



LoPro™ Max

**quick start guide &
installation manual**



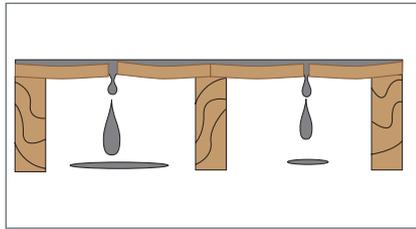
Quick Start Guide

Please also read full instructions that follow

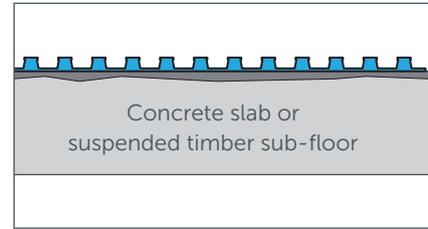
SEQUENCE FOR FITTING THE LOPRO™MAX



1 Where possible, fit insulation between joists on suspended timber **ground floors** from above or below.



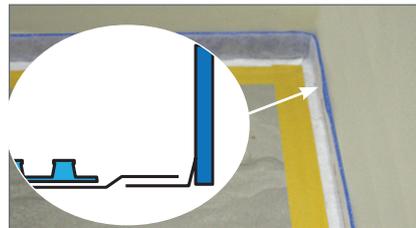
2 Repair, clear and vacuum the subfloor. Seal all gaps to prevent seepage of self-levelling compound and prime floor with EcoPrim T supplied.



3 Where out of +/- 2.5mm tolerance, decide on a method of levelling uneven floors using self-levelling compound either before or after laying castellated panel.



4 If skirting boards are removed repair the wall and fill any gaps between wall and floorboards with foam filler. Prime the floor with EcoPrim T supplied.



5 Fix perimeter expansion strip in place using the self-adhesive skirt plus a line of double-sided tape (supplied).



6 Where specified lay LoPro™ 5mm acoustic IsoRubber (optional). This must be glued down (adhesive available from Nu-Heat).



7 Lay LoPro™ castellated panels across entire floor in a brick-bond pattern.



8 Lay the Fastflo™ UFH pipe.



9 Connect each coil to UFH manifold in turn. When all are connected they can be pressure tested.



10 Fit the floor temperature sensor (supplied) to all zones. Mandatory for vinyl and engineered timber finishes.



11 Whilst pipe is under pressure, pour self-levelling compound over the castellated panel.

Note: The quantity of self-levelling compound supplied will be sufficient for a standard build up of 22mm (+/-2.5mm)

Floor components

Supplied by Nu-Heat



LoPro™ castellated panel

A plastic castellated panel that holds 10mm Fastflo™ floor heating pipe in place whilst the LoPro™QuickSet self-levelling compound is laid.



LoPro™QuickSet self-levelling compound

Covers the castellated panel to a standard depth of 22mm. Floors outside tolerances stated will require additional product to be purchased from Nu-Heat.



Perimeter expansion strip and double-sided tape

A self-adhesive foam that provides an expansion gap at the edges of the room and helps to prevent seepage of the liquid self-levelling compound.



EcoPrim T

Floor primer used to prepare the sub-floor for sticking down castellated panel. Additional product must be ordered if required as part of fitting the floor covering (e.g. tiles).



Temperature sensor

Sets the maximum temperature that the floor can reach. Nu-Heat recommends an air or floor sensor is fitted in all rooms, with all floor finishes. An air sensor is supplied for bathrooms, wetrooms and en-suites.



Pipe guide curves & nail clips

Used to ensure the pipe does not kink as it leaves the floor when connecting to the manifold. Nail clips are also supplied to secure pipe where needed.

OPTIONAL COMPONENTS SUPPLIED BY NU-HEAT



IsoRubber-UFH-NH

5mm acoustic IsoRubber for use where height build-up allows. Improves acoustic performance between floors.

Size: 1000mm x 10m x 5mm (10m²).



De-coupling membrane

For use with ceramic tiles and natural stone products. See also datasheet [LoPro™ De-coupling Membrane](#).



Latex floor leveller

Can be used to adjust the floor height from 1 to 10mm to mirror that of floor finishes in adjoining areas.

Size: Supplied in 25kg bags with separate 5kg container of liquid latex.



UltraBond Eco VS90

Adhesive used to secure IsoRubber. Size: Supplied in 5-litre tubs. To apply adhesive, use a 1.5mm V-notched trowel, commonly known as an A2 trowel.

Options are available online at: www.nu-heat.co.uk/loproextras or telephone 01404 549770

LoPro™ Max Installation Manual

Nu-Heat LoPro™ Max should be installed at 2nd-fix stage when all 1st-fix mechanical pipework, electrical cabling and plastering is completed.

Please also refer to the mechanical and electrical schematics and CAD layouts specific to your project that have been supplied by Nu-Heat.

GENERAL INSULATION RECOMMENDATIONS

Depending on the age of the property, there may be some insulation below the floor structure: between the joists of a suspended timber floor or below the existing concrete slab. Traditional floating floors will always incorporate an insulation layer below the T&G chipboard deck. Where insulation is already in-situ, LoPro™ Max can be laid directly on top of the existing floor.

SOLID GROUND FLOORS WITH NO INSULATION

Due to the thermal characteristics of a solid sub-floor downward heat loss is limited to between 6% and 10% of the total heat output, which represents a small percentage of the annual heating costs for the property. The energy-saving features of underfloor heating, which include being able to run the heating approximately 1 °C lower than with traditional radiators and low flow temperatures that mean condensing boilers operate more efficiently, help to cancel out this small amount of downward heat loss.

There is no economic justification for replacing an existing floor slab that is in good repair to add a layer of insulation. However, where practical and sufficient height build-up is available, a layer of insulation plus an 18mm T&G deck can be fitted over the slab and below the LoPro™ Max. Alternatively, tile backer board can be installed directly below the LoPro™ Max layer (see *LoPro™ Max Specification Guide* and *Tile Backer Board Information Sheet* for details)

SUSPENDED TIMBER GROUND FLOORS WITH NO INSULATION

The heat loss characteristics of a suspended timber ground floor are very different to those of a solid floor. The low ambient temperature in the void below the floor plus air movement/draughts caused by air bricks means that the suspended timber sub-floor construction provides little resistance to downward heat transfer and must be insulated to prevent excessive heat loss. This can be achieved quite easily and economically using one of the following methods.



Option 1

Space Blanket can be used to insulate between joists. Access to the void below the floor can usually be made between the floor joists, and the crawl space below can be used to fit the insulation to the underside of the floor.



Option 2

Where floor deck is being removed or replaced use Netlon and mineral wool to insulate between floor joists.



Option 3

Lay 80mm of rigid insulation over the existing floor deck with an 18mm structural T&G floor deck over before fitting the LoPro™ Max.

ADDITIONAL CONSIDERATIONS FOR RETRO-FITTING

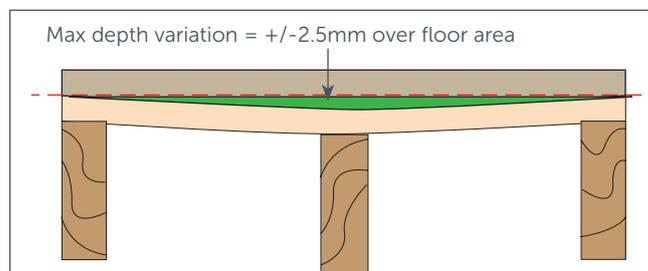
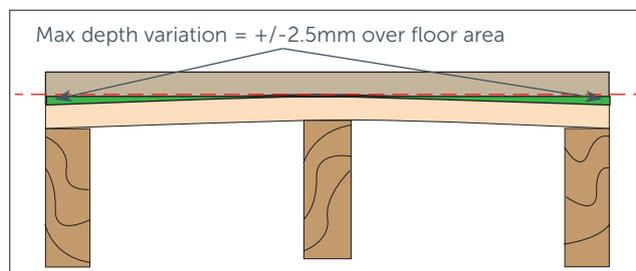
Whilst the height build-up is small, its impact must be properly considered:

- **Skirting:** For best results remove skirting before laying LoPro™ Max.
- **Doors:** At door thresholds, the panel is likely to impact on door clearance. Doors normally need to be removed and trimmed. If LoPro™ Max is not being fitted in an adjoining room then the height difference can normally be accommodated by the door threshold.
- **Stairs/steps:** On ground floors, some build up can normally be accommodated without affecting stairs, but where LoPro™ Max is fitted on upper floors it may be necessary to adjust the height of each tread to accommodate the change in levels at the top of the stairs.
- **Kitchen units:** For best results remove kitchen units before laying LoPro™ Max. Alternatively, LoPro™ Max can be laid only up to the kick boards of the units.

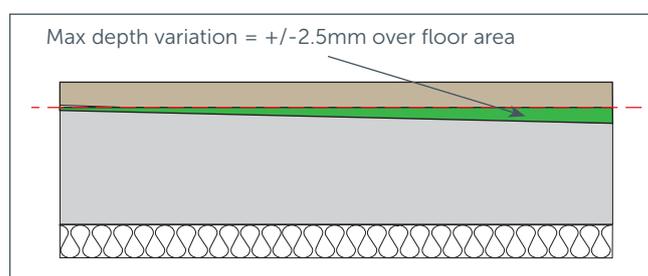
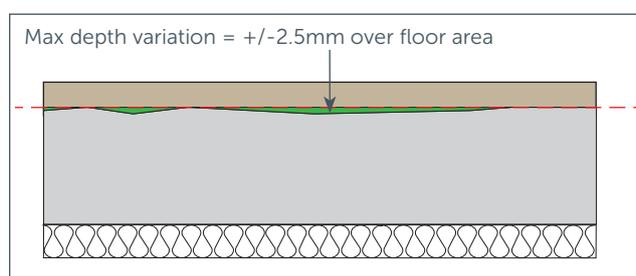
Floor preparation

CHECKING THE LEVEL OF THE FLOOR

Sufficient LoPro™QuickSet self levelling compound will always be supplied with the system to accommodate a floor height variation of +/-2.5mm, over part of the floor area. Floors outside of this tolerance can be levelled before fitting the LoPro™Max castellated panel. Additional QuickSet self-levelling compound can be ordered to cover any shortfall (see table below).



Areas shown in green denote additional requirement but are within the +/-2.5mm tolerance.



Floors that are outside the +/-2.5mm tolerance will either require levelling before the LoPro™Max is fitted or additional self-levelling compound will be required (this can be purchased from Nu-Heat).

ADDITIONAL LOPRO™QUICKSET SELF-LEVELLING COMPOUND

AREA	5m ²	10m ²	15m ²	20m ²	25m ²	30m ²	35m ²	40m ²
Variation	Out of level by more than +/-2.5mm over floor area Number of extra bags of LoPro™ QuickSet needed							
+/-2.5mm	0	0	0	0	0	0	0	0
+/-5mm	1	2	2	4	4	6	6	7
+/-7.5mm	2	3	5	7	9	11	12	14
+/-10mm	3	5	7	11	13	16	18	21
+/-12.5mm	4	7	10	14	17	21	23	28
+/-15mm	4	8	12	17	21	26	29	34
+/-17.5mm	5	10	15	21	26	32	35	41
+/-20mm	6	12	18	24	30	37	41	48

AREA	5m ²	10m ²	15m ²	20m ²	25m ²	30m ²	35m ²	40m ²
Build-up required	Build-up height over entire floor area Number of extra bags of LoPro™ QuickSet needed							
5mm	2	4	6	7	9	11	12	14
10mm	4	7	11	14	17	21	24	28
15mm	6	11	16	21	26	31	36	41
20mm	7	14	21	28	34	41	48	55
25mm	9	17	26	34	43	51	60	68
30mm	11	21	31	41	51	62	72	82
35mm	12	24	36	48	60	72	84	96
40mm	14	28	41	55	68	82	96	109

Your system is supplied with sufficient QuickSet self-levelling compound to cover a tolerance of no more than +/-2.5mm over the entire floor area. Where the existing floor is more uneven than this additional self-levelling compound will be required. Use the top table to calculate the number of extra bags to order.

Note: The quantity of self-levelling compound supplied will be sufficient for a standard build up of 22mm (+/-2.5mm). If the entire floor area needs to be built up use the bottom table to calculate the number of bags required.

Note: The maximum depth for each pour is 30mm. If a second layer of LoPro™ QuickSet is required, it is recommended to apply it as soon as the first layer is set to light foot traffic (approx. 3 hours at +23 °C, up to 8 hours in cooler conditions; a passage of air will assist drying times). If the first layer is completely dry, prime with *Eco Prim T* undiluted as per table on page 6.

PRIMER DILUTION GUIDANCE

Follow the table below to specify the optimal primer dilution for your application

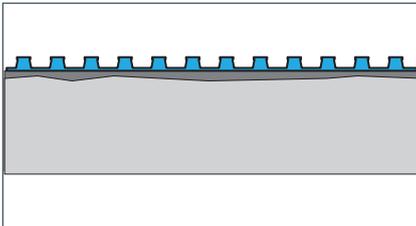
	Dilution	Leave to dry
Sub-floor priming for castellated panel	1:1 with water	Yes
Sub-floor preparation for levelling compound	1:1 with water	No
Sub-floor has been levelled with LC, prep for castellated panel	Undiluted	Yes
Applying second layer of SLC after 48 hours	Undiluted	No
Glued engineered wood (please check with adhesive manufacturers)	1:1 with water	Yes
Glued carpet (please check with adhesive manufacturers)	1:1 with water	Yes
Vinyl floor coverings (please check with adhesive manufacturers)	1:1 with water	Yes

SOLID CONCRETE OR SCREED SUB-FLOORS

Before installing the underfloor heating check the condition of the solid concrete or screed sub-floor. Any defects must be repaired and loose, dusty or friable material must be removed and the surface primed with EcoPrim T (supplied) to seal the floor prior to laying the castellated panel.

An uneven concrete sub-floor must be levelled before fitting castellated panel

The required flatness is a maximum of 5mm deviation over less than 50% of the floor area. SR2 = 5mm deviation over 3m.



Prime the floor, then use self-levelling compound to level the floor before installing the LoPro™ Max castellated panels (compound for preliminary levelling is not included in the material supplied by Nu-Heat*).

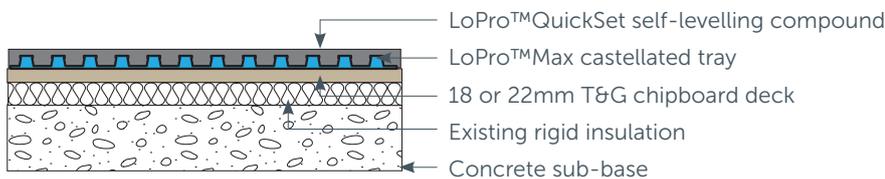
Note: The maximum depth for a single pour is 30mm.

See table on page 6 for optimal primer dilution.

***Additional LoPro™QuickSet can be purchased from Nu-Heat.**

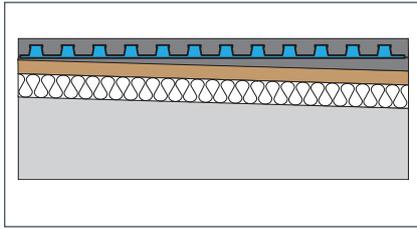
FLOOR PREPARATION

Existing floating floors



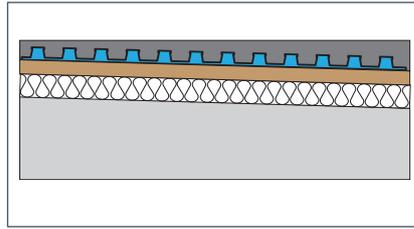
An existing floating floor usually consists of 18 or 22mm tongue-and-groove chipboard over the existing rigid insulation board. **Note:** The floor must be in good order. Depending on its condition it may need to be strengthened through doorways. Always prime the floor with the EcoPrim T supplied before laying castellated panel.

There are two options for levelling an existing floating sub-floor if it is outside the tolerance specified: (Max. 5mm over less than 50% of the floor area. Floating floors must only be fitted over an existing floor with flatness to SR2 = 5mm deviation over 3m, or be levelled first).



Either:

Prime the floor, then use self-levelling compound to level the floor before installing the LoPro™Max castellated panels (compound for preliminary levelling is not included in the material supplied by Nu-Heat*).



Or:

Lay the LoPro™Max castellated on the uneven floor and use additional LoPro™QuickSet self-levelling compound to level the floor*.

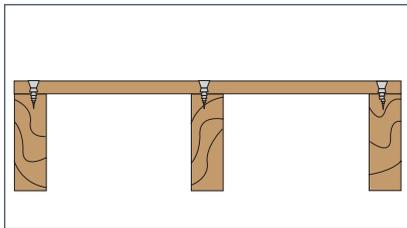
See table on page 6 for optimal primer dilution.

*Additional LoPro™QuickSet can be purchased from Nu-Heat.

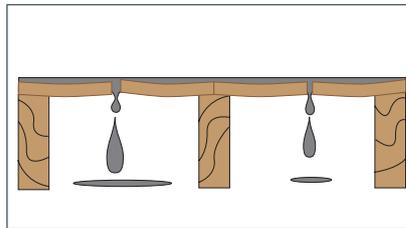
SUSPENDED TIMBER FLOORS

Before installing the underfloor heating it is crucial that the structural integrity of the existing floor is checked and any repairs made. This includes fixing down or replacing loose floorboards or chipboard decking and replacing areas of excessive movement in floating floors (e.g. through doorways). Loose, dusty or friable material must be removed and the surface primed with EcoPrim T (supplied) to seal the floor prior to laying the castellated panel.

Joists must be of a suitable load-bearing capacity; if in doubt always consult a structural engineer. At an average depth of 22mm, LoPro™Max uses 1.33 bags of LoPro™QuickSet self-levelling compound per square metre, which equates to an additional mass of 39.3 kg/m². See *LoPro™Max Floor Loading* datasheet.



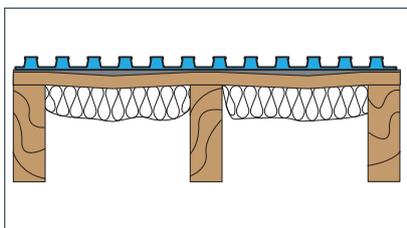
1 Loose floorboards/chipboard must be repaired and screwed down securely.



2 Large gaps between floorboards should be repaired, or filled with waterproof mastic, to avoid possible seepage of the self-levelling compound.

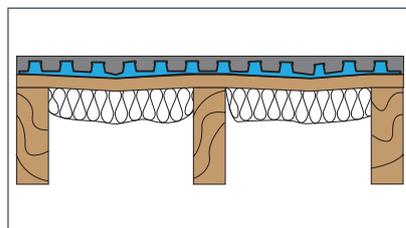
All floors must be clean and suitably flat and level before laying the self adhesive castellated panels. All floors should be sealed with the EcoPrim T supplied to provide a good bond between the floor and the panel.

There are two options for levelling the sub-floor if it is outside the tolerance specified: (Max. 5mm deviation over less than 50% of the floor area. SR2 = 5mm deviation over 3m).



EITHER:

Prime the floor, then use self-levelling compound to level it before installing the LoPro™Max castellated panel (compound for preliminary levelling is not included in the material supplied by Nu-Heat*).



OR:

Prime the floor, then lay the LoPro™Max castellated on the uneven surface and use additional LoPro™QuickSet self-levelling compound to level the floor*.

Note: The maximum depth for a single pour is 30mm.

See table on page 6 for optimal primer dilution.

*Additional LoPro™QuickSet can be purchased from Nu-Heat.

ADDING INSULATION TO FLOORS IF REQUIRED

Cement-faced tile backer board

This can be used as an alternative method of installing insulation. Boards should be fixed or glued to the sub-floor below the self-adhesive LoPro™Max castellated panel. Marmox, Wedi or equivalent can also be used in wetrooms. This does not require an additional structural deck. Always follow manufacturer's instructions when fitting.

Celotex or EPS

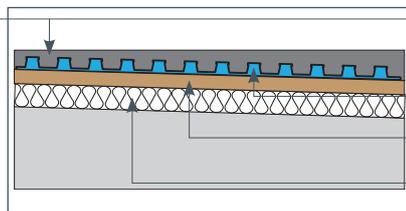
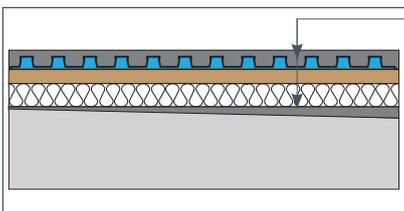
Where height allows and insulation with a depth of 10mm or greater is to be fitted on top of a concrete or suspended timber sub-floor, an additional 18mm T&G chipboard layer must be fitted on top of the insulation, below the LoPro™Max castellated panel to provide a load-bearing structural deck. The minimum compressive strength the insulation should be 140kPa.

The new deck should be sealed with EcoPrim T primer (supplied) before fitting the castellated panel.

Any major changes of level across the floor should be addressed before installation.

There are two options for levelling the sub-floor when outside the tolerance

specified: (Max. 5mm over less than 50% of the floor area. Floating floors must only be fitted over an existing floor with flatness to SR2 = 5mm deviation over 3m, or be levelled first).



LoPro™QuickSet
self-levelling compound

LoPro™Max castellated tray

18 or 22mm T&G structural deck

Additional insulation (over 10mm –
e.g. 20/30/40mm Celotex)

Either:

Prime the floor, then use self-levelling compound to level the floor before installing the additional insulation and structural deck (compound for preliminary levelling is not included in the material supplied by Nu-Heat*).

Or:

Lay the additional insulation, structural deck and LoPro™Max castellated panel on the uneven floor and use additional LoPro™QuickSet self-levelling compound to level the floor*.

See table on page 6 for optimal primer dilution.

*Additional LoPro™QuickSet can be purchased from Nu-Heat.

Note: The maximum depth for a single pour is 30mm.

PERIMETER TANKING

If skirting boards are removed the perimeter wall should be repaired and filled with an appropriate filler or expanding foam. All gaps must be filled to provide a flat surface for the perimeter expansion strip and prevent self-levelling compound from seeping out at the edges of the room.



STAIR DETAIL

When LoPro™Max is used on upper floors, special attention must be given to the area at the top of the stairs.



1 Fix a batten approx. 250mm back from the top of the stairs (the width of a tread).



2 When the LoPro™QuickSet has dried, remove the batten and fit a tread on top of the existing floor to bring the top of the stairs level with the new floor surface.

If necessary, fit an additional layer to the top of each existing tread to maintain a uniform riser height.

Installation of the LoPro™ Max floor elements

Before starting to lay the castellated panel the first-fix mechanical and electrical work should be completed.

- First-fix manifolds and supply pipework – see diagrams supplied
- Room thermostat and floor sensor cabling, wiring centres, etc. – see first-fix wiring diagrams supplied
- All general building work/plastering, etc.
- Thoroughly clean floor to remove debris – a heavy duty vacuum cleaner is ideal.

FITTING THE PERIMETER EXPANSION STRIP

The floor must be sound, clean and primed with the EcoPrim T supplied to seal the floor before fitting the perimeter expansion strip or optional 5mm IsoRubber.

Any gaps or tears must be sealed using flexible cartridge filler. Failure to provide a well-sealed perimeter between wall, floor and castellated panel could result in seepage of the self-levelling compound. Should this happen, the area can be filled retrospectively using LoPro™ QuickSet self-levelling compound, but careful preparation will avoid this.

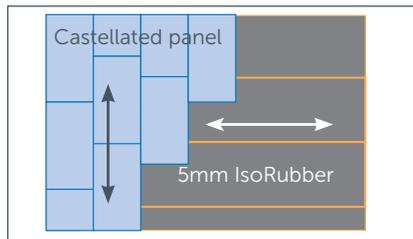
- 1 Prime the floor using Mapei EcoPrim T (supplied) using a roller or spray bottle. Whether concrete or timber, the primer should be diluted with water in a 1:1 ratio, as per table on page 6.
- 2 Fix the perimeter expansion strip in place using the self-adhesive skirt plus a line of double-sided tape (supplied).



a Seal gaps.

At this stage Nu-Heat's optional 5mm acoustic IsoRubber should be fitted (if specified).

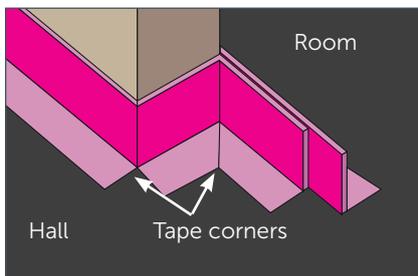
The optional acoustic IsoRubber is supplied in a standard roll size of



1000mm x 10m. Use the adhesive supplied to glue it down below castellated panel. The rubber can be easily cut using a stanley knife and should be laid in the opposite direction (at right angles) to the castellated panel. Seal all joints with tape.



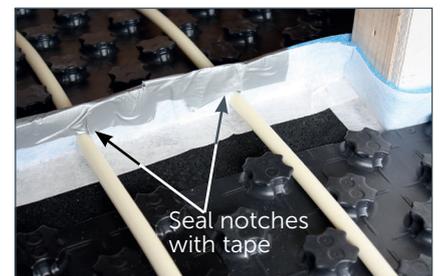
c Fit edge expansion strip.



d Take the edge expansion strip right across the doorway in rooms and into the door recess in halls to make a double-layer.



e Fit double-sided tape – do not remove top cover strip yet.



3 As pipe is installed through the doorway it is necessary to cut the expansion strip. Seal the cut around the pipe with tape to ensure self-levelling compound cannot run into the adjoining room/hallway.

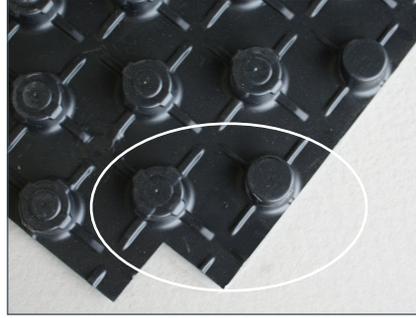
FITTING THE CASTELLATED PANEL

Care should be taken to avoid damaging the castellated panel during installation by wearing flat-soled shoes and keeping foot traffic to a minimum. Do not kneel directly on the panel – use a kneeling board. Other trades must be kept out off site until the castellated panel has been fitted and self-levelling compound has dried.

Note: Castellated panel should not be fitted in temperatures below 5°C.



- 1 The first row is joined together and then rolled up to be laid as one strip to aid alignment. With the backing left in place and starting in the farthest corner of the room, lay the



panel out and cut to fit as necessary. The panel moulding requires it to be laid with the edge pictured above facing towards the centre of the room.



- 2 Continue along one wall overlapping each panel by one castellation. Cut off any excess panel at the end of the run and use this at the start of the next run.



- 3 Remove the self adhesive backing on the outside edge of the first panel and stick that corner to the floor pressing down firmly.



- 4 Roll the rest of the panels back towards the corner. Slowly unroll the panel pulling off the self adhesive backing as you go.



- 5 Remove the cover strip on the double-sided tape at the edge of the room and secure the castellated panel firmly on top.

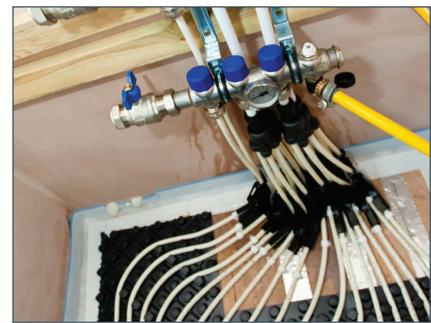


- 6 Use the castellated panel that was cut off to start the next row back at the top of the room. Repeat steps 3-4 overlapping the side of the panel with the first row to create a brick-bond pattern. After the first row, panels can either be joined before laying or laid individually.



- 7 Fill the entire room with castellated panel. Areas that are not securely stuck down can be stapled, this is especially important around the perimeter of the room.

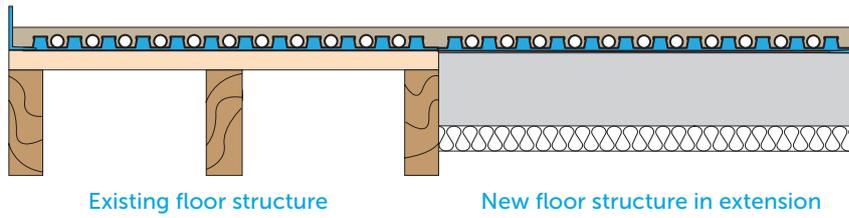
Note: Use offcuts of castellated panel in other rooms.



- 8 Leave a section approx. 400mm wide below the manifold clear to allow close spacing of pipes. The floor in this area should be sealed to prevent seepage of self-levelling compound.

Castellated panel in this area should be protected from damage by using a kneeling board until the LoPro™QuickSet self-levelling compound is laid.

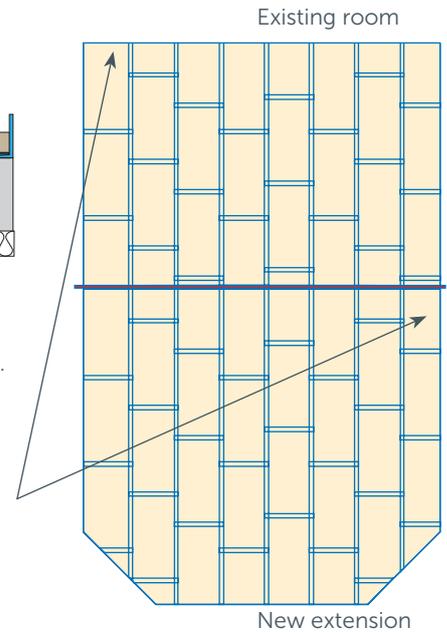
EXAMPLE ROOM LAYOUTS



Different sub-floors can be aligned using LoPro™ QuickSet self-levelling compound.

Additional compound can be purchased from Nu-Heat if floors are outside the specified tolerance of +/-2.5mm.

Always ensure that the junction between existing floors and new extensions is structurally load bearing and level before laying the panel.



INSTALLING THE UFH PIPE – TO BE READ IN CONJUNCTION WITH THE NU-HEAT UFH INSTALLATION MANUAL

Sequence of laying 10mm Fastflo™ pipe in the floor

- Within each room the spacing between pipes should be constant and as specified by Nu-Heat on the *A3 Tube Layout* drawing.
- Start the pipe laying from the manifold position.
- Avoid kinking – minimum pipe bend radius is 50mm.
- Only connect flow **or** return pipes to a single manifold rail, not both. Do not get them mixed up.
- When all pipe is laid continue with the filling, flushing and pressure testing as described in the Nu-Heat UFH *Installation Manual*.



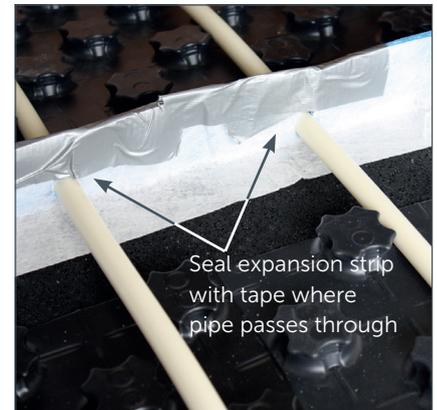
1 Following the layout shown on the *A3 Tube Layout* drawing supplied, roll out the pipe pushing it into the castellated panel. Do not kink the pipe by trying to make a very tight turn. Unroll the pipe hand-over-hand to avoid twisting and push into the panel. Maintain the pipe spacing shown on the *A3 Tube Layout* drawing. Secure loose pipes with nail clips, especially where it runs at 45° to the castles.



2 The manifold must be fitted high enough on the wall to accommodate multiple pipes leading to it – 500mm minimum from bottom of manifold.

Connect UFH pipes to the flow and return ports on the manifold as they are laid with reference to the CAD schedule. Label the pipes using the pen supplied. Use nail clips to hold the pipe neatly in position in the manifold area.

Use the guide curves supplied to ensure a smooth exit from the floor.



3 When all the UFH pipe has been installed through doorways seal cuts in the expansion strip with tape to ensure self-levelling compound cannot run into the adjoining room.



Large rooms may require an expansion joint (*not supplied*), which must be stuck down with double-sided tape and notched to allow pipework to pass through. Notches must be sealed to prevent leakage.

Floor temperature sensor

Nu-Heat recommends that the floor sensor supplied with room thermostats is fitted in order to meet the requirement of some flooring suppliers for a maximum surface temperature for their coverings.

A floor temperature sensor is recommended for all engineered timber floors, vinyls (including Amtico) and linoleum. Always follow the manufacturer's instructions and check that the floor covering is suitable for use with underfloor heating.

To enable increased comfort levels in bathrooms, wet rooms and en-suites the floor must be allowed to reach higher than usual temperatures. For this reason vinyl and engineered timber coverings are not recommended in bathrooms, wet rooms and en-suites. For safety reasons thermostats for these rooms will always be supplied with a remote AIR sensor but not usually with a remote floor sensor.



Floor temperature sensor

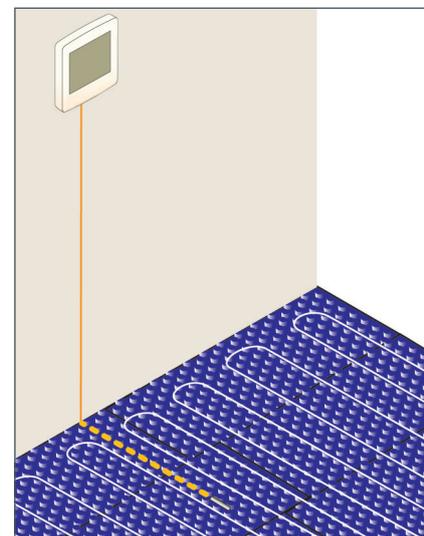
POSITIONING

The room thermostat should normally be fitted at light switch height, out of direct sunlight or draughts and not above heat sources.

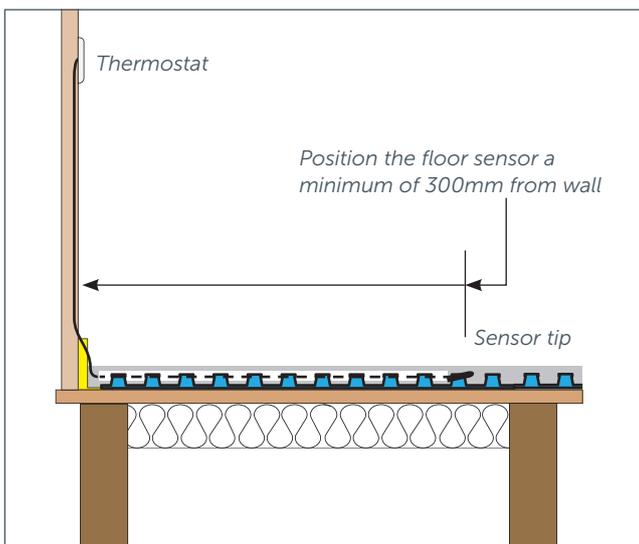
The thermostat's remote floor sensor also controls the heating. The remote sensor is fitted with approximately 3m of 2-core low voltage flex, extendable up to 20m.

The floor sensor should be fitted as close to the top of the LoPro™QuickSet self-levelling compound as practical and more than 300mm from the wall.

Note: For electrical safety, thermostats for wet areas will have a remote air sensor instead of a floor sensor. This is fitted in the bathroom at lightswitch height behind a white protective cover (supplied).

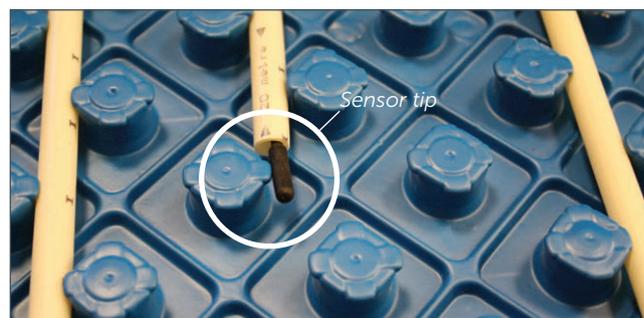


Run the sensor wire from the thermostat on the wall and across the castellated panel.



- 1 Ensure the sensor is positioned at least 300mm away from the wall. It should be fitted approximately midway between underfloor heating pipe runs.

Do not fit the sensor where pipes are spaced very closely together.



- 2 The sensor wire should be threaded through an offcut of floor heating pipe leaving the sensor tip just protruding. This will hold it in place whilst the QuickSet self-levelling compound is laid – the sensor tip must not protrude above the surface of the compound. Seal the end of the pipe with a small dab of mastic.

LoPro™ QuickSet self-levelling compound

LAYING THE LOPRO™ QUICKSET SELF-LEVELLING COMPOUND

At this stage it is well worth re-checking whether the floors are level to within the tolerances stated and if additional self-levelling compound will be required. The minimum coverage from the sub-floor should be 20mm of self-levelling compound. The quantity of self-levelling compound supplied will be sufficient for a tolerance of 22mm +/- 2.5mm. Also check that the perimeter of the room is sealed to prevent seepage and fill any damaged castles in the panel with expanding foam or mastic.

LoPro™ QuickSet self-levelling compound has a very free-flowing consistency when mixed with water to the ratio specified; this aids its ability to provide a level finish but means it could sink in un-sealed areas and require further levelling.

MIXING THE SELF-LEVELLING COMPOUND

Self-levelling compound can be laid room-by-room, with expansion strips at doorways to keep areas separated.



Method 1 – drill mixer

Suitable for areas up to 60m².

Using a slow speed drill and paddle mix one full 25kg bag of LoPro™ QuickSet self-levelling compound with 4.5–4.75 litres clean water in a suitable container for approximately 3–5 minutes until an homogenous, lump free mixture is obtained. If the mix is rested for 2 minutes or more, re-stir before use.

Alternatively, a larger bucket can be used with 2 bags of LoPro™ QuickSet self-levelling compound and double the amount of water.

Do not mix a quantity greater than can be used within the 20–30 minute working time, and do not re-wet or add more water to the mix once it has begun to set. Using a different water volume than that specified on the packaging will alter the consistency, strength and setting time of the self-levelling compound.



Method 2 – forced action mixer

Suitable for areas up to 100m².

Operating instructions for individual models vary, so always read them carefully before starting to mix.

Simply mix the compound with water at the ratio stated on the bag.

Do not mix a quantity greater than can be used within the 20–30 minute working time, and do not re-wet. Using a different water volume than that specified on the packaging will adversely alter the consistency, strength and set time of the self-levelling compound.



Method 3 – pump mixer

Suitable for areas over 100m². To be used only by professional contractors.

Always use a slump test to check the consistency of the mix before starting to pour the LoPro™ QuickSet self-levelling compound into the rooms. For more details see the datasheet, [LoPro™ Max Screed Mixers](#) and contact Nu-Heat for a list of our national screeding partners that work in your area. They will be able to offer a price/m² for laying the self-levelling compound.

See also Nu-Heat information sheets:

- [LoPro™ QuickSet self-levelling compound](#)
- [LoPro™ Max Screed Mixers](#)

POURING THE SELF-LEVELLING COMPOUND

To help to gauge the correct amount of LoPro™QuickSet self-levelling compound to use, a room-by-room bag quantity is detailed on the [A3 Tube Layout](#) drawing.

LoPro™QuickSet self-levelling compound will find its own level across the floor. If the floor is within the +/-2.5mm tolerance specified using the full number of bags allocated to a room will give the correct height. For large areas a laser level can be used to set the height if preferred.



- 1 Starting from the furthest corner of the room, pour the LoPro™QuickSet self-levelling compound over the floor until the whole room is covered. Use all of the self-levelling compound allocated to that room.

The compound should be poured onto the castellated panel in a single coat to achieve a smooth surface. Apply at a minimum floor temperature of +5 °C.

Some hand trowelling is required to help move the compound to an even, level surface.

Note: The quantity of self-levelling compound supplied will be sufficient for a standard build up of 22mm (+/-2.5mm)

Tip: After the QuickSet self-levelling compound has set in one room, notch the top of the expansion strip at the doorway to ensure surface levels are the same in adjoining rooms.

In larger areas, LoPro™QuickSet self-levelling compound can be pumped. Please contact Nu-Heat for a list of our national screeding partners.

Notes: If the floors are outside the maximum tolerances stated for the quantity of self-levelling compound supplied, or castles are still visible, additional product can be purchased from Nu-Heat and a second layer of LoPro™ QuickSet can be poured on top of the first layer. If more than 48 hours have elapsed the floor should first be primed with one coat of undiluted

Eco Prim T primer (or equivalent) as per table on page 6.

For height increases of 1 to 10mm, a latex floor leveller such as Latexplan Trade (available from Nu-Heat) can be used.

Slump marks or castles showing are symptomatic of poorly sealed or levelled floors and/or perimeters.

All tools and mixing containers should be washed and cleaned immediately after use and before material hardens.

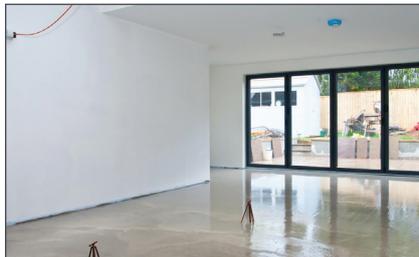
DRYING THE SELF-LEVELLING COMPOUND

- 1 At normal temperatures LoPro™QuickSet will take light foot traffic after 3–8 hours and accept bonded floor coverings after 72 hours. A room temperature of between +13 °C and +18 °C should be maintained with a subfloor temperature of at least +5 °C (allow the floor to cure for at least 8 hours before opening doors/windows to assist drying). For greater thickness and/or low temperature an extended waiting time could be required.
- 2 Where practical it is optional to gently warm the floor for 24 hours with the underfloor heating set at the lowest water temperature. This will remove any residual moisture from the floor.
- 3 The underfloor heating must be switched off for at least 24 hours prior to laying/fixing any floor finishes.
- 4 The underfloor heating can be switched back on when adhesives, etc. have cured but must be started at a low temperature and increased by 5 °C per day until the desired floor temperature is achieved. The UFH design water flow temperature is detailed on your CAD drawings.
- 5 In all screeded floors there is the possibility of surface crazing appearing, sometimes radiating from corners. This will not affect the structural integrity of the floor.
- 6 Always check that the floor is sufficiently dry by measuring that the moisture content is within the levels recommended by the flooring manufacturer.

Floor finishes

CERAMIC TILES AND STONE

Installation

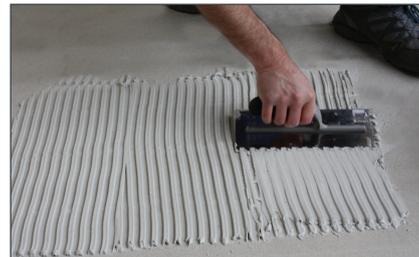


1 LoPro™QuickSet self-levelling compound should be flat and level. If required additional compound can be laid prior to laying the decoupling membrane or Latexplan Trade can be used to take out minor irregularities if required.



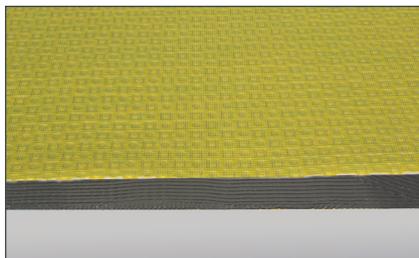
2 Important: Apply an appropriate primer such as Eco Prim T (available from Nu-Heat), or equivalent, using a brush or roller.

3 Cut the decoupling membrane to fit the desired area.



4 Using a 4x4mm serrated trowel apply a thin-bed of flexible tile adhesive.

Note: The decoupling effect of the matting will be impaired if a larger serrated trowel is used. This in turn will create a crunching sound underfoot.



5 Quickly lay the cut rolls of decoupling membrane in position over the entire surface. Ensure that the decoupling membrane is laid with the fleece backing face down on the adhesive. The membrane can be pushed into position using a roller or suitable tool.

Important: Ensure the decoupling membrane is laid before the adhesive is dry.



6 Using a thin bed of flexible tile adhesive the tiles can be laid as soon as the decoupling membrane has been fitted. The decoupling membrane features a green mesh on its top surface.

7 Apply the adhesive to the matting taking care to ensure that it passes through the mesh and fills the circular depressions underneath.

8 Apply a further thin bed of adhesive and roughen it in preparation for the tiles.



9 Bed the tiles down into the adhesive ensuring that the entire surface is covered. The depth of the serrations on the trowel must be appropriate for the tile. It is important that the tiles are solidly bedded ensuring there are no voids in the adhesive bed.

Important: The tiles must be laid before the adhesive has hardened.

10 Once the adhesive has dried, grout the tiles.

Restrictions

Nu-Heat's decoupling membrane is not suitable for installation beneath very thin, large-format floor tiles ('slimline tiles').

Always follow the flooring manufacturer's recommendations.

See also Nu-Heat information sheets:

- *Floor finishes – Tile and Stone*
- *LoPro™ Decoupling membrane*

To see a short LoPro™Max installation video visit: www.nu-heat.co.uk/installLPM

CERAMIC TILES AND STONE – CONTINUED

Primers and adhesives

Where the surface of the LoPro™QuickSet self-levelling compound has become dusty it can be sealed with a suitable primer, such as Mapei's Eco Prim T (available from Nu-Heat), applied using a brush or roller to prevent pooling.

To install the decoupling membrane and tiles a flexible tiling adhesive suitable for underfloor heating should be used. The *Tile Association* recommends using a category C2 adhesive when installing tiles on underfloor heating or a category C2 FTE S1 or S2 (where applicable) for large-format tiles adhesive.

The following table contains details of adhesives recommended for use with tiles and LoPro™QuickSet self-levelling compound.

Floor finish	Primer/Adhesive	Preparation
Ceramic tiles, poreclain tiles, natural stone.	Mapei Eco Prim T Mapei Keraquick & Mapei Latex Plus with de-coupling membrane	Ensure the levelling compound is clean and free of dust and contamination before applying a coat of Eco Prim T (or equivalent). Apply Keraquick mixed with Latex Plus with a small notched ceramic trowel and bed the de-coupling membrane into the wet adhesive. Allow to dry before laying natural stone or tiles on the de-coupling membrane using Keraquick adhesive mixed with Latex Plus.

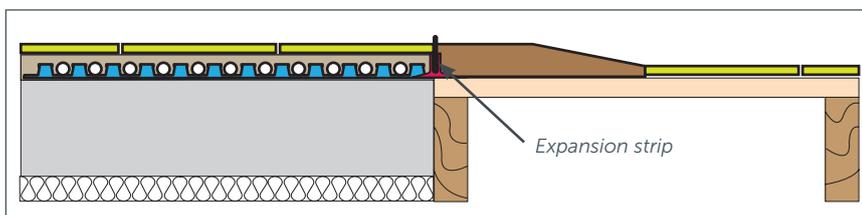
See also Nu-Heat information sheets:

- *Tiling onto LoPro™*
- *Floor Primer*

Notes:

- In very large rooms an expansion strip may be required.
- In all cases manufacturer's instructions and recommendations should be followed. Please contact manufacturers for more information.
- The underfloor heating system should be turned off while tiling and remain off until adhesives and grouts have fully cured (see manufacturer's guidance).
- Check before use that the colour of the adhesive does not cause staining or discolouration of light coloured or translucent tiles.

Although the technical information and recommendations contained in this manual are correct to the best of our knowledge at the time of publication, they should be taken as indicative only. In all cases it is the responsibility of the installer/tiler alone to select the correct products to ensure a suitable surface for tiling.



A chamfered threshold can be used in doorways to offset small changes in level between rooms.

ENGINEERED TIMBER

The recommended board thickness for engineered timber is 14–16mm, maximum 22mm.

- Always use a good quality engineered board and check with the manufacturer that it is suitable for use with UFH.
- Flooring manufacturers generally recommend a floor temperature sensor for sensitive coverings such as engineered timber (supplied as standard by Nu-Heat).

Moisture content

LoPro™QuickSet self-levelling compound

Moisture content of the self-levelling compound should not exceed 2–3%, which can be checked with a moisture meter. Alternatively, tape several, approximately 1m² clear polythene sheets in various places across the floor and leave for 24 hours. If there is no moisture present wood flooring can be laid.

The underfloor heating can be turned on and commissioned in line with the Nu-Heat commissioning procedure then turned off for 48 hours prior to laying the engineered timber floor.

Engineered boards

Laminate floors and engineered board should be allowed to acclimatise as advised by the supplier.

Installation

Expansion gap

Always leave an expansion gap around the edge of the room; typically 15mm. This will allow the floor to expand and contract with atmospheric changes and will usually be hidden by skirting.

Option 1 – glue down



Engineered hardwood floors can be glued to the LoPro™Max using an adhesive recommended by the supplier. The surface of the QuickSet self-levelling compound should be primed using Eco Prim T (available from Nu-Heat) or equivalent before the hardwood is glued down.

Option 2 – free-float



Alternatively, they can be butt-jointed (using an adhesive recommended by the supplier), and free-floated over the LoPro™Max.

- Maximum 2mm foam underlay can be used below engineered hardwood where recommended by the supplier.

Primers and adhesives – Option 1

The following table contains details of adhesives recommended for use with timber and LoPro™QuickSet self-levelling compound.

Floor finish	Adhesive	Preparation
Engineered Wood (if glued down)	Mapei Ultrabond S955	Floor covering must be acclimatised to area in which it is to be laid following supplier's instructions. Ensure the levelling compound is clean and free of dust and contamination. For increased bond strength, prime the levelling compound using Eco Prim T diluted in 1:1 ratio with water as per table on Page 6.

Always follow the supplier's installation instructions.

Solid hardwood floors finishes are NOT recommended for use with LoPro™Max.

See also Nu-Heat information sheets:
• Floor finishes – Hardwood floors

See also Nu-Heat information sheet:
• *Floor finishes – Carpet*

CARPET

Carpet and underlay specification

The combined value of the carpet and underlay should not exceed 2.5 tog, and preferably less than 1.5 for heat pump systems.

Consideration should also be given to the underlay used to ensure its tog rating is taken into account at the design stage. Felt and heavy crumb underlays should be avoided. Many manufacturers supply underlay specifically for use with underfloor heating.

Preparation

Ensure the floor surface is flat and repair any irregularities in the surface using Latexplan Trade from Mapei (or equivalent).

Fitting the carpet

Option 1 – gripper rod

If carpet grippers are required to stretch the carpet, they should always be glued in place in order to avoid damage to the underfloor heating pipes and the self-levelling compound.

Option 2 – adhesive

Carpet and underlay can be glued to the floor, as in the 'double-stick' system. The heating should be switched off 48 hours prior to laying and for 48 hours afterwards and then brought up to full working temperature gradually over 7 days.

Adhesives such as F. Ball F41 and F43 are suitable for use at normal UFH operating temperatures.

Primers and adhesives

The following table contains details of adhesives recommended for use with carpet and LoPro™QuickSet self-levelling compound.

Floor finish	Adhesive	Preparation
Carpet (if glued down)	Mapei UltraBond Eco VS90 F. Ball F41 and F43.	Ensure the levelling compound is clean and free of dust and contamination. For increased bond strength, prime the levelling compound using Eco Prim T diluted by 1:1 ratio with water as per table on page 6. Always check the adhesive is suitable for use at normal UFH operating temperatures.

See also Nu-Heat information sheet:
• *Floor finishes – Resin*

RESIN

Synthetic resin finishes typically have a thickness of 0.15mm to 6mm. The type and thickness of the resin used relates to the location in which they are to be laid, the durability required and the volume of foot traffic that they will encounter.

Glass fibre rendering mesh

With a resin floor finish, Nu-Heat recommends the addition of a layer of glass fibre render mesh – this can be purchased from a standard builders' merchant. Render mesh will reduce the potential for stress fractures in the self-levelling compound (stress fractures do not affect the structural strength of the floor).

After the LoPro™Max castellated panel and Fastflo™ underfloor heating tube have been laid and pressure tested, roll out the render mesh over the entire floor and then glue tack to the top of the castellated panel using a glue-gun. Use sufficient glue to stop the mesh from lifting whilst the self-levelling compound is poured.

Always follow the resin manufacturer's installation guidelines. In general, the following sequence applies:

- The self-levelling compound should be left to dry for a minimum of 5 days.
- The floor heating should be tested and working before installation of the resin and switched off 48 hours prior to installation.
- Repair any stress fractures using a product recommended by the resin supplier to create a flat, level surface.
- Check that the moisture content of the self-levelling compound meets the resin supplier's guidelines before proceeding.
- Use a primer and/or glass-fibre base coat recommended by the resin supplier.
- Lay the resin finish in accordance with the supplier's guidelines.
- The floor heating should not be switched on for up to 7 days depending on conditions and supplier's recommendations.
- Commission the underfloor heating system in accordance with the Nu-Heat instructions – increase the temperature by 5 °C per day up to the stated design flow temperature.



LINOLEUM & VINYL

Additional levelling of the LoPro™QuickSet compound

Most vinyl coverings require a mirror finish to stop irregularities in the surface showing through. The easiest way to achieve this is to use a fine levelling compound such as Latex Plan Trade to create a smooth finish.

Moisture Content

In most cases a maximum moisture content of 75%RH is required when laying marmoleum or vinyl flooring over a LoPro™Max or any other screed floor.

Primers and adhesives

Adhesives recommended for use with vinyl or linoleum and LoPro™QuickSet self-levelling compound.

Floor finish	Adhesive	Preparation
Vinyl & linoleum	Mapei Ultrabond VS90	Floor covering must be acclimatised to area in which it is to be laid following supplier's instructions. Ensure the levelling compound is clean and free of dust and contamination. For increased bond strength, prime the levelling compound using Eco Prim T diluted by 1:1 ratio with water as per table on Page 6. Mapei Latexplan Trade can be used if a final smoothing coat is required.

Installation

- Marmoleum and vinyl flooring requires acclimatisation to the environment in which it is to be installed. It should be unwrapped and laid flat for a minimum of 24-hours prior to installation.
- The room temperature should be between 18–26 °C but the underfloor heating should not be used to achieve this.
- The underfloor heating should have been tested and switched off 48-hours before installation of the flooring and remain off during installation and for 48-hours after.

Fixing

- The adhesive used to fix the flooring should be sufficient to sustain the working temperature of the underfloor heating, maximum 27 °C.

Always follow the flooring manufacturer's recommendations.

See also Nu-Heat information sheet:

- *Floor finishes – Vinyl floors*

MICROTOP AND POLISHED CONCRETE

Glass fibre rendering mesh

With a microtop or polished concrete floor finish, Nu-Heat recommends the addition of a layer of glass fibre render mesh – this can be purchased from a standard builders' merchant. Render mesh will reduce the potential for stress fractures in the self-levelling compound (stress fractures do not affect the structural strength of the floor).

After the LoPro™Max castellated panel and Fastflo™ underfloor heating tube have been laid and pressure tested, roll out the render mesh over the entire floor and then glue tack to the top of the castellated panel using a glue-gun. Use sufficient glue to stop the mesh from lifting whilst the self-levelling compound is poured.

Thin and polished screed floor finishes over LoPro™Max

Polished concrete floor finishes suitable for use with LoPro™Max are:

Microtop polished concrete coating (0.5–3mm):

A polymer modified coating applied at 0.5mm to 3mm that looks like polished concrete.

Polished concrete overlays (10–40mm):

A cement based overlay applied at 10mm to 40mm that can be diamond polished.

- Depending on the type of microtop or polished concrete floor finish, it is likely that special surface preparation will be required before application. This can involve machining the surface of the LoProMax and then applying specialist coatings. In all cases, follow the instructions of the floor finish manufacturer.
- Please note that the floor heating should not be switched on for 7 days, or longer depending on the floor finish manufacturer's advice.
- Even with appropriate floor preparation, due to microscopic movement within the underfloor heating floor section, fine cracks could become apparent over time. If a long-term pristine hard finish is required, then we would recommend an alternative floor covering such as ceramic or porcelain tiles.

Always follow the manufacturer's guidelines

See also Nu-Heat information sheet:

- *Floor finishes – Microtop & polished concrete*

Problem solving

Minor deviation in floor surface levels that will have fine tolerance floor finishes, e.g. vinyl, Amtico, Karndean, etc.

- A** Prime the surface of the LoPro™ QuickSet self-levelling compound with Mapei Eco Prim T or equivalent.
- B** Level the floor using Mapei Latexplan Trade or equivalent to a maximum depth of 10mm.

Surface is not level due to floors being outside of Nu-Heat's stated tolerance (see page 32)

- A** Prime the surface of the LoPro™ QuickSet self-levelling compound with Mapei Eco Prim T or equivalent.
- B** Where the floor requires no more than 10mm of filler to make it level Mapei Latexplan Trade can be used. Where the difference in levels is greater than 10mm a second coat of LoPro™ QuickSet self-levelling compound should be used.

Sink holes caused by damage to the castellated panel or poorly aligned panel joints allowing the compound to seep away
OR

Loss of compound at junction of interior/exterior walls allowing castellated panel to show

(this problem is usually caused by poor installation of the foam perimeter expansion/sealing strip meaning that compound can escape through gaps into the floor below).

- A** The original hole might now be sealed but if not, repair or fill with expanding foam as necessary.
- B** Prime the affected area with Mapei Eco Prim T or equivalent.
- C** Fill the affected area using Mapei Latexplan Trade or equivalent to a maximum depth of 10mm.

Spider-web fractures caused by rapid drying

These small fractures are not structural and need no remedial action except where a floor finish with a fine surface tolerance is to be fitted (vinyl, etc.).

In this case:

- A** Prime the affected area with Mapei EcoPrim T or equivalent.
- B** Fill the fine fractures using Mapei Latexplan Trade or equivalent.

Please see individual information sheets for detailed product installation and specification data.

Nu-Heat recommends the following products for repair or further levelling of LoPro™QuickSet self-levelling compound:

- Mapei Latexplan Trade – latex floor leveller (available from Nu-Heat or obtained locally if more convenient).
- Mapei EcoPrim T – floor primer (a quantity is supplied with the LoPro™Max floor construction. If required, further quantities can be purchased from Nu-Heat or obtained locally if more convenient).


Nu-Heat
UNDERFLOOR & RENEWABLES

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 Freephone
0800 731 1976 or 01404 540650

Nu-Heat UK Ltd | Heathpark House | Devonshire Road | Heathpark Industrial Estate | Honiton | Devon EX14 1SD

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