

fatra

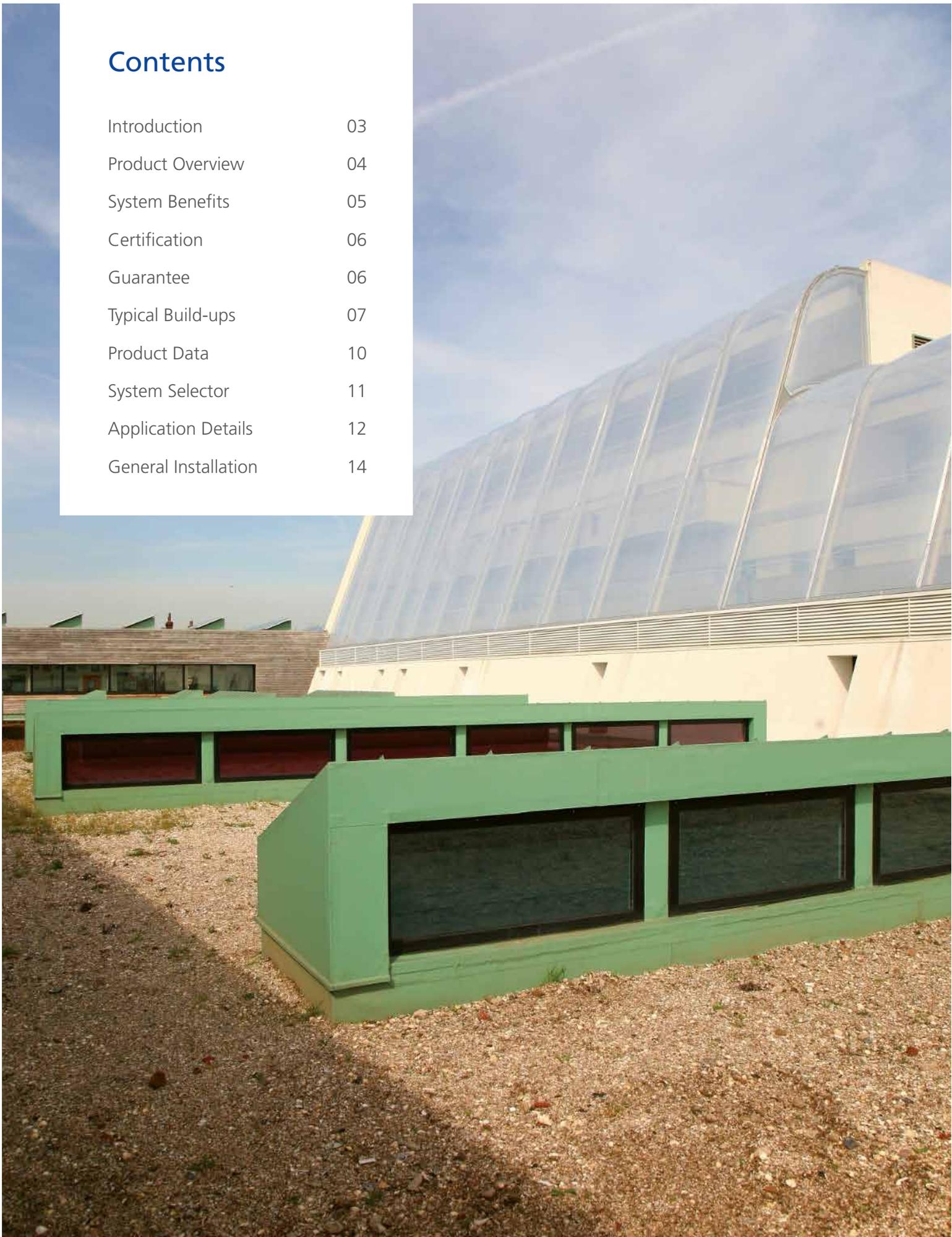


Environmental waterproofing solutions

Fatra FHM
Hot-applied Waterproofing Membrane System

Contents

Introduction	03
Product Overview	04
System Benefits	05
Certification	06
Guarantee	06
Typical Build-ups	07
Product Data	10
System Selector	11
Application Details	12
General Installation	14



Introduction

Products

Fatra UK Ltd provide a broad range of roof waterproofing solutions for new build and refurbishment projects to suit the specific design requirements of our clients.

This manual is intended to provide technical information on the following products from our range of hot-applied membranes:

- **FHM 901** Bitumen Primer
- **FHM 902** Hot-applied Liquid Waterproofing Membrane
- **FHM 903** Reinforcement Fabric
- **FHM 904** Sand-faced SBS Bitumen Cap Sheet (For Inverted Roofs)
- **FHM 905** Mineral-faced SBS Bitumen Cap Sheet (For Exposed Surfaces)
- **FHM 906** Anti-root SBS Bitumen Cap Sheet (For Green Roofs)
- **FHM 907** Bitumen detailing strip (150mm wide)
- **FHM 908** Bitumen detailing strip (500mm wide)

Applications

Fatra's hot-applied waterproofing membrane system is suitable for inverted roof applications on new build and refurbishment projects, podium decks, terraces and balconies and vehicle access areas such as car parks.

Licensed Contractors

Fatra UK Ltd products are only installed by a network of licensed roofing contractors. The licensed roofing contractors have undergone rigorous training on the application of our products and receive continued support and inspection by our Field Services Technicians to ensure the highest of standards are maintained.

Main Contractors

Fatra UK Ltd provide support to main contractors' pre-construction teams in providing value engineered solutions and budget costs along with design solutions to their design teams. Our Field Service Technicians provide training and support, including tool box talks on the applications of our products to package managers along with assistance in Quality Test & Inspection plans.

Architects & Designers

Fatra UK Ltd provide technical advice and support to Architects and Designers on the application of our products including project specific AutoCAD drawings, NBS specifications, thermal calculations, windload fixing calculations, condensation risk calculations and rainwater outlet calculations. All technical assistance and advice provided is covered by our £5m PI insurance.

Building Surveyors

Fatra provide advice and support on refurbishment projects by providing solutions to existing roofs that have either failed or have come to the end of their serviceable life.

Product Overview

Fatra's hot-applied waterproofing membrane system (FHM) is a single component, hot applied membrane that cures to form a strong, flexible, fully adhered monolithic waterproofing and roofing membrane. The system has been developed for use in inverted, green and podium deck roofing systems.



Whilst serving as an exceptionally resilient waterproofing barrier, it also contains a special blend of renewable content, comprised of 26% recycled material and can contribute towards BREEAM credits in new build construction.

The double-layer, reinforced FHM system adheres tenaciously to virtually any structural surface, vertical or horizontal. In the event of physical damage water will not migrate beneath the membrane due to its continuous bond to the substrate. FHM allows for applications on a wide variety of substrate conditions and enhances crack bridging capability.

FHM can be applied in low ambient temperatures. Its immediate curing time allows the project to progress in a timely fashion.

FHM will conform to surface irregularities and fill minor deck flaws making it ideal for rough, uneven surfaces often associated with refurbishment applications. The self-healing characteristics of FHM provides a watertight membrane, even after minor construction punctures.

When used in an inverted roofing application, the FHM membrane has a longer life performance than conventional roofing applications because it is protected from thermocycling and mechanical damage. FHM is a single-component material that does not require the addition of a catalyst or the curing steps typical of cold liquid-applied systems.

The system can be installed in temperatures as low as -25°C , creating a greater window of productivity during installation. The membrane is impervious to snow, frost and rain immediately after the waterproofing is applied.

FHM is the perfect waterproofing for all of the following applications:

- Roof Decks in an Inverted Roof Membrane Assembly
- Split Slab Construction for Podium Decks
- Roof Terraces and Planters
- Walkway Links
- Green Roof / Rooftop Planting Systems

System Benefits

Speed of Installation

FHM is a seamless system and therefore can be applied to upstands and perimeter details first, allowing follow on trades such as render, glazing or cladding to commence whilst the main area is either being worked on or used as a storage area. This provides great advantages to the construction build programme and negates the need for expensive temporary protection to the main roof covering.

Lifetime Performance

FHM is a hot melt rubberised bitumen membrane that will provide a durable roof waterproofing system for the design life of the roof. This provides a lifetime performance without the need for future replacement.

Exceptionally Resilient Waterproofing Barrier

Applied to the substrate as a hot liquid, the FHM contains a reinforcement layer that provides an absolute seal. Due to its seamless monolithic characteristics, the FHM provides a 100% water barrier, preventing water from tracking below it.

British Board of Agrément Approved

FHM has undergone independent assessment by the BBA. For further information refer to Agrément Certificate **20/5781**.

Zero Falls

FHM is suitable for use on both flat roofs and zero-pitched roofs.



Certification

Fatra's hot-applied waterproofing membrane is the result of extensive research and development. When installed in accordance with Fatra UK Ltd specification and project specific details by a Fatra UK Ltd accredited installer, the FHM system, when fully protected and subject to normal service conditions, will provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof in which it is incorporated.

FHM has been tested in accordance with the following:

- British Board of Agrement (**Certificate 20/5781**)
- Classified by Underwriters Laboratories Inc. As to External Fire Exposure Only 5M85
- Canadian Specification CGSB-37.50-M89
- UL 790 Class A*
- Miami-Dade Certification

**UL 790 Class A roof coverings are effective against severe fire test exposures. Under such exposures, roof coverings of this class afford a high degree of fire protection to the roof deck, do not slip from position, and are not expected to produce flying brands.*

The membranes, when used in protected or inverted roof specifications including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can be considered to be unrestricted under the national Building Regulations.

Guarantee

Fatra FHM is supplied and installed through a network of trained, qualified and competent roofing contractors. During the installation process Fatra Field Services Technicians will carry out routine inspections to ensure that the materials are being installed in accordance with the Fatra recommendations, project specific details and in accordance with the specification.

Upon completion of the work Fatra Field Service Technician will carry out a final inspection of the works and issue the Fatra guarantee.

*"When fully protected and subject to normal service conditions, the Fatra Hot Melt System will provide an effective barrier to the transmission of moisture for the design life of the roof in which it is incorporated."**

Fatra Hot Melt System is provided with a range of guarantees and can be extended to cover materials and workmanship as well as an Insurance Backed Guarantee. Please contact us for further information.

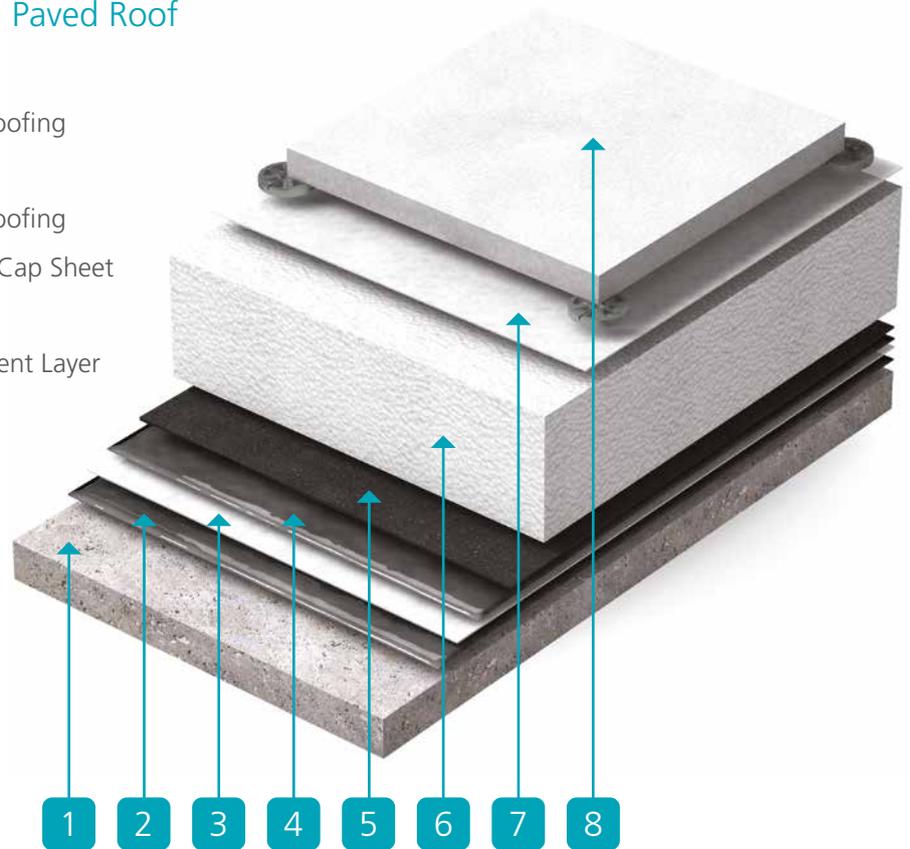


**Extract from Agreement Certificate 20/5781*

Typical Build-up

Inverted Roof Application, Paved Roof

1. Concrete substrate
2. FHM 902 Hot-applied Waterproofing
3. FHM 903 Reinforcement Fabric
4. FHM 902 Hot-applied Waterproofing
5. FHM 904 Sand-faced Bitumen Cap Sheet
6. EPS / XPS Insulation
7. FHM 911 Rainwater Management Layer
8. Paving Slabs



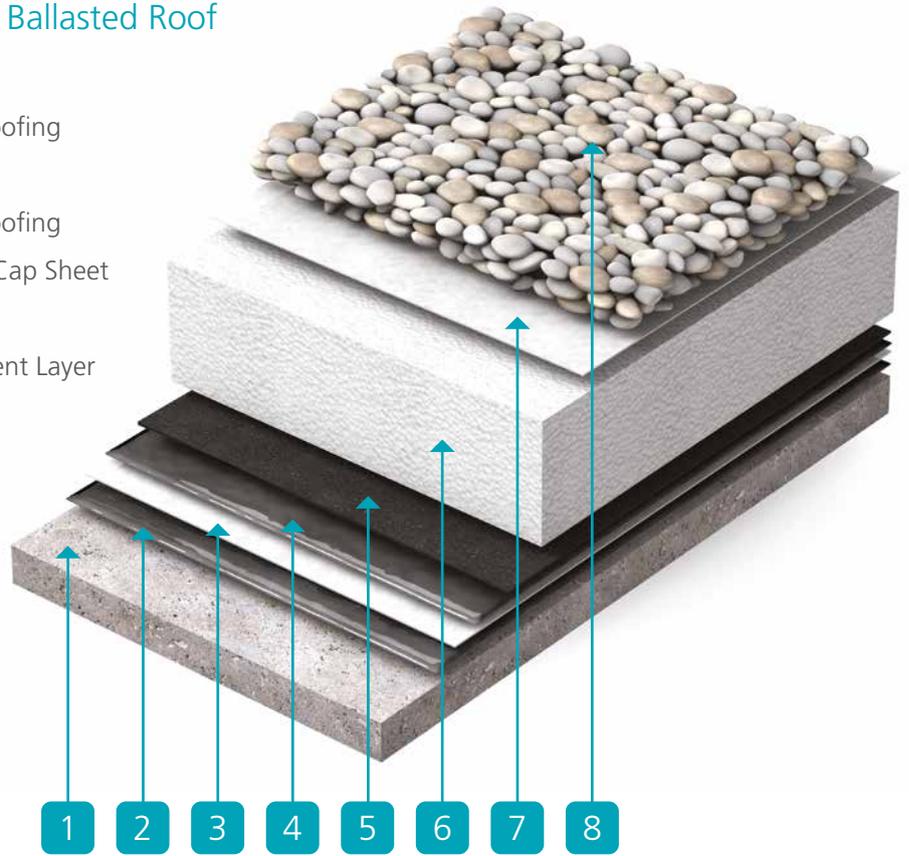
Please refer to 'General installation guide' on Page 14 for further details



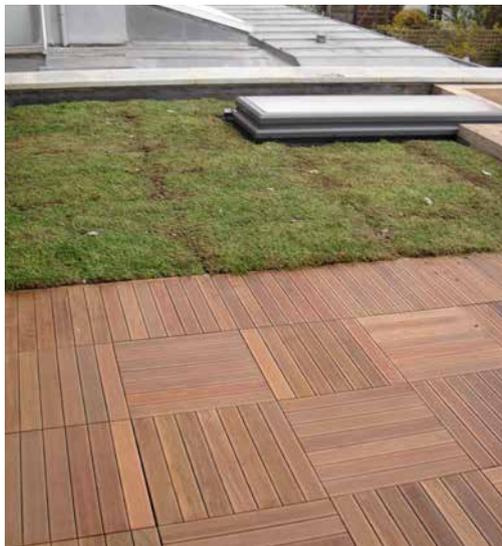
Typical Build-up

Inverted Roof Application, Ballasted Roof

1. Concrete substrate
2. FHM 902 Hot-applied Waterproofing
3. FHM 903 Reinforcement Fabric
4. FHM 902 Hot-applied Waterproofing
5. FHM 904 Sand-faced Bitumen Cap Sheet
6. EPS / XPS Insulation
7. FHM 911 Rainwater Management Layer
8. Ballast



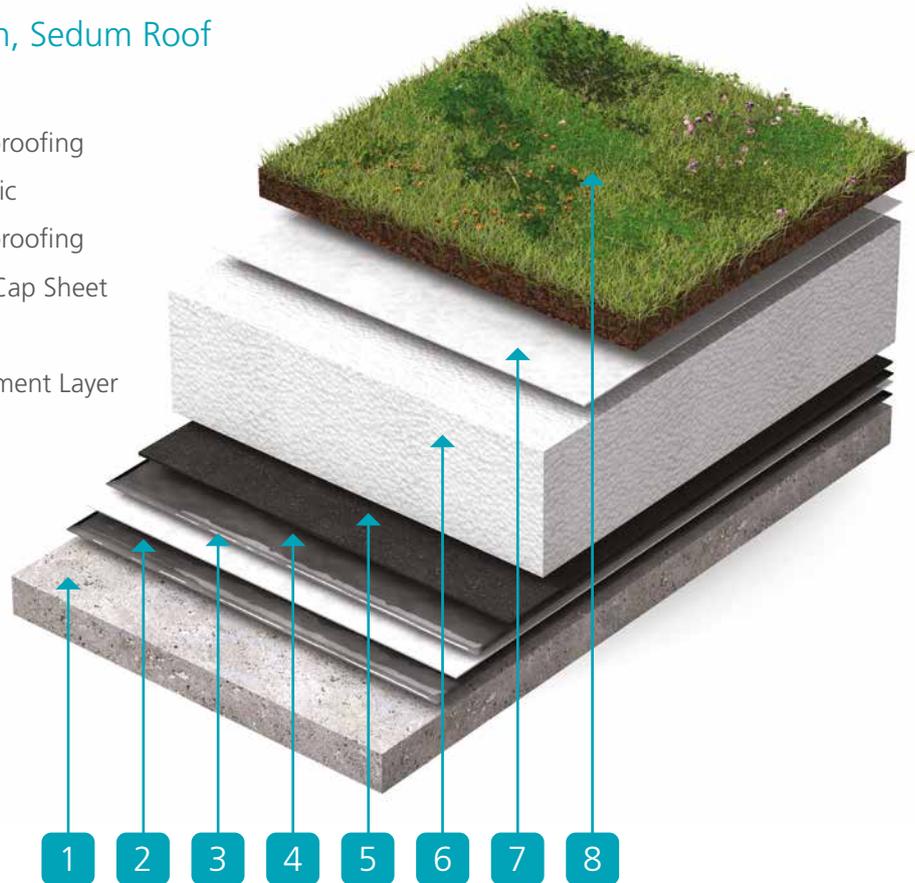
Please refer to 'General installation guide' on Page 14 for further details



Typical Build-up

Inverted Roof Application, Sedum Roof

1. Concrete substrate
2. FHM 902 Hot-applied Waterproofing
3. FHM 903 Reinforcement Fabric
4. FHM 902 Hot-applied Waterproofing
5. FHM 906 Anti-root Bitumen Cap Sheet
6. EPS / XPS Insulation
7. FHM 911 Rainwater Management Layer
8. Sedum Roof Build up



Please refer to 'General installation guide' on Page 14 for further details



Product Data

The following tables give a general guide to the approximate coverage rates, thicknesses and roll sizes of the individual components used within the Fatra UK Ltd FHM Hot-applied Waterproofing Membrane System.

For further information please refer to the specific product data sheets and material safety data sheets available on request.

Product	Characteristic	Description	Application Method	Size	Thickness / Weight
Surface Conditioner					
FHM 901	Bitumen based	Bitumen primer	Roller applied	25 litre	6m ² to 8m ² / litre
Membrane					
FHM 902	Hot melt rubberised bitumen	Hot-applied liquid membrane	Hot-applied @ 160 to 180°C	12kg blocks	7.2 kg/m ² @ 6.0mm thick 1.67m ² coverage per block
Reinforcement					
FHM 903	Spun bonded polyester	Reinforcement fabric	Laid into first coat of FHM 902	1m x 200m	55g/m ² (11kg)
FHM 907	Bitumen	Reinforcement for details	Laid into first coat of FHM 902	150mm x 20m	
FHM 908	Bitumen	Reinforcement for details	Laid into first coat of FHM 902	500mm x 20m	
Protection Sheets					
FHM 904	Sanded surface	Sand-faced SBS bitumen cap sheet	Laid into second coat of FHM 902	1m x 20m	1.5mm thick 1.95kg/m ²
FHM 905	Mineral surface	Mineral-faced SBS bitumen cap sheet	Laid into second coat of FHM 902	1m x 8m	4.0mm thick 5.0kg/m ²
FHM 906	Sanded surface	Anti-root SBS bitumen cap sheet	Laid into second coat of FHM 902	1m x 10m	4.0mm thick 5.0kg/m ²

System Selector

	Inverted Roof	Green Roof	Podium
Surface treatment	Paviours on Fatra FF864 or FF865 support feet and / or washed and rounded ballast	Intensive or extensive growing substrate and vegetation / bio diverse	Hard landscaping as specified
Drainage Layer	n/a	Fatra Technodren drainage layer	
Water management layer	FHM 911 Rainwater management layer	FHM 911 Rainwater management layer	FHM 911 Rainwater management layer
Thermal Insulation (To field area)	Extruded or expanded polystyrene board suitable for inverted roof application	Extruded or expanded polystyrene board suitable for inverted roof application	Extruded or expanded polystyrene board suitable for inverted roof application
Protection Layer (To exposed, uninsulated upstands)	FHM 905	FHM 906	FHM 904
Protection Layer (To field area and insulated, inverted upstands)	FHM 904	FHM 906	FHM 904
Membrane: Second coat	FHM 902 (3.0mm thick)	FHM 902 (3.0mm thick)	FHM 902 (3.0mm thick)
Reinforcement	FHM 903	FHM 903	FHM 903
Membrane: First coat	FHM 902 (3.0mm thick)	FHM 902 (3.0mm thick)	FHM 902 (3.0mm thick)
Surface Conditioner	FHM 901 Primer	FHM 901 Primer	FHM 901 Primer
Structural Deck	Concrete or plywood deck to zero falls	Concrete or plywood deck to zero falls	Concrete or plywood deck to zero falls

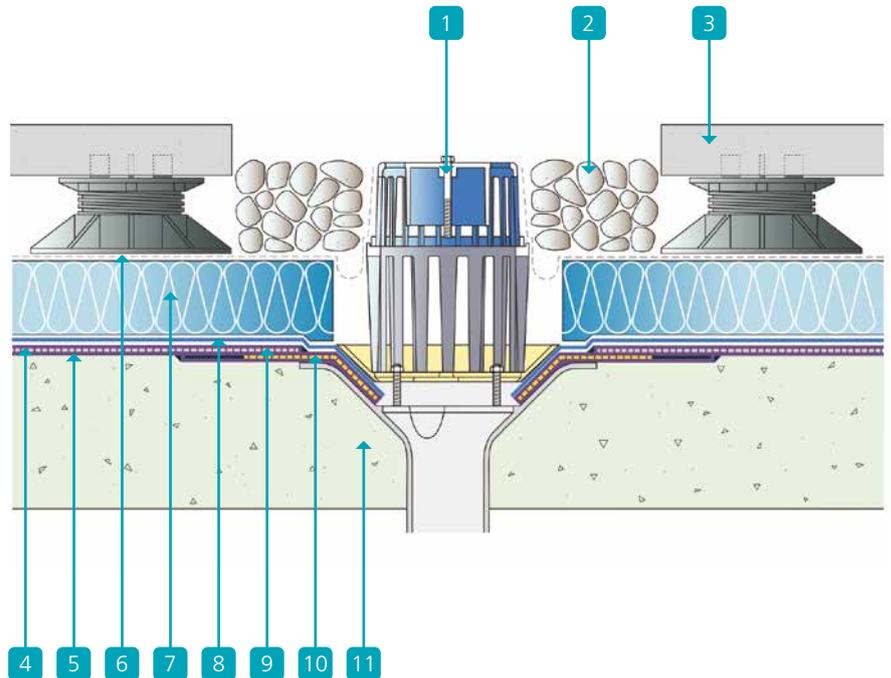
Upstand Treatment

	Protection Sheet / Insulation
Uninsulated Upstand	FHM 905 only
Insulated Inverted Upstand	FHM 904 and self-faced EPS or XPS (FHM 906 for green roofs)
Warm Roof Style Upstand	FHM 904 and cement faced insulation

Application details

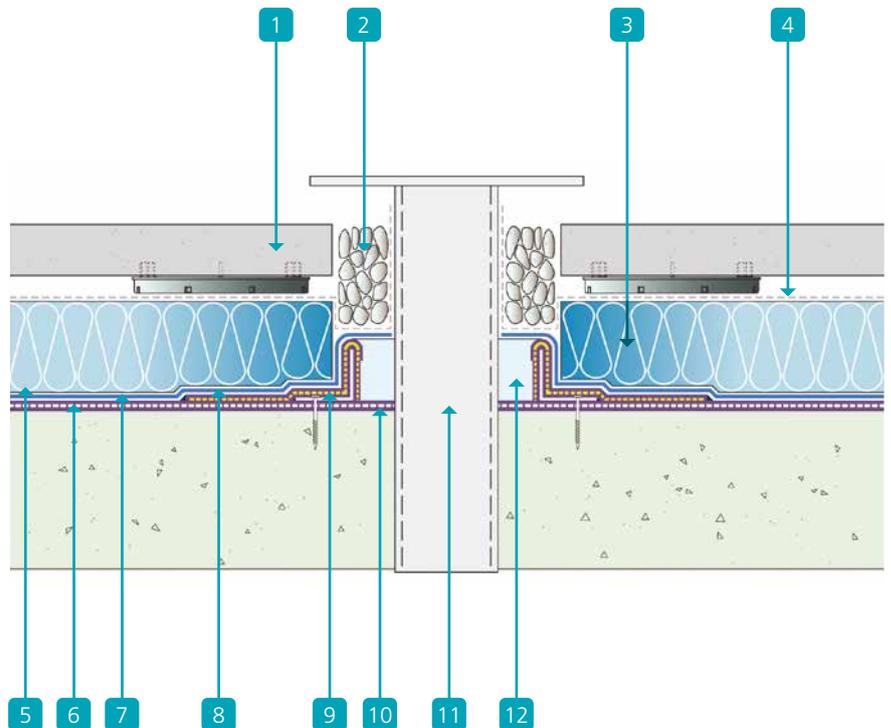
Fatra Rainwater outlet detail

1. Fatraflow Outlet
2. Rounded Pebble Ballast
3. Concrete Paving Slabs on Support Pedestals
4. Fatra FHM 902 Hot-applied Liquid Membrane
5. Fatra FHM 901 Bitumen Primer
6. Fatra FHM 911 Rainwater Management Layer
7. Expanded Polystyrene Insulation
8. Fatra FHM Cap Sheet
9. Fatra FHM 903 Reinforcement Fabric
10. FHM 908 Bitumen Detailing Strip
11. Concrete Slab



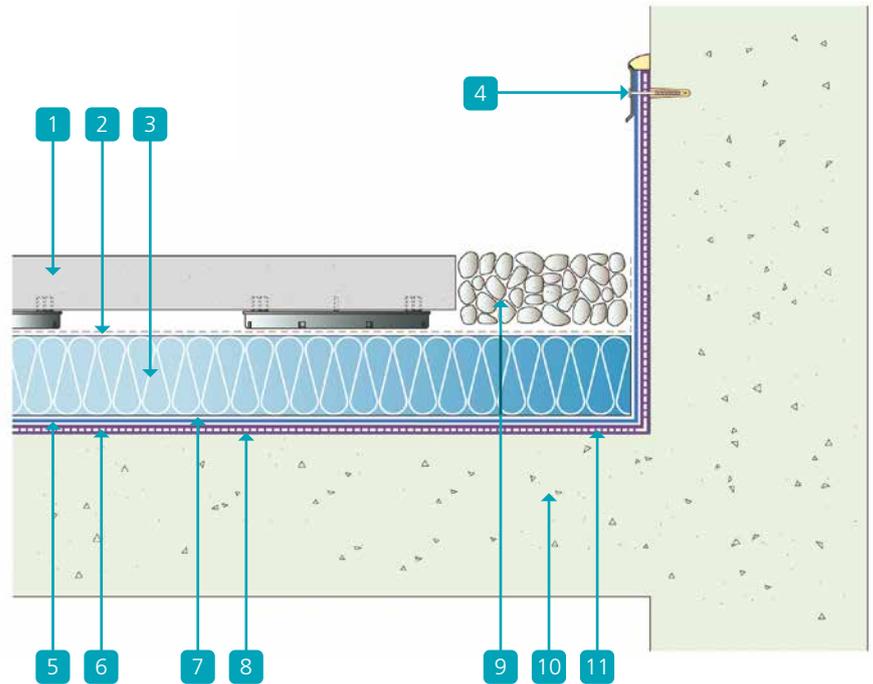
Typical Pitch Pocket Detail

1. Concrete Paving Slabs on Support Pedestals
2. Rounded Pebble Ballast
3. Expanded Polystyrene Insulation
4. Fatra FHM 911 Rainwater Management Layer
5. Fatra FHM Cap Sheet
6. Fatra FHM 902 Hot-applied Liquid Membrane
7. Fatra FHM 903 Reinforcement Fabric
8. FHM 908 Bitumen Detailing Strip
9. Galvanised Steel Pitch Pocket Former
10. Fatra FHM 901 Bitumen Primer
11. Concrete Slab
12. Fatra FHM 902 Hot-applied Liquid Membrane to Infill Pitch Pocket



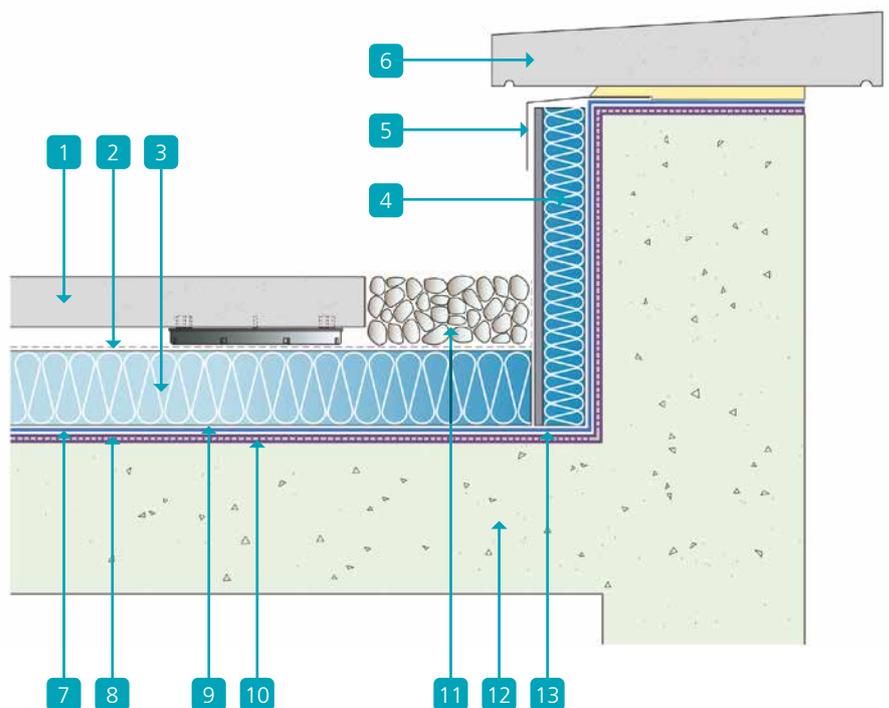
Fatra Uninsulated Parapet Upstand Detail

1. Concrete Paving Slabs on Support Pedestals
2. Geotextile Filter Membrane
3. Expanded Polystyrene Insulation
4. Fatra Termination Bar
5. Fatra FHM 902 Hot-applied Liquid Membrane
6. Fatra FHM 903 Reinforcement Fabric
7. Fatra FHM Cap Sheet
8. Fatra FHM 901 Bitumen Primer
9. Rounded Pebble Ballast
10. Concrete Slab
11. FHM 907 Bitumen Detailing Strip



Fatra Parapet Upstand Detail with coping

1. Concrete Paving Slabs on Support Pedestals
2. Geotextile Filter Membrane
3. Expanded Polystyrene Insulation, thickness to meet current 'U' Values
4. Cementitious Topped Extruded Polystyrene Insulation
5. Preformed Metal Flashing
6. Coping Stone
7. Fatra FHM 902 Hot-applied Liquid Membrane
8. Fatra FHM 903 Reinforcement Fabric
9. Fatra FHM Cap Sheet
10. Fatra FHM 901 Bitumen Primer
11. Rounded Pebble Ballast
12. Concrete Slab
13. FHM 907 Bitumen Detailing Strips



General Installation

The following provides an overview of the installation procedure on a concrete substrate.

Fatra's hot-applied waterproofing membrane system is a single component, solvent free rubberised bitumen compound supplied in 12kg blocks. The blocks must be heated in a twin wall oil or heat jacketed melter capable of providing continuous agitation. The membrane is then applied in a continuous operation by squeegee to create a seamless and continuous waterproofing layer. The membrane is applied in two layers with a recommended combined thickness of 6.0mm at a rate of 7.2kg/m², or 1.67m² per 12kg block.

In-situ Structural Concrete

Cast in-situ structural concrete deck complying with the requirements of BS 8110 is the most common substrate to which Fatra FHM is applied. The concrete should be easy float finished and all other finishes should be avoided.

Pre-cast Concrete

Pre-cast concrete slabs are suitable for the application of Fatra UK Ltd FHM as long as they provide a smooth and level surface. Joints between the pre-cast slabs should be fully grouted with a strip of FHM 907 bonded centrally over all joints. The strip should be bonded with FHM 902 Hot-applied liquid membrane prior to the installation of the full FHM system

Pre-start Preparation

1. Before any waterproofing work commences it is important that test patches be carried out across the substrate area to confirm the suitability of the deck and to ensure that the Fatra UK Ltd FHM will satisfactorily adhere to the substrate. A peel test is carried out by pouring a layer of FHM 902 (approx. 300mm x 300mm) to a previously primed section of the concrete deck to a thickness of 3mm. Cover with a section of FHM 904 protection sheet leaving at least one side overhanging the FHM 902. Allow the FHM 902 to completely cool and then pull the overhanging section of FHM 904 towards you. If it is not possible to remove the FHM 902 without distorting it then the substrate is suitable and works can continue.
2. Do not apply FHM to damp, frosty or contaminated surfaces.
3. Ensure all adjoining surfaces not to be waterproofed are appropriately protected.
4. Refer to material safety data sheets and COSHH assessments for correct personal protection equipment and all other hazard identifications.

Installation Procedure

1. The surface is primed using FHM 901 Primer applied with a brush or roller at a rate of 6m² to 8m² per litre and allowed to dry. Typical curing time is 4 hours, depending on ambient temperatures. Allow the primer to cure naturally: do not use gas torches to cure the primer. Once cured, the normal use of a gas torch to dry moisture from the surface is acceptable. Apply FHM 901 Primer to all surfaces to receive FHM 902 waterproofing membrane, including all vertical upstands, columns and all penetrations through the deck. Minimum recommended upstand height is 150mm above the finished roof surface.
2. Heat FHM 902 blocks in an agitated melter, which must be fitted with a thermostat to regulate the compound temperature, at a temperature between 160°C and 180°C (do not exceed maximum safe working temperature of 190°C). Apply FHM 902 to the primed area and any pre-installed flashings to obtain a thickness of 3mm.

3. The molten membrane is discharged from the melter into a suitable container and applied to the surfaces using a long-handled squeegee for horizontal surfaces and suitable spreader for vertical surfaces.
4. At structural movement joints between 12mm and 50mm (maximum 50% total movement), a proprietary joint system must be installed. Fatra should be consulted for suitable products.
5. At non-monolithic changes in substrate materials, at structural / shrinkage cracks between 3mm and 6mm wide, at structural joints between 6mm and 12mm wide and where minor movement may occur, a reinforcement layer of FHM 907 bitumen detailing strip should be applied by embedding the FHM 907 detailing strip into a layer of FHM 902 prior to applying the Fatra Hot-applied Waterproofing Membrane System.
6. At all board joints in plywood, calcium silicate board and composite metal decks, a reinforcement layer of FHM 907 bitumen detailing strip should be applied, embedding the FHM 907 detailing strip into a layer of FHM 902 prior to applying the Fatra Hot-applied Waterproofing Membrane System.
7. Work consistently in one direction in strips approximately 1m wide. Pour the hot liquid in a line along the top / bottom edge of the strip. Applying little downward pressure and using a rubber edged, long handle squeegee, pull approximately two thirds of the liquid towards you. Continue the process along the strip. Returning to the beginning, push the remaining liquid working in one direction. Finally, return to the beginning for a third pass and pull all remaining liquid across the surface. Check the depth using a thickness gauge. Repeat for additional passes if required.
8. Apply FHM 903 Reinforcement Fabric and any required flashings while the membrane is still warm and tacky. Cut and trim off any wrinkles. Brush the fabric into the FHM 902 Hot-applied liquid membrane as it is rolled out. Overlap the reinforcing fabric onto the adjoining layer by a minimum of 75mm.
9. Apply a second coat of FHM 902 Hot-applied liquid membrane using the same procedure as described in section 7, or as required to achieve a thickness of 3mm. The total thickness of the Fatra Hot-applied Waterproofing Membrane System shall be 6mm.
10. Apply the appropriate protection layer into the last course of FHM 902 and splice the end and side laps together with FHM 902 Hot-applied liquid membrane. The choice of protection layer will depend on the intended use of the roof. (Refer to the System Selector table on page 11).
11. Upon completion of the Fatra Hot-applied Waterproofing Membrane System, the membrane must be electronically tested to ensure that the system is free from punctures or penetrations that may affect its watertight integrity.

To find out more about Fatra products

Call us on **029 2048 7954** Email sales@fatra.co.uk or visit fatra.co.uk





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fatra

Unit 12, The Timber Yard, East Moors Road, Ocean Park, Cardiff CF24 5EE
tel: 029 2048 7954 fax: 029 2048 9226 email: sales@fatra.co.uk
www.fatra.co.uk

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