PermaRock High Rise Mineral Fibre External Wall Insulation Systems (HR)

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Detailed description

Non-combustible (fire-safe), high-performance mineral fibre external wall insulation (EWI) system for high rise buildings. Euroclass A2-s1,d0 (EN 13501-1: 2007+A1: 2009), compliant with BR135 (tested to BS 8414) and suitable for buildings with a storey height above 18 m. Suitable for use above damp-proof course (DPC) level on buildings.

PermaRock Mineral Fibre external wall insulation (EWI) systems are fire-safe, high performance thermal insulation systems that are versatile and suited for application to the walls and soffits of all building types including residential buildings, hospitals, hotels, schools, and public buildings where the highest levels of fire resistance and non-combustibility are required.

Systems have been tested to BS 8414 and meet the requirements of BR 135 - ‘Fire performance of external thermal insulation for walls of multi-storey buildings’. The systems also achieve a 'Class O' classification under the Building Regulations Part B for fire-spread across the surface.

Features and benefits:

- Excellent fire performance: Non-combustible (Class A1) mineral (stone) fibre insulation - Fire breaks not required.
- A2-s1,d0 reaction to fire classification (EN 13501-1: 2007+A1: 2009).
- Fire tested in accordance with BS 8414 - compliant with BR 135; can be used on buildings over 18 m.
- Adhesively bonded and mechanically fixed insulation which is resistant to wind loads.
- Mechanically anchored reinforcement layer: Provides enhanced resistance to wind loading and additional structural stability in fire.
- Low embodied energy.
- Thermal conductivity: 0.036–0.039 W/m·K (depending on insulation specified).
- BRE Global Certification 158/12.
- Ecopoints score of 0.10 (m²) - 'Excellent' rating.
- For specific use in high rise and multi-storey buildings.
- Acoustic benefit over other insulant types.
- Has a working design life of 30 years.

Design considerations:

- Thermal calculations can be carried out for each project to help to determine the thickness of insulation required to achieve U-value requirements.
- For high rise buildings, wind load assessment should be made of the elevations and the wind load resistance requirements should be provided to the manufacturer to enable an optimised fixing

arrangement to be provided.

- Consult the manufacturer should the proposed design incorporate any unique design elements, architectural features or curved elevations.

Product guidance - As Standard

Options

Preparation:

Consult manufacturer for details of preparation to suit project substrates. Use PermaRock Fungicidal Wash to treat walls affected by algae, mould etc.

Movement joints:

Live construction movement joints should be brought through the system. Refer to manufacturer's standard details.

Insulation:

- Mineral fibre (stone wool).
- Standard dimensions: 1200 x 600 mm.

- Type:

- PermaRock Mineral Fibre Insulation DD (Dual Density):

- Class A1 (BS EN 13501-1: 2007 + A1: 2009) non-combustible thermal insulation boards. Manufactured to EN 13162 and Chlorofluorocarbon (CFC)/ hydrochlorofluorocarbon (HCFC) free.
- Declared thermal conductivity (λ90/90) Lambda: 0.036 W/m·K.
- Zero Ozone Depletion Potential (zODP) with a Global Warming Potential (GWP) of zero.

- PermaRock Mineral Fibre Insulation HD:

- Class A1 (BS EN 13501-1) non-combustible insulation. Manufactured to EN 13162 and CFC/ HCFC free. Lambda (30 mm, 40 mm): 0.038 W/m·K; Lambda (>40 mm): 0.039 W/m·K.

- Thickness:

If required thickness is unknown, consult manufacturer for U-value calculations.

- PermaRock Mineral Fibre DD (Dual Density): 50–250 mm in 10 mm increments.
- PermaRock Mineral Fibre HD: 30 or 40 mm, for reveals etc.

- Adhesive:

- PermaRock Adhesive is a polymer-modified cement-based compound for bonding thermal insulation boards to concrete and masonry substrates as part of PermaRock External Wall Insulation

(EWI) systems.

- PermaRock Lamella Adhesive is a polymer-modified cement-based compound for bonding thermal insulation boards to suitable mineral sheathing boards, as part of PermaRock External Wall Insulation (EWI) systems.

- Mechanical fixings:

- The type, length and number of mechanical fixings (per board or per m²) required is dependent on the exposure (wind load) conditions. In-situ pull-out tests are carried out to determine the pull-out resistance of fixings on a project-by-project basis. Fixings should be used in combination with adhesive bonding of the insulation boards. Consult manufacturer for recommendations.

Reinforcement layer:

- Basecoat:

- PermaRock Bedding Mortar - is a high-performance, polymer-modified, cement-based reinforcement layer render supplied as a mineral dry powder pre-mix, requiring only the addition of water and mixing on site. Used in combination with PermaRock Reinforcing Mesh and/or PermaRock Armoured Mesh to create reinforcement layers over PermaRock Mineral Fibre Insulation.

- Mesh reinforcement:

- PermaRock Armoured Mesh: Heavy-duty alkali-resistant coated, multi-strand glass fibre reinforcing mesh for incorporation into a PermaRock basecoat (PermaRock Bedding Mortar) render to create a higher strength reinforced basecoat layer which confers a higher level of mechanical resistance to the system. Typically used in areas where a higher level of resistance to impact is desirable (e.g. cycle stores, bin stores, walls adjacent to public access areas, entranceways, etc.).
- PermaRock Reinforcing Mesh: Alkali-resistant coated, multi-strand glass fibre reinforcing mesh for incorporation into a PermaRock basecoat render (PermaRock Bedding Mortar) to create a reinforced basecoat layer which confers mechanical resistance and dimensional stability to the system.

- Secondary (system) fixings:

- PermaRock Reinforcement Layer Fixings (stainless steel): Provide additional structural stability against wind suction and in the event of a fire. The type, length and number of mechanical fixings required are dependent on the exposure (wind load) conditions. In-situ pull-out tests are carried out to determine the pull-out resistance of fixings on a project-by-project basis. Pull-through resistance is determined via laboratory testing.

Render/ Finish:

- Top (finish) coat:

Type:

PermaRock Acrylic K-Finish stippled render/ R-Finish corrugated render:

High performance, ready-to-use, through-colour, synthetic resin textured renders reinforced with siloxane to impart improved water repellence. Flexible, weather resistant, water repellent and water vapour permeable.

- Texture: Type ‘K’: Stippled; Type ‘R’: Corrugated.
- Resistance to soiling: Good.
- Colour fastness: Good; colour shade dependent.
- Colour range: Over 1250 standard colours (PermaRock Colour Chart; RAL, NCS, BS 4800, etc.). Colour matching available.

PermaRock Brick-effect Render (BER) Face Layer:

Pre-batched, two-coat/ two-layer, self-coloured polymer-modified, cement-based render designed to simulate the appearance of brickwork. Can also be used to create features such as soldier or sailor courses, brick quoins, arch keystones, springers, etc. and used in combination with other PermaRock decorative finishes.

Incorporates a silicone water repellent, offering good water resistance which helps maintain a cleaner surface for longer. The render can be applied to achieve metric or imperial brick sizes, any bond pattern and also to create non-standard patterns and effects.

- Thickness: Brick-effect Render Base Coat: Approximately 6 mm; Brick-effect Render Top Coat: Approximately 3 mm.
- Textures: Various, depending on finishing tools and techniques employed (e.g. brushed, rollered, scratched).
- Resistance to soiling: Very good.
- Colour fastness: Very good.
- Colour range: Nine standard colours. Non-standard colours to special order (minimum order quantities may apply).
- Colour options: Special pigment powders can also be incorporated into the surface to vary the colour effect.

PermaRock Brick Slips:

Lightweight, flexible and breathable, synthetic resin brick tiles used to create a brickwork effect.

Facing brick slips and corner (pistol) brick slips provide a traditional or contemporary brick appearance to wall surfaces. Manufactured from high quality raw materials using modern machinery and the skills of experienced craftsmen, these simulated bricks offer a multitude of outstanding product characteristics.

The brick slips offer flexible application and design features, and are durable, robust, impact resistant and easy to clean. The brick slips are bonded to the primed reinforcement layer using a ready-mixed dispersion adhesive. Joints are subsequently pointed with a coloured, semi-dry synthetic pointing mortar.

- Size: Flat facing bricks: 215 x 65 x 4–6 mm-thick; Corner-facing bricks: 215 x 102 x 65 x 4-6 mm thick. Other sizes available, subject

to minimum order quantities.

- Coverage: Flat facing bricks: Approximately 58 per m²; Corner (pistol) bricks: Approximately 13 per metre.
- Resistance to soiling: Very good.
- Colour fastness: Excellent.
- Colour range: 12 standard colours. Colour matching available, subject to minimum order quantities.
- Textures: Flat, textured or sand particle.

PermaRock Dry Dash (Dashing Aggregate):

Also known as dashing stones or pebble dashing. Traditional decorative rendering technique that provides a tough, durable, long lasting, cost-effective and almost maintenance-free finish to exterior wall surfaces.

Based on Dashing Mortar (DM), a specially formulated, self-coloured, polymer enriched mineral-cement offering enhanced performance over traditional sand/ cement renders into which pre-washed and screened Dashing Aggregates/ Stones are cast during the application process.

- Weathering resistance: Excellent.
- Durability: Excellent.
- Colour fastness: Excellent.

Colour:

- PermaRock Dashing Mortar: Available in grey, white, yellow, cream, red and pink as standard. Other shades can be made to special order and subject to minimum order quantities.
- PermaRock Dashing Stones: 32 standard blends of natural aggregate stones, specially selected and blended for dry dashing, are available for use in combination with PermaRock Dashing Mortars. Other colour combination can be manufactured, subject to minimum order quantity, or can be blended on site by the installer.

PermaRock Mineral K-Finish/ R-Finish Through-colour Textured Renders:

Lime-cement-based, non-combustible, lightweight, ecologically-compatible and cost effective renders providing an economical alternative to synthetic through-colour textured renders (due to low consumption rates and ease of application).

Hydraulically curing materials are based on a white cement and lime binder system with lightweight additives, minimal organic content, and additives to induce water repellency.

- Texture: Type ‘K’: Stippled; Type ‘R’: Corrugated.
- Resistance to soiling: Good.
- Colour fastness: Very good.
- Colour range: Over 900 standard colour shades (lightness factor (LF) ≥30); consult manufacturer's literature for details. For colours with LF 20–30, over-painting with a PermaRock equalising paint is advisable.

PermaRock Silicone ULTRA K-Finish/ R-Finish Through-colour Textured Renders:

Based on a hybrid binder system of organically crosslinked nano-quartz particles and silicone emulsion, offering a self-cleaning effect with enhanced resistance to dirt pick-up and mould/ algae growth, which provides cleaner surfaces for longer than conventional silicone, acrylic or mineral renders.

Lightweight, water repellent, excellent water vapour permeability and can resist aggressive air pollutants. Low environmental impact renders also contain a preservative against coating deterioration due to algae and fungus.

- Texture: Type ‘K’: Stippled; Type ‘R’: Corrugated.
- Resistance to soiling: Excellent.
- Colour range: Over 1000 options, including over 500 ‘A1’ colour shades: PermaRock Colour Chart, RAL (non-A1 shades) and BS 4800 (non-A1 shades). Colour matching service available.
- Colour fastness: ‘A1’ colours provide excellent resistance to colour fade and chalking. Colour fastness of non-A1 colours is dependent on the colour shade selected.

PermaRock Stone Chip Render:

Ready-mixed, acrylate-based exposed aggregate finish with colour coordinated natural stone granules. Tough, durable exterior finish, particularly suited for application around entrance ways, plinths, etc.

Environmentally friendly solvent-free, water-based formulation. Achieves a silk-matt, scrub resistant, cleanable, tough and hard wearing decorative finish that is resistant to aggressive air pollutants, moss, algae and fungal growths.

- Resistance to soiling: Very good.
- Colour fastness: Excellent.
- Colour range: Nine standard colours; other colours available to special order and minimum order quantities.

Beads/ Trims/ Profiles:

Full system (EWI) and render-only beads, including verge trims, top trims, starter tracks, full system stop beads, render stop beads, window sealing strips (reveals beads), movement joint beads/ profiles for vertical and horizontal joints. Sealing tapes and expansion joint tapes. All as system manufacturer’s or architect’s details, to be supplied by PermaRock.

Additional requirements:

- Specify movement joint trims, etc. or refer to detail drawings.
- Specify areas for additional reinforcement mesh e.g. at locations prone to greater risk or intensity of impact, etc.
- Provide details of brick coursing, bond and features to quoins, door/ window heads and raised feature bands or margins around doors/ windows etc., or refer to drawings.
- Provide details of colour changes, panelization/ faux joints, etc., or

refer to detail drawings.

Product specification

Manufacturer

- Name: PermaRock Products Ltd
- Web: www.permarock.com
- Email: enquiries@permarock.com
- Tel: +44 (0)1509 262924
- Fax: +44 (0)1509 230063
- Address: Jubilee Drive,Loughborough,Leicestershire LE11 5TW

Product reference	PermaRock High Rise Mineral Fibre External Wall Insulation Systems (HR)
Building height	[_____]
Substrate	Existing brickwork/ blockwork/ concrete New brickwork/ blockwork/ concrete SFS (Steel frame with sheathing board) Structural insulated panels (SIPS) Timber frame with sheathing board
Preparation	Not required PermaRock Fungicidal Wash - Consult manufacturer for details.
Movement joints	Not required Required - Locate as per project drawings.
Fire breaks	Not required Required - Consult manufacturer and insert requirements.
Insulation	
- Type	PermaRock Mineral Fibre Insulation DD (Dual Density) PermaRock Mineral Fibre Insulation HD
- Thickness	[_____]

- Adhesive	PermaRock Adhesive - For adhesive bonding of insulation boards to new or existing concrete, brickwork or blockwork substrates. PermaRock Lamella Adhesive - For adhesive bonding of insulation boards to sheathing boards, CLT, or SIP substrates.
- Mechanical fixings	[_____]

Reinforcement layer (render carrier)

- Basecoat	PermaRock Bedding Mortar - For Silicone ULTRA K-Finish and R-Finish/ Acrylic K-Finish and R-Finish/ Mineral K-Finish and R-Finish/ stone chip render/ brick slips/ brick effect render/ dry dash. PermaRock Scratch Render Basecoat - For Scratch Render Finish/ Silicone Scratch Render FT.
Basecoat (sponge float finish)	Not required PermaRock Bedding Mortar - For Silicone ULTRA K-Finish and R-Finish/ Acrylic K-Finish and R-Finish/ Mineral K-Finish and R-Finish/ stone chip render/ brick slips.
- Mesh reinforcement	PermaRock Armoured Mesh - For areas requiring higher level of impact resistance. PermaRock Reinforcing Mesh
- Mesh (corner) patches	PermaRock Reinforcing Mesh - 500 x 250 mm patches incorporated into PermaRock Bedding Mortar at corners of all structural openings and level changes (steps).
- Corner reinforcement	PermaRock Corner Beads
- Secondary (system) fixings	[_____]

Render/ Finish

- Primer	Not applicable PermaRock K&R Primer - For Silicone ULTRA K-

Finish and R-Finish/ Acrylic K-Finish and R-Finish/ Stone chip render/ Brick slips.

- Intermediate coat

Not applicable

PermaRock Brick-effect Render Base Layer, colour - For PermaRock Brick-effect Render; insert colour requirement.

PermaRock Dashing Mortar, colour - For PermaRock Dry Dash Finish; insert colour requirement.

- Top (finish) coat

Type

PermaRock Acrylic K-Finish stippled render

PermaRock Acrylic R-Finish corrugated render

PermaRock Brick-effect Render (BER) Face Layer

PermaRock Brick Slip Adhesive/ Brick Slips/ Brick Slip Pointing Mortar

PermaRock Dry Dash Aggregate (Dashing Stones)

PermaRock Mineral K-Finish stippled render

PermaRock Mineral R-Finish corrugated render

PermaRock Silicone Scratch Render

PermaRock Silicone Scratch Render FT

PermaRock Silicone ULTRA K-Finish stippled render

PermaRock Silicone ULTRA R-Finish corrugated render

PermaRock Stone Chip Render