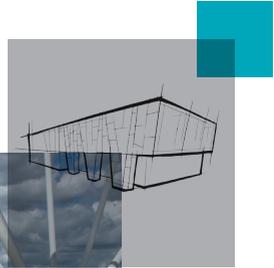


# Flat Roof Application Guide



# A comprehensive thermal, sound and fire safe solution

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### Worle Community School, Weston Super-Mare

The challenge was to ensure the roof complied with the strict acoustic requirements of BB93, whilst proving a cost effective insulation solution for the roof's curved surface.

Image Credit: GSS Architecture.



# HARDROCK® Multi-Fix (DD)

ROCKWOOL HARDROCK® Multi-Fix Dual Density (DD) roof board is a comprehensive thermal, sound and fire safe solution, which has been specifically developed for use on all flat roof building types.

Simple and quick to install, HARDROCK® Multi-Fix (DD) roof boards offer significant time and cost savings which support in reducing the total installed cost of the roof system.

## One Solution, Many Applications

HARDROCK® Multi-Fix (DD) is supplied in a standard range with eight thickness options, which either individually or combined, can deliver a thermal performance ranging from 0.10-0.25 W/m²K. The integral glass mineral fleece delivers exceptional versatility and provides compatibility with an array of flat roof systems including; Bonded single-ply/EPDM, torch applied bitumen, cold applied liquid membranes and green roof systems, ensuring a strong bond between membrane and insulation.

## Built to Last

Manufactured with ROCKWOOL Dual Density technology, HARDROCK® Multi-Fix (DD) is robust, durable and engineered to last for the life of the building.

In addition, HARDROCK® Multi-Fix (DD) provides outstanding dimensional stability which ensures a long-term, stable and consistent thermal performance year after year.

## Cost Effective and Easy to Install

With only 1 N° fixing required per board for mechanically fixed roof systems, HARDROCK® Multi-Fix (DD) reduce both installation time and costs.

Easy to cut and shape, HARDROCK® Multi-Fix (DD) is simple to install around typical details without compromising the thermal, fire or acoustic performance of the roof system. Within acoustic flat roof systems the superior performance of HARDROCK® Multi-Fix (DD) removes the need for additional mass layers, providing the desired acoustic performance through the insulation alone. HARDROCK® Multi-Fix (DD) can offer cost savings of up to 17% within acoustic roof systems when compared to other insulation products available.

## Rapid Delivery

Available for rapid 72 hour delivery to site through the ROCKWOOL UK distribution network, HARDROCK® Multi-Fix (DD) is supported by the ROCKWOOL Technical Solutions support team to provide detailed advice, BIM modelling and ensure optimum value engineering for all projects.

[View our installation guidance video >](#)

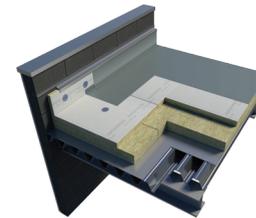


# One solution many applications

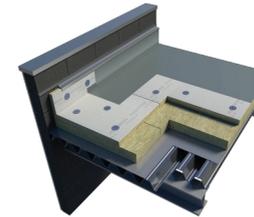


Glass mineral fibre fleece - compatible with many membranes

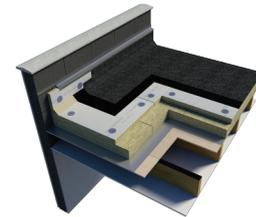
Dual density technology allows for robust outer surface which means our slabs are strong and durable



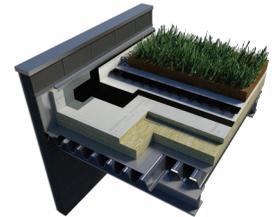
Mechanically Fixed Single Ply System



Fully Bonded Single Ply System



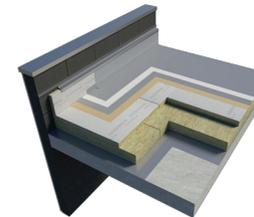
Partially Bonded Single Ply System



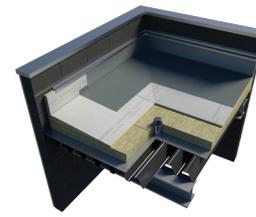
Green Roof System



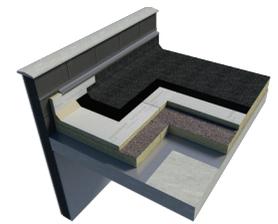
Torch Applied Multi-layer Bituminous System



Liquid Applied Waterproof System

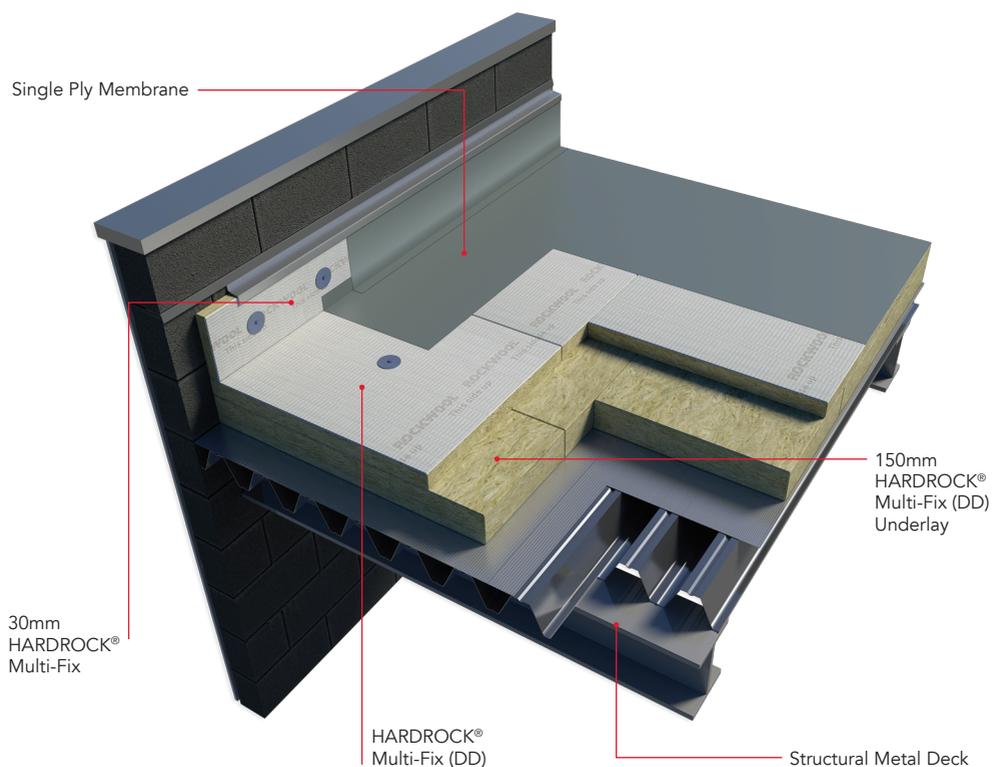


Tapered Roofing System



HARDROCK® Multi-Fix Recovery Board

## Mechanically Fixed Single Ply System



HARDROCK® Multi-Fix (DD) roofing boards are perfect for mechanically fastened single-ply and EPDM systems.

With only **one fixing needed for each board, HARDROCK® Multi-Fix (DD)** reduces both installation times and overall cost. What's more, it also helps reduce thermal bridging and offers outstanding acoustic and fire resistance performance.

### Typical Applications

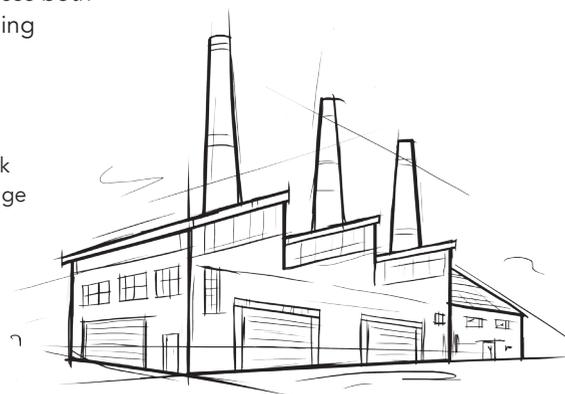
Mechanically Fixed Single Ply Systems like HARDROCK® Multi-Fix (DD) are ideal for fast-track building programmes including schools and manufacturing facilities. They also provide a range of flexible options for low temperature applications.

### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

### Installation

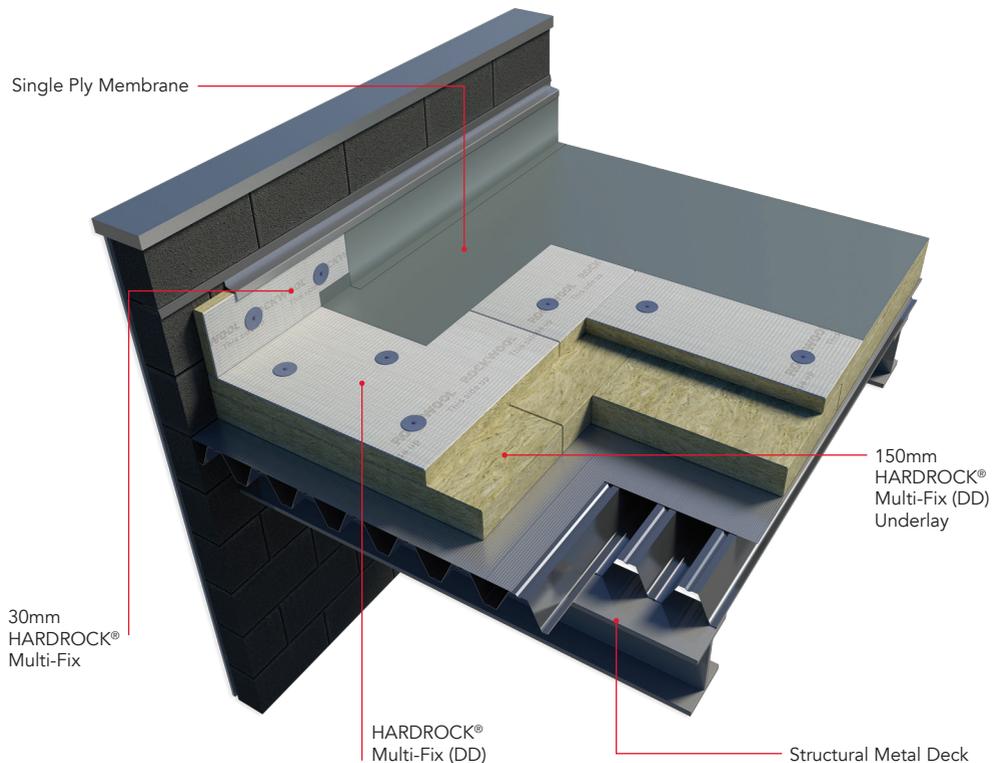
- The metal deck should be clean, dry and have a sufficient gradient to allow rainwater to flow to the outlets
- A suitable vapour control layer should be loose laid above the metal deck ensuring that the sides and ends are overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be laid first with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of the metal deck
- The fleece-faced HARDROCK® Multi-Fix board should be laid above the 150mm underlay board with the fleece facing upwards and with vertically staggered joints
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- The 30mm HARDROCK® Multi-Fix Recovery Board can be used to insulate the internal face of the parapets
- Maintain a minimum distance of 300mm between the top of the insulation upstand and bottom of the horizontal roof insulation
- The waterproofing membrane should be mechanically fixed to the insulation in accordance with the membrane manufacturers instructions.



**Roof boards installed during the day must be covered and not left exposed to moisture.**

**Adequate temporary protection must be provided above the roof boards during installation.**

## Partially Bonded Single Ply System



Adhered single ply systems can improve the aesthetic appearance of the finished membrane and also help to manage complex geometry.

With its integral glass mineral fibre facing, HARDROCK® Multi-Fix (DD) provides a compatible surface for bonding single ply membranes like these. It has gone through full dynamic wind uplift testing in accordance with EOTA TR005 and offers high wind uplift resistance.

It also offers superb acoustic and fire resistance performance, and is fully compatible with a wide range of membranes and adhesives.

### Typical Applications

They are often used on flat roofs that are overlooked by other buildings, thanks to the improved aesthetic appearance they bring. In fact, combining mechanically fixed insulation with adhered single ply can provide faster installation with reliable, long-lasting performance.



### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

### Installation

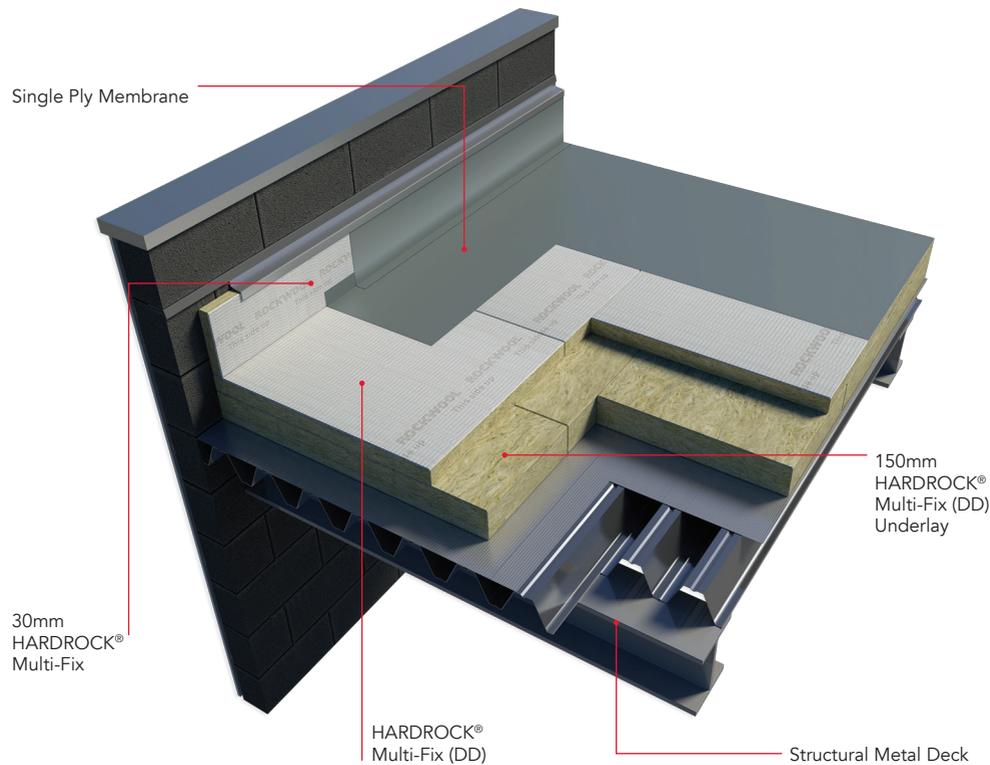
- The metal deck should be clean, dry and have a sufficient gradient to allow rainwater to flow to the outlets
- A suitable vapour control layer should be loose laid above the metal deck ensuring that the sides and ends are overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be laid first with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of the metal deck
- The fleece faced HARDROCK® Multi-Fix board should be laid above the 150mm underlay board with the fleece facing upwards and with vertically staggered joints
- The insulation should be fastened to the deck using 4 N° fixings/m<sup>2</sup>
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- The internal face of the parapet should be insulated with 30mm HARDROCK® Multi-Fix
- Maintain a minimum distance of 300mm between the top of the insulation upstand and bottom of the horizontal roof insulation
- The waterproofing membrane should be adhered to the insulation using a compatible adhesive and in accordance with the membrane manufacturer's instructions.



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## Fully Bonded Single Ply System



Fully adhered insulation and single ply systems can improve the aesthetic appearance of the finished membrane and also help to manage complex geometry.

Fully bonded HARDROCK® Multi-Fix (DD) systems have undergone full dynamic wind uplift testing in accordance with EOTA TR005 and offer high wind uplift resistance.

Compatible with a wide range of membranes and adhesives, they offer fast installation and have excellent acoustic and fire resistance performance.

HARDROCK® Multi-Fix (DD) has an integral glass mineral fibre facing which provides a compatible surface for bonding single ply membranes like these. It can be bonded to the vapour control layer using a compatible polyurethane insulation adhesive.

### Typical Applications

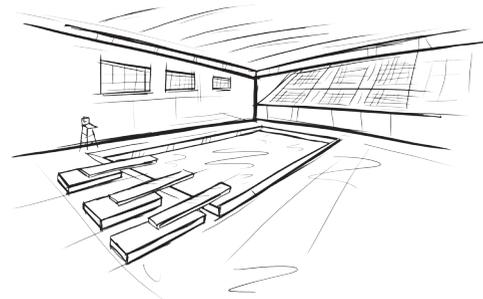
Ideal for use above swimming pools and sports halls, and roof systems that have exposed soffits.

### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

### Installation

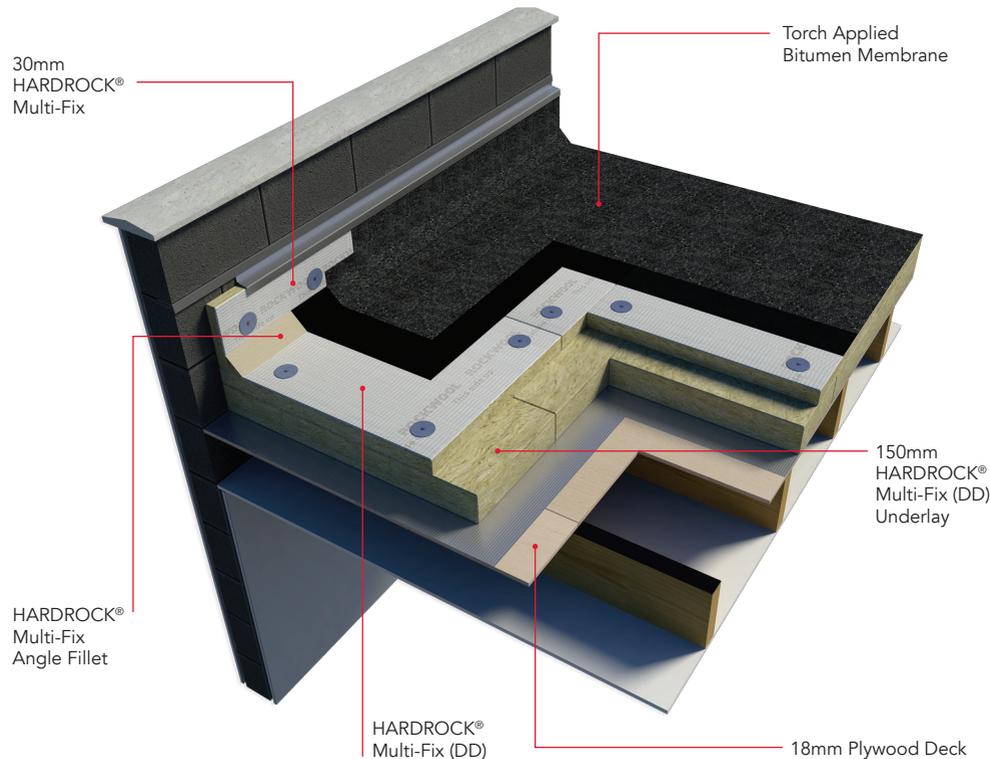
- The metal deck should be clean, dry and have a sufficient gradient to allow rainwater to flow to the outlets
- A suitable vapour control layer should be bonded to the metal deck in accordance with the manufacturer's instructions
- Sides and ends of the vapour control layer should be overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be bonded to the vapour control layer using a suitable, proprietary insulation adhesive
- The roof board should be laid into the adhesive with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of the metal deck systems
- The fleece-faced HARDROCK® Multi-Fix board should be bonded to the 150mm underlay board using a suitable, proprietary insulation adhesive
- The secondary layer of roof board should be laid onto the underlay board with the fleece facing upwards and with vertically staggered joints
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- The internal face of the parapet should be insulated with 30mm HARDROCK® Multi-Fix
- Maintain a minimum distance of 300mm between the top of the insulation upstand and bottom of the horizontal roof insulation
- The waterproofing membrane should be adhered to the insulation using a compatible adhesive and in accordance with the membrane manufacturer's instructions.



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## Torch Applied Multi-layer Bituminous System

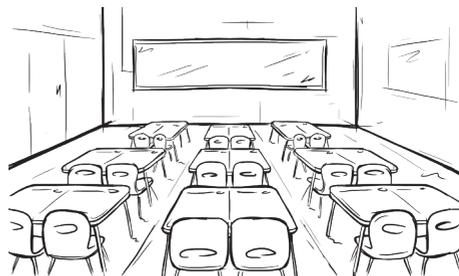


Ideal for both new-build and refurbishment projects, modified bitumen membranes provide a robust waterproof layer and fast installation.

HARDROCK® Multi-Fix (DD) is designed for this type of roofing and provides excellent heat resistance and a strong bond between membrane and insulation. It comes with an integral glass mineral fibre facing, which provides a very compatible surface for direct torch applied bitumen felt.

### Typical Applications

When used with HARDROCK® Multi-Fix (DD), bituminous roof membranes can produce long-lasting roofing with excellent sound reduction - making them ideal for schools, hospitals and other public buildings. They are also A1 non-combustible and have strong resistance to wind uplift.



### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

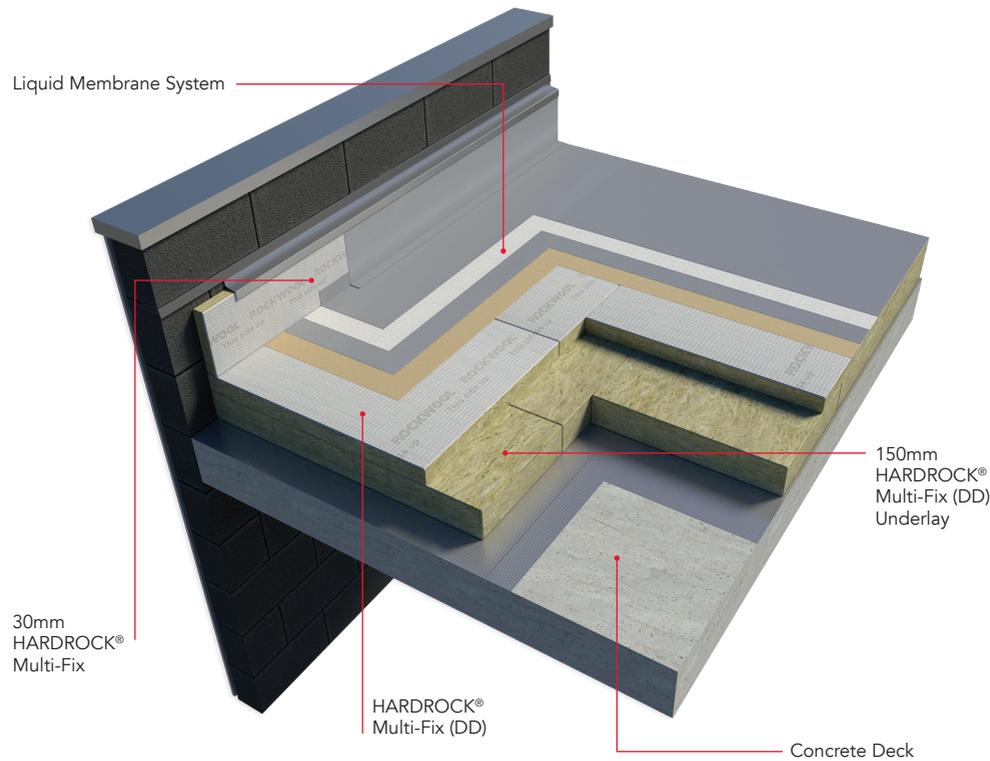
### Installation

- The metal, concrete or timber deck should be clean, dry and have a sufficient gradient to allow rainwater to flow to the outlets
- Depending on the insulation fixing method, the vapour control layer can be bonded or loose laid in accordance with the manufacturer's instructions
- Sides and ends of the vapour control layer should be overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered, fully adhered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be bonded to the vapour control layer using a suitable, proprietary insulation adhesive
- The roof board should be laid into the adhesive with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of metal deck systems
- The fleece-faced HARDROCK® Multi-Fix board should be bonded to the 150mm underlay board using a suitable, proprietary insulation adhesive
- The secondary layer of roof board should be laid onto the underlay board with the fleece facing upwards and with vertically staggered joints
- If the insulation is mechanically fixed to the roof deck then fasten the boards with 4 N° fixings/m<sup>2</sup>
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- Insulate the internal face of the parapet with 30mm HARDROCK® Multi-Fix
- Maintain a minimum distance of 300mm between the top of the insulation upstand and bottom of the horizontal roof insulation
- HARDROCK® Multi-Fix Angle Fillets should be bonded to the insulation at horizontal and vertical interfaces to ensure good transition of the bitumen membrane
- When installing two layer felt systems, the underlay can be torched directly to the insulation. Alternatively a self-adhered underlay can be installed. Apply the cap sheet in accordance with the manufacturer's instructions.

**Roof boards installed during the day must be covered and not left exposed to moisture.**

**Adequate temporary protection must be provided above the roof boards during installation.**

## Liquid Applied Waterproof System



HARDROCK® Multi-Fix (DD) is supplied with an integral glass mineral fibre facing which provides a compatible surface for the application of polymeric and elastomeric liquid membrane systems.

When applied to the surface of HARDROCK® Multi-Fix roof boards the mineral fibre facing provides a strong bond between the liquid membrane and insulation.

### Typical Applications

Liquid membrane systems are suited to both new build and refurbishment projects. When carrying out roof refurbishment or roof repairs cold applied liquid membranes offer a durable, watertight seal around existing roof details.



### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

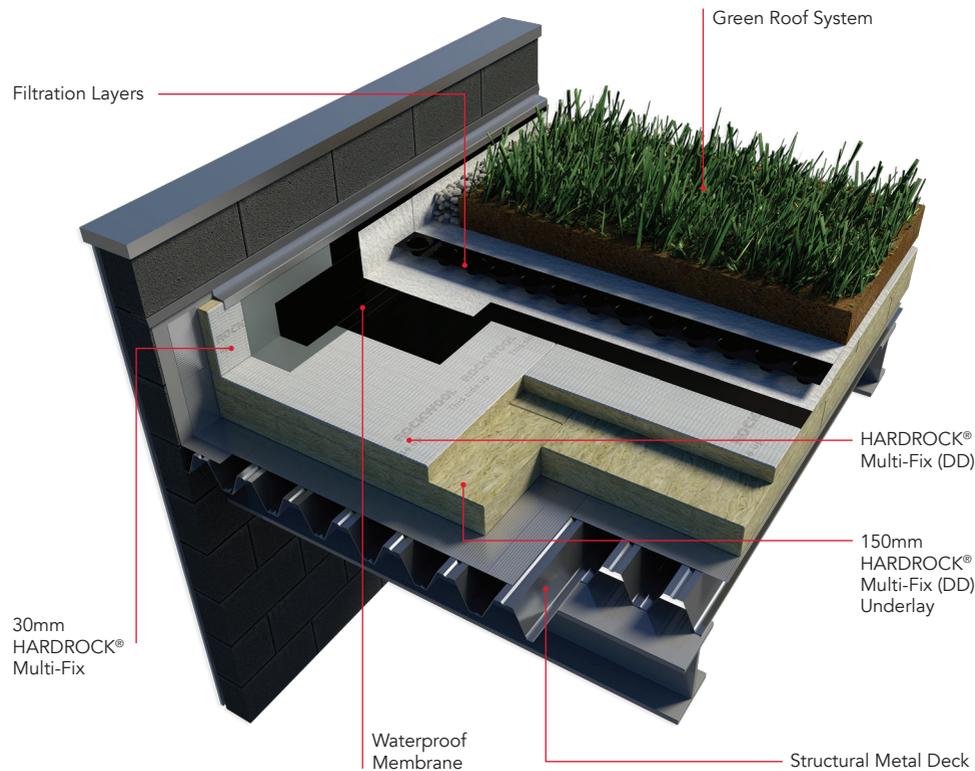
### Installation

- The metal, concrete or timber deck should be clean dry and have a sufficient gradient to allow rainwater to flow to the outlets
- Depending on the insulation fixing method the vapour control layer can be bonded or loose laid in accordance with the manufacturers instructions
- Sides and ends of the vapour control layer should be overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered, fully adhered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be bonded to the vapour control layer using a suitable, proprietary insulation adhesive
- Lay the roof board into the adhesive with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of metal deck systems
- The fleece faced HARDROCK® Multi-Fix board should be bonded to the 150mm underlay board using a suitable, proprietary insulation adhesive
- Place the secondary layer of roof board onto the underlay board with the fleece facing upwards and with vertically staggered joints
- When mechanically fixing the insulation to the roof deck fasten using 4 N° fixing/m<sup>2</sup>
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- Insulate the internal face of the parapet with 30mm HARDROCK® Multi-Fix
- Maintain a minimum distance of 300mm between the top of the insulation upstand and bottom of the horizontal roof insulation
- The liquid membrane system should be applied directly to the surface of the insulation in accordance with the manufacturers installation guidelines.

**Roof boards installed during the day must be covered and not left exposed to moisture.**

**Adequate temporary protection must be provided above the roof boards during installation.**

## Green Roof System

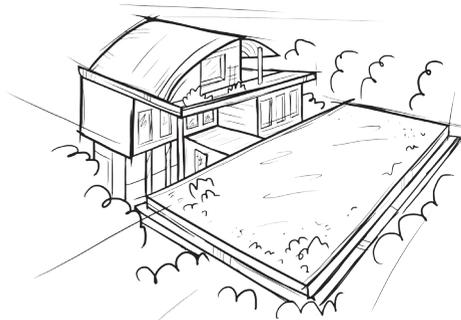


HARDROCK® Multi-Fix (DD) is produced from a natural, sustainable and recyclable source making it the ideal choice to further compliment the environmental benefits offered through green roof systems.

Manufactured without blowing agents HARDROCK® Multi-Fix (DD) has a zero ODP and GWP rating and can be recycled and reprocessed reducing landfill and costs.

### Typical Applications

Modern green roof systems can be used within a wide range of building types and applications including, roof gardens on office buildings or to reduce the environmental impact of industrial facilities. Green roof systems can contribute positively to issues surrounding climate change, flooding, biodiversity and declining green space in urban areas.



### Product Specification

Dimensions	1200mm x 1000mm
Thickness	50mm-185mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity (λ)	0.039 W/mK

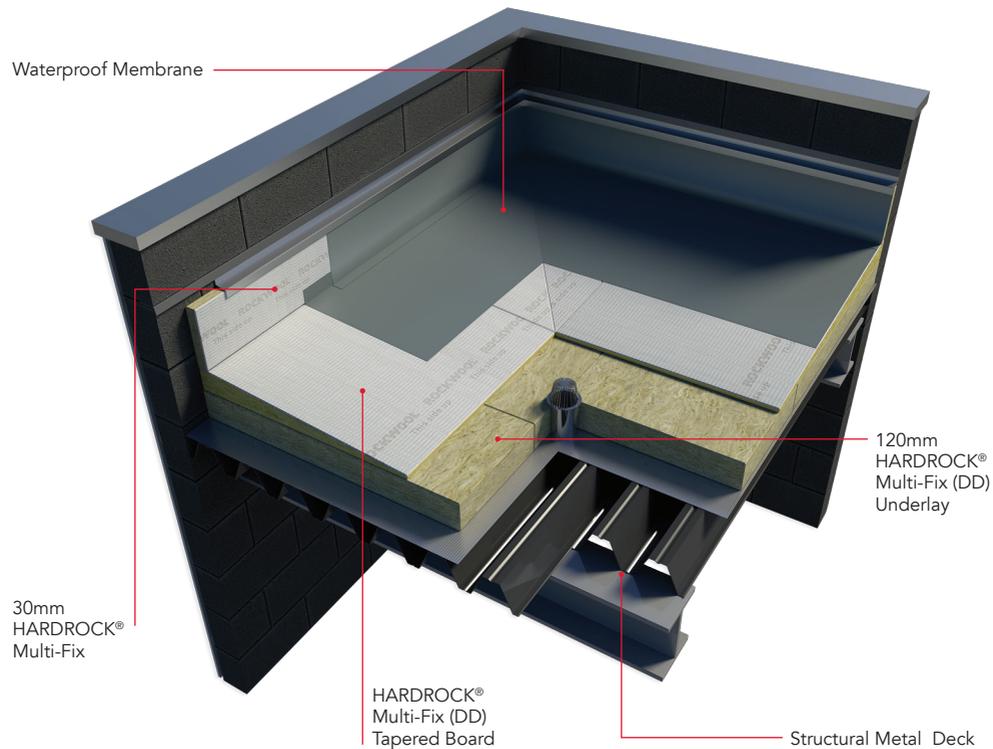
### Installation

- The metal, concrete or timber deck should be clean dry and have a sufficient gradient to allow rainwater to flow to the outlets
- Depending on the insulation fixing method the vapour control layer can be bonded or loose laid in accordance with the manufacturers instructions
- Sides and ends of the vapour control layer should be overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- In dual layered, fully adhered systems, the 150mm HARDROCK® Multi-Fix Underlay Board should be bonded to the vapour control layer using a suitable, proprietary insulation adhesive
- Lay the roof board into the adhesive with the branded side facing upwards. The Underlay Board should be laid perpendicular to the profiles of metal deck systems
- The fleece faced HARDROCK® Multi-Fix board should be bonded to the 150mm underlay board using a suitable, proprietary insulation adhesive
- Place the secondary layer of roof board onto the underlay board with the fleece facing upwards and with vertically staggered joints
- For mechanically fixed systems fasten the insulation to the roof deck using 1 N° fixing/board
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- Insulate the internal face of the parapet with 30mm HARDROCK® Multi-Fix
- A minimum distance of 300mm should be maintained between the top of the upstand insulation and the underside of the horizontal roof insulation
- A specialist, Green Roof compatible waterproof membrane should be installed above the insulation in accordance with the manufacturers recommendations
- The fleece, filtration layer and growing matter should be installed over the waterproof membrane in accordance with the clients requirements.

**Roof boards installed during the day must be covered and not left exposed to moisture.**

**Adequate temporary protection must be provided above the roof boards during installation.**

## Tapered Roofing System

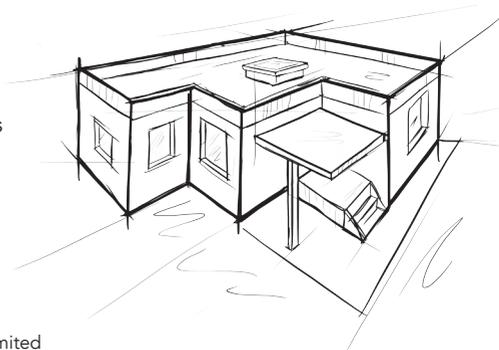


Our Tapered Roofing System reduces risk of ponding and standing water and is backed by a complete design to delivery service.

Tapered HARDROCK® Multi-Fix (DD) Roofing boards are manufactured 1200 x 1000mm and can be fully bonded to the vapour control layer with hot bitumen or adhesive or mechanically fastened through the vapour control layer to the deck.

### Typical Applications

The HARDROCK® Multi-Fix (DD) Tapered Roofing range is engineered to meet the demand for tapered solutions for existing and new flat roof constructions.



### Product Specification

Dimensions	1200mm x 1000mm
Standard Systems	1:40, 1:60, 1:80 fall (min. 10mm thickness)
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity (λ)	0.039 W/mK

### Installation

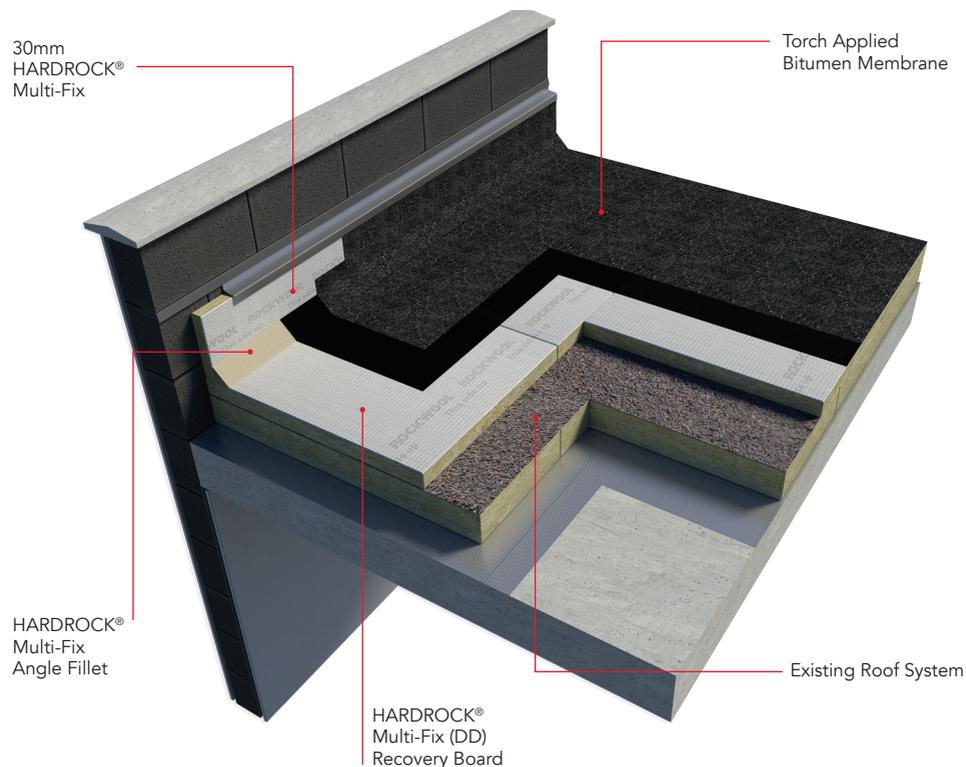
- The metal, concrete or timber deck should be clean dry and free from large projections or steps
- Depending on the insulation fixing method the vapour control layer can be bonded or loose laid in accordance with the manufacturers instructions
- Sides and ends of the vapour control layer should be overlapped by a minimum of 150mm
- The vapour control layer should be turned up at the roof edge to a height which is appropriate to the waterproofing membrane
- The HARDROCK® Multi-Fix tapered boards and/or underlay boards should be bonded to the vapour control layer using a suitable, proprietary insulation adhesive, alternatively they can be laid into hot bitumen
- Lay the roof board into the adhesive with the branded side facing upwards. The boards should be laid perpendicular to the profiles of metal deck systems
- The fleece-faced HARDROCK® Multi-Fix tapered board can be bonded to the underlay board using a suitable, proprietary insulation adhesive
- Place the tapered roof board onto the underlay board with the fleece facing upwards and with vertically staggered joints
- If the waterproof membrane and/or insulation is to be mechanically fastened then install the insulation to the roof deck using 1N° fixing per board. For all bonded or torched applied membranes fix the insulation to the deck using a minimum of 4 N° fixings per board
- Insulation boards should be laid with tightly butted joints. There should be no gaps at abutments
- Insulate the internal face of the parapet with 30mm HARDROCK® Multi-Fix

**Roof boards installed during the day must be covered and not left exposed to moisture.**

**Adequate temporary protection must be provided above the roof boards during installation.**

- A minimum distance of 300mm should be maintained between the top of the upstand insulation and the underside of the horizontal roof insulation
- Install the waterproof membrane to the insulation in accordance with the membrane manufacturers instructions.

## HARDROCK® Multi-Fix Recovery Board



The new HARDROCK® Multi-Fix Recovery Board has been specifically developed for use on flat roof refurbishment projects.

The 30mm HARDROCK® Multi-Fix Recovery Board has been purposely designed to simplify repair and refurbishment of flat roof systems. The ROCKWOOL recovery board can be used to isolate and prepare the surface of existing roof systems, providing a suitable platform for the installation of new waterproofing membranes.

### Typical Applications

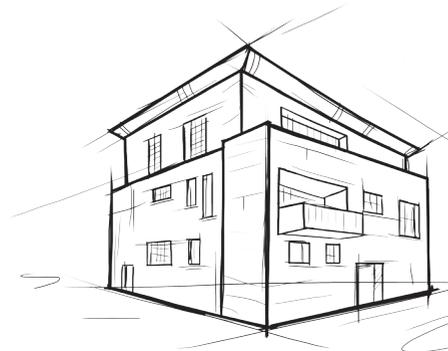
The HARDROCK® Multi-Fix Recovery Board is suited to Domestic refurbishment, Commercial refurbishment and Up stand details. HARDROCK® Multi-Fix Recovery Boards are completely fire safe and can be used to provide an effective acoustic barrier to external noise pollution.

### Product Specification

Dimensions	1200mm x 1000mm
Thickness	30 & 40mm
Facing	Mineral Glass Fibre Fleece
Core	High Performance Dual Density Stone Wool
Thermal Conductivity ( $\lambda$ )	0.039 W/mK

### Installation

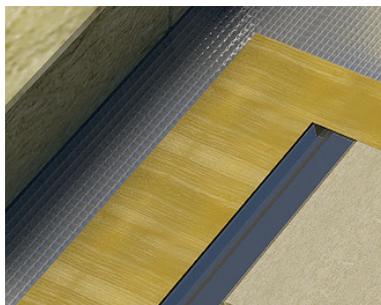
- Remove any loose debris from the existing roof surface
- Mechanically fix or bond the Recovery Board through/to the existing membrane and into the roof deck. When mechanically fixing the Recovery Board always ensure that the existing deck is in a reasonable condition. A compatible, proprietary adhesive must be used to bond the insulation to the existing surface
- 4 N° fixings per m<sup>2</sup> are required (5 N° per board) for all bonded and torch applied membrane systems
- Install the Recovery Board to the existing roof surface with staggered and tightly butted joints. The mineral fleece should face upwards
- Apply the new waterproofing membrane system to the HARDROCK® Multi-Fix Recovery Board in accordance with manufacturers instructions.



Roof boards installed during the day must be covered and not left exposed to moisture.

Adequate temporary protection must be provided above the roof boards during installation.

## Ancillaries



### Acoustic Membrane

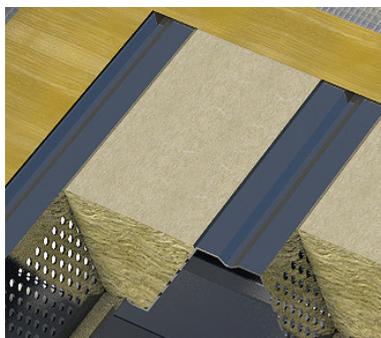
ROCKWOOL Acoustic Membrane is a high performance, sound-deadening polymer mass layer which can be used to further enhance HARDROCK® Multi-Fix (DD) acoustic roof systems.

#### Installation Guidance

Lay directly onto the metal decking ensuring joints are overlapped by 50mm.

#### Product Specification

Weight Options	5kg and 10kg/m <sup>2</sup>
Dimensions	1220 x 6050mm (5kg), 1200 x 4000mm (10kg)
Thickness	2.5mm (5kg), 5mm (10kg)
Thermal Conductivity (λ)	0.45 W/mK



### Acoustic Infills

ROCKWOOL Acoustic Infills have been designed and tested for use within ROCKWOOL HARDROCK® roof systems. The ROCKWOOL Acoustic Infill provides a combination of optimised density and excellent fit to deliver Class C sound absorption within perforated metal deck systems.

#### Installation Guidance

Place the ROCKWOOL Acoustic Infill directly within the trough of the metal deck ensuring the infills are tightly butted together.

#### Product Specification

Length	1000mm
Facing Options	Black or White Tissue, Plain
Core	Acoustic Stone Wool
Acoustic Performance	Class C Sound Absorption



### Angle Fillet

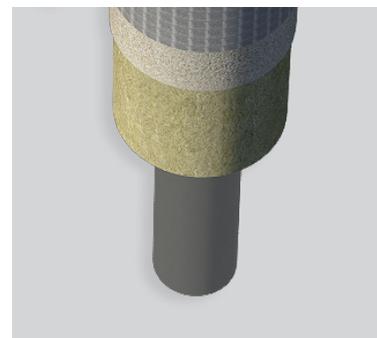
The new HARDROCK® Multi-Fix Angle Fillet has been designed to fully support the waterproof membrane at 90° abutments, providing a smooth transition between the horizontal and vertical interface.

#### Installation Guidance

Place the angle fillet along the 90° abutment between the horizontal and vertical interface.

#### Product Specification

Length	1200mm
Width	72.5mm
Thickness	30mm
Facing	Mineral Glass Fibre Fleece



### TechTube

ROCKWOOL Techtube has been engineered to provide the highest standard of noise control to circular and rectangular ductwork including rainwater, soil-vent and service pipes.

#### Installation Guidance

Techtube is generally secured with aluminium bands at a maximum of 200mm centres. All joints should be taped with self-adhesive aluminium foil tape.

#### Product Specification

Length	1000mm
To Suit Pipe O/D	21mm –610mm
ROCKWOOL Thickness	20-100mm*
Mass layer	5 Kg/m <sup>2</sup>

\*Some combinations of O/D and thickness may not be available.

# Technical Overview

## Acoustic Performance

The inherent acoustic properties of ROCKWOOL HARDROCK® Multi-Fix (DD) can reduce or even eliminate the need for additional acoustic mass layers when meeting all but the most demanding specifications for the reduction of airborne and rain noise. For very high levels of acoustic treatment, performance can be enhanced with the addition of a ROCKFON ceiling or a layer of ROCKWOOL Acoustic Membrane.

	Base layer	Upper Layer	Weighted Reduction (dB)
HARDROCK® Recovery Board	30mm		33
HARDROCK® Multi-Fix (DD)	150mm		41*
	170mm		44*
	185mm		45*
	150mm (Underlay)	60mm	46*
	150mm (Underlay)	85mm	47*
	150mm (Underlay)	105mm	48*
	150mm (Underlay)	115mm	48*

## Fire Performance

As well as achieving a European 'reaction to fire' classification of A1, ROCKWOOL HARDROCK® Multi-Fix (DD) offers a high level of fire protection and is classified as non-combustible in accordance with UK Building Regulations and the LPCB.

	Total Thickness	Fire Resistance	
		Integrity (mins)	Insulation (mins)
HARDROCK® Multi-Fix (DD)	105mm-120mm (underlay)	60**	60**
	150mm-185mm	90**	90**
	210mm	120**	120**

For more information please contact our Technical Solutions team on **0871 2221 780**.

## Thermal Performance

ROCKWOOL insulation offers excellent thermal properties and will help reduce energy usage and costs. Made from a renewable and plentiful resource it is a practical choice to maximise the performance of your building.

	Base layer	Upper Layer	Thermal
HARDROCK® Recovery Board	30mm		1.08
HARDROCK® Multi-Fix (DD)	60mm		0.59
	85mm		0.43
	105mm		0.35
	115mm		0.32
	120mm (Underlay)		0.31
	150mm		0.25
	170mm		0.22
	185mm		0.20
		150mm (Underlay)	60mm
	150mm (Underlay)	85mm	0.16
	150mm (Underlay)	105mm	0.15
	150mm (Underlay)	115mm	0.14
	150mm (Underlay)	170mm	0.12
	150mm (Underlay)	185mm	0.11

## Notes

Acoustic, Fire and Thermal Performances are based on a construction of Metal Deck, VCL, thickness of HARDROCK® (DD) and Single Ply Membrane. No ceilings are taken into account within the constructions.

### Acoustic Performance

\* Prediction data based on a selection of ROCKWOOL test data.

### Fire Performance

\*\* All fire rated systems must comprise of two insulation layers with staggered joints to create the total thickness shown in the table.

# Protection, Handling and Storage

## Protection and Handling

ROCKWOOL HARDROCK® Multi-Fix (DD) roofing boards are fully palletised and wrapped in a polythene shroud for protection during transit and for short-term protection if stored outside. For longer-term protection, the pallets should be stored under a secure waterproof covering. Boards should be stacked no more than two pallets high for safety. The use of a pallet fork is recommended where a crane is required to lift pallets to roof level.

Adequate temporary protection must be provided above the installed boards where there are unloading or access points, temporary walkways, stockpiles of roofing materials, waste skips, or any other activity that might cause damage to the insulation.

## ROCKWOOL Rock Roller Trolley

To facilitate fast and easy movement of HARDROCK® Multi-Fix (DD) roofing boards from the loading area to the point of installation on the roof deck, ROCKWOOL has developed a purpose-built trolley called a Rock Roller.

Each one comes complete with full operating instructions, which should be followed by the roofing contractor.



# Design Considerations

## Flat Roof Design

The roof construction and design should comply with BS 6229 (Code of Practice for Flat Roofs with Continuous Supported Coverings).

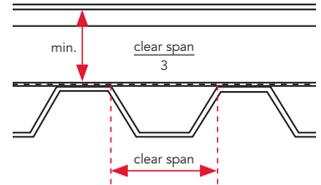
## Profiled Metal Decks

### Crown and Trough Position

HARDROCK® Multi-Fix (DD) roofing boards must be laid with the long edge at right angles to the profiles of the metal deck. Butt joints should occur at the mid-crown position, except where cantilevering is applicable.

### Free Spanning Capability

For free spanning, the minimum board thickness is equal to the maximum trough width divided by three. The maximum trough width suitable for free spanning HARDROCK® Multi-Fix (DD) is 300mm. Where installed trough widths exceed the maximum spanning capability of the board, provision must be made to provide full support for the insulation.



### Cantilevering

Boards of 60mm or greater thickness may cantilever over a trough. In addition, for cantilevering the minimum board thickness is equal to the maximum trough width divided by two.



### Walkways and Access Areas

It is an industry recommendation that a supporting layer be placed on the roof both during installation and upon completion in designated walkways or in areas of high foot traffic. Advice should be sought from the membrane manufacturer about available options.

### Additional Roof Loads: Plant and Machinery

Wherever possible, any roof-mounted plant, such as air handling or refrigeration units, should be positioned on independent upstands bearing directly onto the substrate. Where this is not possible, and the equipment is to be placed directly onto the finished roof, further protection may be required to spread the load on the Multi-Fix roofing boards. In such cases advice should be sought from the ROCKWOOL technical solutions team and the membrane manufacturer.

### Preparation Work for Refurbishment Works

Check that the existing roof finish is sound and watertight. Check that the type and condition of the surface is suitable for bonding or mechanical fixing of HARDROCK® Multi-Fix (DD) roofing boards. If the roof is not sound and watertight or does not have a suitable surface, remove all previously applied finishes and if necessary, insulation layers. It is recommended that the specifier/contractor checks the existing levels to ensure that the falls are sufficient.

# Standards and Approvals

## European Union of Agreement (UEAtc)

HARDROCK® Multi-Fix (DD) roofing boards have been assessed by the British Board of Agreement to UEAtc technical guidelines MOAT No 50: 1992 'Thermal insulation systems intended for supporting waterproof coverings on flat and sloping roofs'.

HARDROCK® Multi-Fix (DD) boards have been tested for the effects of mechanical stress, and have achieved Classification C 'Roof accessible to pedestrian traffic and may be used where frequent maintenance of equipment is envisaged'.

## Health and Safety

In accordance with REACH health and environment regulations, there are no hazardous classifications associated with ROCKWOOL mineral wool in respect to physical, health and environmental considerations.

## Environment

Made from a renewable and plentiful naturally occurring 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 zone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL stone wool insulation 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.

Our products contain 25-50% recycled content depending on definition.



## More Information

For further details on ROCKWOOL HARDROCK® Multi-Fix (DD) roof solutions, visit our website at

**[www.rockwool.co.uk](http://www.rockwool.co.uk)**

or phone the ROCKWOOL Technical Solutions team:

**01656 868 490.**

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