Insulation for ventilated Rainscreen Cladding:

Façade Insulation for buildings over 18m in height: compliance with Approved Document B2 and following guidance in Building Control Alliance (BCA) Technical Note: 18

Compliant with BR135
UP TO 160mm IN A SINGLE LAYER
TESTED TO BS8414

Xtratherm Technical Services

10/4803
This Technical Note by Xtratherm outlines the compliance requirements under Approved Document Part B for ventilated rainscreen cladding systems in new or existing steel framed or masonry walls.

Xtratherm SR/RS Rainscreen Board provides ultimate performances in rainscreen application up to and exceeding 18m in height. SR/RS has been tested to BS 8414 in compliance with Part B Building Regulations and meeting the criteria of BR135.

**Safe-R Rainscreen**

Modern Methods of Construction offer many advantages on site. The speed and efficiency of the construction methods allow buildings to be erected faster, with precision components offering highly energy efficient wall, floor and roof elements.

Xtratherm have developed the Safe-R Rainscreen insulation board SR/RS to bring the thermal performance of external rainscreen cladding constructions methods towards the zero carbon standards aspired to in proposed building regulations.

Using Xtratherm Safe-R SR/RS can provide the most efficient U-values with minimal thickness of insulation providing effective thermal and fire performance in buildings using a rainscreen facade.

Xtratherm have attained comprehensive testing results and desktop opinions on a number of rainscreen specifications, meeting compliance under BR135 and satisfying BCA Technical Note 18.

See overleaf.
Buildings Over 18m

This Technical Note by Xtratherm outlines the compliance requirements under Approved Document Part B for ventilated rainscreen cladding systems in new or existing steel framed or masonry walls.

BR135 Annex A & B:
Performance criteria and classification method for BS 8414-1 and BS 8414-2

The primary concerns when setting the performance criteria for these systems are those of fire spread away from the initial fire source, and the rate of fire spread. If fire spread away from the initial fire source occurs, the rate of progress of fire spread or tendency for collapse should not unduly hinder intervention by the emergency services. The performance of the system under investigation is evaluated against three criteria:

1. External fire spread
2. Internal fire spread
3. Mechanical performance

Building Control Alliance (BCA) Technical Note: 18

The BCA, in June 2015, issued the Technical Guidance Note 18: “Use of Combustible Cladding Materials on Residential Buildings”. The guidance is accepted by warranty providers such as the NHBC and Building Control bodies.

The publication recommends three options for showing compliance with paragraph 12.7 of AD B2 –

1. Use materials of limited combustibility throughout the cladding system.

2. Submission of evidence to the Building Control Body that the complete proposed external cladding system has been assessed in accordance with the criteria of BR135 - “Fire Performance of External Thermal Insulation for Walls of Multistorey Buildings. The preferred method of demonstrating compliance is via a fire test carried out in accordance with BS8414:1 Fire performance of external cladding systems – Part 1: Test method for non-loadbearing external cladding systems applied to the face of the building or BS8414-2 Fire performance of external cladding systems – Part 2: Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame. The test should be carried out by an independent UKAS accredited testing body.

3. If no actual fire test data exists for the system specified, a “desktop study report” undertaken by an UKAS accredited testing body, based on test data (As 2.) and their opinion is in accordance with BR135, is acceptable.
Large scale tests: BS 8414-1 and BS 8414-2

Xtratherm SR/RS Rainscreen Board has been tested to BS 8414-1: 2002 and BS 8414-2: 2005, with a variety of facade materials and thicknesses of insulation in accordance with the performance criteria set out in BR 135.

The fire exposure is representative of an external fire source or a fully developed (post-flashover) fire in a room, venting through an opening such as a window aperture that exposes the cladding to the effects of external flames.

Xtratherm SR/RS was successfully tested to BS 8414-2:2005 for rainscreen cladding systems meeting the performance criteria set out in BR135.

The classification applies only to the system as tested and detailed in the classification report. The classification report can only cover the details of the system as tested.

Fire Breaks

In all test fire stopping was provided as follows. Three horizontal ventilated fire breaks were fixed in a continuous strip at simulated floor height and fixed to the simulated slab edge with concrete frame screws and using supplied fixing brackets.

Around the hearth opening and at the outer edges of the sample, non-ventilated fire breaks were installed. Fire protection should be specified and installed with any rainscreen in accordance with specialist specification and instruction.

The recommendations in Section 13 of Approved Document B2 and BRE Guide BR 187 – External fire spread: building separation and boundary distances should be followed.

BS8414-1: 2005 Test on an Xtratherm Cladding system with Eternit Panel on masonry substrate
- Wall fixed helping hand brackets
- 60mm Xtratherm Safe-R phenolic foam
- TID MIR 8/35 x 110E fixings with TID washers
- Aluminium T rails fixed to brackets with JT4-4.8 x 19mm fixings
- Magnesium silicate boards
- (applied to masonry substrate)

Reference 279965

BS8414-2: 2005 Test on an Xtratherm Cladding system with Eternit Panel on steel frame
- Double layer of 12.5mm plasterboard.
- 100mm steel frame mineral wool between
- Xtratherm 120mm Safe-R Phenolic
- Helping hand brackets
- Aluminium L and T rails
- Marley Eternit Façade board
- On steel frame system

Reference 200145 Issue:1

Issued BRE Global
Desktop Studies

In specifications where no large scale test data is available a ‘Desktop study’ undertaken by a suitably qualified person, normally UKAS approved, and based upon actual test data, can be used to demonstrate compliance with BR135. Xtratherm have a number of desktop studies completed. For further information or to discuss alternative specifications, contact the Xtratherm Technical Team.

An assessment of the fire performance of an Xtratherm cladding system with a Brick façade

- Double layer of 12.5mm plasterboard
- 100mm steel frame.
- Stone mineral wool 150mm
- 12mm carrier board (Cement Particle board or calcium silicate board)
- Xtratherm Safe-R Phenolic insulation board 120mm thick
- 75mm cavity
- 13mm Fibre C cladding tiles

An assessment of the fire performance of external wall systems with a ceramic panel system

- Double layer of 12.5mm plasterboard
- 150mm Metic steel frame with mineral/rock wool
- 12mm cement based particle board
- Breather membrane
- 160mm Xtratherm Safe-R phenolic foam
- 4mm aluminium helping hand brackets, 5mm thermal isopad and 2.2mm aluminium vertical rails
- Ceramic panels (Sureclad Façade Access and Hang-on system)

An assessment of the fire performance of an Xtratherm cladding system with a terracotta tile façade

- Two layers of 12.5mm plasterboard
- 70mm Metic steel frame
- 80mm unvented cavity with suitable cavity barriers
- 120mm Xtratherm Safe-R Rainscreen insulation
- 178mm concrete
- 50mm brick

An assessment of the fire performance of external wall systems with an aluminium composite façade

- Double layer of 12.5mm plasterboard
- 100mm Metic steel frame with mineral/rock wool
- 12mm cement based particle board
- Breather membrane suitable cavity barriers
- 160mm Xtratherm Safe-R phenolic foam
- Support rails and brackets, helping hands
- Alucobond A2

An assessment of the fire performance of an Xtratherm cladding system with a concrete/brick façade

- Double layer of 12.5mm plasterboard
- 150mm Metic steel frame mineral wool 150mm
- 12mm carrier board (Cement Particle board or calcium silicate board)
- Xtratherm Safe-R Phenolic insulation board 120mm thick
- 50mm cavity
- 30mm terracotta clay tiles

An assessment of the fire performance of an Xtratherm cladding system with a terracotta tile façade

- Double layer of 12.5mm plasterboard
- 100mm Metic steel frame with mineral/rock wool
- 12mm cement based particle board
- Breather membrane
- 160mm Xtratherm Safe-R phenolic foam
- 4mm aluminium helping hand brackets, 5mm thermal isopad and 2.2mm aluminium vertical rails
- Zinc cassette panel system

Reference [P100303-1000] Issued BRE Global
Reference [357785] Issued Exova Warringtonfire
Reference [P100303-1003A] Issued BRE Global
Reference [P100303-1003B] Issued BRE Global
Reference [357791] Issued Exova Warringtonfire
Reference [298343] Issued BRE Global
Reference [P100303-1001] Issued BRE Global
Reference [P100303-1002] Issued BRE Global
Reference [357791] Issued Exova Warringtonfire

Drawings and buildups are indicative only.
Good workmanship and appropriate site procedures are necessary to achieve expected thermal and airtightness performance. The example calculations are indicative only. Default values for components and cavities have been used. For specific U-value calculations contact Xtratherm Technical Support. Comprehensive guidance on installation should be consulted. Xtratherm technical literature and Agrément certifications are available for download on the Xtratherm website. The information contained in this publication is, to the best of our knowledge, true and accurate but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control.