

Technical Bulletin TB 139

Developed with HHIC

Title: Room Sealed, Fanned-Draught Vertical Condensing Flexible Flues Concealed Within Voids

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This Technical Bulletin (TB) has been developed by industry with reference to TB 008 Edition 3 and contains details for the installation of vertical condensing flexible chimney systems not addressed in detail within TB 008 Edition 3.

Introduction

With the introduction of a number of room-sealed, fanned draught, vertical condensing flexible flue systems, there is a need to provide guidance until such time as the systems are adopted into the appropriate British Standards. Also, as these types of flue systems are not covered by **TB 008⁽¹⁾** (Existing concealed room-sealed fanned-draught boiler chimney - flue systems) it is important to clarify the position regarding condensing flexible flue systems.

Note 1. All chimney systems need to be installed taking consideration of the current requirements of the Building Regulations ^(2&3), Gas Safety (Installation and Use) Regulations 1998⁽⁴⁾ and BS 5440-1⁽⁵⁾.

Note 2. The requirements in this TB are for all geographical areas covered by Gas Safe Register. For details of current gas safety legislation, building legislation and industry standards for the geographical areas covered by Gas Safe Register, see the [Legislative, Normative & Informative Document List \(LNIDL\)^{\(6\)}](#) at: <https://www.gassaferegister.co.uk/sign-in/> - login and visit the Technical Information area.

1. Scope

This TB details the minimum requirements for the inspection of vertical condensing flexible room-sealed fanned draught flues in voids/ducts and the installation requirements when installed in constructional chimneys that are not within the scope of TB 008 Edition 3⁽¹⁾. The information contained within this TB has been agreed by industry through industry consultation and should be applied by all Gas Safe registered business/engineers involved in the installation, commissioning and subsequent maintenance and servicing of condensing appliances which incorporate a room-sealed fanned draught vertical flexible chimney system.

2. Types of Installation

2.1 There are four types of installation arrangement covered by this TB.

- a) Vertical condensing flexible concentric chimney systems in voids.
- b) Vertical condensing flexible concentric chimney systems in constructional chimneys.
- c) Vertical condensing flexible chimney systems in constructional chimneys including pre-cast blocks chimney systems.

- d) Vertical condensing flexible chimney system in constructional chimney's where the flexible chimney is connected to a boiler in an existing builders opening.

Note 3: For a detailed description of the chimney systems covered by this TB, see Section 3 'Descriptions' below.

- 2.2 In all types of installation, the condensing flexible chimney system to be used needs to be appliance manufacturer supplied or approved and the appliance and condensing flexible chimney system need to be 'CE' Certified, either individually or in combination for each type of installation. Additionally, 'CE' Certified components should carry a 'CE' label.
- 2.3 Installation needs to be carried out in accordance with manufacturer's instructions and Building Regulations for both the appliance and the condensing vertical flexible chimney systems.
- 2.4 Installations should only be carried out by a competent person as required by the Gas Safety (Installation and Use) Regulations.
- 2.5 The term vertical in this TB includes any offsets required to route the condensing flexible flue system. The angle should not be more than 45° from the vertical.
- 2.6 Condensing flexible chimney systems which are intended to be inserted through existing pre-cast flue block systems should only be used where the gas appliance manufacturer's instructions state that it is permitted. The connection between the flexible and rigid chimney systems should be by the use of purpose-designed components provided by the gas appliance manufacturer.

3. Descriptions

- a) Vertical condensing flexible concentric chimney system in a void (Figures 1, 2 & 3)
- 3.1.1 This chimney system consists of a concentric condensing flexible inner flue duct and an outer air duct which is continuous in length. It is essential that this chimney system does not incorporate any joints concealed within a vertical void. The condensing flexible chimney system needs to be connected to both the appliance and terminal using manufacturer approved 'CE' Certified components which are positioned such that they are visible for inspection. Additionally, 'CE' Certified components should carry a 'CE' label.
- 3.1.2 Supporting of the condensing flexible concentric section of the chimney system should only be carried out using manufacturer approved 'CE' Certified components applicable for the diameter of flue which provide the required level of support. Non-proprietary flue supports e.g. 'strap banding' shall not be used.
- 3.1.3 Where the full length of the flexible chimney system can be inspected from either above from within a roof space, or below from the appliance location, (preferably both), inspection hatches/panels are not required to be fitted along the length of the vertical void. However, the level of inspection must be adequate so as to ensure that the chimney system is continuous in length, properly supported and not damaged.
- 3.1.4 The concentric flexible chimney section may be installed as the complete chimney system (see Figure 1) or as part of a chimney system (see Figures 2 and 3) that also incorporates rigid flue ducts/bends.
- 3.1.5 It is essential that reference is made to the relevant appliance manufacturer's instructions for guidance to ensure that the minimum/maximum lengths of flexible flue system have been complied with.

Note 4. *The flue pipe system should be installed and supported in accordance with the flue pipe manufacturer's installation instructions. For clarity, not all necessary flue supports have been shown on the figures/diagrams.*

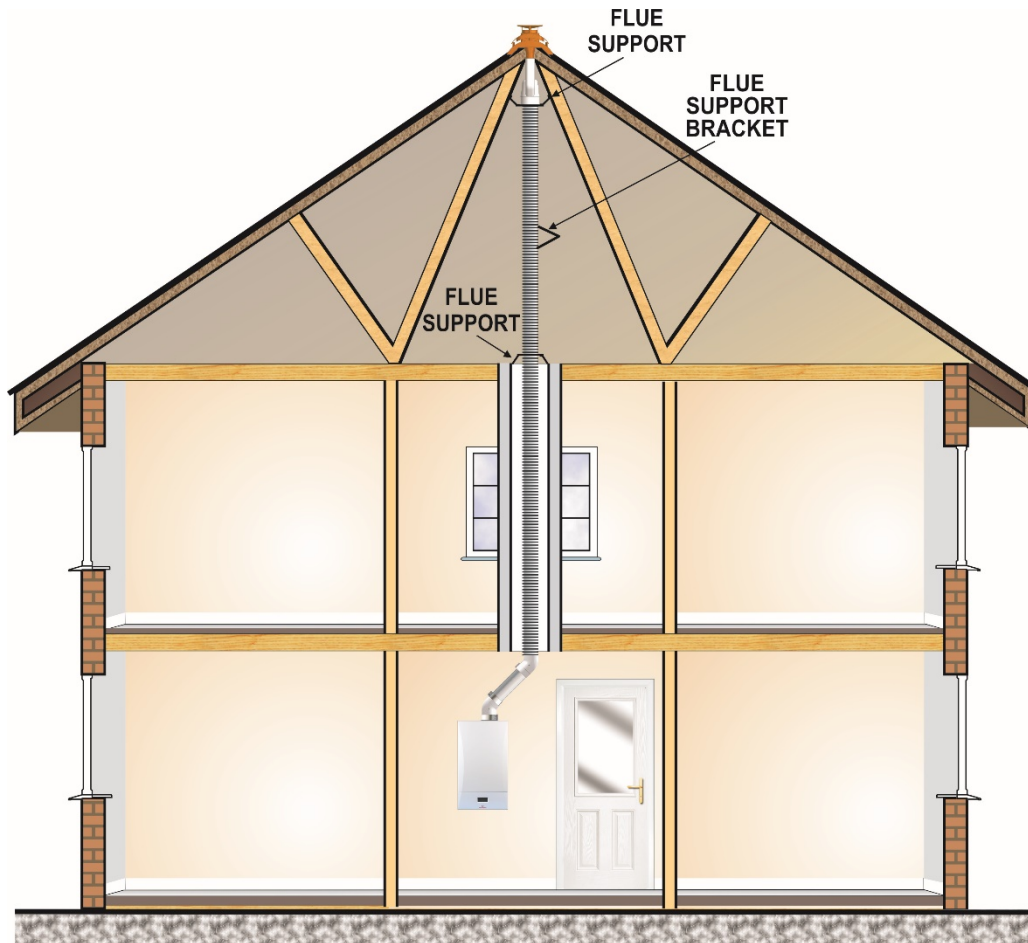


Figure 1. Traditional chimney system from boiler to flexible chimney system in a void and roof space. Check manufacturer's literature to see if this installation arrangement is approved.

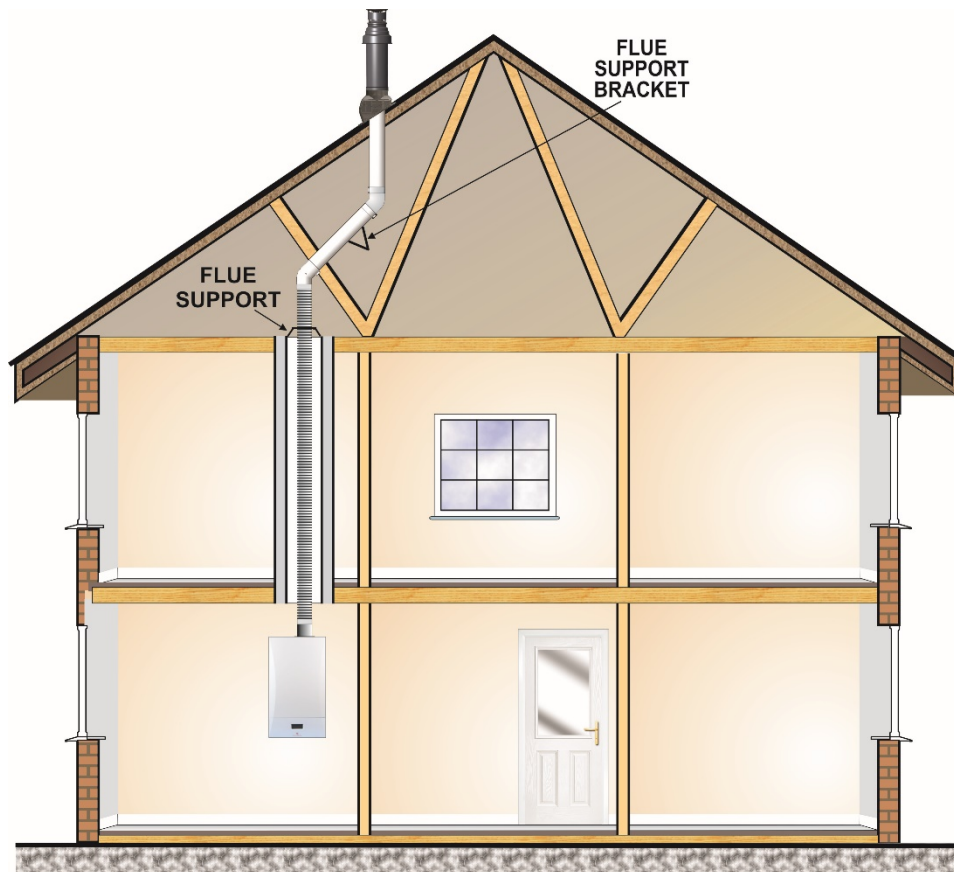


Figure 2. Flexible chimney system from boiler through a void and traditional chimney system in a roof space. Check manufacturer's literature to see if this installation arrangement is approved.

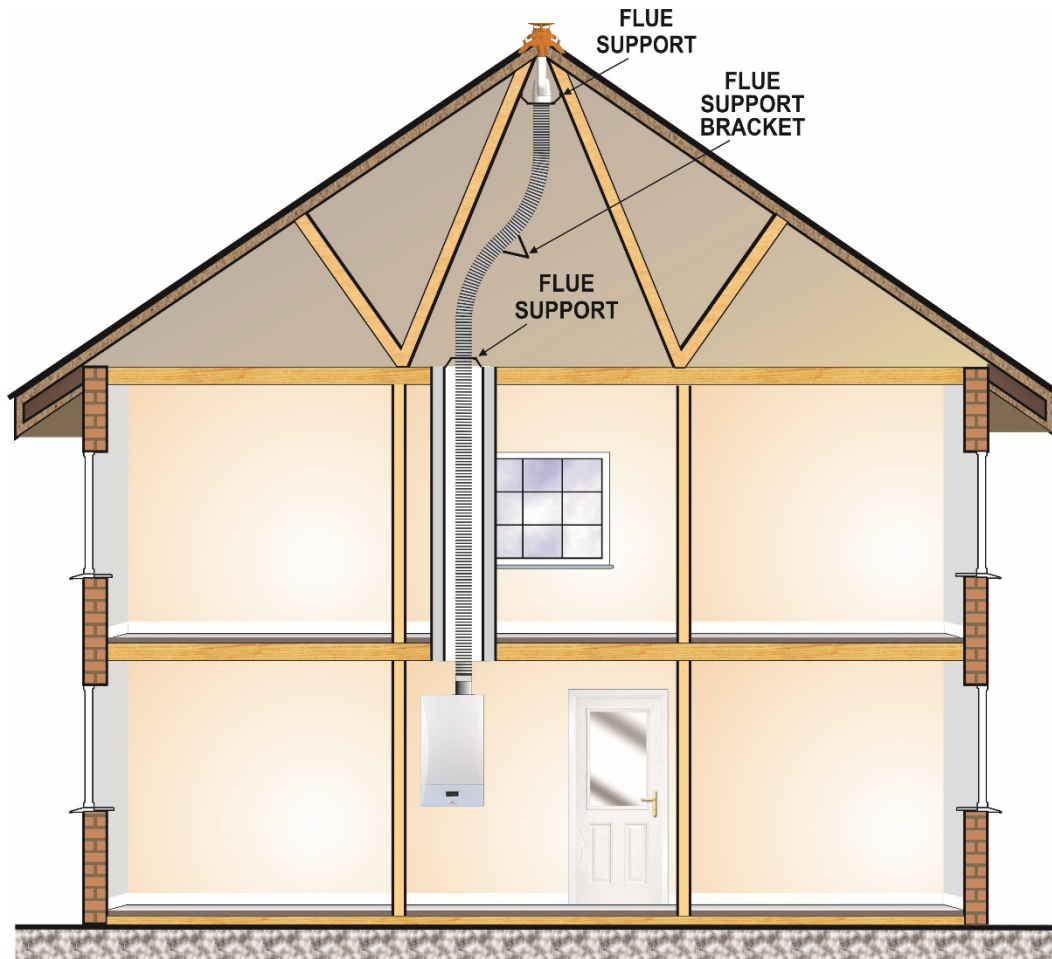


Figure 3. Fully flexible chimney system from boiler to a roof space. Check manufacturer's literature to see if this installation arrangement is approved.

3.2 Vertical condensing flexible concentric chimney systems in constructional chimneys (Figure 4)

- 3.2.1 This system consists of a concentric condensing flexible inner flue duct and an outer air duct both of which are continuous in length providing a system without joints.
- 3.2.2 TB 008 Edition 3 requires that installations incorporating proprietary liners within constructional chimneys are excluded from the necessity to have visual inspection hatches, providing that no joints are located within the constructional chimney.
- 3.2.3 The condensing flexible concentric chimney system needs to be 'CE' Certified and manufacturer approved along with any termination and the connections at the appliance. Additionally, 'CE' Certified components should carry a 'CE' label.

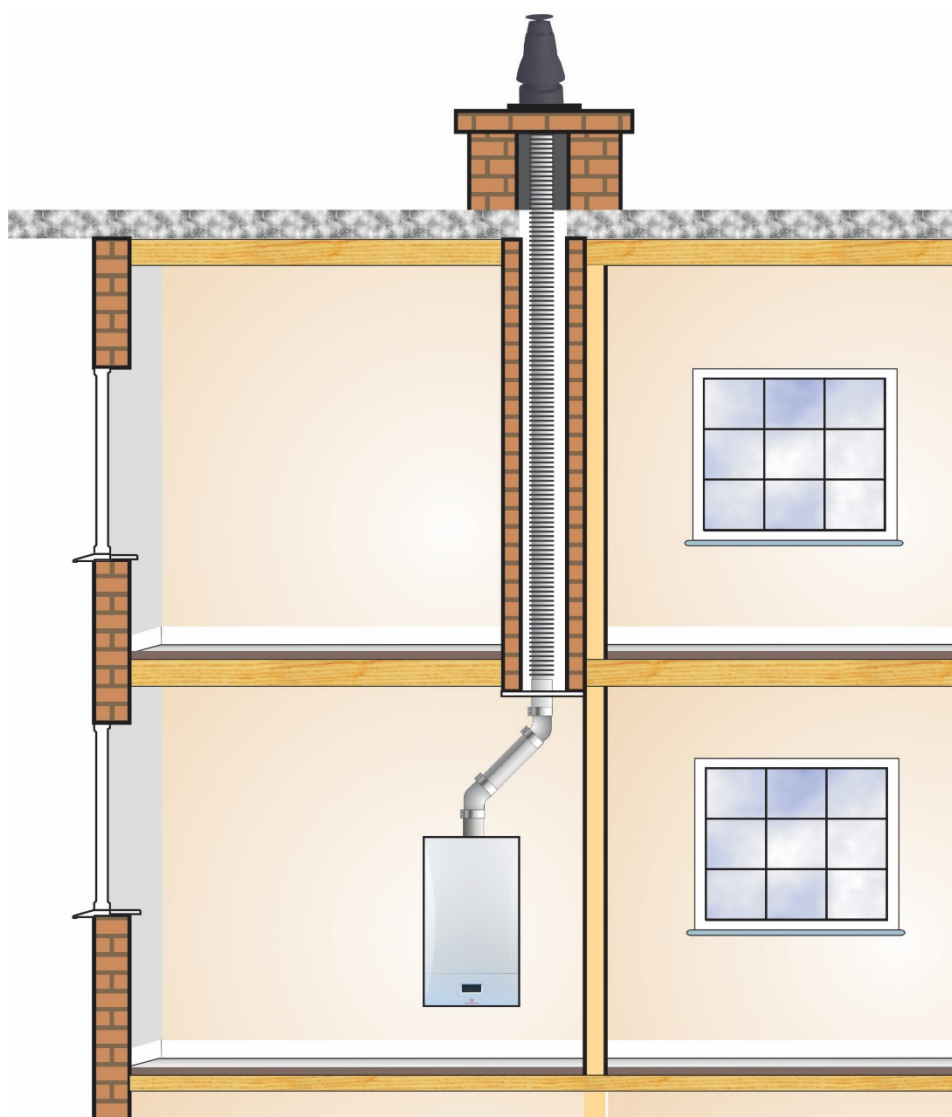


Figure 4. Vertical condensing flexible concentric chimney systems in a constructional chimney. Check with manufacturer's literature to see if this installation arrangement is approved.

3.3 Vertical condensing flexible chimney system in constructional chimneys including pre-cast flue blocks (Figure 5)

- 3.3.1 These systems differ from types 'a' and 'b' above in that they are not concentric chimney systems.
- 3.3.2 These chimney systems incorporate a flexible condensing flue pipe connected to the terminal and chimney plate/flue block connector. The air supply is provided via the existing masonry or pre-cast flue block chimney system via the purpose-designed terminal and exiting through the constructional chimney plate/flue block adaptor to the appliance. It is essential that the existing masonry or precast flue block chimney is visually checked and tested for tightness. Methods for testing are described in Annex D of BS 5440-1⁽⁴⁾.

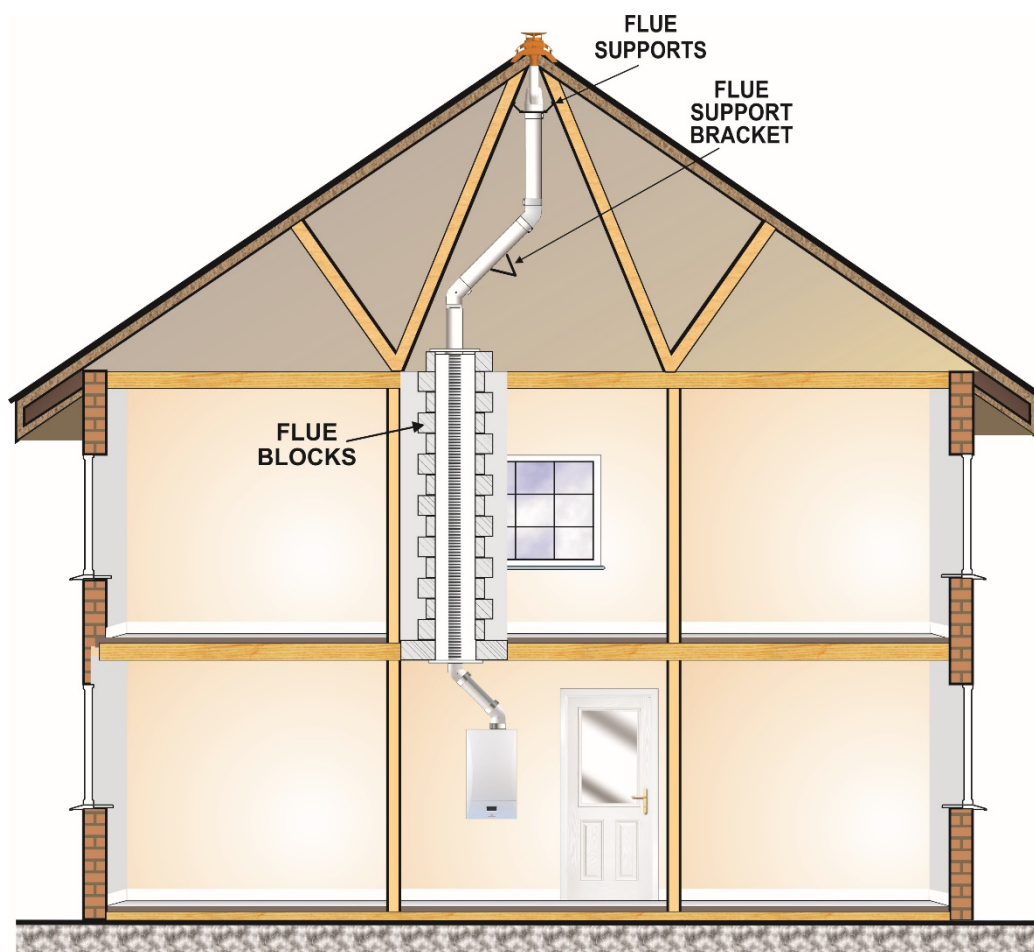


Figure 5. Vertical condensing flexible chimney system in pre-cast flue blocks. Check manufacturer's literature to see if this installation arrangement is approved.

3.4 Vertical condensing flexible chimney systems in constructional chimneys where the flexible chimney is connected to a boiler in an existing fireplace/builders opening. (Figure 6)

- 3.4.1 This system consists of a concentric condensing flexible inner flue duct and an outer air duct both of which are continuous in length providing a system without intermediate joints.
- 3.4.2 TB 008 Edition 3⁽⁴⁾ requires that installations incorporating proprietary liners within constructional chimneys are excluded, from the necessity to have visual inspection hatches, providing that no joints are located within the constructional chimney.
- 3.4.3 The condensing flexible concentric chimney system needs to be 'CE' Certified and manufacturer approved along with any termination at the top of the chimney and the connections at the appliance within the fireplace/builders opening. Additionally, 'CE' Certified components should carry a 'CE' label.

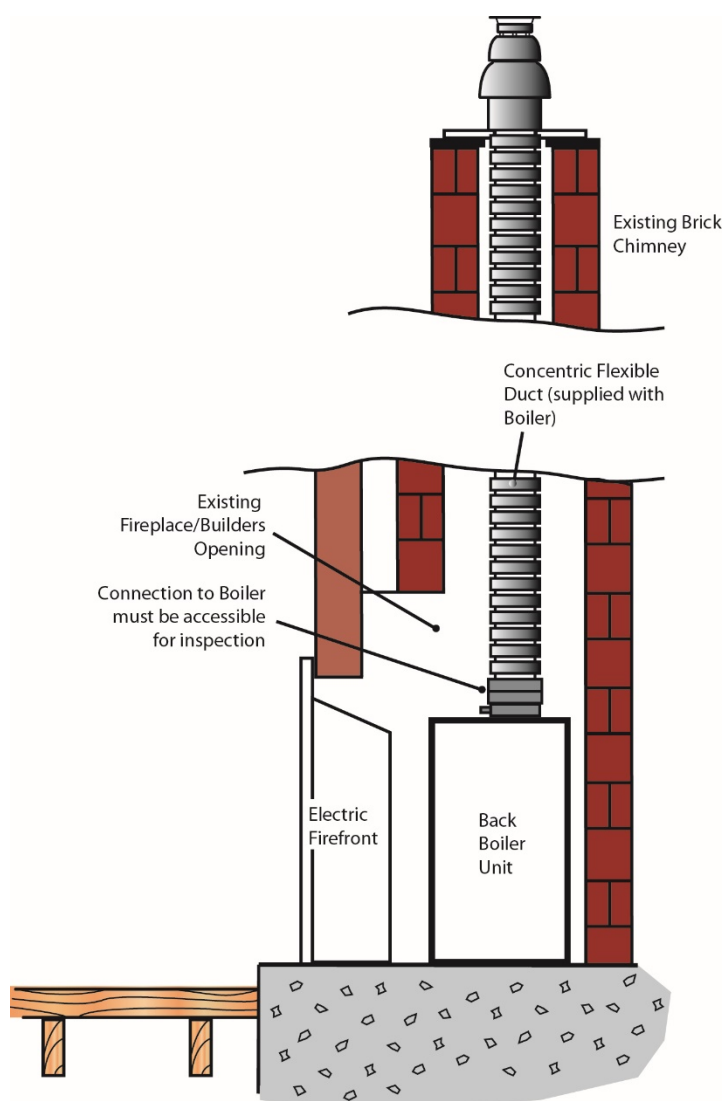


Figure 6. *Vertical condensing flexible chimney system in constructional chimneys where the flexible chimney is connected to a boiler in an existing fireplace/builders opening.*

4 Installation

4.1 Vertical flexible condensing concentric chimney systems in voids (Figure 1, 2 & 3)

- 4.1.1 Reference should be made to the gas appliance manufacturer's instructions to confirm that the complete proposed flue assembly conforms to their specification for minimum and maximum equivalent flue lengths of the complete chimney system, including both rigid and flexible sections.
- 4.1.2 There is a need to ensure that all components used are 'CE' Certified and approved by the gas appliance manufacturer. Additionally, 'CE' Certified components should carry a 'CE' label.
- 4.1.3 Supporting of the flexible chimney system needs to be carried out using proprietary concentric flexible condensing flue supports to prevent damage to the integrity of the flexible pipe.
- 4.1.4 Testing and commissioning of the gas appliance and concentric flexible condensing chimney system needs to be carried out in accordance with the manufacturer's instructions.

4.2 Vertical concentric flexible condensing chimney systems in constructional chimneys (Figure 4)

- 4.2.1 Reference should be made to the gas appliance manufacturer's instructions to confirm that the complete proposed flue assembly conforms to their specification for minimum and maximum equivalent flue lengths before commencing the installation.
- 4.2.2 For existing constructional chimneys, that have been previously used with alternative heating appliances, there is a need to ensure that there are no blockages and it is clean and free from debris e.g. swept and flue-flow tested to check integrity.
- 4.2.3 There is a need to ensure that all components used are 'CE' Certified and approved by the gas appliance manufacturer. Additionally, 'CE' components should carry a 'CE' label.
- 4.2.4 The concentric flexible condensing chimney system should be installed in accordance with the manufacturer's instructions.
- 4.2.5 The gas appliance and concentric flexible condensing chimney system needs to be tested and commissioned in accordance with the manufacturer's instructions.

4.3 Vertical flexible condensing flue systems in constructional chimneys including pre-cast flue blocks (Figure 5)

- 4.3.1 Reference should be made to the gas appliance manufacturer's instructions to confirm that the complete proposed flue assembly conforms to their specification for minimum and maximum equivalent flue lengths of the complete chimney system, including both rigid and flexible sections, before commencing the installation.
- 4.3.2 Where pre-cast flue blocks systems are to be used, there is a need to ensure that the diameter/free area is correct before commencing with the installation. The diameter/free area of the pre-cast flue block system should be such as to provide the equivalent size of combustion air duct to that available with any concentric flexible flue specified by the gas appliance manufacturer

(80mm/125mm or 60mm/100mm diameter,) when the flexible flue pipe is inserted. The minimum free area around a 60mm flexible pipe must be at least 50cm² and for an 80mm flexible pipe the minimum free area around the pipe must be at least 72cm². Where pre-cast flue block systems are to be used, there is a need to ensure that they have been installed correctly and that no leaks are evident between joints of the connecting blocks.

Note 5 Methods for testing are described in Annex D of BS 5440-1⁽⁵⁾.

- 4.3.3 For existing pre-cast flue block systems that have been used with alternative heating appliances, there is a need to ensure that there are no blockages and they are clean and free from debris e.g. by sweeping and flue flow and continuity testing.
- 4.3.4 There is a need to ensure that all components used are 'CE' Certified and approved by the gas appliance manufacturer. Additionally, 'CE' Certified components should carry a 'CE' label.
- 4.3.5 The chimney system needs to be installed in accordance with the manufacturer's instructions.
- 4.3.6 The gas appliance and flexible chimney system need to be tested and commissioned in accordance with the manufacturer's instructions.
- 4.3.7 It is recommended that the integrity of any pre-cast flue block system is checked for debris fall or blockage along with any visual signs of damp escaping throughout its length, at least annually.

4.4 Vertical condensing flexible chimney systems in constructional chimneys where the flexible chimney is connected to a boiler in an existing fireplace/builders opening. (Figure 6)

- 4.4.1 Reference should be made to the gas appliance manufacturer's instructions to confirm that the complete proposed chimney system assembly conforms to their specification for minimum and maximum equivalent chimney system lengths before commencing the installation.
- 4.4.2 For existing constructional chimneys, that have been previously used, with alternative heating appliances, there is a need to ensure that there are no blockages and they are clean and free from debris e.g. swept and flue-flow tested to check integrity.
- 4.4.3 All components used should be 'CE' Certified and approved by the gas appliance manufacturer. Additionally, 'CE' components should carry a 'CE' label.
- 4.4.4 The concentric flexible condensing chimney system should be installed in accordance with the manufacturer's instructions.
- 4.4.5 The fireplace/builders opening must be in the living space of the dwelling and be soundly constructed of brick, pre-cast concrete or be a proprietary builders opening.
- 4.4.6 The fireplace/builders opening must not communicate with voids, pipe ducts or spaces other than the room in which the boiler is installed.
- 4.4.7 A constructional chimney serving an existing fireplace/builders opening may include components or materials (e.g. a flue liner) appropriate to the appliance previously installed. These items must be removed prior to fitting the flexible chimney system.

4.4.8 Sufficient space must be available within the fireplace/builders opening to allow inspection of the connection between the flexible chimney system and the replacement boiler. It is accepted that in certain such installations the removal of a fire front appliance intended for operation with the replacement boiler will grant adequate access.

4.4.9 The gas appliance and concentric flexible condensing chimney system needs to be tested and commissioned in accordance with the manufacturer's instructions.

5 Commissioning

It is essential that the appliance is commissioned in accordance with the manufacturer's instructions, and that the chimney system is checked to ensure its correct installation and integrity.

6 Replacement appliances

When replacing an appliance to a system that has a flexible condensing chimney system, a new replacement flexible condensing chimney system must always be used unless otherwise specified by the gas appliance manufacturer.

Note 6: For general information about the process behind the development of Gas Safe Register Technical Bulletins and the expectations for all Stakeholders, see [TB 1000^{\(7\)}](https://engineers.gassaferegister.co.uk) at: <https://engineers.gassaferegister.co.uk> - login and visit the Technical Information area.

Bibliography

- (1) [TB 008 Existing concealed room-sealed fanned-draught boiler chimney /flue systems in domestic premises.](#)
- (2) [Building Regulations \(England & Wales\) Approved Document J \(ADJ\) Combustion appliances and fuel storage systems](#)
- (3) [Scottish Building Standards -Technical document](#)
- (4) [Gas Safety \(Installation & Use\) Regulations 1998](#)
- (5) [BS 5440-1 Flueing and ventilation for gas appliances of rated input not exceeding70kW net \(1st, 2nd and 3rd family gases\).](#)
- (6) [LNIDL - Gas Safe Register Legislative, Normative & Informative Document List](#)
- (7) [TB 1000 - An introduction to Gas Safe Register Technical Bulletins](#)

Note: Gas Safe Register Technical Bulletins and the Legislative, Normative & Informative Document List can be viewed at: <https://www.gassaferegister.co.uk/sign-in/> - login and visit the Technical Information area.

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