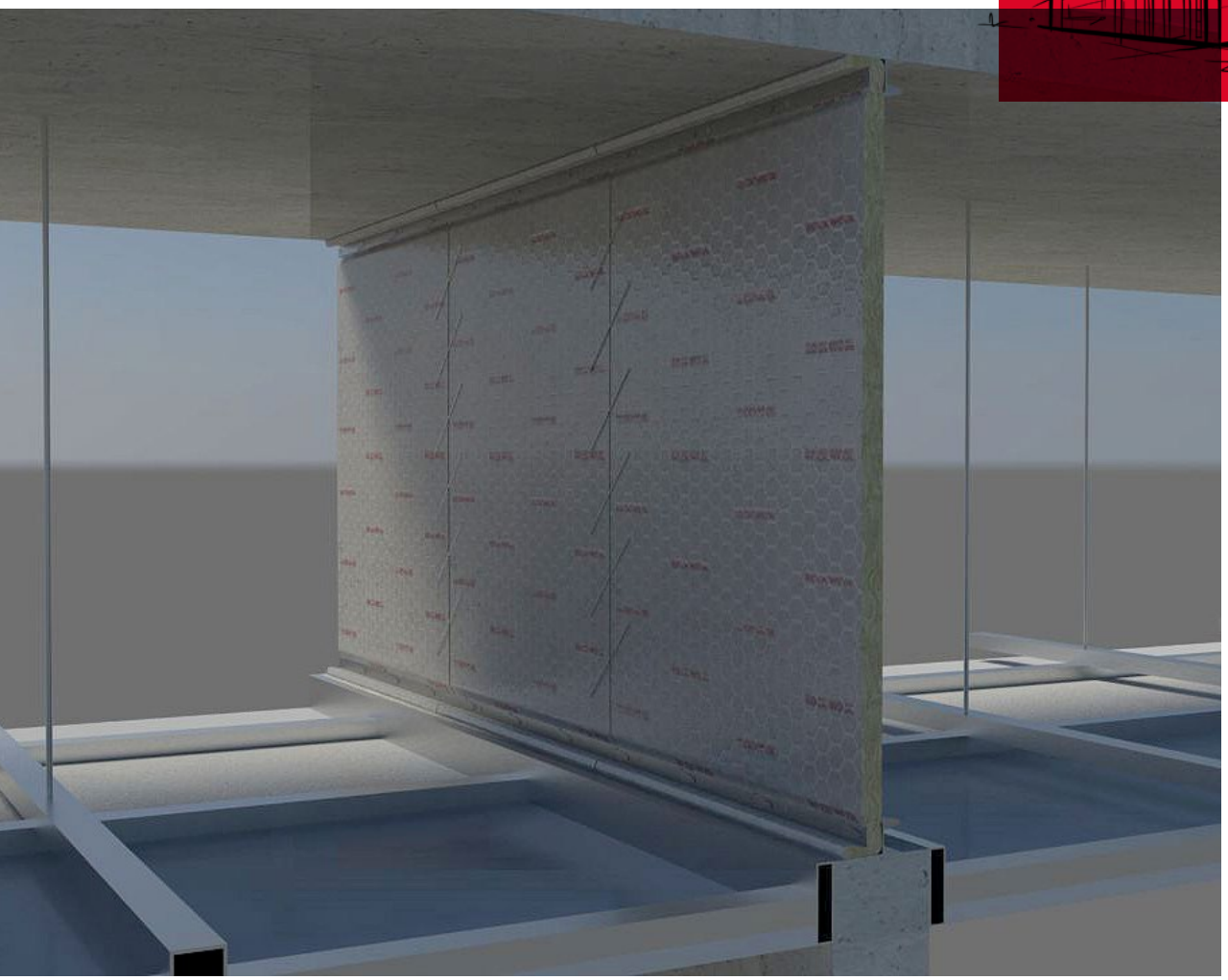
FIRE BARRIER SYSTEM

Preventing the spread of fire and inhibiting the passage of smoke in concealed spaces



ROCKWOOL®

FIRE BARRIER SYSTEM

ROCKWOOL Fire Barrier systems offer labour-saving solutions to prevent the passage of fire and inhibit the spread of smoke within roof and ceiling voids.

This stone wool solution is suitable for void heights of up to 10.5 metres, supported by a stitched wire mesh.

Advantages

- Patented 'quick-fit' system for up to 1 hour fire resistance
- Suitable for void heights up to 10.5 meters
- Provides airborne sound reduction
- Additional strength through wire mesh reinforcement
- Service penetration data available
- Fire resistance of up to 2 hours
- Flexible, accommodates movement

Description

ROCKWOOL Fire Barrier is comprised of stone wool and has a galvanised wire mesh which is stitched to one side. Foil faced options and double sided wire mesh are also available. Fire Barrier systems have been developed to prevent the spread of flames and inhibit heat and smoke through concealed spaces in buildings and improve sound reduction.

Applications

- Pitched roof voids
- Head of wall
- Concealed ceiling spaces
- Multiple substrates
- Fire protection of structural steelwork

Performance

Fire performance

Rating required	Maximum drop without support frame	Maximum drop with additional support frame	Max width	Integrity	Insulation	Install specification	Supporting document
30 min cavity barrier	3m	10.5m	20m	30	15	Single 50mm layer FB, vertical joints butt jointed.	116911
		-		60	15		
30 min fire barrier	6m	N/A	20m	60	30	Single 60mm layer (plain or foil face) with a minimum 100mm overlapped and stitched joints on vertical joints*.	11970
60 min fire barrier	6m	10.5m	20m	60	60	2 layers of 50mm back to back butt jointed with staggered vertical joints between the back to back layers.	116912
90 min fire barrier	3.5m		20m	90	90		51812
120 min fire barrier	3.5m	9m	20m	120	120	2 layers of 60mm (plain or foil face) butt jointed, incorporating a 40mm aircavity between the layers.	44509

N.B. All extensions in drop height must incorporate a minimum 100mm overlap between the sections and stitched with 1.5mm galvanised wire.

**All stitching must be carried out using 0.9mm annealed and galvanised wire. Continuous wire stitching (100mm minimum) or separate lengths of wire secured by twisting ends together. Wire must penetrate through thickness of barrier.*

Acoustic performance

The correct use of Fire Barrier within structural cavities and voids will reduce the level of transmitted sound.

Room to room attenuation	R_w dB
Typical lay-in grid suspended ceiling	30
Ceiling and 50mm ROCKWOOL Fire Barrier	42
Ceiling and 50mm ROCKWOOL Fire Barrier Foil Faced	44
Ceiling and 2x layers of 50mm ROCKWOOL Fire Barrier Foil Faced	50

Where plasterboard ceilings are used, add 2-3dB to above performances.

Note: Values quoted are approximate.

Technical information

Standard and approvals

Fire Barrier Systems have been independently tested and assessed to BS 476: Part 22 by UKAS accredited laboratories.

ROCKWOOL Fire Barrier system achieves a reaction to fire classification of A1 as defined in BS EN 13501:1

They are third party approved for performance and quality by the Loss Prevention Council Certification board (LPCB) and are listed in their Fire and Security 'Red Book' - certificate no. 022c.

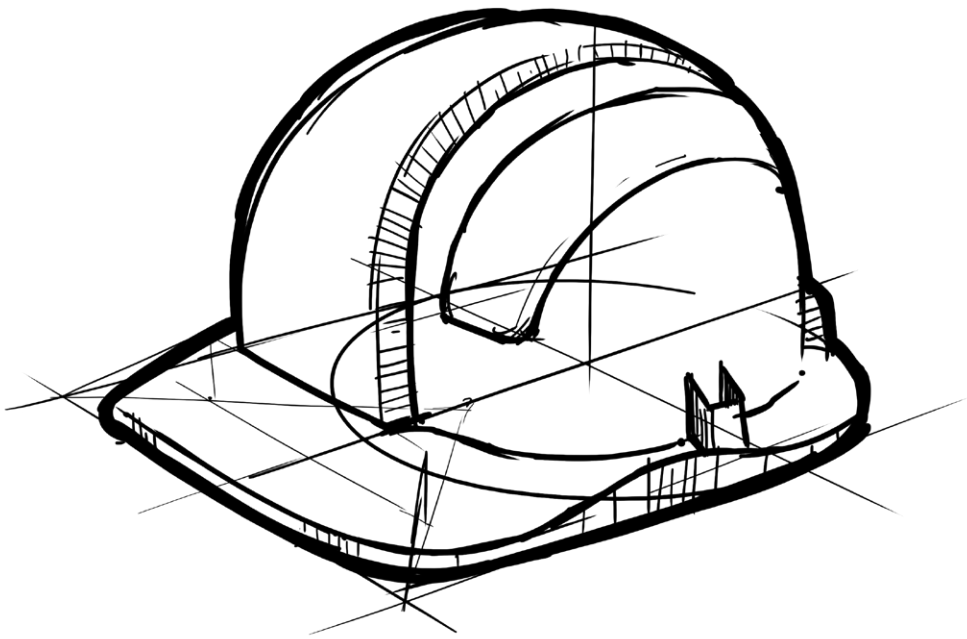
The product has been authorised for use in LUL surface and sub-surface premises when installed in accordance with this data sheet - please refer to the LUL Approved Product Register website www.LU-apr.co.uk for specific details – LUL ref: 2230.

Product information

Thickness	Length	Width
50mm	4000mm	1000mm
60mm	3500mm	1000mm

One or two sided foil face options available.

Wired mesh is available to both sides if required.



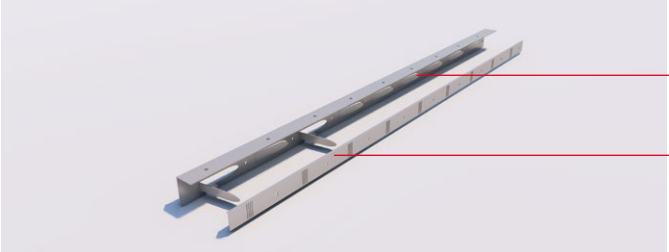
Installation

½ hour cavity barrier

Figures 4-9 show typical details for Fire barrier applied to a timber truss construction as a half hour cavity barrier within the roof section, to satisfy the requirements of building Regulation B3 - (4) i.e. 30 minutes fire integrity and 15 minutes fire insulation.

If the truss is constructed from a minimum timber size of 35 to 49mm thick, both sides of all truss members/bracing require protection from fire in order to minimise charring and retain strength. Figure 6 shows strips of 50mm Fire Barrier used on the reverse side of the truss (for this purpose). Nail plate fixings may fail prematurely in fire unless protected (see Figure 9).

The ROCKWOOL Fire Barrier Fixing System incorporates an angle support and clamping plate



For fixing to timber, the ROCKWOOL clamping plate is used, compressing the barrier to the timber, fixed at 450mm centres using No. 10 woodscrews.

To use the patented ROCKWOOL angle support system, bend tongues out to 90° and impale barrier onto them. The slotted clamping plate is then fitted by pushing the tongues through the slots, these are then bent over the face of the clamping plate completing the process.

Figure 4
Fire Barrier traverse to rafters

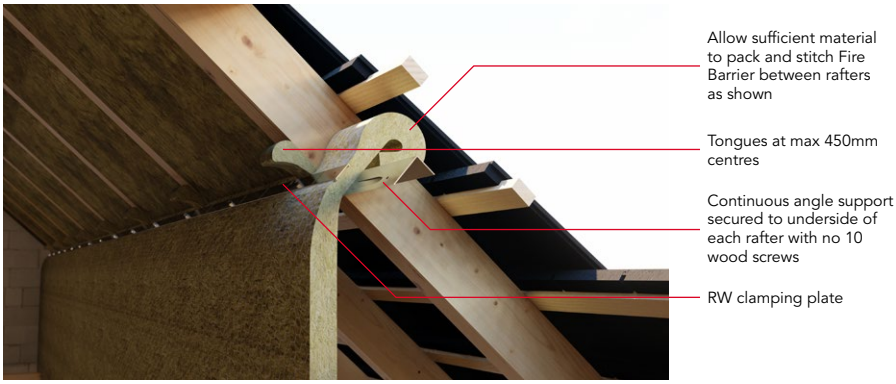


Figure 5
Half hour protection for timber truss construction 50mm thick or more.
Note: nail plate protection required - see Figure 6

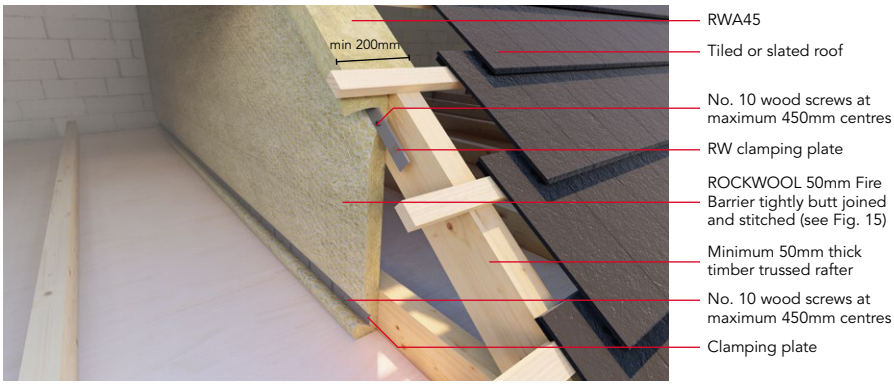


Figure 6
Half hour protection for timber truss construction 35 to 49mm thick.

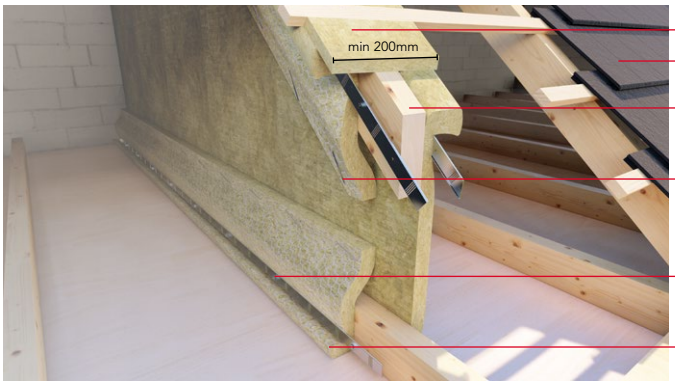


Figure 7
Head of partition

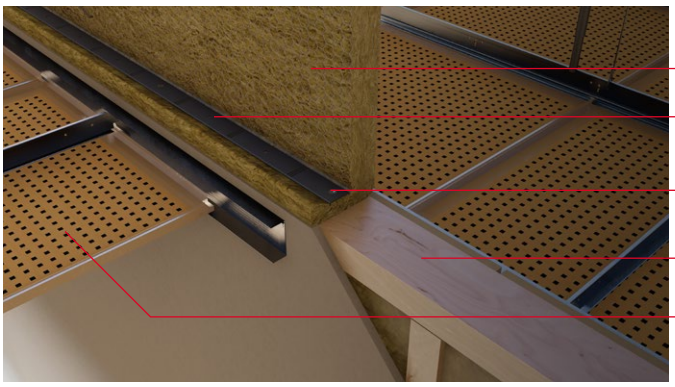


Figure 8
Barrier fitted transversely to timber joisted ceiling

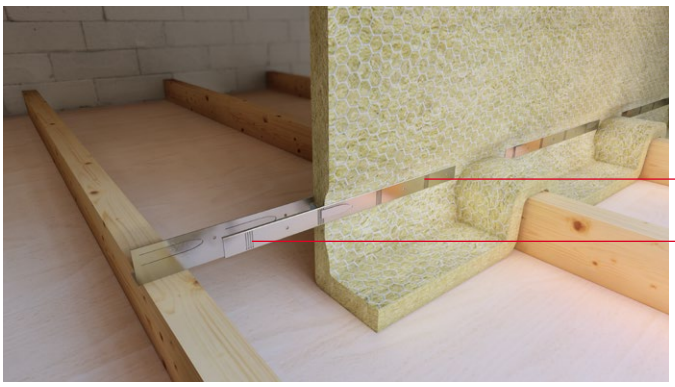
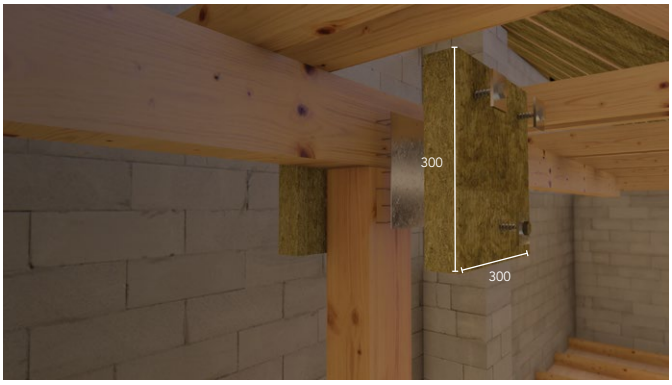


Figure 9
Nail plate protection



For fixing to concrete soffits (Figure 10-12), the pre-punched angle support is fixed using Hilti DBZ or Ejot ECL 35 hammer set anchors at max. 750mm centres. For fixing to steel purlins, use Hilti SMD 02Z (5.5 x 70mm) self-tapping screws at maximum 450mm centre.

Figure 10
50mm Fire Barrier fixed to concrete soffit.

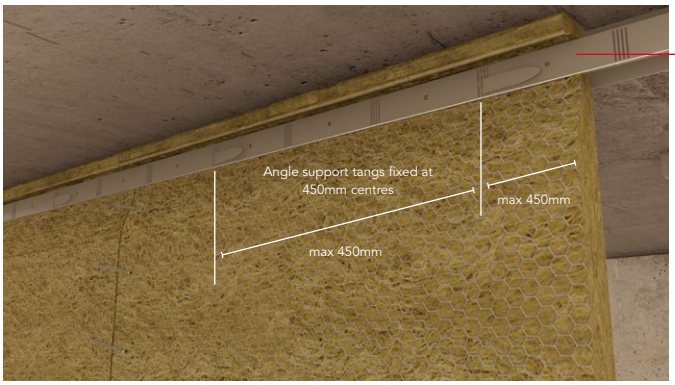


Figure 11
50mm Fire Barrier running across ribbed soffit - Section

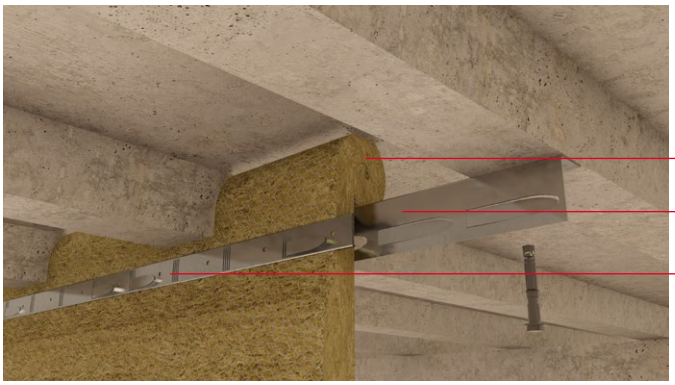
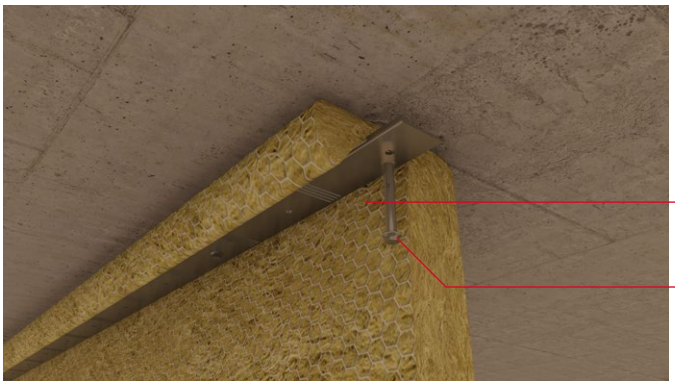


Figure 12
Alternative fixing to flat soffit or perimeter, appropriate to barriers with a shallow drop



60-30 Fire Barrier

If 30 minutes insulation is required, use 1 layer of 60mm plain or foil faced fire barrier with 100mm vertical over lapped joints (Figure 13 & 14). The barrier is otherwise fixed for timber construction as previously shown on Figures 4-9.

Figure 13

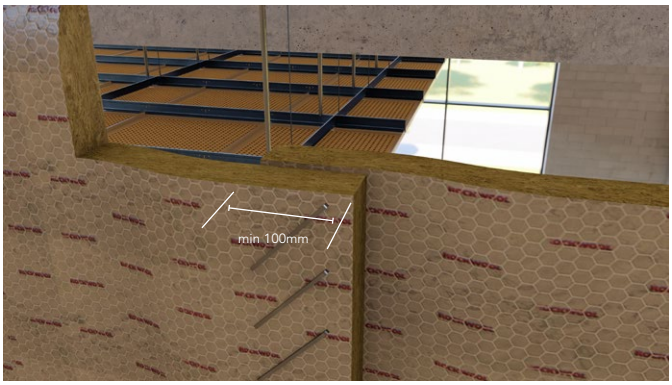
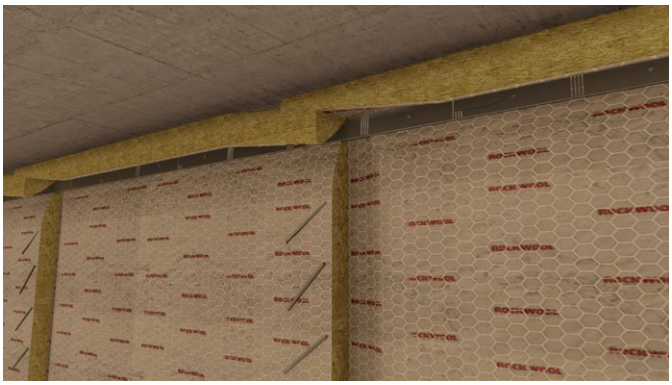


Figure 14



Common Details

Extended drops

ROCKWOOL 50mm Fire barrier single and double layers, can be extended from a 3.5m drop to a maximum 6m drop by fixing an additional 2.5m section, stitched with overlapped joints as per Figure 16. For additional guidance and drops in excess of 6m, please refer to Figure 31 and associated guidance.

Wire stitching of butt joints in ROCKWOOL Fire Barriers

Adjacent barriers must be closely butt jointed, or overlapped, and through stitched with 0.9mm galvanised annealed wire (see Figure 15). It is essential that the barrier provides a good seal at its head, perimeter and at all joints. Where the barrier abuts a profile such as a trapezoidal deck, the material must be cut to suit and secured to fire stop the gap (see Figure 17). For extended drops, 1.5mm diameter galvanised and annealed wire is used (see Figure 16).

Figure 15

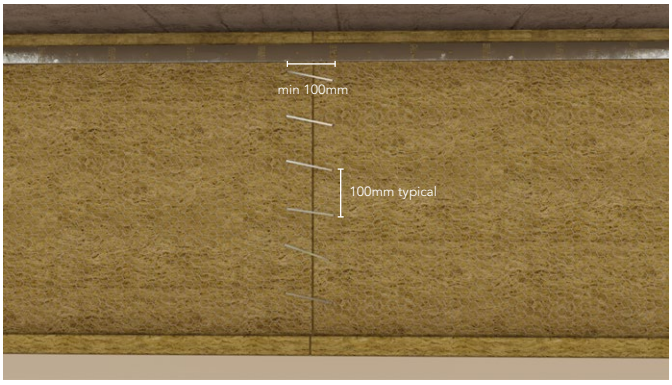
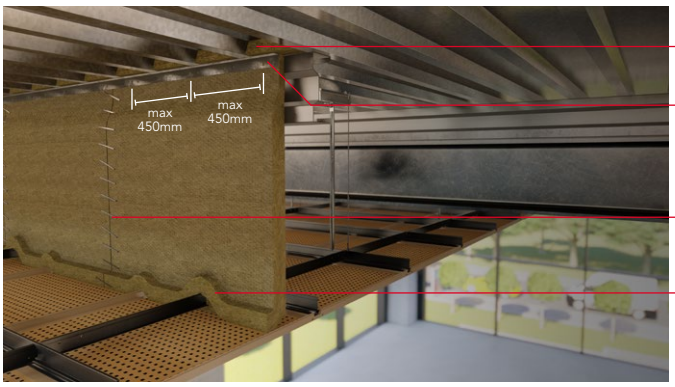


Figure 16

Figure 17



Fire Barrier cut and pushed up into profile as fire stopping

Angle or clamping plate fixing Fire Barrier to purlin with self tapping screws at 450mm centres (Hilti SMD 02Z 5.5 x 70mm)

Adjacent Barriers butt jointed and wired tightly together as Fig15

Fire Barrier draped over suspended ceiling and wired to grid, min 100mm lap. If not wired, overlap is min 150mm

Penetration details

It is regarded as good practice to adequately support or reinforce services penetrating compartment walls and cavity barriers, to prevent displacement. It is recommended that such supports should be no greater than 500mm from each face of the Fire Barrier.

To maintain the integrity of the Fire/Cavity Barrier when penetrated by services with a high melting point (such as steel or copper pipes, beams or trusses) the barrier is first cut locally to accommodate the service or structural member and then re-stitched as neatly as possible. The penetration is then lightly sleeved each side of the barrier to a minimum length of 300mm, using the same barrier material. Each sleeve should be securely stitched to the main barrier to produce a tight seal and prevent future detachment (see Figures 18 and 19). Where access is only available from one side, the double seal solution may be replaced by a single 'collar' detail - please contact our Technical Solutions Team for further advice.

If the penetrating service is manufactured from low melting point materials such as plastic or aluminium, then sleeving should be extended to at least 1000mm either side of the barrier.

This guidance applies to services such as pipes, sheathed cables and conduits, including those carried on steel trays.

For protected steel ductwork with a tested fire resistance performance (stability, integrity and insulation) at least the same as the Fire Barrier, 300mm sleeves should be applied either side of the main barrier, as for high melting point services above.

For information on achieving fire protection to steel ductwork, please refer to the ROCKWOOL Fire Duct System data sheet.

For non-fire protected ductwork, or that with a fire resistance performance less than the barrier, two sleeves should be applied to each side of the barrier, an inner sleeve of 1000mm and an outer sleeve of 300mm. All sleeves should be stitched to the main barrier.

The duct should also include an independently supported fire damper, located in the line of the main barrier. Reference should also be made to Approved Document B of England & Wales Building Regulations - Volume 1, Requirement B3, Section 7 and Volume 2, Requirements B3, Section 10.

Figure 18

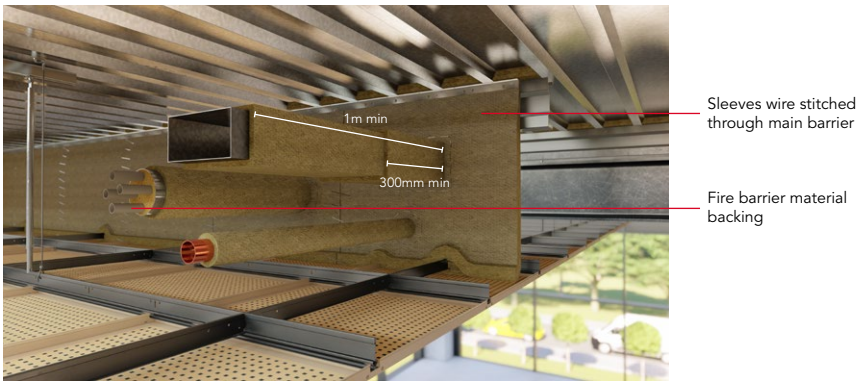
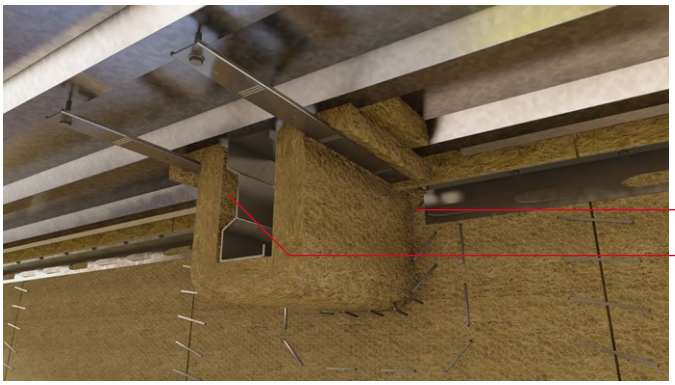


Figure 19



1 Hour Fire Barrier

The unique, patented ROCKWOOL support angle and clamping plate is used to fasten two 50mm Fire Barrier curtains with one support angle without the need for a cavity.

The ROCKWOOL support angle has tongues that are pushed out from opposite sides at 300mm max. centres. The ROCKWOOL Fire Barriers are then impaled on the tongues on both sides and clamped using the ROCKWOOL clamping plates. The tongues are finally bent over the clamping plates, completing the system.

The system uses 50mm Fire Barrier in a double layer with joints staggered. (Please note; wire reinforced sides should be placed outwards).

Figure 20

Figure 21

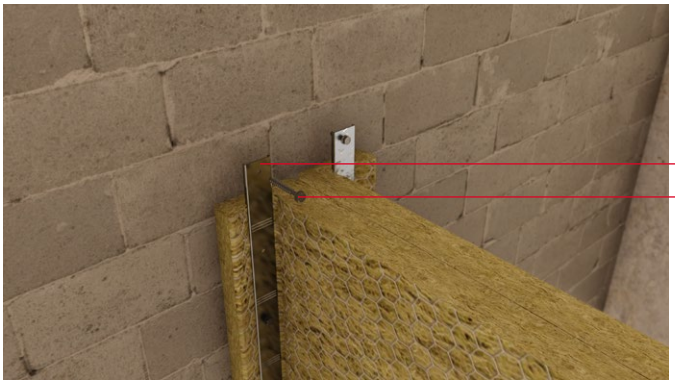


Figure 22

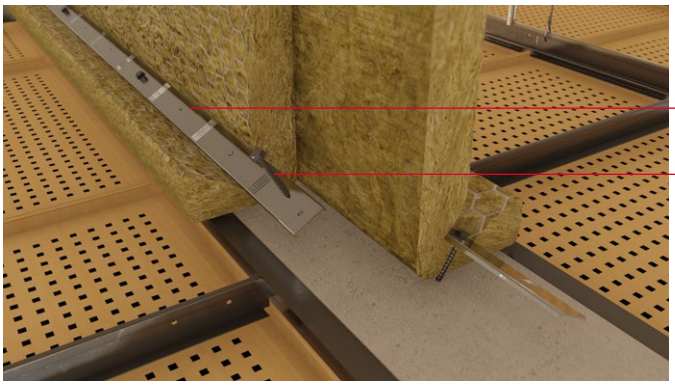
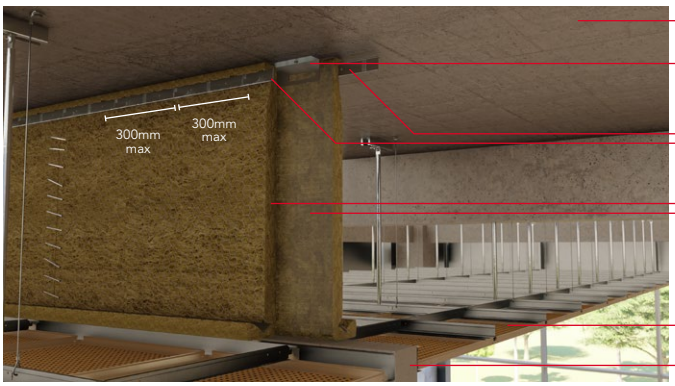


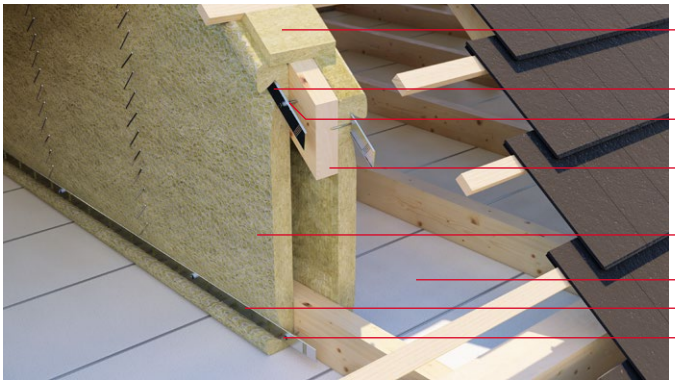
Figure 23



Fixing to timber structure (1 hour)

When a 1 hour Fire Barrier is supported on structural timber (for example a trussed rafter), and the thickness of timber is 35-49mm, one layer of 60mm ROCKWOOL Fire Barrier must be placed on each side of the timber (see Figure 24). Where timber thickness is 50mm or greater, 2 layers of 50mm Fire Barrier are sufficient.

Figure 24



1.5 & 2 Hour Fire Barriers

1.5 hour Fire Barrier

The ROCKWOOL 1.5 hour Fire Barrier system uses 2 layers of 50mm Fire Barrier with staggered joints fixed as Figures 25-27. Please note: Wire reinforced faces should be placed outwards.

Figure 25

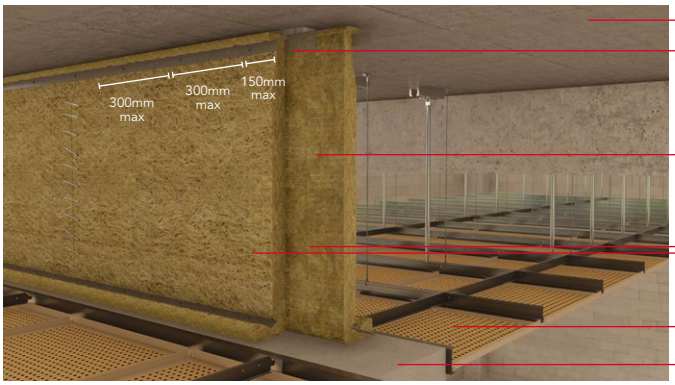


Figure 26

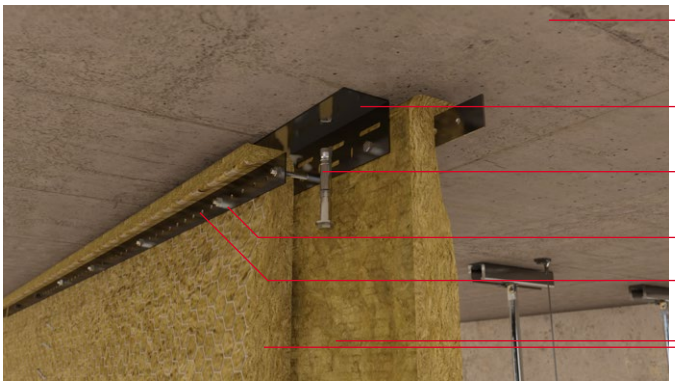
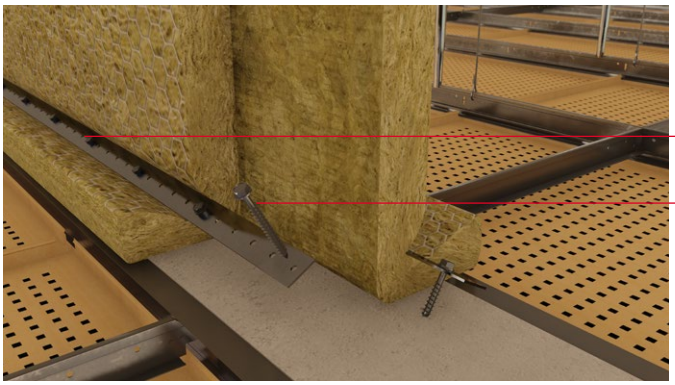


Figure 27



2 hour Fire Barrier

The ROCKWOOL 2-hour Fire Barrier (see Figures 28-30) consists of two layers of 60mm (plain or foil-faced), wire stitched Fire Barrier with staggered vertical joints, separated by a nominal 40mm air space. The base or perimeter to which the barrier is fixed must be capable of remaining in place for 2 hours.

Figure 28

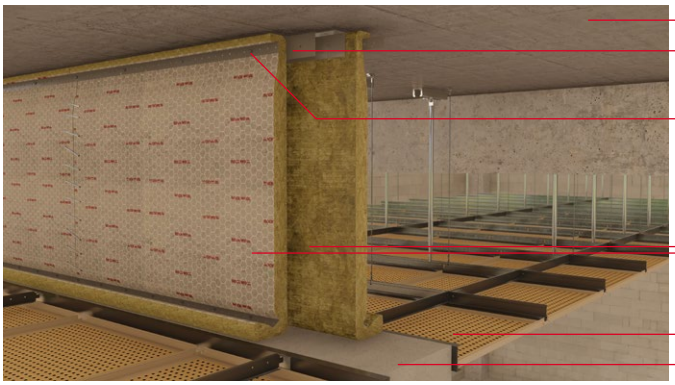


Figure 29

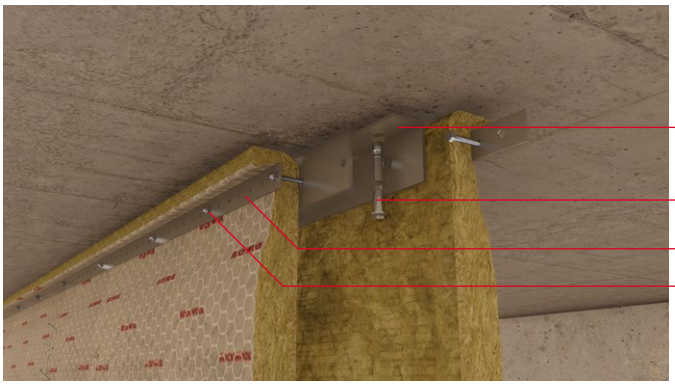
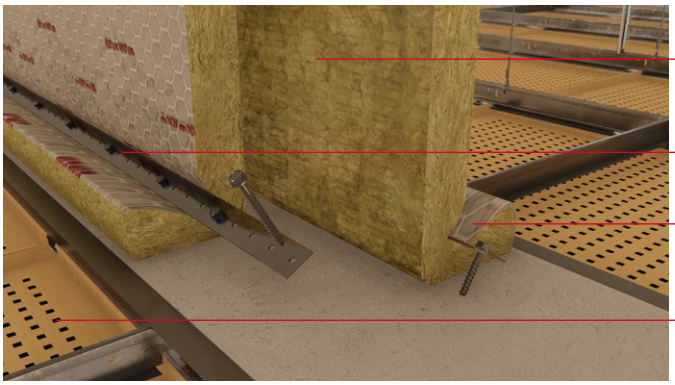


Figure 30



Angle and strap for 1.5% and 2 hour Fire Barriers

The following specification for slotted angles and straps is suitable for supporting ROCKWOOL Fire Barriers for 1.5 and 2 hours when tested to BS 476: Part 22. Slotted angles (62 x 41 x 2mm) and straps (38 x 2mm) manufactured from mild steel conforming to BS 1449: Part 1.1: 1991 and cold reduced to provide a minimum of 0.2% proof stress of 417 Mpa (27 tons/ in^2) and conforming to BS 4345: 1968 (1986) - Specification for slotted angles (inc. flat strap).

Other installation information

General design considerations

A cavity fire barrier must be designed to restrict the passage of both hot smoke and flames for the minimum specified period, as listed in Approved Document B in support of the Building Regulations. In addition, it must be fixed in such a way that:

- It will remain effective in the event of structural movement
- There are no gaps where it abuts other elements of construction
- It complies with the requirements of Approved Document B of the Building Regulations

Extended drops

For periods of up to 60 minutes, ROCKWOOL Fire Barriers can be used for extended void heights between 3.5 and 6m without the need for a supported frame - see Figure 16 for joining barriers with overlap. For periods of up to 90 minutes, this drop height can be increased to 10.5m (9m for 120 minutes), by the use of a simple frame system constructed from slotted angles and straps (see Figure 31).

Further details are available from ROCKWOOL Technical Solutions Team.

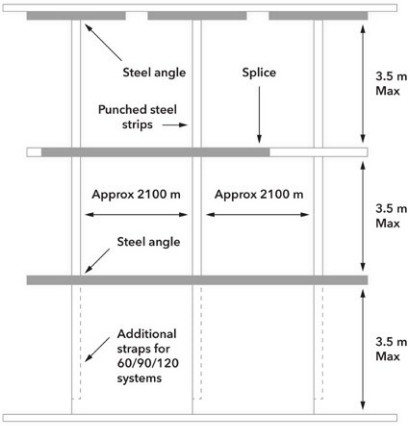


Figure 31

Fire barriers and dampers

Where ROCKWOOL Fire Barriers are installed in conjunction with fire dampers, the dampers must be supported independently of the fire barrier. HVCA or ASFP publications may be helpful.

Access through barriers

Where regular access is required through the barriers for maintenance purposes etc, this should be achieved by the inclusion of an independently supported fire rated door set and frame. The Fire Barriers should be clamped to the door frame with the RW clamping plate and appropriate fixings at 450mm centres.

Ancillaries

ROCKWOOL Ancillaries
ROCKWOOL Fire Barrier support angle and clamping plate are specially manufactured for ROCKWOOL.

Clamping Plate:
3m x 40mm, 10 lengths per pack

Fire Barrier Support Angles:
3m x 34mm x 75mm, 10 lengths per pack

Proprietary fixings
All steel hammer set expansion anchors for soffit fixings are available from Hilti, or Ejot. For perimeter fixings to concrete or masonry, use Hilti HUS Universal Screw system. For fixings to timber, use standard No. 10 steel wood screws 100mm long.

Durability
For durability, we recommend that the finish should be capable of withstanding at least 200 hours salt spray and 400 hours humidity corrosion resistance testing to BS 3990: Part F. Slotted angles and straps conforming to this specification are available from the following suppliers: JB Products Tel: 01384 240234 Link 51 Tel: 01952 682251 Romstor Tel: 01442 242261

If other hardware is used to support the barriers, we recommend that the respective specifier, supplier or installer should be certain that the chosen fixing system has been both tested and approved, for the required period of fire resistance and drop height.

Site advisory service

ROCKWOOL provides a site advisory service by engineers, solely employed to assist with advice when installing ROCKWOOL materials on site. The service is intended for site guidance, but is not intended to be an inspection facility unless agreed under a separately financed contract agreement.

For approval of installed barriers, the installer or building owner will be referred to a suitably accredited and experienced fire assessor or fire safety engineering organisation.

Packaging of Fire Barrier
Shrink wrapped in polyethylene

Handling
ROCKWOOL Fire Barriers are easy to handle. It is easy to cut to any shape. The product should be stored indoors or under a weatherproof covering.

Maintenance
Once installed ROCKWOOL Fire Barriers should need no maintenance. Fire Barriers should be inspected to ensure that they have not been disturbed during maintenance of areas and/or as part of a regular maintenance program.

Specification clauses

ROCKWOOL Fire Barrier System is associated with the following NBS clauses:

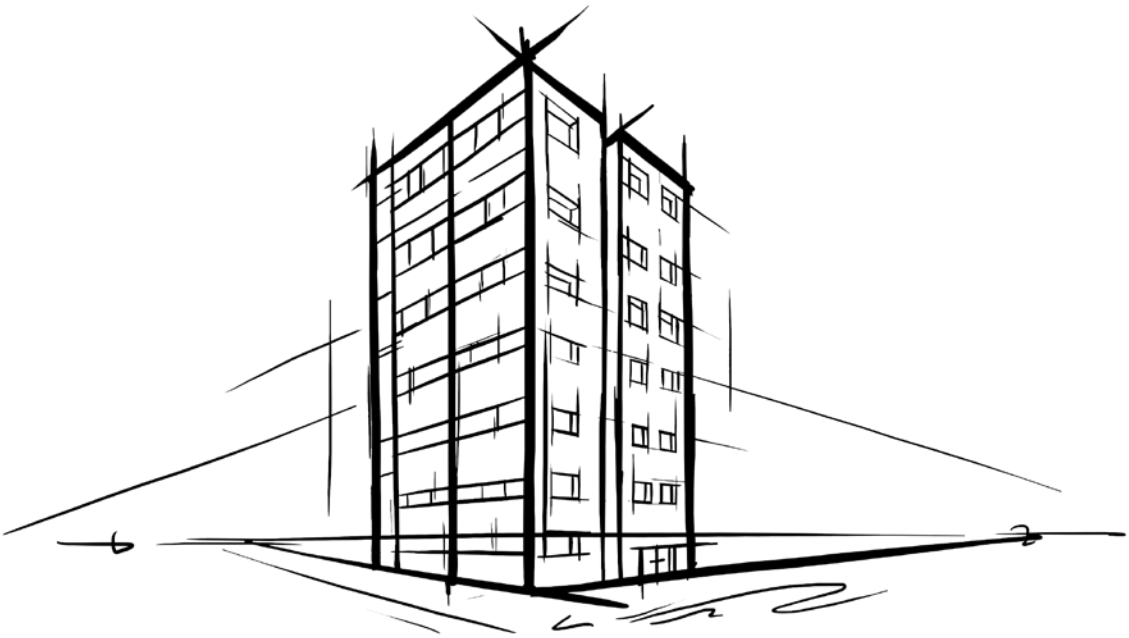
- K10: Gypsum board dry linings/partitions/ceilings
  - 530 – Cavity fire barriers within partitions/wall linings
  - 545 – Cavity fire barriers within suspended ceilings
- K40: Demountable suspended ceilings
  - 287 – cavity barriers
  - 425 – Installing cavity barriers
  - 431 – Installing sound barriers
- P10: Sundry insulation/proofing work
  - 410 – Flexible cavity barriers
  - 430 – Wired mineral wool small cavity barriers
  - 440 – Fire protection

Disclaimers

This product should only be utilised for applications as outlined in the relevant ROCKWOOL product datasheet and in accordance with the relevant ROCKWOOL Fire Resistance Testing. Additionally the product must be installed in accordance with the current ROCKWOOL guidelines. For further information please visit www.rockwool.co.uk or contact our Technical Solutions Team on 01656 868490.

Supporting Information

For further information relating to any aspect of the FirePro range, please refer to the applicable ROCKWOOL standard details at www.rockwool.co.uk or contact the ROCKWOOL Technical Solutions Team on 01656 868490 or technical.solutions@rockwool.co.uk.



Sustainability

As an environmentally conscious company, ROCKWOOL promotes the sustainable production and use of insulation and is committed to a continuous process of environmental improvement.

All ROCKWOOL products provide outstanding thermal protection as well as four added benefits:

- **Fire resistance**
- **Acoustic comfort**
- **Sustainable materials**
- **Durability**

Health & Safety

The safety of ROCKWOOL stone wool is confirmed by current UK and Republic of Ireland health & safety regulations and EU directive 97/69/EC:ROCKWOOL fibres are not classified as a possible human carcinogen.

A Material Safety Data Sheet is available and can be downloaded from www.rockwool.co.uk to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

Environment

Made from a renewable and plentiful naturally occuring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have ozone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL is approximately 97% recyclable. For waste ROCKWOOL material that may be generated during installation or at end of life, we are happy to discuss the individual requirements of contractors and users considering returning these materials to our factory for recycling.

Interested?

For further information, contact the Technical Solutions Team on 01656 868490 or email technical.solutions@rockwool.co.uk

Visit www.rockwool.co.uk to view our complete range of products and services.

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