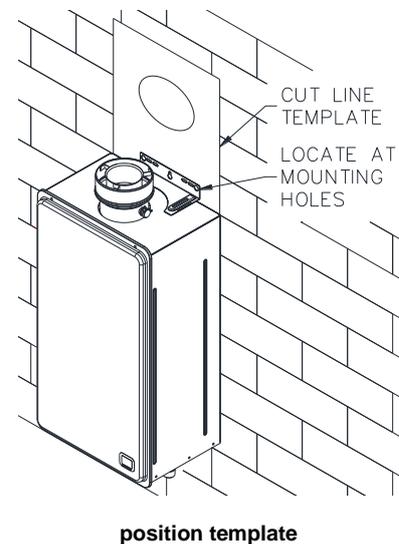
8. Align the centre of the template with the pilot hole on the outside wall surface and scribe around the template onto the wall.

The circle should be 150 mm in diameter.

- Remove the template.

9. Drill or cut the flue termination hole through the wall using a cutting tool suitable for the wall construction.

**Note:** The Trim Ring (PN 295125) will cover a 150 mm diameter hole.



**Note:** Steps 10 to 14 can only be conducted whilst the water heater is off the wall.

10. Connect the 90° Bend (PN 295118) to the water heater flue outlet so it is orientated behind the water heater.

- Fit the end of the bend down over the water heater flue outlet as far as it will go.

Ensure there is a minimum 35 mm and maximum 42 mm overlap, the rubber seal on the inner flue is well seated and the bend is fully engaged on the water heater flue outlet.

- Secure the bend to the outlet with the screws provided.

11. Fit the 300 mm Straight Length (PN 295126) of flue to the 90° Bend, if required.

**Note:** A total wall thickness of greater than 170 mm will require a 300 mm Straight Length of flue.

12. Fit the Horizontal Terminal (PN 295116) to either the 90° Bend or 300 mm Straight Length of flue.

13. Secure each flue component using the sheet metal screws provided.

14. Fit a Trim Ring over the last section of flue.

15. Rehang the water heater on the wall, carefully inserting the flue assembly through the wall penetration.

The water heater should be installed in its final location and fixed in position before completing the flue installation.

Securely fasten the water heater to the wall at each of the Wall Bracket mounting points.

Adjust the mounting brackets at the top and bottom of the water heater if required. Bracket adjustment of up to 30 mm can be made and may assist with flue fitment and alignment.

16. Check the end of the outer skin of the flue terminal extends a minimum of 75 mm from the face of the external wall.

17. Apply an adequate bead of sealant around the flue assembly and exterior wall of the building, using a general purpose silicone sealant suitable for outdoor application.

Failure to properly seal the flue penetration through the wall will result in long term damage due to weather conditions.

18. Apply an adequate bead of sealant on the rear face of a Trim Ring, using a general purpose silicone sealant suitable for outdoor application.

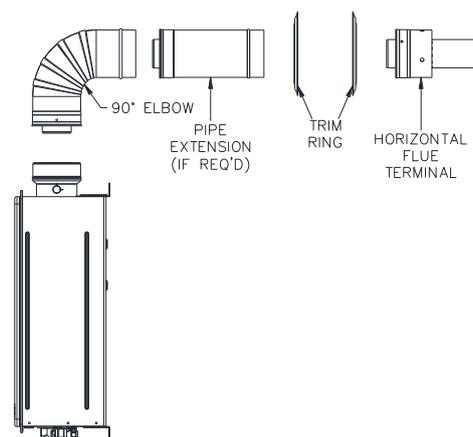
- Fit the Trim Ring over the flue terminal and press against the wall.

19. Apply an adequate bead of sealant around the flue assembly and interior wall of the building and on the rear face of the Trim Ring, using a general purpose silicone sealant suitable for indoor application.

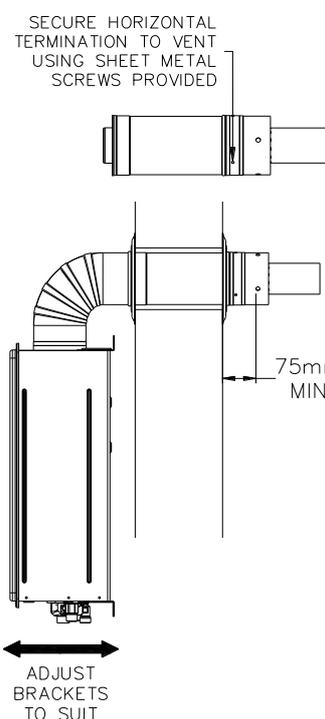
Press the Trim Ring against the wall.

20. Upon completion of the secondary flue installation, remove the warning label adhered to the top left hand corner of the water heater's front panel.

Refer to [“Connections – Electrical”](#) on page 76 electrical connection details and [“Commissioning”](#) on page 89 for the commissioning details of the water heater.



**flue components required**



## Horizontal Flueing – Extended Flue Run

### Notes:

- Ensure each flue component is fully engaged and the rubber seal on the inner duct is well seated at each joint.
- Each flue component is supplied with screws to connect to the adjacent flue component. The screws are located in a bag taped to the outside of the flue component.
- Refer to diagrams:
  - [“Typical Installation – Horizontal Terminal with One Bend”](#) on page 64, and
  - [“Typical Installation – Horizontal Terminal with Multiple Vertical and Horizontal Sections”](#) on page 65.

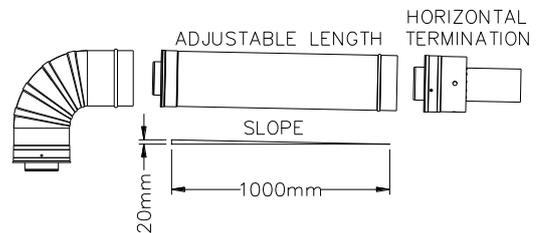
To install an extended horizontal flue and termination:

1. Install the water heater in its final location.
2. Connect the 90° Bend (PN 295118) to the water heater flue outlet and rotate in the desired direction of discharge, if the flue is not to have a change of direction from horizontal to vertical.
  - Fit the end of the bend down over the water heater flue outlet as far as it will go.
 

Ensure there is a minimum 35 mm and maximum 42 mm overlap, the rubber seal on the inner flue is well seated and the bend is fully engaged on the water heater flue outlet.
  - Secure the bend to the outlet with the screws provided.
3. Mark the location where the top of the flue is to penetrate the wall to outside of the building.

If the flue is not to have a change of direction from horizontal to vertical, then to accurately mark this position:

- Measure the vertical distance from the floor to the top of the 90° Bend, and
- Measure the horizontal distance from the wall behind the water heater to the centre of the 90° Bend, and
- Then, where the flue is expected to penetrate the wall, mark the vertical distance up from the floor and the horizontal distance out from the wall measured from the previous steps.



**Note:** If the flue is to have an additional one or two horizontal changes of direction, then it is not necessary to measure or mark the horizontal distance from the wall behind the water heater to the centre of the 90° Bend.

- Alternatively, using a level, run from the top of the 90° Bend to a location horizontal on the wall where the flue will penetrate and mark this point on the wall
- Measure the horizontal distance, along the proposed flue route, from the end of the 90° Bend to the where the flue is to penetrate the wall.

Divide this measurement by 50 to calculate the vertical distance fall of the flue (allowing for a 1 in 50 fall).

- Measure this distance down from the previous mark placed on the wall.

This point will be the top of the flue termination hole and the flue will have a gradient of 20 mm per metre of length towards the terminal.

**Note:** Ensure there are no studs, noggins, pipes or electrical cables located in the wall where the flue is to penetrate

4. Carefully remove the template inserted as the middle pages of this installation instructions booklet.
  - Cut along the middle of the **bold** circle marked “Cut Line”.
5. Align the top of the circular template with the mark on the wall.
  - It may be convenient to tape the template to the wall.
6. Mark the pilot hole through the centre of the template and scribe around the template onto the wall.
 

The scribed circle should be 150 mm in diameter.

  - Remove but **DO NOT DISCARD** the template.
7. Drill a pilot hole using a 6.5 mm diameter or smaller drill bit.
 

The drill bit must be long enough to penetrate completely through the outer skin of the external wall.

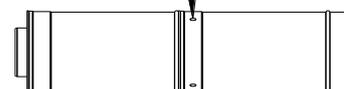
**Note:** Ensure the drill remains level and straight during this step.
8. Align the centre of the template with the pilot hole on the outside wall surface and scribe around the template onto the wall.
 

The scribed circle should be 150 mm in diameter.

  - Remove the template.
9. Drill or cut the flue termination hole through the wall using a cutting tool suitable for the wall construction.
 

**Note:** The Trim Ring (PN 295125) will cover a 150mm diameter hole.
10. Starting from the 90° Bend and working towards the terminal location, connect all of the other flue system components.
  - Ensure each flue component is fully engaged and the rubber seal on the inner duct is well seated at each joint.

SECURE SECTIONS OF  
FLUE USING SHEET METAL  
SCREWS PROVIDED



11. Secure each flue component using the sheet metal screws provided.
12. Support horizontal sections at a distance no greater than 2 m using a Wall Bracket (PN 295129).
13. A horizontal run of flue connecting directly to a Horizontal Flue Terminal must have a downward gradient to the flue terminal.
  - Use Male to Male and Female to Female Adapters to reverse the direction of flue insertion where three or more sections of flue are used in a horizontal flue run and the flue drains toward the flue terminal. Refer to the [diagram](#) on page 64.

This provides for proper draining of condensate without pooling at the flue component joins.
14. A horizontal run of flue between two bends, where the bend closest to the flue terminal is **orientated upward**, must have a gradient upward in the direction of the flue terminal.
 

**Note:** A Condensate Trap and condensate drain line must be installed if the flue has a gradient upward in the direction of the flue terminal. Refer to step 22.
15. The Adjustable Straight Length (PN 295127) may be required if a special length is required between offsets or changes in direction of the flue or to ensure the outer skin of the Horizontal Flue Terminal extends a minimum of 75 mm from the face of the external wall.
  - The Adjustable Straight Length can be adjusted from 560 mm to 890 mm by pulling on its end to increase its length or pushing on its end to decrease its length.
16. Fit a Trim Ring over the last section of flue prior to penetrating the wall.

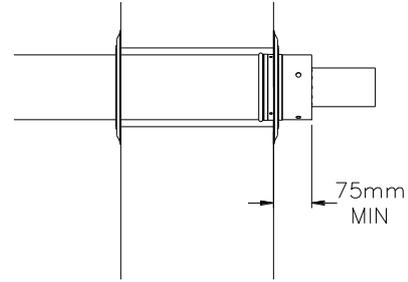
17. Once the flue is assembled and penetrating the wall, install the Horizontal Terminal and secure the termination to the flue using the sheet metal screws provided.

**Note:** If the flue terminal position is more than 1800 mm above a safe working surface, then suitable equipment will be required to enable safe access to fit the flue terminal.

Alternatively, the flue terminal may be fitted to the flue assembly prior to the assembly penetrating the wall.

18. Make a final adjustment to the Adjustable Straight Length, if required, to ensure the end of the outer skin of the flue terminal extends a minimum of 75 mm from the face of the external wall.

- Firmly tighten the compression band on the Adjustable Straight Length to prevent the pipe from extending or compressing its length over time.



19. Apply an adequate bead of sealant around the flue assembly and exterior wall of the building, using a general purpose silicone sealant suitable for outdoor application.

Failure to properly seal the flue penetration through the wall will result in long term damage due to weather conditions.

20. Apply an adequate bead of sealant on the rear face of a Trim Ring, using a general purpose silicone sealant suitable for outdoor application.

- Fit the Trim Ring over the flue terminal and press against the wall.

21. Apply an adequate bead of sealant around the flue assembly and interior wall of the building and on the rear face of the Trim Ring, using a general purpose silicone sealant suitable for indoor application.

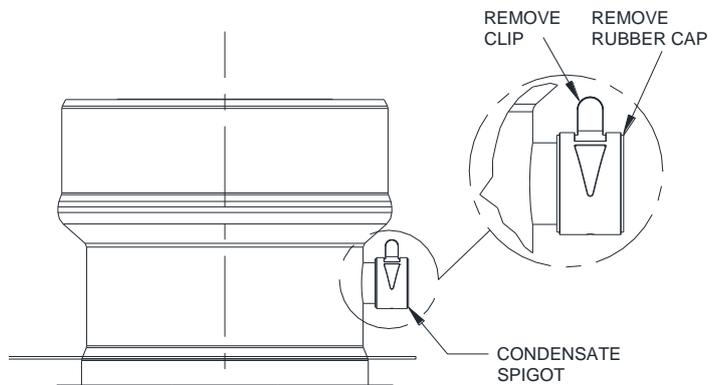
Press the Trim Ring against the wall.

22. Install a Condensate Trap (PN 295139) to the condensate drain spigot on the water heater flue outlet if the flue has a change of direction from horizontal to vertical or if there is a long vertical rise directly from the water heater.

- Install a condensate drain line to the Condensate Trap.

Refer to [“Draining the Condensate”](#) on page 62 and to [“Condensate Trap and Condensate Drain Line”](#) on page 63.

23. Upon completion of the secondary flue installation, remove the warning label adhered to the top left hand corner of the water heater’s front panel.



condensate drain spigot

Refer to [“Connections – Electrical”](#) on page 76 electrical connection details and [“Commissioning”](#) on page 89 for the commissioning details of the water heater.

**VERTICAL FLUE INSTALLATION**

Suitable flashing (not supplied) is required to waterproof the roof penetration.

**Notes:**

- Ensure each flue component is fully engaged and the rubber seal on the inner duct is well seated at each joint.
- Each flue component is supplied with screws to connect to the adjacent flue component. The screws are located in a bag taped to the outside of the flue component.
- Refer to diagrams:
  - “Typical Installation – Vertical Flue” on page 65, and
  - “Typical Installation – Vertical Terminal with Vertical and Horizontal Sections” on page 65.

To install a vertical flue and termination:

1. Determine the location where the flue will penetrate through the roof.

**Note:** Ensure there are no rafters, purlins, pipes or electrical cables located in the roof where the flue is to penetrate.

2. Drill or cut the flue termination holes through the roof and ceiling of a suitable size to allow the installation of the flue, using a cutting tool suitable for the roof construction.

3. Install a Condensate Trap (PN 295139) to the condensate drain spigot on the water heater flue outlet.

- Install a condensate drain line to the Condensate Trap.

Refer to “Draining the Condensate” on page 62 and to “Condensate Trap and Condensate Drain Line” on page 63.

4. Connect the first flue component to the water heater flue outlet.

- Fit the end of the flue component down over the water heater flue outlet as far as it will go.

Ensure there is a minimum 35 mm and maximum 42 mm overlap, the rubber seal on the inner flue is well seated and the flue component is fully engaged on the water heater flue outlet.

- Secure the bend to the outlet with the screws provided.

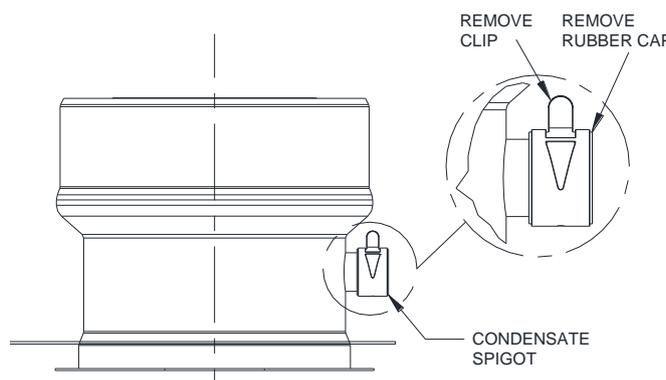
5. Continuing from the first flue component and working towards the terminal location, connect all of the other flue system components.

- Ensure each flue component is fully engaged and the rubber seal on the inner duct is well seated at each joint.

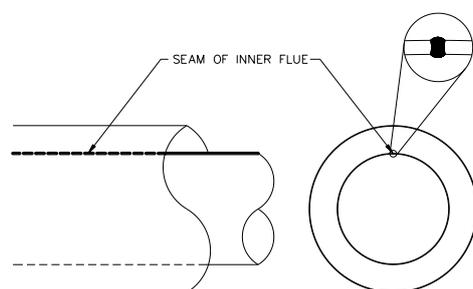
6. Horizontal flue runs between bends must have a minimum upward gradient towards the flue terminal of 20 mm per metre.

**Note:** Ensure that the seam of the inner flue in horizontal runs is towards the top of the installation.

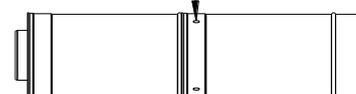
7. Secure each flue component using the sheet metal screws provided.



condensate drain spigot



SECURE SECTIONS OF FLUE USING SHEET METAL SCREWS PROVIDED



8. Fix a Wall Bracket after each transition to a vertical run.

This is to prevent vertical loading on the bends and offsets.

9. Support vertical sections of flue at a distance no greater than 2 m using a Wall Bracket (PN 295128).

**Note:** The Wall Bracket can be used to support vertical sections of flue from a ceiling by rotating the legs through 90°.

10. Install an Adjustable Straight Length (PN 295127) if a special length is required between offsets or changes in direction of the flue.

- The Adjustable Straight Length can be adjusted from 560 mm to 890 mm by pulling on its end to increase its length or pushing on its end to decrease its length.
- Firmly tighten the compression band on the Adjustable Straight Length to prevent the pipe from extending or compressing its length over time.

11. Fit a Trim Ring over the last section of flue prior to penetrating the ceiling, if one is to be fitted.

12. Once all of the flue components, excluding the Vertical Terminal, have been installed and all supports are securely fastened, the roof flashing must be installed and adequately sealed to prevent rain entry.

- Cut the flashing to a diameter that allows a snug fit over the flue.
- Install the roof flashing over the flue and using suitable fasteners, fix to the roof material.

The flue must extend a minimum of 150 mm through the roof flashing.

13. Connect the Vertical Terminal (PN 295117) to the flue exiting the roof.

- Secure the joint with sheet metal screws provided.

The top of the Vertical Terminal should not be less than 450 mm above the flashing below.

Observe flue terminal clearances in accordance with AS 5601 or AS/NZS 5601.1. Refer also to [“Vertical Flue Terminal Location”](#) on page 61.

**Note:** The flue should not extend more than 1.5 m from the roof unless guy wires or other additional support is provided.

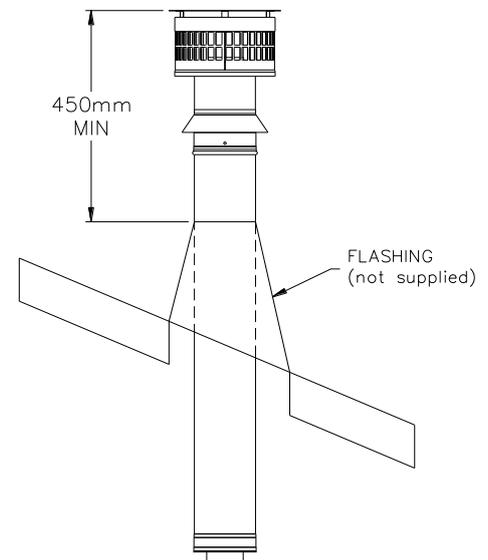
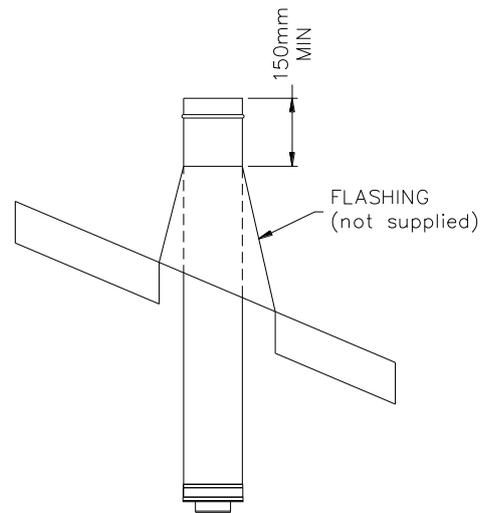
14. Apply an adequate bead of sealant around the flue assembly and flashing and around the flashing and roof material, using a general purpose silicone sealant suitable for outdoor application.

Failure to properly seal the flue penetration through the roof will result in long term damage due to weather conditions.

15. Apply an adequate bead of sealant around the flue assembly and ceiling and on the rear face of the Trim Ring (if fitted), using a general purpose silicone sealant suitable for indoor application.

Press the Trim Ring (if fitted) up against the ceiling.

16. Upon completion of the secondary flue installation, remove the warning label adhered to the top left hand corner of the water heater’s front panel.



Refer to [“Connections – Electrical”](#) on page 76 electrical connection details and [“Commissioning”](#) on page 89 for the commissioning details of the water heater.