Jun 2014

WILHAMS

WILHAMS INSULATION FAR EAST SDN BHD

FirePro®

CONLIT® 150 Systems

Fire protection solution for structural steel

The CONLIT® 150 series of fire protection systems embodies 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 Rockwool boards have been widely used to combat the extremes of site, mixed trade and climatic conditions.

Configuration options

CONLIT® 150 boards can be fitted to provide glued or dry joint solutions offering up to 4 hours fire protection.

Dry fix solutions

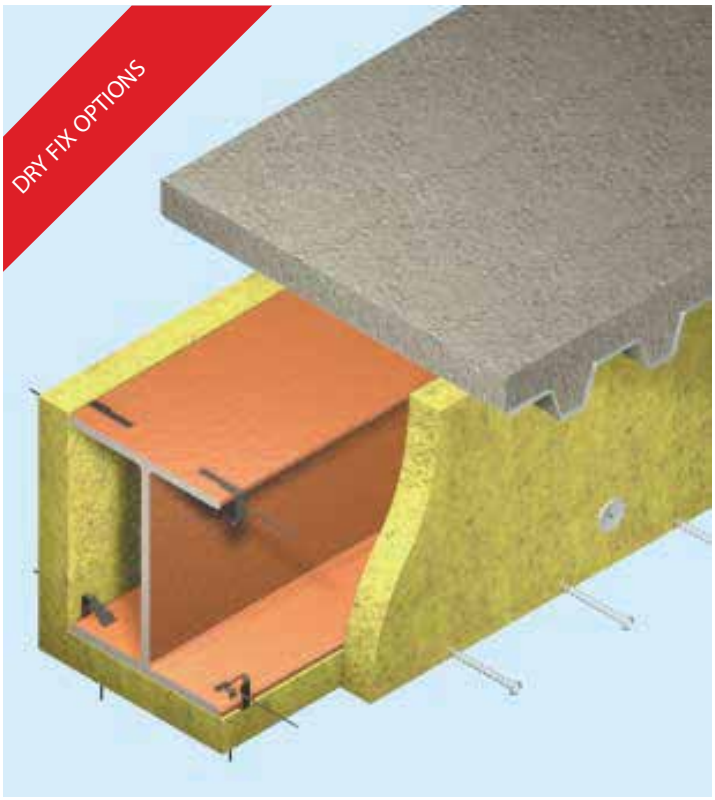
- Unique friction-fit system
- Quick and simple to apply
- Up to 2 hours fire protection
- Dry process, no masked off areas required

Glue fix solutions

- Traditional nogging & stud welded pin systems
- Up to 4 hours fire protection
- High resilience

Advantages

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



The unique CONLIT® 150 dry fix clip system International Patent Application No PCT/GB 00/01955

Fire resistances of CONLIT® 150 systems

System	Fire resistance (mins)					
	30	60	90	120	180	240
Dry fix clips	•	•	•			
Dry fix glued noggings	•	•	•	•		
Dry fix stud welded pins	•	•	•	•		
Glued nogging fix	•	•	•	•	•	•
Glued stud welded pin fix	•	•	•	•	•	•

Product options

CONLIT® 150 P
A plain product with a natural 'green' finish.

For concealed areas.

CONLIT® 150 A/F
With Class 'O' reinforced aluminium foil, factory-applied to the outer face.

For limited view areas.

CONLIT® 150 T
With a white glass tissue factory-applied to the outer face.

For limited view areas.

Composition and manufacture

CONLIT® 150 is manufactured from a melt of volcanic rock. 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.

CONLIT® 150 boards are sized 2400 × 1200mm, in a range of thicknesses from 25mm up to 110mm.

Board density

Nominally 165 kg/m³.

Standards

CONLIT® 150 fire protection materials have been assessed to BS 476 : Part 21 : 1987 for the fire protection of loadbearing steel beams and columns for up to 4 hours protection, based on tests carried out to BS 476 : Part 8 : 1972 and BS 476 : Part 21 : 1987.

Protection stability has been examined for up to 6 hours.

High air flow situations

Unfaced CONLIT® 150 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 150km per hour.

Performance and properties

Fire performance

Up to 4 hours fire resistance for structural steelwork, assessed at 550°C failure criteria. The base rockwool material achieves Euro Class A1, foil and tissue faced materials achieve Euro Class A2.

Moisture

The rockwool fibres of CONLIT® 150 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 grammes/m² after 24 hour water immersion testing (i.e. approximately 1.5% by weight for 25mm plain board).

Installation options

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

CONLIT® 150 dry fix solutions

These use either purpose-made clips, glued mineral wool noggings 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 (twice the insulation thickness, less 5mm) are used to secure the insulation boards to each other.

CONLIT® 150 glued fix solutions

These use an inorganic and non-toxic glue to bind board-to-board joints. Standard flat head nails, twice the thickness of the insulation, are used to support the joints while the glue dries.

Rockwool friction fit clip

Noggings glued between steelwork flanges

Fixing stud welded pins

Installation

1 Clip Fix Dry Joint Board System

A quick and user-friendly dry joint board system featuring ROCKWOOL®'s friction-fit clip system.

The spring action of the clip creates a vice-like grip on the steelwork flange. The CONLIT® 150 board is impaled on the clip pins and held in place with sprung steel non-return washers. Supplementary pigtail screws fixed through the side boards into the soffit boards complete this system.

The clips are located at maximum 600mm centres to top flange and maximum 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

2 Glued Noggings Dry Joint Board System

An easy-to-apply and fast dry joint board system where noggings are glued into position between the steelwork flanges using CONLIT® Glue. Noggings are fixed at 900mm nominal centres. The CONLIT® 150 boards are then retained by means of pigtail screws, fixed at 120mm nominal centres to the noggings and 200mm centres for board-to-board joints.

For beam depths over 500mm a Tee-nogging is used to provide the support for the cover boards.

3 Stud Welded Pin Dry Joint Board System

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 CONLIT® 150 board is then impaled on the stud welded pins and held in place with spring steel non-return washers.

The steel welded pins are fixed at 800mm nominal centres. The CONLIT® 150 board-to-board joints are then secured by means of pigtail screws fixed at nominal 150mm centres.

4 Glued Board Systems

Glue-fixed Noggings and Board-to-Board Glued Joints

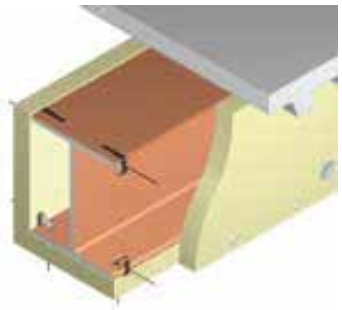
CONLIT® 150 noggings are glued between the steelwork flanges, and the CONLIT® 150 side boards are glued to the noggings. The CONLIT® 150 side boards are also glued at all vertical joints and horizontal board-to-board joints.

Round head nails (length = 2 × thickness of board) are fixed through the side boards into the noggings and soffit boards to consolidate the glued joints.

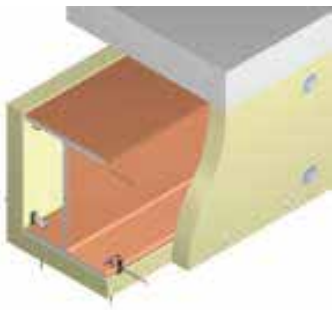
The noggings are fixed at 900mm nominal centres, and the nails at 450mm nominal centres.

Stud Welded Pins and Board-to-Board Glued Joints

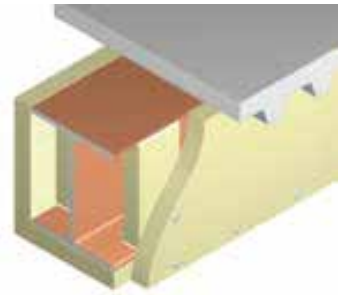
Pins are stud welded at 800mm centres, and all board-to-board joints are glued.



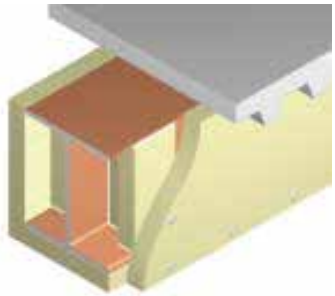
1 Clip fix dry joint board system (up to 2 hours fire protection)



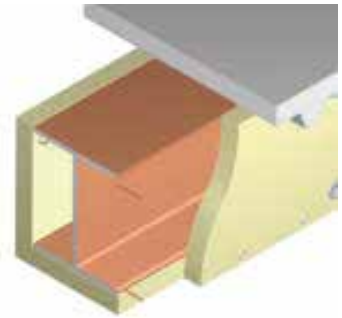
1 Clip and stud welded pin dry joint system (up to 2 hours fire protection)



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

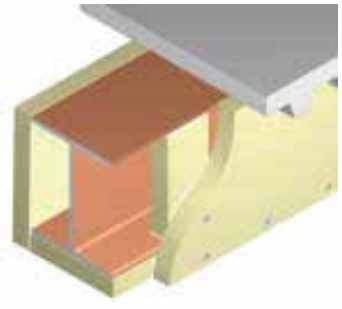


2 Alternative Tee-nogging arrangement (up to 2 hours fire protection)

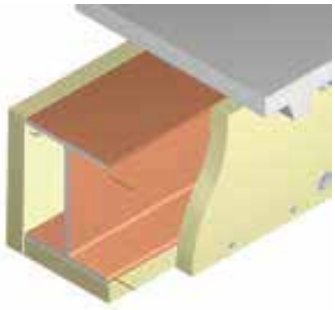


3 Stud welded pin dry joint board system (up to 2 hours fire protection)

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



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

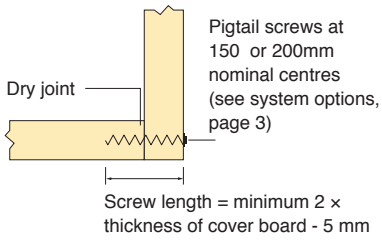


4 Stud welded pins and board-to-board glued joints (up to 4 hours fire protection)

Board jointing

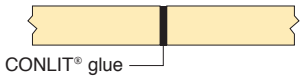
Butted corner joints

Butted corner joints are made with square edge boards using either a dry joint with pigtail screws, as below, or CONLIT® Glue and nails at 450mm centres.



Axial joints

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



Joints can be finished with either a tissue or Class 'O' foil tape.

Noggings

CONLIT® 150 boards can be fixed to noggings, cut from CONLIT® 150 offcuts over 100mm wide.

The edges of the noggings 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 CONLIT® Glue and nails. The thickness of the nogging is to be the same as that of the cover board used.

Welded steel pins

Boards are secured to stud welded pins with non-return washers.

Joints and glue

CONLIT® Glue is an inorganic, non-toxic product with a pH of 11. CONLIT® Glue is supplied pre-mixed in 17kg tubs. A variety of joint types can be used (see page 3).

The coverage rate of CONLIT® Glue is approximately 35m² of applied board per 17kg tub.

Health and safety

All ROCKWOOL® products are subject to a Maximum Exposure Limit of 5 mg/m³ total dust 8 hour Time Weighted Average.

Current HSE 'CHIP' Regulations and EU Directive 97/69/EC confirm that Rockwool fibres are not classified as a possible carcinogen.

Supply

CONLIT® 150 slabs are supplied on pallets, shrink-wrapped in polyethylene, 26 pallets per 40 ft container.

References

This is one of a series of data sheets covering the complete range of ROCKWOOL® products, available from Wilhams Insulation Far East Sdn Bhd.

CONLIT® Tube is also available for circular steel sections.

CONLIT® dry fix ductwork solutions are also available for steel duct protection.

Typical specification clauses

(to be read in conjunction with System Options on page 3)

1 The structural steel is to be fire protected using CONLIT® 150 .....[s] system, with a .....[f] facing, to provide .....[h] fire resistance.

2 The main fixing system will be:
   a) CONLIT® clip system fixed at 800mm centres, or
   b) CONLIT® nogging system fixed at 900mm centres, or
   c) CONLIT® stud welded pin system fixed at 800mm centres.

3 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

Wilhams Insulation Far East Sdn Bhd
15 & 17 Jalan Utarid U5/23
Mah Sing Integrated Industrial Park
40150 Shah Alam, Selangor, Malaysia
Tel : 603-7846 6728 Fax : 603-7846 6540
E-mail : wilhams@wilhams.com.my
Website : www.wilhams.com.my