

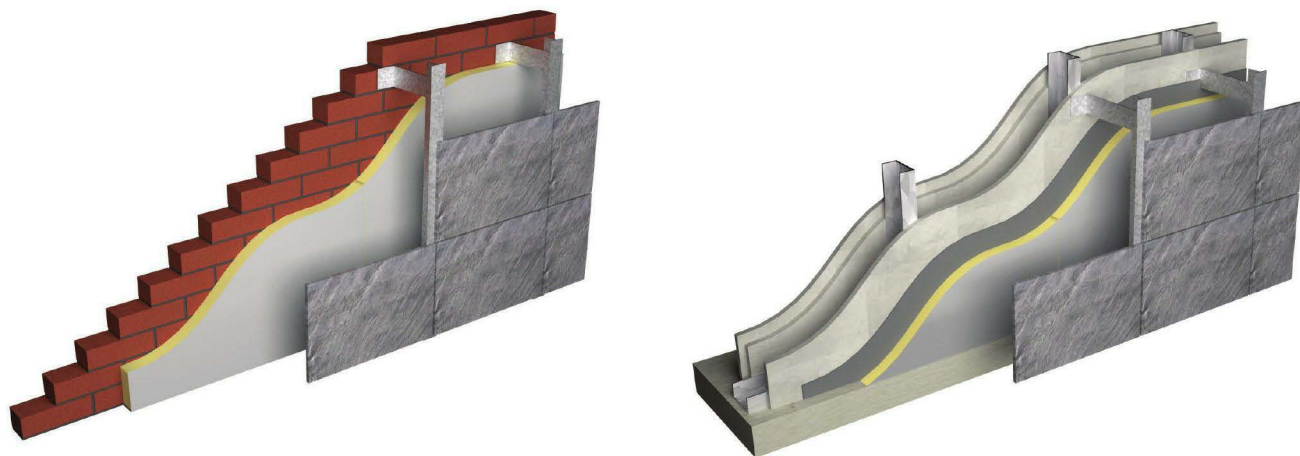
# Rainscreen Cladding Compliance Guide

When specifying  
Celotex RS5000  
in buildings  
above 18 metres

**Celotex**  
Insulation Specialists

# Compliance Guide

This document provides guidance on complying with Approved Document B2 (AD B2) for external wall cladding systems fixed to steel frame or masonry constructions. It provides a step by step guide to an alternative route to compliance for AD B2 through meeting the performance criteria set out in BR 135 through testing to BS 8414-1:2002 or BS 8414-2:2005.



Typical construction method

## Approved Document B2

Buildings with a storey height greater than 18 metres have additional requirements under the national Building Regulations.

Section 12.5 (External Wall Construction) of Approved Document B2 states the following routes to compliance:

*"External walls should meet the guidance given in paragraphs 12.6 or 12.9 or meet the performance criteria given in the BRE report Fire performance of external thermal insulation for walls of multi storey buildings (BR 135) for cladding systems using full scale data from BS 8414-1:2002 or BS 8414-2:2005"*

## BR 135

The first edition of BR 135 published in 1988, was developed in response to the increasing use of thermal insulation in external wall constructions of multi-storey buildings. Its primary purpose is to analyse the key stages associated with fire spread on the outside of a building envelope.

These are classified as:

- ▶ Initiation of the fire
- ▶ Fire breakout
- ▶ Interaction with the external envelope
- ▶ Fire re-entry
- ▶ Fire service intervention

## Performance Criteria

Annex B of BR 135 establishes the performance criteria and classification for testing to BS 8414-2: 2005.

### Performance criteria and classification method:

The performance criteria and classification method are based on the latest edition of the BS 8414-2:2005 test method. In order for a classification to be undertaken the system must have been tested to the full test-duration requirements of BS 8414-2 without any early termination of the full fire-load exposure period. As explained in Annex A, the primary concerns when setting the performance criteria for these systems are 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:

- ▶ External fire spread
- ▶ Internal fire spread
- ▶ Mechanical performance

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. It cannot state what is not covered. When specifying or checking a system it is important to check that the classification documents cover the end-use application.

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### Rapid Fire Spread

Cladding system contributes to flame spread resulting in risk of multiple simultaneous secondary fires

If the external cladding contributes to the flame spread there is a risk of secondary fire spread to all levels

Flames break out and attack adjacent windows

External fire incident

### Restricted Fire Spread

Cladding system does not contribute to flame spread. Risk of secondary fires limited

If a secondary fire is allowed to develop then process is repeated

Flames break out and attack adjacent windows

Secondary external fires arising from falling burning debris

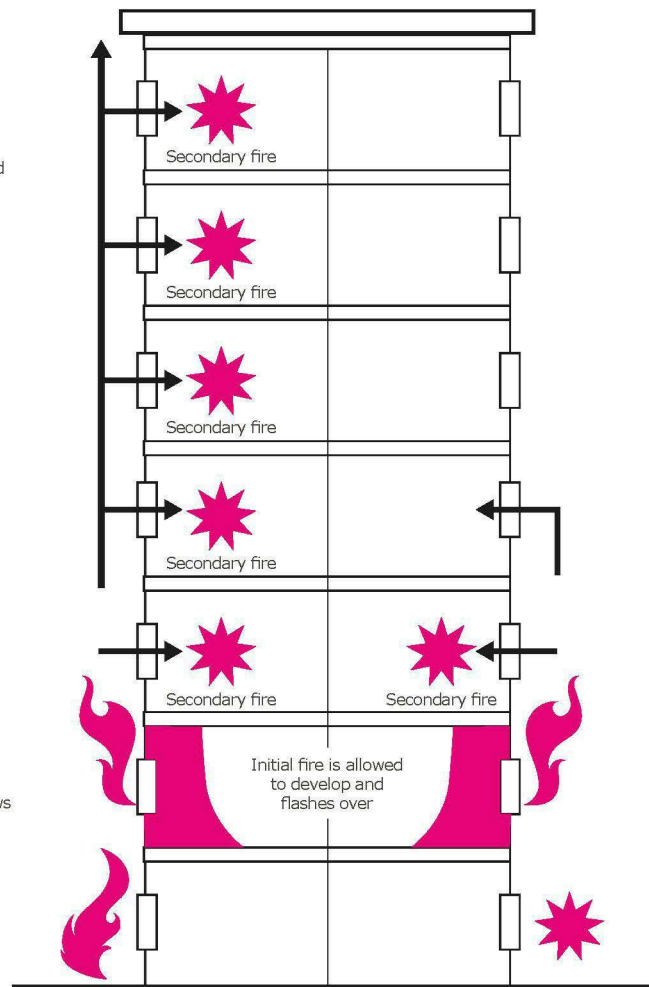


Figure 3 – BR 135

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Thermocouple measurements are recorded at different levels on the tested system to establish the performance against the set criteria. Failure to meet the performance criteria set out in BR 135 is deemed to occur if the system:

- ▶ Records temperatures exceeding 600° C for a period of at least 30 seconds within 15 minutes of the start time at level two external thermocouples
- ▶ Records temperatures exceeding 600° C for a period of at least 30 seconds within 15 minutes of the start time at level two internal thermocouples.

*Mechanical performance of the system is observed and details of ongoing system combustion following extinguishing of the ignition source, system collapse etc are included in the classification report.*

## Celotex RS5000

Celotex RS5000 is a premium performance solution and is the first PIR board to successfully test to BS 8414-2:2005 for rainscreen cladding systems meeting the performance criteria set out in BR 135.

### The system tested was as follows:

- ▶ 12mm Fibre Cement Panels
- ▶ Supporting aluminium brackets and vertical rails
- ▶ 100mm Celotex RS5000
- ▶ 12mm Non-combustible sheathing board
- ▶ 100mm SFS System
- ▶ 2 x 12.5mm plasterboard

*Ventilated fire barriers comprised of stonewool insulation with Class O aluminium foil facings and a continuous bonded intumescent strip. Non-ventilated fire barriers comprised of stonewool insulation with Class O aluminium foil facings specifically intended to fully fill the void.*

Fire stopping was provided by ventilated horizontal fire breaks positioned at each floor slab edge and above the hearth opening. Vertical non-ventilated fire breaks were provided at the edges of both the main face and the return wing and around the hearth opening.

The fire performance and classification report issued only relates to the components detailed and constructed in figure 4. Any changes to the components listed and construction method set out in figure 4 will need to be considered by the building designer.

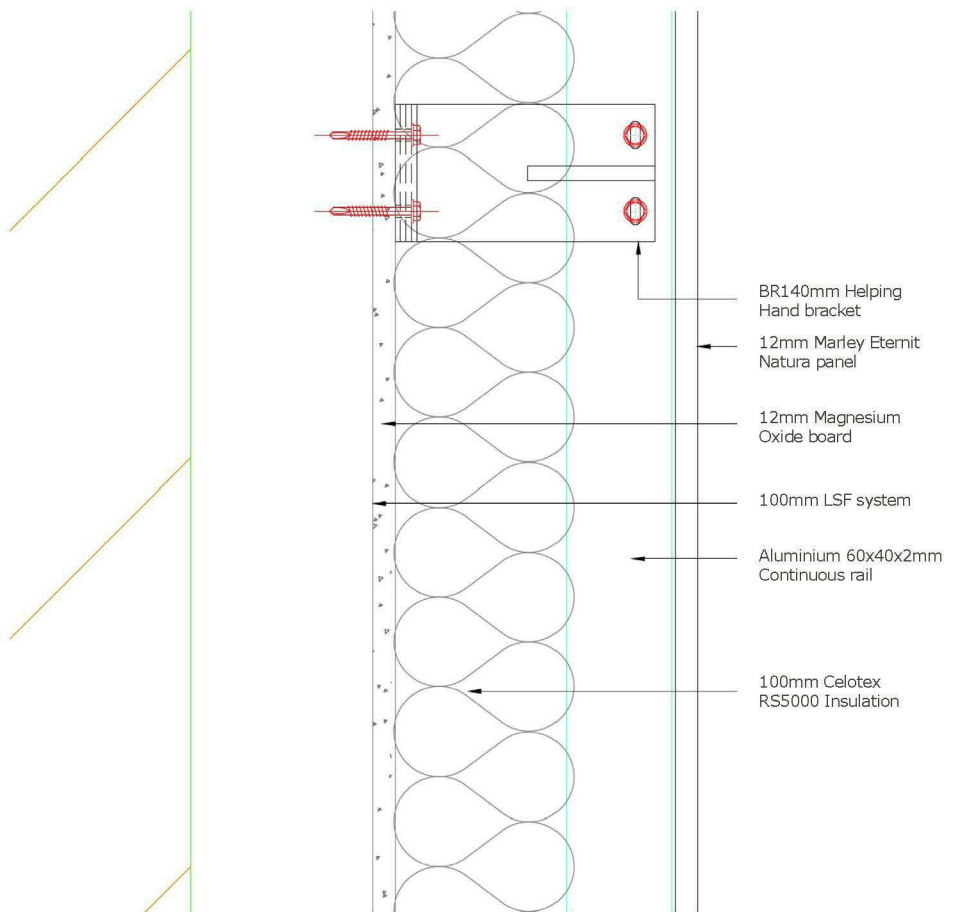


Figure 4

## Bibliography

- ▶ Approved Document B – Fire safety: volume 2: buildings other than dwellinghouses
- ▶ BS 8414-2:2005 - Fire performance of external cladding systems: test method for non-loadbearing external cladding systems fixed to & supported by a structural steel frame
- ▶ BR 135 Third Edition 2013 - Fire performance of external thermal insulation for walls of multi-storey buildings

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