

Product Ref: (IG1-0216) Issue No: 04-0516

1. GENERAL WORKING CONDITIONS

The **Paratech Hot-Melt Roofing System** must be installed on a dry, frost free substrate, free of contamination. After rain or snow, the substrate must be allowed to dry out before installation can commence.

Blistering of the waterproofing membrane may occur if installed onto a damp surface. Care should be taken to ensure that any excessive residual moisture has been allowed to dry. At least 24 hours of dry conditions should be allowed to pass after any period of rainfall on the substrate.



2. SUBSTRATES

The following outlines the most common substrates suitable for application of the Paratech Hot-Melt Roofing System.

In-situ Concrete

Typical Density 2160 kg/m³ to 2500 kg/m³. This retains 3% to 5% moisture by volume when cured. Note: Concrete with high moisture content requires a minimum curing period of 28 days to ensure adequate drying.

Low Density Concrete (less than 1850 kg/m³)

There can be adhesion difficulties due to the friable / dusty nature of the surface.

Precast Concrete

Generally, an ideal substrate for the Paratech system. Joints should be taped using Adequerre taping strip.

Lightweight Structural Concrete

Density must be between 1400 kg/m³ and 1800 kg/m³, retaining 5% to 20% moisture when cured.

Lightweight Insulating Concrete

Not an acceptable substrate.

Upstands - Blockwork / Brickwork Joints must be flush pointed.

Plywood

Must be WBP exterior grade conforming to

3. PREPARATION OF SUBSTRATE

Concrete surfaces should be of sound structural grade, and have a wood float or fine broom finish, free of fins, ridges, voids or air pockets. A steel trowelled finish or power floated surface is not acceptable.

All knots, dust and loose concrete (laitance) must be removed. Surfaces must be entirely cleared of any contaminants prior to application. Voids, rock pockets and excessively rough surfaces must be repaired to an acceptable standard and to match the rest of the surface to provide an even and consistent substrate. Concrete should be cured for a minimum of 28 days.

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4. SYSTEM INSTALLATION

4.1. Bond Tests

Prior to application of the **Paratech Hot-Melt Roofing System**, bond tests must be undertaken. If necessary, they must be carried out in various locations to ascertain the condition of the substrate.

Apply a small amount of Langley Primer (HM) to the prepared area and allow to dry. Apply a small amount of the Paratech Hot-Melt Roofing System, and allow it to cool. Make a triangular incision in the middle of the patch. If the system can be peeled away from the deck, then the substrate is not (yet) suitable. If the system cannot be peeled back, the adhesion is considered satisfactory.

4.2. Priming

Langley Primer (HM)

To all areas receiving the **Paratech Hot-Melt Roofing System**, apply a thin coat (avoid pooling). Allow to thoroughly dry before over-coating. Langley Primer (HM) should be applied by a soft brush or roller. Approximate coverage rate 5m2/L (coverage rate will vary subject to substrate porosity). Drying time for the primed surface is likely to be 1 to 3 hours dependent on ambient conditions.



4.3. Paratech HM Blocks

Note: Care must be taken when handling molten materials.

Remove all external cardboard packaging from each block (prior to insertion into the hot melt boiler) and dispose of carefully.

Place the Paratech HM blocks into the thermostatically controlled, mechanically agitated, hot melt boiler.

Heat to a temperature of approximately 180 $^\circ\text{C}$ (avoid overheating; must not exceed 200 $^\circ\text{C}$).

Transfer the material into a metal bucket.

4.4. Paratech Detailing

Upstands / Angle Changes

Reinforcement Strips Install 200 mm strips (100 mm x 100 mm) of Paradiene 35 SR4 (HM) at base of upstand / angle. Either: Pre-coat substrate with hot Paratech HM compound and dress the strip into the compound, or: Fully bond by torching.

Dress the hot Paratech HM compound over the reinforcement strip and spread evenly using a metal float/trowel, until the compound does not easily flow down the detail.





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Protection Layer Membrane (as per the specification): Apply the pre-cut Protection Layer membrane into the Paratech HM coating.

Dress down onto the field area a minimum of 200mm. Ensure a full bond is achieved throughout the detail.

Where a mineral finish is required a layer of Parafor 30 GS can be installed, in addition to the Protection Layer Membrane. Fully bond by torch application, ensuring a 5mm bead of bitumen extrudes at the edges.

Dress down onto the field area membrane a minimum of 200mm. Ensure a full bond is achieved throughout.

Upstand Height: Must be a minimum of 150 mm above the finished roof level (in accordance with BS 6229:2003)

Mechanical Fixing. The leading edge must be fixed either by nailing at 50 mm c/c or screws and washers at maximum 200 mm c/c (dependent on substrate).

Upstand Protection: Top of skirting and fixings must be covered by either:

- Langley GRP Counter Flashing.
- Cover Flashing. Code 4 lead. To be dressed into a pre-cut chase, lead wedged and pointed with Langley Gap Seal Mastic. The Paratech system should finish flush with the bottom of the chase.

Rainwater Outlets: Dress the Paratech HM compound and protection sheet into the outlet. Outlets should have a minimum 75mm flange and be installed with the flange flush and level with the concrete surface to avoid forming a water check.

Expansion Joints / Change of Substrate

Apply bed of Paratech HM compound to each side of the joint and allow to cool. Torch apply Neodyl strip to each side of the expansion joint detail, allowing the centre of the strip to drape/turn into the expansion gap. Over-coat the bonded 'wings' of the Neodyl with fresh hot Paratech HM. Loose lay the Cordon Neodyl expansion cord into the joint gap and complete the detail by torching the protection sheet / detailing membrane across the joint, taking care not to directly torch the cord itself.

Pitch Pockets (for irregular shaped or awkward penetrations).

- Apply the Paratech system up to the detail. Form a box (pitch pocket) using sections of once bent galvanised steel angles. Must be at least 50mm higher than the top of any fixings within the pitch pocket. Horizontal legs to facing outwards.
- Prime the pocket and allow to dry. Slowly fill with hot Paratech HM compound until just below the top of the formers. Torch apply the protection sheet when complete.



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Paratech Field Area

To the primed substrate; lay loose the Paratech R reinforcement mesh, with minimum 75 mm side and end laps.

Position the specified protection sheet on top of the Paratech R, by rolling out to the required length and re-rolling back on itself in readiness for application.

Transfer the hot Paratech HM compound from the boiler to the roof using a bucket. Pour the Paratech HM compound over and through the Paratech R at a minimum rate of 3 kg/m^2 . Spread with a squeegee ensuring even coverage throughout.

Immediately unroll the previously positioned protection sheet into the Paratech HM compound, ensuring all areas are fully bonded and the reinforcement mesh is fully encapsulated. Excess material may extrude at the edges, which should be trowelled smooth. Side laps minimum 100 mm. End laps minimum 150 mm and staggered to avoid excessive build-up of membranes.

All areas should be completely sealed at the end of each working day.

Installation Checks

As works progress:

The depth of the Paratech system must be checked (and the results logged) at regular intervals across the area to ensure the minimum coverage rate is being achieved.

- 1. Minimum depth 3 5 mm for guarantee purposes.
- 2. Bond tests (as previously described) must be carried out every 100 m²
- 3. Visual inspections of the system must be undertaken and any identified defects immediately rectified.
- 4. Completed Areas. A full visual inspection must be undertaken prior to testing and inspection by a Langley Technical Manager.





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5. COMPLETION

Quality Assurance

In accordance with the installation checks noted above, quality assurance must be recorded with relevant documentation and the highest level of workmanship possible maintained at all times.

Integrity Testing

Once waterproofing is complete, and immediately prior to installation of insulation/ballast, the area must be electronically tested by a WITA approved contractor. Results must be made available to Langley on request. Should defects be identified, these must be rectified and re-tested immediately until a pass is achieved.

Interim / Final Inspections

A Langley Technical Manager will inspect the works at interim periods during the installation process and upon completion.

Once the works are completed, a request for final inspection should be made to Langley, at which time a Langley Technical Manager will arrange to undertake the inspection. Should defects be identified, these must be rectified and subsequently re-inspected by Langley.

Once the completed works have passed the final inspection the project will be signed off by Langley and the guarantee procedure instigated.

Insulation (Inverted)

Once an area has been waterproofed, tested and inspected, it is ready to be insulated. Prior to application of insulation boards, the roof must be cleared of any debris. Insulation (including upstands if required); to be installed in accordance with the manufacturers recommendations.

6. TOOLS & EQUIPMENT

The following comprises a list of typical tools and equipment required when installing the **Paratech Hot-Melt Roofing System**. Additional items, which are not listed, may also be required for some installations.

Personal Protective Equipment

As a minimum, the following items should be used at all times when working with or near the Paratech Hot-Melt Roofing System:

- Gloves
- Safety Goggles
- Hard Hat
- Steel Toe Capped Boots

High Visibility Vest Additional PPE, such as respiratory equipment or overalls, may be required dependent on specific site conditions prevailing at the time of installation.

Hot-Melt Boiler

A thermostatically controlled, mechanically agitated, bitumen boiler must be used to heat the Paratech HM compound in a safe and controlled manner. Temperature of the product must not exceed 200 °C.

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Buckets

A galvanised steel lipped bucket with handle should be used to transport and pour the Paratech HM compound from the boiler to the roof.

Squeegee

A squeegee should be used to spread the liquid Paratech HM compound to flat and consistent level while still hot.

Float / Trowel

A metal float / trowel can be used to spread the Paratech HM compound on areas of vertical detailing.

Cutting Tools

Cutting tools, such as scissors or fixed blade utility knives, are required to cut rolls and membranes to suit the dimensions of the roof / detailing.

This document is only a guide.

Langley Waterproofing Systems Ltd reserves the right to change the composition and fixing recommendations of products as a result of the evolution of knowledge and technology.

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