UK Installation Guidance Note: Modul'up TE

General Advice

Modul'up TE is an impervious loose lay PVC sheet floor covering suitable for use over damp (up to 97%RH), contaminated subfloors or in situations where conventional subfloor preparation cannot be carried out; for example, due to time constraints, or where the existing floor covering cannot be removed. It is a stable floor covering made up of a glass fibre scrim with a hard-wearing smooth vinyl top surface and an impervious textured backing.

Modul'up single sided adhesive tape should be used to support all seams and joints between sheets, and cross joints during the installation process - (see Cutting and Fitting guidance below).

As with any floor covering, the appearance, performance and durability of the installed floorcovering will be determined to a large extent by the quality of the prepared subfloor and the conditions in which they are laid. Imperfections in the subfloor will grin through to the finished surface.

Where required, subfloor preparation should be carried out in accordance with BS8203:2017 Code of practice for the installation of resilient floor coverings. The subfloor must be smooth, sound, and have no loose or poorly bonded patches on the surface.

The maximum tolerance in terms of flatness and evenness of the substrate is a 5mm deviation under a 2m straight edge (measured by moving the straight edge in all directions across the substrate) and 1mm under a 20cm straight edge.

Modul'up TE can be laid on substrates with cracks less than 1 mm wide, provided that any difference in level is not more than 1 mm. Any larger cracks, holes, uneven or ridged adhesives residues and other subfloor imperfections should be levelled with an appropriate smoothing compound.

It is not necessary to attend to day joints within a solid subfloor provided they do not cause a difference in level. Uneven joints should be repaired and/or levelled before laying.

Note: structural movement joints should not be bridged by any part of the installed flooring system and suitable proprietary movement joints should be used.

Where subfloor levelling is required on damp subfloors a suitable moisture tolerant smoothing compound must be used.

Areas to receive flooring should be clean, free from other trades, fully enclosed and weather tight.

Always conduct moisture tests on **all** substrates.

Areas to receive flooring shall be adequately lit to allow for proper inspection of the substrate, installation and for final inspection.

It is essential that the laying area is at a steady temperature of 18 to 27°C for 48 hours prior to, during, and for 24 hours after installation. The material should be conditioned in the same environment for at least 24 hours prior to the installation. Where the floorcoverings have been stored or transported immediately prior to delivery in temperatures below 10°C the acclimatisation period should be extended to 48 hours.

Prior to installation rolls should be checked to ensure that the correct colour, batch number and quantity have been received and that the material is in good condition. No claim will be accepted for incorrect colour, pattern or obvious damage if the material has been fitted.

Use material from the same batch/dye lot and install in roll number sequence. The use of different production batches will always result in visible shade differences. The batch number is clearly marked on the material packaging and must be checked before commencement of installation.

Acceptable substrates

Modul'up TE may be installed on the following substrates (subject to the conditions in this guide):

- New concrete with a residual moisture content up to 97%RH (subject to the conditions below).
- Existing damp subfloors without an effective DPM and with a residual moisture content up to 97%RH (a ventilated skirting should be used in these circumstances)
- Old in-situ floor finishes (resin) at least 2 mm thick.
- New, well bonded levelling compound.
- New tongued and grooved chipboard* or other particle board with no appreciable difference in level at the joints (joints up to 1mm difference in level may be sanded).
- Old subfloors with no floor covering or from which the old floor covering has been removed.
- Old floor coverings, such as a solid vinyl**, linoleum**, sanded down wood strip*, smooth and level ceramic tiles floor without grout (or where the grout lines have been levelled with a suitable smoothing compound).

  *Ground floor timber bases must have adequate ventilation
  **Old resilient floor coverings must be well bonded to the subfloor.

Not suitable for use over

- Subfloors subject to lying water or hydrostatic pressure
- Wood Blocks at ground floor level
- Synthetic Anhydrite screeds that are not fully dried
- Magnesite
- Raised access floors
- Textile floor finishes
- Subfloors with underfloor heating where the subfloor moisture content exceeds 75% RH

For any subfloor not listed above or if any doubt exists, contact Forbo Flooring Technical Services.

Note: Where previously installed floor coverings have been stripped from an existing substrate, the substrate must be prepared to receive new Modul'up TE in accordance with BS8203:2017.

Subfloor conditions and requirements

General
As a loose lay system, the quality and surface appearance of the finished installation will be dependent on the quality of the subfloor. Imperfections in the subfloor will grin through to the finished surface.

The subfloor must be smooth, sound, and have no loose or poorly bonded patches on the surface. Any cracks, holes, uneven or ridged adhesives residues and other subfloor imperfections should be levelled with an appropriate, moisture tolerant, smoothing compound. Do not use on weak or friable surfaces.

The subfloor can have some contaminants adhered to it, such as paint, old oil stains, dirt, etc. – if in doubt contact Forbo Flooring UK Technical Services Department.

Smoothing compounds are not required for clean, sound and smooth concrete surfaces, provided that they satisfy flatness tolerances stated above. However, if a smoothing compound is not being applied to the surface of the slab/screed a suitable primer should be applied to keep the subfloor dust free.

Wood panel substrates should be sound, in good condition, securely fixed and level.
Note: Ground floor timber bases must have adequate ventilation

Old ceramics tiles: laid on a sound concrete or cement screed substrate, soundly adhered to the bedding screed (sealed ceramics tiles) or substrate (adhesive-bonded ceramics tiles) require no further treatment where differences in level are less than 1 mm and/or grout width is less than 3 mm. Small localised differences in level between 1 mm and 2 mm between tiles may be repaired with a suitable smoothing/levelling compound.

Where there is are overall differences in level greater than 1 mm or where grouting is wider than 3mm, a general heavy duty self-smoothing/levelling compound suitable for the room's intended purpose should be applied across the entire surface area.

Existing in-situ resin floor finish: the old finish must be sound and fully bonded and at least 2 mm thick. If flatness, cleanliness and bond requirements are not satisfied, the old in-situ floor finish must be removed, and the subfloor prepared in accordance with BS8203:2017.

Floor paint: The substrate should be clean and sound. Sanding is not necessary if the paint is sound.

Old flexible floor coverings: semi-flexible asbestos free compact vinyl sheet and tiles or compact linoleum. Before installation, check the condition of the existing floor covering to ensure that it is well bonded to the base. Ensure that any loose or damaged sections of the floorcoverings are removed and repaired.

Note: If an underfloor heating system has been installed, old flexible floor coverings must always be removed.

Note: Acoustic floor coverings in general, including cushioned PVC and acoustic linoleum floor finishes must be removed, and the subfloor prepared in accordance with BS8203:2017.

Semi-flexible tiles containing asbestos: before installation, check the condition of the existing floor covering to ensure that it is well bonded to the base. Any loose or damaged sections of the floorcoverings should be removed and repaired. If any tiles are removed this should be carried out in accordance with HSE regulations and guidance and any waste materials disposed of in accordance with current applicable legislation.

As a precautionary measure, care must be taken to not cut into old asbestos products when cutting and trimming Modul'up. Best practice is therefore to make all cuts with a hooked blade when laying over vinyl asbestos tiles.

Note: Modul'up TE can only be laid on a substrate that has previously received only a single layer of resilient floor covering. The performance rating of the old floor covering must satisfy the new rating required, particularly if the room is to be used for a different purpose.

Existing wood block floors: Modul'up may be installed on existing wood block floors except for wood blocks laid at ground floor level. Blocks should be securely bonded to the base, smooth, even and free of any oil or wax based finishes. If necessary, the blocks should be sanded to remove any contaminants and/or unevenness between the blocks. If any doubt exists, contact Forbo Flooring Technical Services for advice.

Underfloor heating

Modul'up TE can be used in conjunction with under-floor heating systems on dry subfloors. It is imperative that the underfloor heating systems have been commissioned and found to be functioning correctly prior to the floor finish being installed.

Ensure that the underfloor heating system is switched off 48 hours prior to the floor covering installation commencing and remains off for at least 48 hours after the installation is complete.

During this period, an alternative heating source should be provided, if required, to ensure that the area of installation is kept at a constant temperature of 18°C – 27°C.

A separate guidance note "**Installation of Forbo Floor Coverings on Underfloor Heating Systems"** provides more information on the conditions for installation in such circumstances.

Note: Modul'up TE is not suitable for use on underfloor heated screeds where the moisture content exceeds 75% RH.

Rolling Loads

In areas subject to rolling loads, for example hospital beds, heavy trolleys or pallet trucks contact Forbo Technical Services for further advice.

Installation

Direction of laying
The following installation advice should be followed in relation to direction of sheet laying.

All over/Uni designs: e.g. Cement, Concrete/Resin

Reverse installation of alternate sheet lengths is required.

Directional designs: Wood – Oak and Rustic Oak

Sheet lengths should be installed in the same direction.

The recommended installation direction for each design is also confirmed in the product brochures and packaging and printed on the underside of each roll.

General

Modul'up TE is installed loose laid using standard installation techniques. Seams are supported with Modul'up 100mm wide single sided adhesive (Forbo ref 792) tape to hold together prior to welding.
Note: the tape only adheres to underside of the flooring, not the subfloor.

Always check the recommended direction of laying before cutting sheet length (see above).

Cut the sheet material to the required lengths with an allowance of approximately 10cm for fitting at each end.

Back rolling - Sheet vinyl products are tightly rolled in the factory. The tension caused by this process will mean that the goods will shrink a little in the length when unrolled. It is recommended to reduce the effect of shrinkage by re-rolling the cut lengths of sheet back on themselves and before commencing fitting.

It is recommended that the cut lengths are laid out flat in the installation area the day before installation to allow the product to settle.

There is no maximum limit for the floor area that can be laid but structural movement joints should not be covered with any part of the Modul'up system and a proprietary movement joint should be used.

Cross seams should be formed and cut in the same manner as for side seams with Modul'up tape used under the seams.

All seams should be hot welded. See advice on welding later in this guide.

Cutting and fitting

It is best practice that factory edges are always be trimmed to form a true edge for seaming. Modul'up TE is manufactured with an up to 2cm selvedge on each side of the roll to allow for trimming.

It is recommended that each sheet should be scribed to fit and the factory edges removed when cutting the seam. Seams should be overlapped and cut, under-scribed or cut with a seam cutter to form a close butt joint.

Note: The factory edges on each side of wood designs should be cut as above to ensure that the planks on each side of the seam are the same width.

Scribe the long side of the sheet to the wall first. Place the sheet back against the wall. With the sheet fitted correctly in position along the length, and the ends riding up the end walls (approx. 10cm), trim the factory edge on the opposite side of the sheet (1 to 2cm) using a seam cutter or by striking a chalk line and cutting through the sheet following this line with a straight edge and utility knife. Scribe the sheet ends to the walls.

Note: do not cut the sheet too tightly to the walls. The sheet should be cut leaving a gap of 1mm at the perimeter of the room including all abutments such as architraves and any items of fixed furniture.

Lay a strip of Modul'up single side adhesive tape with the non-slip side (without the protective film) facing the subfloor so that it lies equally either side of the seam (see fig.1).

Lay the next sheet alongside the first fitted sheet with the sheet ends lapping up the wall and the edge of the sheet overlapping the previously fitted sheet by approximately 1 - 2cm. Trim the factory edge of the opposite this sheet as above.

Cut the seam to form a close butted seam and scribe and cut each end of this length as for the first sheet.

Note: use a hook blade when making the final cut for seams to avoid damaging the Modul'up adhesive tape, and when making any cut over vinyl asbestos tiles.

Repeat this process for each subsequent sheet length using Modul'up tape equally spaced under each seam.

The final length which abuts the opposite wall should be cut and fitted using the method described for the first length.

Once all the sheets have been cut ready for welding, lift the sheet ends at each seam to reveal the Modul'up adhesive tape. Peel away the protective film, keeping the protective tape as close to the floor as possible (see figs. 2 and 3). Allow the floor covering to fall back into place along the seams and smooth out by hand along the seam as the protective tape is removed. Once completed press the sheet into the adhesive tape with a rubbing board to ensure optimum adherence of the floor covering to the tape.

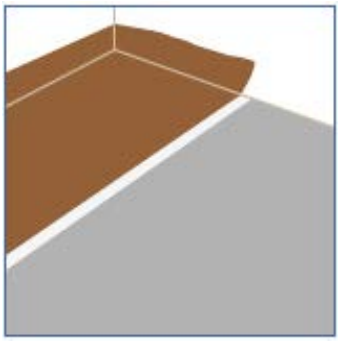


Fig.1

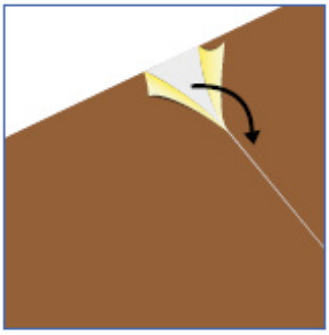
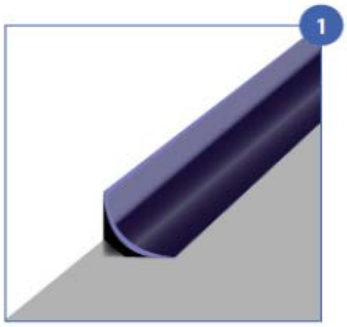


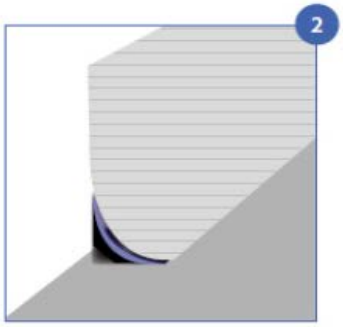
Fig.2

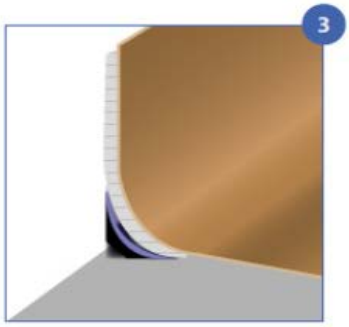
Fig.3

Coved Skirtings

Modul'up TE can be Installed with site formed coved skirting on new cementitious subfloors using standard techniques with a 35mm radius cove former (see below).







The cove former should be adhered using a suitable plasticiser resistant double-sided tape system. The Modul'up TE sheet should adhered to the wall and the cover former using the same double-sided tape system.

As an alternative to the above Quantum Profiles CCF1 combined cove former and capping profile may be used. These systems are particularly recommended where Modul'up is being installed over vinyl asbestos tiles.

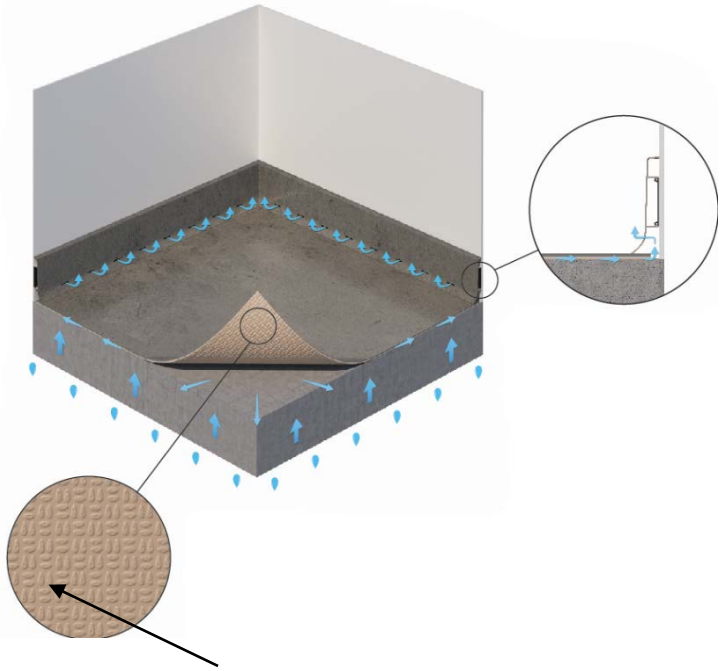
Modul'up TE sheet should adhered to the skirting using a suitable plasticiser resistant double-sided tape system.

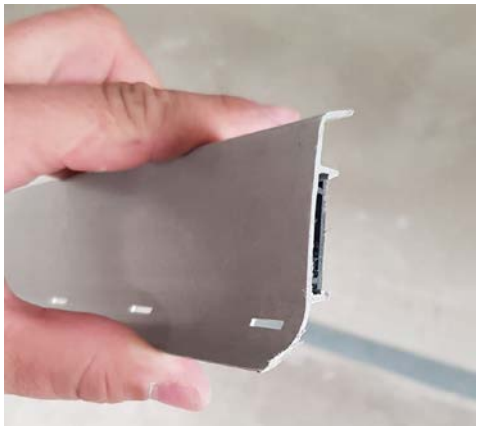
Note: If site formed coving is being used with Wood designs, the optimum visual effect will be achieved by laying with a border cove either in the same design with the plank lengths running parallel to the wall around the perimeter of the room or using a contrasting uni colour /all over design. The border should be at least 10cm wide at floor level with the welded seam supported with Modul'up tape.

Skirtings when the substrate does not contain a DPM

Modul'up TE with ventilated skirtings is a complete and sustainable solution to prevent subfloor moisture accumulating at the periphery of the room and transmitted into the wall.

Note: a 5 to 10mm gap should be maintained between the edge of the floor covering and the wall.



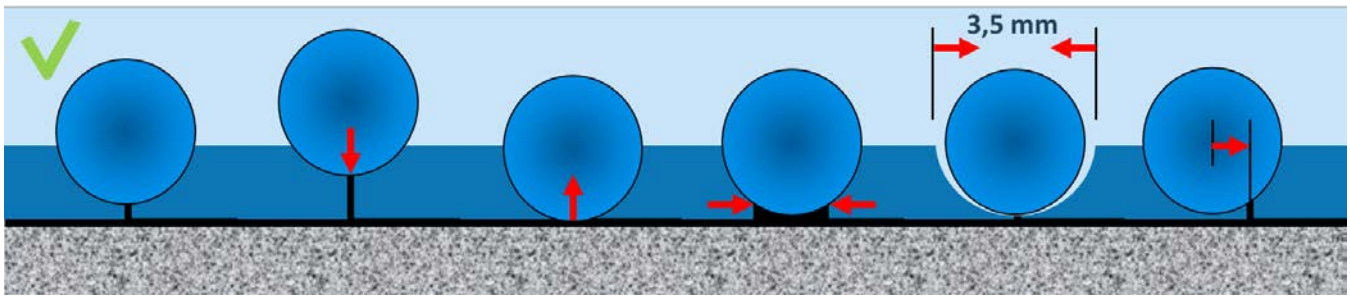


Aqua Block embossing allows the air flow with the moisture driven to the periphery of the room

As an alternative to the above, ventilated wooden skirtings may be fabricated from marine glade plywood (or similar) and grooved on the back. The thickness should be 10 mm with routed channels 10 to 15 mm wide at a spacing of 1 or 2 every 50 cm.
Note: Make sure there is no adhesive in the skirting channels that can prevent ventilation.

Door trims
Edge trims should be used be used at doorways where Modul'up TE meets other floor finishes.

Seam forming and grooving
Seams should be grooved to a depth of approximatley 2/3rds of the material thickness. A 'P' Type groover is recommended for manual grooving of seams, however, automatic or power groovers may be more productive on larger installations.



proper depth groove centered	groove too shallow	groove too deep	seam gapped too wide	seam grooved too wide	groove not centered
Optimum strength weld	May "blow out" Weak weld	Hard to weld Weak weld	Hard to weld Weak weld	Hard to weld Weak weld	Weak weld

Hot Welding
Switch on the hot air gun and allow 5 to 7 minutes for it to reach the selected temperature. Modul'up should be welded at a temperature of approximately 450° C. (see weld gun manual for setting details). Fit the welding nozzle before switching on the hot air gun.

Modul'up should be welded with a 5mm Speedweld nozzle.

Note: If the gun is resting on the floor, ensure that the nozzle is not directed at the floor or anywhere dangerous.

Weld guns will vary, so it is always advisable to practice weld techniques first on a piece of waste material to match the correct air gun temperature with welding speed.

Make sure the groove is thoroughly cleaned before beginning to heat weld. Make sure that all electrical cables are laid out without tangles and that there are no obstructions along the seam to be welded.

Cut the welding cable to a consistent and generous length or unwind sufficient weld rod from the reel and put the reel in a position where you are working towards it. Have the power cable ahead of you if possible.

Start at a wall. Thread the cable through and weld moving backwards, away from the wall, maintaining a slight downward pressure so that the weld nozzle will force the weld cable into the groove. Do not let the cable melt in the nozzle.
A good weld is obtained by the correct combination of temperature, speed and downward pressure. The weld cable should be allowed to melt enough so that the melted rod reaches the bottom of the groove.

Trimming
While the cable is still warm trim off most of the top half of the cable down to approximately 0.5mm using a Mozart knife or sharp spatula and slide plate which fits over the cable. This enables the cable to cool more quickly and enables a quick first cut to be made without risk of gouging the material.

The welding cable will dish slightly (concave downwards) as it cools. Wait until the material is completely cool before trimming flush with the surface of the sheet with a sharp spatula, angled slightly across the line of cut, or Mozart knife.

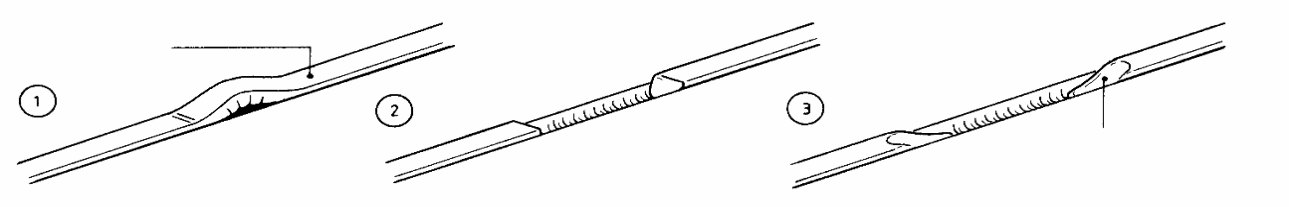
Motzart knife

Spatula

Slide plate

Note: Making the final trim while the welding rod and material is still warm can result in dishing of the weld cable. This may result in subsequent seam soiling problems or cause permanent damage to the surface of the flooring.

Joining up a weld
To join a weld in the middle of a seam trim off the loose ends and chamfer down the section to be overlapped with a hand groover. Ensure hot air gets into the groove and heats the cable. As the gun travels over the un-welded section apply pressure and carry the weld on over the section to be joined. Allow to cool and trim as normal.



Perimeter sealing

Where the floor covering is flat laid without coved skirtings, the perimeter edges should be sealed with a suitable waterproof and mould resistant flexible sealant. This should also be applied at abutments such as architraves together with any areas where pipes, etc. come up through the floorcovering.

On completion of the installation

First impressions may have more impact on the client than hours of skilled fitting.

The completed installation should be cleared of scrap material and debris, the floor vacuumed, and any traces of adhesive residues removed from the floor and skirtings.

Modul'up is occupancy ready immediately after installation.

If the floor covering is to be protected from other trades or site traffic prior to project completion, a protection product should be chosen that is appropriate for the type and level of traffic likely to be experienced and the potential for impact, scratching or indentation damage.

In many cases it is customary for the initial floor preparation to be left, or subcontracted, to a professional cleaning and maintenance contractor who will have the staff and equipment to do the job thoroughly.

If the optimum performance of any new floor covering is to be achieved, it is important that the correct cleaning and maintenance procedures are used from day one. Cleaning and maintenance guides for all Forbo Flooring products are available for download at: www.forbo-flooring.co.uk/vinyldownloads

Cleaning and maintenance guides should be passed onto the main contractor, client or end user as appropriate on completion of the installation, and before any hand over clean is started.

If in any doubt contact us:

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Additional Reference documents and information:

- Forbo Floor Coverings Installation Guide: www.forboflooring.co.uk
- BS8203:2017
- The CFA Guide to Contract Flooring (Tel: 01159 411126)