



Construction type

Structural Steelwork

ROCKWOOL®

BeamClad™ Systems (previously Conlit 150)

Fire protection solutions for structural steel and soffit protection

As part of the comprehensive FirePro range of fire protection products, the BeamClad systems embody a complete 'tool-box' of options to offer contractors simple and economical fire protection solutions to the very real diversity of modern steel constructions.

Proven in service over many years, these versatile dry fix Rockwool systems have been widely used to combat the extremes of site, mixed trade and climatic conditions.

Configuration options

BeamClad boards can be fitted to provide dry joint solutions offering up to 2 hours fire protection or glued solutions where extended protection up to 4 hours is required.

Advantages

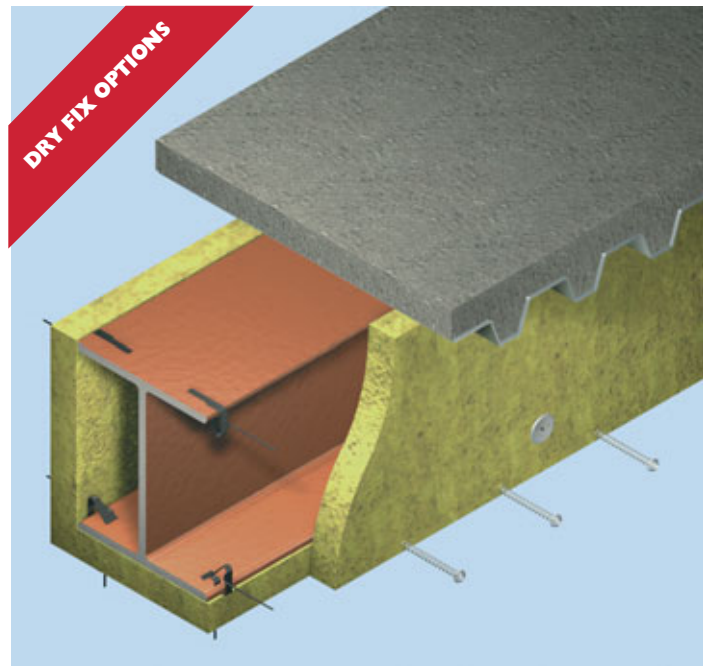
- No maintenance
- Moisture-repellent
- Choice of three finishes
- Easy to repair

Dry fix solutions

- Unique clip fix system
- Quick and simple to apply
- Up to 2 hours fire protection
- Dry process, no masked off areas required

Glue fix solutions

- Traditional noggin and stud welded pin systems
- Up to 4 hours fire protection
- High resilience



The unique Rockwool BeamClad (previously named Conlit 150) dry fix clip system (International Patent Application No PCT/GB 00/01955)

Project references

Project	Architect
1 125 Colmore Row, Birmingham	Sidell Gibson Partnership
2 Scottish Exhibition Conference Centre, Glasgow	Foster and Partners
3 Eland House, London	EPR Architects
4 Ocean Terminal, Leith, Edinburgh	Conran and Partners
5 The Bentall Centre, Kingston, Surrey	Building Design Partnership

Fire resistances of BeamClad systems

System	Fire resistance (mins)					
	30	60	90	120	180	240
Clip Fixed, dry application, dry board joints	•	•	•	⊙		
Glued noggins, dry application, dry board joints	•	•	•	•		
Welded noggins, dry application, dry board joints	•	•	•	•		
Glued noggins, glued application, glued board joints	•	•	•	•	•	•
Welded pins, dry application, glued board joints	•	•	•	•	•	•

⊙ for Hp/A up to 200m⁻¹



The following NBS Plus clauses include 'BeamClad systems': K11-885, K11-890



Description, performance and properties



BeamClad P
A plain product with a natural 'green' finish.

For concealed areas.



BeamClad A/F
With Class 'O' reinforced aluminium foil, factory-applied to the outer face.

For limited view areas.



BeamClad T
With a white glass tissue factory-applied to the outer face.

For limited view areas.

Composition and manufacture

BeamClad is manufactured primarily from a melt of volcanic rock and limestone. The molten rock is spun into a wool and immediately impregnated with special resins for handling and shaping. The material is then compressed, cured and formed into boards.

BeamClad boards are sized 2000 × 1200mm, in a range of thicknesses from 25mm up to 60mm.

Board density

Nominally 167 – 180 kg/m³.

For high impact protection systems on beams and columns please refer to ColumnClad data sheet.

Standards

Rockwool BeamClad fire protection materials have been assessed to BS 476: Part 21: 1987 for the fire protection of loadbearing steelwork for up to 4 hours protection, based on tests carried out to BS 476: Part 8: 1972 and BS 476: Part 21: 1987.

BeamClad™ Systems are third party approved by the Loss Prevention Council Certification board (LPCB) for performance and quality and are listed in the "Red Book" - certificate no. 022d. Certificates can be accessed online at www.rockwool.co.uk or www.redbooklive.com

High air flow situations

Unfaced BeamClad systems have been evaluated for use in return air plenums, by the Institute of Occupational Medicine to World Health Organisation test standards and for use in subways, for train speeds up to 150 km per hour.

Performance and properties

Fire performance

Up to 4 hours fire resistance for structural steelwork, assessed at critical temperatures between 350°C and 700°C, including the default temperatures of 550°C (columns) and 620°C (beams). Un-faced, aluminium-foil and glass tissue faced product options comply with both non-combustible and Class O definitions in UK Building Regulations.

Moisture

The rock wool fibres of BeamClad boards are randomly oriented, avoiding any tendency to promote capillary action or hygroscopic moisture absorption.

Moisture content

0% in air-dried state.

Moisture absorption

0.004% by volume at 20°C and 90% relative humidity.

Water absorption

Maximum 60 g/m² after 24 hour total water immersion testing (i.e. approximately 1.5% by weight for 25mm plain board).

Construction and installation guidance

A comprehensive range of practical systems is available to meet a variety of site requirements.

BeamClad dry joint systems

These use either purpose-made clips, glued mineral wool noggins or stud welded pins to secure the insulation to structural steel sections. All board-to-board joints are straight butt joints, without the need for glue. Pigtail screws (minimum twice the insulation thickness, less 5mm) are used to secure the insulation boards to each other and/or to the noggins.

BeamClad glued joint systems

These use an inorganic and non-toxic glue to bind board-to-board joints and/or to the noggins. Standard flat head nails, twice the thickness of the insulation, are used as initial supports.



BeamClad clip fix clip



Noggins glued between steelwork flanges



Fixing stud welded pins

Installation options

Dry board joint systems:

a) Clip fix application

A quick and user-friendly dry joint board system featuring Rockwool's push-fit clips.

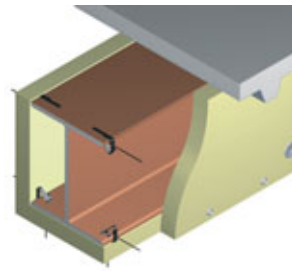
The spring action of the clip creates a vice-like grip on the steelwork flange. The BeamClad board is impaled on to the clip pins and held in place with spring steel non-return washers. Supplementary pigtail screws fixed through the side boards into the soffit boards complete this system.

The clips are located at max. 600mm centres to **top** flange and max. 900mm centres to **bottom** flange, with pigtail screws for board to board joints at 150mm centres.

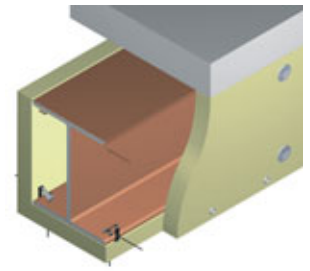
Combined clip and stud welded pin dry joint system

Where it is not possible to clip fix, eg beneath concrete soffits, stud welded pins (at the same fixing centres) are used in lieu of the clip fixing.

Hp/A limit for 2 hours = 200



1 Clip fix dry joint board system (up to 2 hours fire protection)

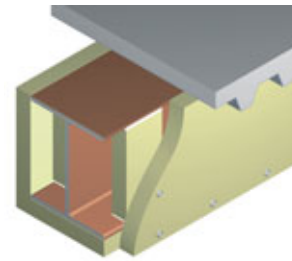


1 Clip and stud welded pin dry joint system (up to 2 hours fire protection)

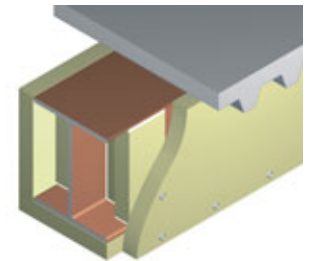
b) Glued noggins application

A fast, easy to apply, dry joint board system where noggins are glued into position between the steelwork flanges using FirePro Glue (previously Conlit Glue). Noggins are fixed at 1000mm nominal centres. The BeamClad boards are then retained by means of pigtail screws, fixed at 100mm nominal centres to the noggins and 200mm centres for board-to-board joints.

For beam depths over 500mm a Tee-noggin or full depth solid noggin is used to provide the support for the cover boards.



2 Glued noggins dry joint board system (up to 2 hours fire protection)



2 Alternative Tee-noggin arrangement (up to 2 hours fire protection)

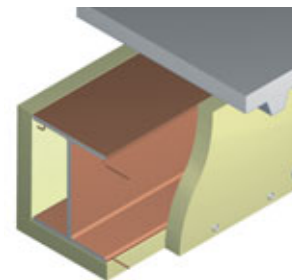
c) Stud welded pin application

A dry joint system employing steel welded pins.

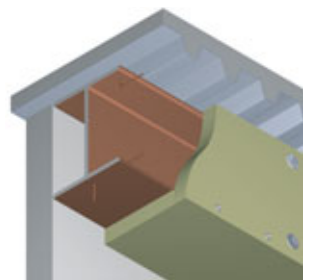
The steelwork is cleaned in the area where the welded pin is to be positioned. The pin is then welded to the steel flange.

The BeamClad board is then impaled on to the stud welded pins and held in place with spring steel non-return washers.

The stud welded pins are fixed at max. 600mm centres to **top** flange and max. 900mm centres to **bottom** flange. The BeamClad board-to-board joints are then secured by means of pigtail screws fixed at nominal 150mm centres.



3 Stud welded pin dry joint board system (up to 2 hours fire protection)



3 Two-sided protection with stud welded pins (up to 2 hours fire protection)

Glued board systems:

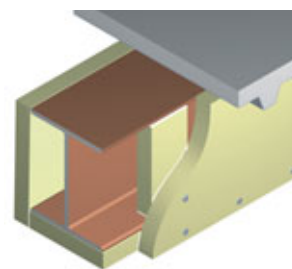
a) Glue-fixed noggins and board-to-board glued joints

BeamClad noggins (at 1000mm nominal centres) are glued between the steelwork flanges, and the BeamClad side boards are glued to the noggins. The BeamClad side boards are also glued at all vertical joints and horizontal board-to-board joints.

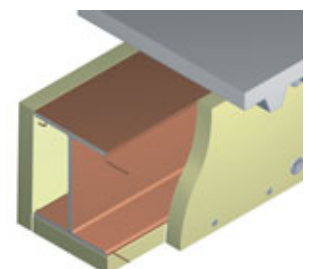
Round head nails (length $\geq 2 \times$ thickness of board) are fixed through the side boards into the noggins (min 2) and soffit boards (at 400mm nominal centres) to consolidate the glued joints.

b) Stud welded pins and board-to-board glued joints

Pins are stud welded at max. 600mm centres to **top** flange and max. 900mm centres to **bottom** flange. All board-to-board joints are glued and nailed.



4 Glue-fixed noggins and board-to-board glued joints (up to 4 hours fire protection)

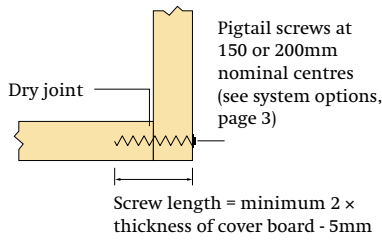


4 Stud welded pins and board-to-board glued joints (up to 4 hours fire protection)

Board jointing

Butted corner joints

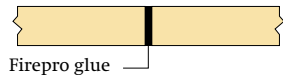
Butted corner joints are made with square edge boards using either a dry joint with pigtail screws as below, or FirePro Glue and nails at 400mm centres.



Axial joints

All axial joints are made with square butt edges, without nails. Glue is only required for glued board systems.

For Foil faced products, joints can be finished with Class 'O' foil tape.



Noggins

BeamClad boards can be fixed to noggins, cut from BeamClad offcuts of at least the same thickness as the fascia and soffit boards.

The edges of the noggins are glued where they contact the steelwork, then, once the glue has set firmly, the cover boards are fixed in position with either pigtail screws or FirePro Glue and nails.

Welded steel pins

Boards are impaled onto stud welded pins and secured with non-return washers.

Joints and glue

FirePro Glue is an inorganic, non-toxic product with a pH of 11. FirePro Glue is supplied pre-mixed in 17 kg tubs. A variety of joint types can be used (see previous page).

Coverage rate will depend on the linear length of the joints, width of joint (board thickness) and joint depth. Assuming total, effective usage of the glue on site, the following table provides an approximate weight (kg) of glue per linear metre of joint, based on a glue depth of 1mm.

BeamClad thickness (mm)	Square butt joint	45° mitre joint
25	0.09	0.13
30	0.11	0.16
35	0.13	0.19
40	0.15	0.21
50	0.19	0.27
60	0.22	0.33

In practice, a degree of wastage would be expected and as such, it would be prudent to make an allowance for this when placing an order. As a very approximate guide, the coverage rate of a 17kg tub of FirePro glue would be 35m² of applied board

Supply

BeamClad slabs are supplied on pallets, shrink-wrapped in polyethylene, 26 pallets per 40 ft container.

Pigtail screws are available from Rockwool stockists.

BeamClad clips are available in 2 sizes from Rockwool in boxes of 1000 – small for 25mm and 30mm, large for 25mm and 40mm.

Washers are available from Rockwool in boxes of 2000.

Welded pins and sprung steel non-return washers are available from Cutlas Fasteners Ltd. tel: 01942 712387, or Taylor Stud Welding Systems Ltd. tel: 01942 452132

References

This is one of a series of Data Sheets covering the complete range of Rockwool products in the FirePro fire protection range, available from Marketing Services Department.

ColumnClad is also available where high impact column protection is required.

Fire Tube is also available for circular steel sections.

Fire Duct dry fix ductwork solutions are also available for steel duct protection.

Typical specification clauses

(to be read in conjunction with System Options on previous page)

- The structural steel is to be fire protected using Rockwool BeamClad^s system, with a^f facing, to provide^h fire resistance.
- The main fixing system will be one of:
 - BeamClad clip system fixed at max. 600mm centres to **top** flange, and max. 900mm centres to **bottom** flange,
 - BeamClad noggin system fixed at 1000mm centres,
 - BeamClad stud welded pin system fixed at max. 600mm centres to **top** flange, and max. 900mm centres to **bottom** flange.
- Board-to-board joints should be dry fixed using pigtail screws or glued and nailed in accordance with the data sheet.

^s insert system type

^f insert facing option

^h insert period of fire resistance

Health and safety

Current HSE 'CHIP' Regulations and EU directive 97/69/EC confirm the safety of Rockwool mineral wool; Rockwool fibres are not classified as a possible human carcinogen. The maximum exposure limit for mineral wool is 5mg/m³, 8 hour time-weighted average.

A Material Safety Data Sheet is available from Rockwool Customer Support (0871 222 1780) to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).


Environment

Relying on entrapped air for its thermal properties, Rockwool insulation does not contain (and has never contained) gases that have Ozone Depleting Potential (ODP) or Global Warming Potential (GWP). Rockwool therefore complies with the relatively modest threshold of GWPL₅ included in documents such as the Code for Sustainable Homes.

Rockwool Ltd is increasingly involved in recycling waste Rockwool material that may be generated during installation or at the end of life disposal.



We are happy to discuss the individual requirements of contractors and users considering returning Rockwool materials to our factory for recycling.

More information
 For further details visit our website at www.rockwool.co.uk or phone Customer Support 0871 222 1780

ROCKWOOL®

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Printed on recycled paper using environmentally friendly processes

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The above applications do not necessarily represent an exhaustive list of applications for BeamClad. Rockwool Limited does not accept responsibility for the consequences of using BeamClad in applications different from those described above. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.