Health and Safety Executive

Risks to occupiers from the installation of modular, stone and artificial stone fireplace surround

Health and Safety Executive - Safety Alert	
Department Name:	Field Operations Directorate - Construction
Bulletin No:	FOD 2-2013
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Target Audience:	Construction[1] and retail[2] including: designers, manufacturers, suppliers and installers of modular, stone or artificial stone fireplace surrounds and principal contractors, contractors and clients who commission such installation
Key Issues:	To alert designers, manufacturers and suppliers of stone or artificial stone fireplace surrounds of the need to provide adequate fixings and fixing options as well as detailed instructions on their safe assembly and to alert installers of the need to ensure they are safely installed so as to prevent subsequent failure and potential fatal injuries

Introduction:

HSE is aware of several instances where heavy stone components forming part of a modern fireplace surround have fallen causing damage and injury. These incidents have happened because the fireplaces were not securely, mechanically fixed in place. In two, separate accidents this type of incident resulted in the death of two young children. The fireplace surrounds had been installed and in use in the family home for a matter of months before the fatal accidents. Further research has shown, that there have been, over a number of years, several other fatalities to children. The Stone Federation of Great Britain has recently revised its guidance on safe installation of fire place surrounds.

Background:

Modular, stone or artificial stone fireplaces consist of a number of individual components that are assembled on site to form the fireplace surround. They commonly consist of two, vertical legs (jambs) on top of which is the horizontal lintel (frieze or headstone) and above the lintel either a mantel shelf or a number of horizontal components that may include a 'cushion' stone on top of which is the mantel shelf.

Typically the stone components are set on top of a solid hearth, with either mortar or another bonding material acting as bedding between the stone components. Mechanical fixings (e.g. steel brackets, dowels

and screws etc) are used to hold the stone components in position and to secure them to the wall. Individual components can exceed 50 kgs in weight. The mantel shelf may also have a significant overhang projecting forward of the lintel. Unless fitted in a secure manner this makes the mantel in particular liable to topple off the lintel.

If the individual components are not designed to incorporate or include adequate fixings or if they are not installed correctly, i.e. mechanically secured together and secured to the surrounding wall it is possible for the mantel shelf to detach and to topple over. The toppling of an inadequately installed mantel shelf can be triggered by passive weight such as heavy items stored on the mantel or by a person pulling down or hanging from the projecting edge of the mantel.

The heavy weights of the toppling components place persons, especially children at risk of severe or even fatal injuries.

Action required:

Designers of modular stone fireplace surrounds should ensure that their design incorporates or includes fixings or fixing kits that are suitable for a range of locations and able to be installed onto a variety of floor and wall types. This may include dense and lightweight masonry and timber frame.

Manufactures and suppliers should ensure that adequate information is provided to installers to safely assemble and install the fireplace surround including:

a. Which wall/floor types the fire surround is suitable for and those on which it should not be mounted (e.g. non structural walls such as demountable partitions or lightweight metal stud walls, etc).
b. How the fireplace is to be assembled including the sequence.
c. The recommended bonding products and the extent of their application (e.g. area and joint thickness) to bed the individual stone components together. And the recommended method of using the bonding product given the type of stone involved (e.g. pre-wet porous or impervious).
d. How the fireplace surround should be secured to different forms of wall construction and finish.
e. The number and type of mechanical fittings to be used, where they are positioned, and how they are to be fixed to both the stone components and to the wall to hold and secure the stones in position.
f. The curing time before the fireplace can be used with a lit fire.
g. Any additional information for the home-owner e.g. how much weight may be placed upon the mantel.

Installers should ensure that they follow the manufacturer's and supplier's guidelines.

Designers, manufacturers, suppliers and installers attention is also drawn to the Stone Federation of Great Britain guidance on "Fireplace Surrounds". This is available free of charge at http://www.stonefed.org.uk/index.php?page=Health-and-Safety [3]

Relevant legal documents:

- Health and Safety at Work etc Act 1974, Section 3
- Construction (Design and Management) Regulations 2007, Regulations 11, 13 and 22

References:

- Stone Federation of Great Britain guidance on "Fireplace Surrounds" [4]

Further information:

All enquiries for journalists should be directed to the HSE Press Office

Link URLs in this page

1. Construction
   http://www.hse.gov.uk/construction/index.htm
2. retail
   http://www.hse.gov.uk/retail/index.htm
3. http://www.stonefed.org.uk/index.php?page=Health-and-Safety
4. Stone Federation of Great Britain guidance on "Fireplace Surrounds"
   http://www.stonefed.org.uk/index.php?page=Health-and-Safety