



HIGH PERFORMANCE ADHESIVES & SEALANTS

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Floor Tiling Recommendations For Undertile Heating On **Fastwarm®** Insulation Boards

Specification No.1 – Cement: Sand Screeds with Undertile Heating.

1. Preparation of the Base

Before starting work ensure that backgrounds/bases are:

- Sufficiently flat to permit the specified flatness of finished tiling.
- Suitable for tiling in the service conditions to which they will be exposed.
- Sufficiently strong and rigid to support the tile finish.

If any of the above requirements are not met, the Site Supervisor must be informed and corrective measures agreed.

NEW CEMENT: SAND SCREEDS: Before commencing tiling, screeds will have been allowed to dry out by exposure to air for at least 3 weeks.

EXISTING BACKGROUNDS/BASES GENERALLY:- Any efflorescence, laitance, dirt and other loose material will be removed by mechanical abrasion.

- Any deposits of oil, grease and other materials incompatible with the bedding will be removed by mechanical abrasion.
- The background/base will be allowed to dry before fixing tiles.

EXISTING CONCRETE/SCREED BASES:- All loose or hollow portions must be cut out and made good with a 1:3 cement: sand mortar applied over a slurry bonding coat comprising 2 parts ordinary Portland cement to one part DUNLOP UNIVERSAL BONDING AGENT. Alternatively use DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND over a slurry bonding coat of 2 parts DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND to 1 part DUNLOP UNIVERSAL BONDING AGENT will be used.

- Any soft or unsound adhesive residues must be removed without damaging the base. It will be ensured that any remaining adhesive residue is sound and firmly bonded to the base.

Floors that are not deemed to be sufficiently level to receive a tile finish may be levelled using DUNLOP UNIVERSAL FLOOR LEVELLER, which should be allowed to dry.

2. Fixing Insulation Board and Heating Cables.

The **Fastwarm®** insulation board may be fixed to the screed using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND.

Once the adhesive has dried, the Cablewarm™ underfloor heating should be fixed to the **Fastwarm®** insulation board as per the manufacturers recommendations.

The heating cables should be screeded over using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND to provide a level surface. The adhesive should be allowed to dry.

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3. Adhesive

New tiles may be fixed in a 3-25mm solid bed (i.e. ensuring no voids are left beneath the tiles) of DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND.

ADHESIVE BEDDING: THICK-BED/SOLID-BED (FLOORS):- Use a suitable Thick Bed Solid Bed Trowel.

- The adhesive will be applied to the dry base in areas up to 1m². For porous bases, a skim coat of adhesive will first be applied before combing the remaining adhesive while the skim coat is still wet.
- Any depressions (ribbed, keyed profiles, etc.) to the backs of tiles will be filled with adhesive.
- Tiles will be firmly pressed into position with a twisting/sliding action ensuring that as far as possible no voids are left beneath the tiles.

4. Grouting

Once the adhesive has set and dried, joints between the tiles may be filled with DUNLOP FLEXIBLE FLOOR AND WALL GROUT or DUNLOP FLOOR AND WALL GROUT incorporating DUNLOP FLEXIBLE ADDITIVE (Diluted 2 parts water : 1 part Admix by volume).

5. Movement Joints

Movement joints in the floor tiling should be incorporated as outlined in British Standard BS 5385: Part 3:1989: Clauses 19 and 23.6. Briefly, this document requires that joints be located

- a. Over existing and/or structural movement joints.
- b. Around the perimeter of the floor and where tiling abuts columns, curbs, steps and plant fixed to the base.
- c. In large floor areas tiles should be divided into bays at 8-10m intervals.

Movement joints will be required in this installation. These joints should be a minimum of 6mm in cross section. Perimeter movement joints may be filled with a suitable sealant.

On suspended floors the bay size should be reduced and additional joints provided over supporting walls or beams.

6. General

On completion of tiling ensure that 14 days elapse before the floor is brought slowly to its operating temperature ideally at a maximum rate of 5°C per day.

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Specification No.2– Existing Timber Floors with Undertile Heating.

1. Preparation of the Base

Before starting work ensure that backgrounds/bases are:

- Sufficiently flat to permit the specified flatness of finished tiling.
- Suitable for tiling in the service conditions to which they will be exposed.
- Sufficiently strong and rigid to support the tile finish.

If any of the above requirements are not met, the Site Supervisor must be informed and corrective measures agreed.

New timber bases should be designed not merely to carry the additional dead load but also to provide a stiff floor. Noggings should be fixed between joists. The limit of deflection permitted in BS5268 may be too great to avoid damage to a rigid finish and its bed. Existing timber bases should be carefully examined to ensure that they can carry the additional dead load without excessive deflection. Consideration should be given to removing existing boards and then stiffening the floor with noggings and proceeding as for new timber bases.

Alternatively, the required rigidity may be achieved by fixing exterior grade plywood over existing boards. It should also be established that ventilation is adequate and that effective damp-proof courses are correctly located.

Timber floors of faulty construction have often behaved unsatisfactorily for a period of years as a result of surface evaporation of moisture. If this is hindered by the laying of a nearly impervious covering the moisture content may rise to a dangerously high level, thus creating conditions favourable to fungal attack, e.g. dry rot.

The design should take into account the initial drying shrinkage of the timber and subsequent movements due to seasonal moisture changes in mind the type of heating.

New timber bases should have noggings between the joists at 300mm centres. The surface provided for tiling should ideally be exterior-grade plywood of a minimum thickness of 18mm screwed to both joists and noggings at intervals of a maximum of 300mm. The lower face and edges of plywood should be sealed with DUNLOP UNIVERSAL BONDING AGENT against the ingress of moisture before being screwed down. All junctions between boards should be supported by noggings or joists.

EXISTING BACKGROUNDS/BASES GENERALLY:- Any efflorescence, laitance, dirt and other loose material will be removed by mechanical abrasion.

- Any deposits of oil, grease and other materials incompatible with the bedding will be removed by mechanical abrasion.
- The background/base will be allowed to dry before fixing tiles.

Prior to applying the **Fastwarm®** insulation board, one proprietary system, designed for neutralising shear stresses that occur through movement of the timber substrate involves the use of Schlüter Ditra Matting polyethylene membrane with anchoring fleece laminated on the underside. Advice on the correct bonding method for this product to timber should be sought from the manufacturer (Tel: 01530 813 396).

Screed over the Ditra matting using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND to provide a level surface to receive the insulation board. Allow adhesive to dry.

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2. Fixing Insulation Board and Heating Cables.

The **Fastwarm®** insulation board may be fixed to the base using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND.

Once the adhesive has dried, the Cablewarm™ underfloor heating should be fixed to the **Fastwarm®** insulation board as per the manufacturers recommendations.

The heating cables should be screeded over using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND to provide a level surface. The adhesive should be allowed to dry.

3. Adhesive

New tiles may be fixed in a 3-25mm solid bed (i.e. ensuring no voids are left beneath the tiles) of DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND or a 3-6mm solid bed of DUNLOP SETFAST PLUS.

ADHESIVE BEDDING: THICK-BED/SOLID-BED (FLOORS):- Use a suitable Thick Bed Solid Bed Trowel.

- The adhesive will be applied to the dry base in areas up to 1m². For porous bases, a skim coat of adhesive will first be applied before combing the remaining adhesive while the skim coat is still wet.
- Any depressions (ribbed, keyed profiles, etc.) to the backs of tiles will be filled with adhesive.
- Tiles will be firmly pressed into position with a twisting/sliding action ensuring that as far as possible no voids are left beneath the tiles.

4. Grouting

Once the adhesive has set and dried, joints between the tiles may be filled with DUNLOP FLOOR AND WALL GROUT incorporating DUNLOP FLEXIBLE ADDITIVE (Diluted 1 part water: 1 part Admix by volume).

4 Movement Joints

Movement joints in the floor tiling should be incorporated as outlined in British Standard BS 5385: Part 3:1989: Clauses 19 and 23.6. Briefly, this document requires that joints be located

- a. Over existing and/or structural movement joints.
- b. Around the perimeter of the floor and where tiling abuts columns, curbs, steps and plant fixed to the base.
- c. In large floor areas tiles should be divided into bays at 8-10m intervals.

Movement joints will be required in this installation. These joints should be a minimum of 6mm in cross section. Perimeter movement joints may be filled with a suitable sealant.

On suspended floors the bay size should be reduced and additional joints provided over supporting walls or beams.

5 General

On completion of tiling ensure that 14 days elapse before the floor is brought slowly to its operating temperature ideally at a maximum rate of 5°C per day.

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Specification No. 3– Overlaid Plywood Floors with Undertile Heating.

1. Preparation of the Base

Before starting work ensure that backgrounds/bases are:

- Sufficiently flat to permit the specified flatness of finished tiling.
- Suitable for tiling in the service conditions to which they will be exposed.
- Sufficiently strong and rigid to support the tile finish.

If any of the above requirements are not met, the Site Supervisor must be informed and corrective measures agreed.

New timber bases should be designed not merely to carry the additional dead load but also to provide a stiff floor. Noggings should be fixed between joists. The limit of deflection permitted in BS5268 may be too great to avoid damage to a rigid finish and its bed. Existing timber bases should be carefully examined to ensure that they can carry the additional dead load without excessive deflection. Consideration should be given to removing existing boards and then stiffening the floor with noggings and proceeding as for new timber bases.

Alternatively, the required rigidity may be achieved by fixing exterior grade plywood over existing boards. It should also be established that ventilation is adequate and that effective damp-proof courses are correctly located.

Timber floors of faulty construction have often behaved unsatisfactorily for a period of years as a result of surface evaporation of moisture. If this is hindered by the laying of a nearly impervious covering the moisture content may rise to a dangerously high level, thus creating conditions favourable to fungal attack, e.g. dry rot.

The design should take into account the initial drying shrinkage of the timber and subsequent movements due to seasonal moisture changes in mind the type of heating.

Plywood overlay

PLYWOOD OVERLAY:- To BS 6566 or equivalent approved national standard.

Surface grade: II or BB.

Board type: WBP or Marine-grade.

Durability class: H, untreated.

Thickness: 15mm minimum.

- It will be ensured that existing floorboards are dry, securely fixed and acceptably level. Gross irregularities will be filled or removed and any protruding fastenings will be punched in.

- Prior to fixing, the underside and all edges of the plywood will be sealed with DUNLOP UNIVERSAL BONDING AGENT.

- Sheets will be laid with cross joints staggered and a 0.5 to 1mm gap between boards and fixed with countersunk screws at 300mm centres with screw heads set flush with the surface.

EXISTING BACKGROUNDS/BASES GENERALLY:- Any efflorescence, laitance, dirt and other loose material will be removed by mechanical abrasion.

- Any deposits of oil, grease and other materials incompatible with the bedding will be removed by mechanical abrasion.

- The background/base will be allowed to dry before fixing tiles.

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2. Primer

Prime surface of plywood with 2 coats of neat DUNLOP UNIVERSAL BONDING AGENT and allow to dry.

3. Fixing Insulation Board and Heating Cables.

The **Fastwarm®** insulation board may be fixed to the base using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND.

Once the adhesive has dried, the Cablewarm™ underfloor heating should be fixed to the **Fastwarm®** insulation board as per the manufacturers recommendations.

The heating cables should be screeded over using DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND to provide a level surface. The adhesive should be allowed to dry.

4. Adhesive

New tiles may be fixed in a solid bed (i.e. ensuring no voids are left beneath the tiles) of DUNLOP LARGE FORMAT AND NATURAL STONE ADHESIVE with PORCELBOND or a 3-6mm solid bed of DUNLOP SETFAST PLUS.

ADHESIVE BEDDING: THICK-BED/SOLID-BED (FLOORS):- Use a suitable Thick Bed Solid Bed Trowel.

- The adhesive will be applied to the dry base in areas up to 1m². For porous bases, a skim coat of adhesive will first be applied before combing the remaining adhesive while the skim coat is still wet.
- Any depressions (ribbed, keyed profiles, etc.) to the backs of tiles will be filled with adhesive.
- Tiles will be firmly pressed into position with a twisting/sliding action ensuring that as far as possible no voids are left beneath the tiles.

4. Grouting

Once the adhesive has set and dried, joints between the tiles may be filled with DUNLOP FLOOR AND WALL GROUT incorporating DUNLOP FLEXIBLE ADDITIVE (Diluted 1 part water: 1 part Admix by volume).

5. Movement Joints

Movement joints in the floor tiling should be incorporated as outlined in British Standard BS 5385: Part 3:1989: Clauses 19 and 23.6. Briefly, this document requires that joints be located

- a. Over existing and/or structural movement joints.
- b. Around the perimeter of the floor and where tiling abuts columns, curbs, steps and plant fixed to the base.
- c. In large floor areas tiles should be divided into bays at 8-10m intervals.

Movement joints will be required in this installation. These joints should be a minimum of 6mm in cross section. Perimeter movement joints may be filled with a suitable sealant.

On suspended floors the bay size should be reduced and additional joints provided over supporting walls or beams.

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6 General

On completion of tiling ensure that 14 days elapse before the floor is brought slowly to its operating temperature ideally at a maximum rate of 5°C per day.

Please note that any change of material, substrate or service conditions will alter this specification and further advice should be sought.

The contents of this specification are based upon the recommendations given in British Standard BS 5385, the Code of Practice for wall and floor tile fixing.

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