

# Secure your surround

Hetas has issued updated information on fixings for stone fire surrounds. Here, technical standards manager Calvin May gives a brief outline of the essentials.



Fire surrounds have been the subject of recent media attention following a number of incidents where an inert stone surround came away from the wall, posing significant risk to the building's occupants and, in some cases, serious injury and fatality.

Hetas's recent Technical Bulletin offers advice on essential practices when fixing a stone fire surround to either an open fire or closed appliance builder's recess.

In 2015, the technical committee responsible for the management of the open fire components standard BS 1251 revised and updated the 1987 version of the standard to include new requirements for the appropriate method for mechanically fixing a fireplace surround. This was aimed at ensuring that it can take the load of objects placed on the mantle above and won't come away from the wall if they are pulled on accidentally.

## Materials and structures of a fire surround

To understand the basic principles of fixing a fireplace surround, it is as important to understand the

type of surround being fitted as it is to ensure the correct positioning, materials and fixings are used for installation.

The different types of surrounds available can be summarised as:

- Slabbed surrounds – a single-component structure, usually made from marble, stone or ceramic tiles, on a backing of heat-insulated cement mix. The minimum total thickness of the surround shall be no less than 48mm, consisting of at least 30mm of cement-mixed backing for stone and marble, and at least 40mm mix for ceramic tile
- Cut stone surrounds – a multiple-component structure, typically constructed of stone formed of two vertical legs under a horizontal lintel, with mantle on top
- Boxed section surrounds – a multiple-component structure, made from natural stone or marble, compartmentalised with a back panel split to allow for thermal expansion.

The pictures show examples of fixings for the three types.

## Mechanical fixings

All surround types as described above should be manufactured in accordance with BS 1251, and in such a way that allows for the appropriate mechanical fixing of the surround to the building's

method to affix a surround to the building's internal structure.

For **slabbed surrounds**, typically the manufacturer will integrate the appropriate clip or eyelet type fixing to the product directly, with two mechanical

**“BS 1251 updates include new requirements for mechanically fixing a fire surround, to ensure it can take the load of objects placed on the mantle and won't come away from the wall if pulled on accidentally.”**

structure. If you are unsure whether the surround conforms, contact the manufacturer directly and request clarification on the correct procedure to follow. You can also seek further specialist advice and guidance from specialist organisations such as Hetas or the Stone Federation of Great Britain.

Fixings must be secured to the brickwork of the building, so it is important that any plasterboard or other finish materials are removed beforehand to allow for the surround to be bonded appropriately. Installers should never use the 'dot dab' adhesive

fixings positioned at each side of the surround, and a further two fixings within 300mm of the top. These will be usually either a fixed or swivel type, depending on the surround's construction.

**Cut stone surrounds** are a little more complex and should incorporate full heat-proof bracket fixings appropriate for the type and construction of the backing wall. It should be fixed directly to the chimney breast wall or fixed to another stone structure, which itself is mechanically fixed to the breast wall. The manufacturer's instructions will provide additional fixing instructions on the location,

## Important points

- Ensure the surround complies with BS 1251 requirements
- Before installation, ensure the manufacturer's instructions are referenced and give provision for the appropriate fixing type, locations, correct methodology and any required jointing/sealing compounds
- Assess the wall and hearth structures and ensure they are in a condition to accommodate the weight of any surround
- Upon completion, assess any potential risk to the occupants and inform them of potential dangers where children or infirm people are present.

type and bedding joints needed to fix the surround correctly.

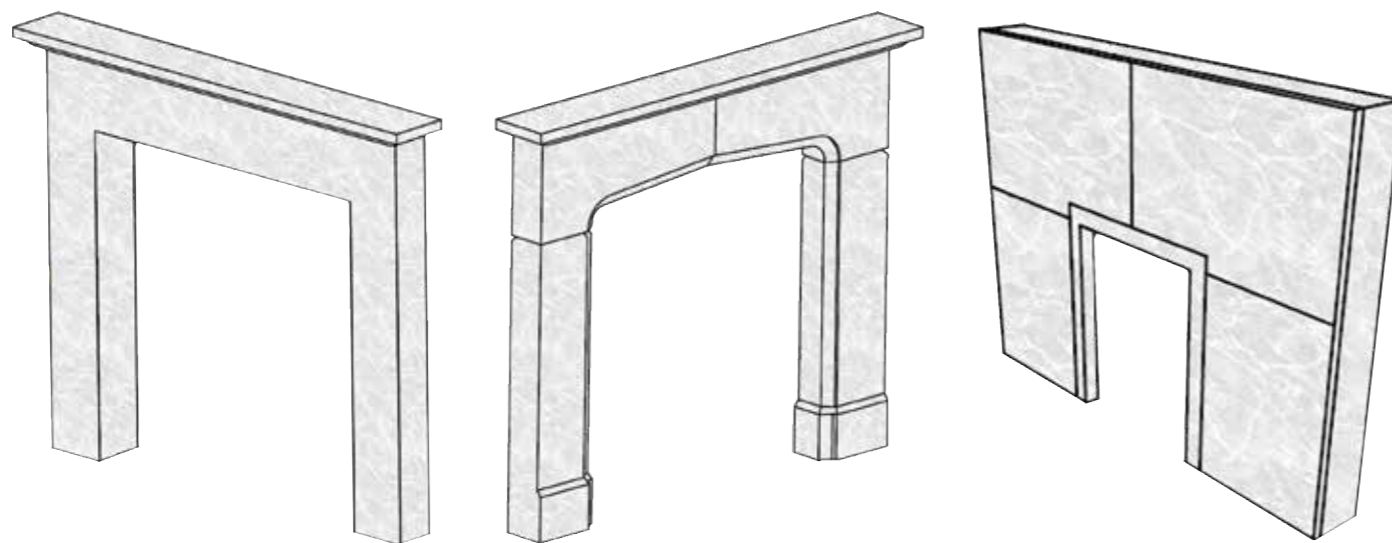
## Boxed section surrounds

incorporate fixing wires at each side of the surround, similar to slabbed surrounds, with the uppermost fixings within 300mm of the top of each side. The shelf at the top will have its own fixing points to secure it to the chimney breast wall. The manufacturer's instructions should be followed at all times as installation may be dependent on the size and weight of the shelf overhang.

## Fixing locations

In most cases fixing brackets will be supplied by the surround manufacturer. These are typically made of heat-proof stainless or galvanised steel in such a way that enables them to be fixed into the surround. It is important to assess the condition of the chimney breast wall to ensure it can accommodate the weight of the surround. ■

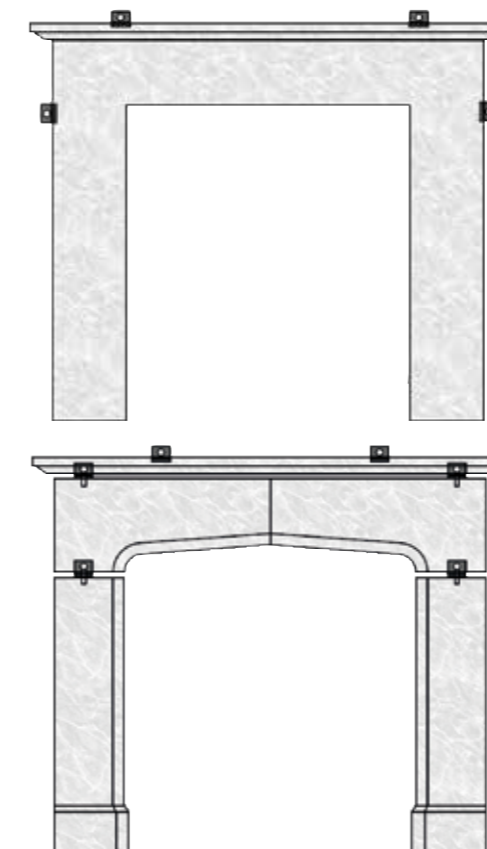
*Hetas is a not-for-profit organisation offering a Competent Person Scheme for installers of biomass and solid fuel heating, registration for retailers, servicing technicians and chimney sweeps, and approval of appliances and fuels.*



Slabbed surround

Cut stone surround

Boxed section surround



Typical locations to fix surround brackets

# Close the gap

Registered Gas Engineer looks at the importance of installing fire surrounds correctly, and explains some of the key issues to consider when fitting laminate, lightweight marble, solid stone and cast-iron surrounds.

When starting every fire surround installation, it is essential that the engineer first reads the manufacturer's instructions supplied with the fire. All gas fire installations follow a basic set of fundamental principles, but the space requirements will vary according to the specific appliance.

These variances may depend on the minimum and maximum builder's opening requirements, the heat distribution requirements from the front of the appliance, and the minimum distances to combustible material – for example, the surround legs and overhangs.

When fitting laminates, lightweight marble/granite and solid marble or cast-iron surrounds, the builder's opening should be adjusted to the size required by the manufacturer. You can do this using non-combustible material, such as brick or concrete block work, to form a suitable opening to accommodate the surround. DO NOT use porous building bricks to form a fireplace opening (Figure 1).

**Note:** Do not brick up the front of the builder's opening to a letterbox opening. Where necessary, use an appropriate closure plate.

An alternative to complicated building work is to use a proprietary metal flue box/collector that meets the requirements of BS 715 – *Specification for metal flue boxes for gas-fired appliances not exceeding 20kW*. However, this will depend on the appliance type and installation instructions (Figure 2).

There should be no extraneous openings or passages into cavities. Where openings are evident, they should be repaired using an appropriate mortar, to prevent products of combustion escaping through them and to stop them having an effect on the appliance or its chimney/flue.

Any plaster or plasterboard should be cut back immediately around the builder's opening, as plasterboard can degrade at temperatures above 49°C. Fill the gap between the brickwork and surround with an appropriate fire-proof insulating material. Make sure you follow the

manufacturer's instructions at all times.

## Laminate surrounds

Laminate is usually made from a mixture of craft paper and heat-resistant resin, plus a decorative laminate finish, and therefore should be checked as being suitable for use around the appliance. This will be done in consultation with the appliance manufacturer and ensuring any proposed laminate surround is compatible with the appliance being installed and temperature effects.

A hearth shall be provided for a gas fire unless the fire conforms to the requirements of BS 7977-1 for installation without a hearth. If the fire is intended for wall mounting, it shall be installed so that any flame or incandescent materials are at least 225mm above the carpet or any combustible floor covering.

A suitable hearth is often provided with the surround assembly, containing a non-combustible board of a minimum 12mm thickness, and built so that it raises the edge of the hearth to

50mm and projects forward at least 300mm from the flame source, with at least 150mm to either side. This should be designed and manufactured to meet the requirements of BS 5871-2: 2005. This will ensure the hearth can be used safely with radiant, inset live fuel-effect and decorative fuel-effect gas fires.

Purpose-made proprietary hearths are available whose suitability for a particular application should be established from the hearth manufacturer. Hearths that would be suitable for this application are those made from non-combustible materials to BS 476-4, or materials classified as Class 0 in accordance with Approved Document B to the Building Regulations.

The opening of the back panel should be cut to the dimensions specified by the appliance manufacturer's instructions. Once marked up, the laminate can be cut with a fine-toothed saw.

The back panel shall be secured in the manner specified by the fire surround manufacturer (Figure 3).

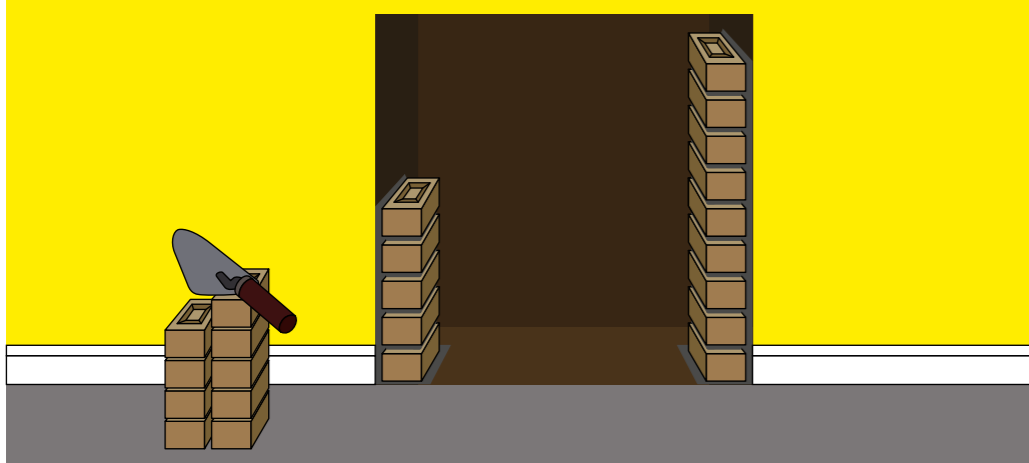
Any closure plate must be fitted to the surround back panel in an appropriate manner using a suitable tape that complies with PRS 10 specifications.

## Solid granite, marble or stone

Slabbed fireplace surrounds constructed from marble, stone, conglomerate and ceramic tiles – unless specified by the surround manufacturer – are recommended to be as specified in BS 1251.

Depending on the material, they may have little inherent stability – and can be unstable by their aesthetic design. Some can have a large overhanging mantel shelf in comparison to the width of the vertical legs – the surround manufacturer will therefore make provision for the mechanical fixing >

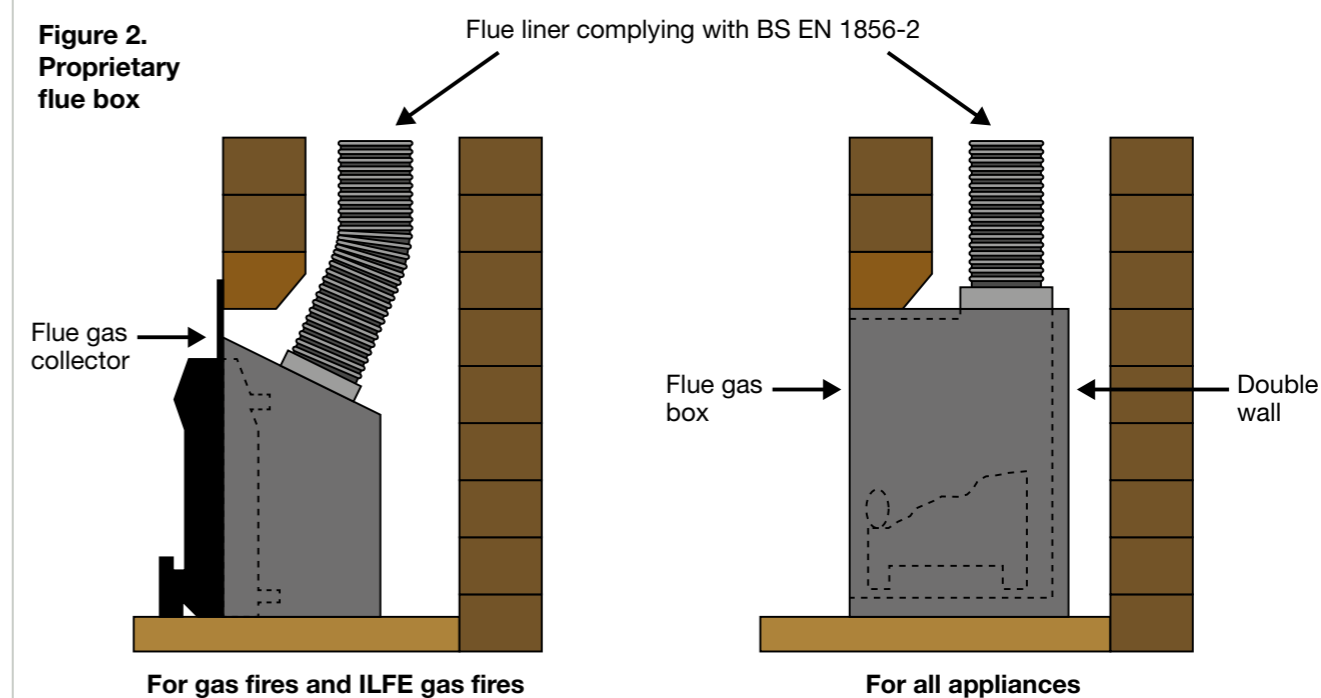
**Figure 1.**  
Reducing the fire opening using brickwork



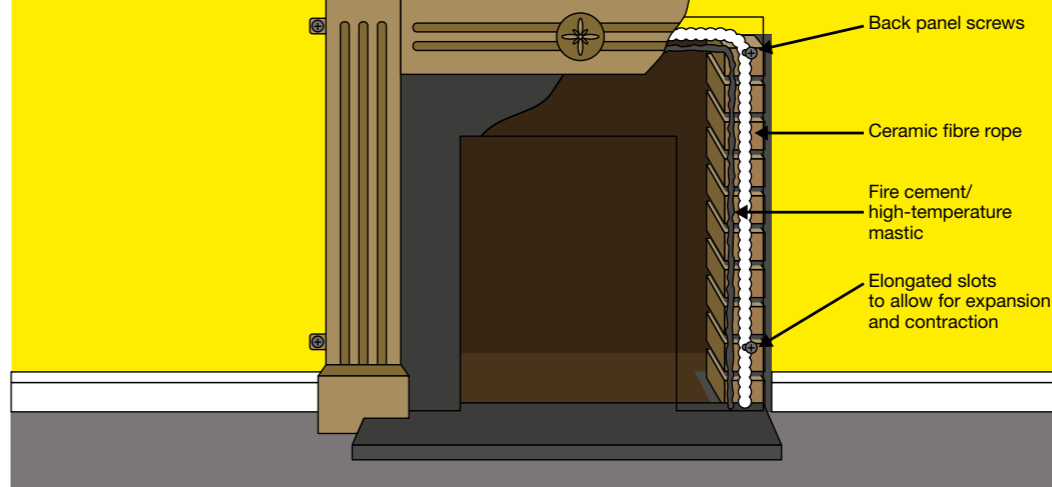
Fire surrounds are a desirable decorative object within the home and safety must be a key consideration for any gas engineer tasked with fitting them. They can be extremely heavy, sometimes weighing over 100kg and, if they are not fitted securely and become detached from the wall, they can pose a

significant risk to people.

When installed alongside a gas or solid-fuel fire, there is also a risk that if the surround is not sealed correctly, products of combustion may escape into the room, with serious and potentially fatal consequences.



**Figure 3.**  
Sealing the fire surround



> of each stone either directly to the backing wall or to another stone, which itself is mechanically fixed to the backing wall.

The fire surround manufacturer's detailed instructions will provide the following information:

- Set out the sequence of installation.
- List the form of bedding/jointing material to be used and to the extent it is applied
- Show the location of mechanical fixings
- Provide the type/form of the required mechanical fixing
- Describe how the mechanical fixings are attached to the surround and secured to the various form of brickwork/blockwork that could form the chimney breast
- Give the curing time before weight can be applied to the fireplace surround fire.

The fixing brackets for the surround will be supplied by the manufacturer and will be purpose-made to fix into holes,

rebates or dowel holes already made by them for that particular model. In addition, they will be of an appropriate size to withstand any imposed or dead load applied to the surround.

You should also assess the chimney breast on to which the fireplace is to be secured. Is it of sound/solid construction and is it able to support the weight of the surround that is to be attached?

The manufacturer's instructions will instruct you to consider the type of heat-proof

fixings appropriate for the fireplace type and wall construction. Fixings used for the chimney breast masonry will be of expansive stainless steel for dense concrete blocks or brickwork. If it is intended to fix into lightweight or friable aggregate blocks, then the fixing will need to be of the resin anchor type.

Once the surround is installed, Approved Document J Combustion Appliances and Fuel Storage Systems requires that

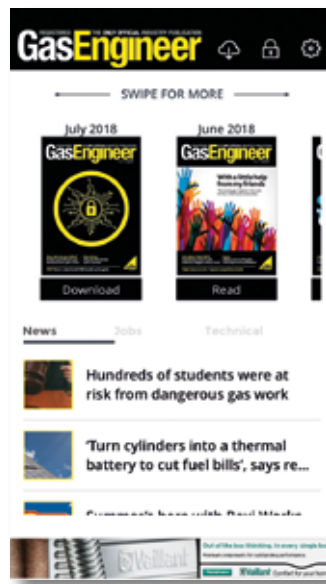
where a hearth, fireplace (including a flue box) flue or chimney is provided, information must be provided essential to the correct application and use. A way of meeting this requirement is to provide a notice plate.

If a new liner/chimney has been installed in conjunction with the new fire surround, then that shall be noted on the chimney notice plate and the chimney notified to local Building Control via Gas Safe Register. ■

<b>Essential information</b>	<b>IMPORTANT SAFETY INFORMATION</b> <b>This label must not be removed or covered</b>	
	Property address .....	4 The Street, Blochborough
	The hearth and chimney installed in the ..... are suitable for .....	Lounge Decorative fuel effect gas fire
	Chimney liner .....	N/A
<b>Optional additional information</b>	Suitable for a condensing appliance .....	No
	Installed on .....	24 July 2018
	<b>Other information (optional) .....</b> eg, installer's name, product trade name, installation and maintenance advice. European chimney product designation. Warning on performance limitation of products/materials, eg, false hearth	



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