Installation Guidance Note: Marmoleum sheet Decibel

General Advice

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.

The installation of Marmoleum Sheet should be carried out in accordance with the national code of practice for the installation of resilient floor coverings if applicable. Areas to receive flooring should be clean, free from other trades, fully enclosed and weather tight. Subfloors should be clean, smooth, sound and permanently dry.

The open time of the adhesive will depend on site conditions and porosity of the base. It is best practice to conduct an adhesive bond test before starting the installation. Bond testing will assist in identifying both the working characteristics of the adhesive (waiting and working time) for the site conditions, and also any potential bonding problems.

Always conduct moisture tests on all substrates. All ground based level floors should have an effective moisture barrier.

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 minimum 18 °C, 48 hours before, during and 48 hours after installation. The material and adhesive should be conditioned in the same environment for at least 48 hours prior to the installation. Where national codes of practice exist they take precedence over these guidelines.

Ensure that all recommendations for substrate and jobsite conditions are met prior to beginning the installation. Beginning the installation is an implied acceptance of site conditions by the parties involved and liability for any failure directly related to inadequate site conditions becomes the responsibility of the installer and/or flooring contractor.

Take the Marmoleum® rolls of the pallets.

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.

Marmoleum sheets should be laid in the same direction for seaming.

As with all newly installed floor coverings Marmoleum should be protected from heavy traffic, particularly high point load wheeled traffic, for 24 hours and must not be washed for 48 hours after installation.

forbo FLOORING SYSTEMS

Underfloor heating
Marmoleum sheet can be used in conjunction with under-floor heating systems. It is imperative that the underfloor heating systems have been previously 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 the period of decommissioning of the underfloor heating system, an alternative heating source should be provided, if required, to ensure that the area of installation is kept at a constant temperature of 18ºC – 27ºC.

When bringing the underfloor heating system back into service, gradually increase the temperature over a number of days by only a few degrees per day until the desired room temperature is reached.

The temperature should never exceed the industry agreed maximum of 27ºC at the underside of the floor covering (the adhesive line). Failure to follow these guidelines can result in the floor covering de-bonding, joints opening, and on some occasions discolouring, all of which can occur within a long or short period of time."

Adhesive Recommendations and application

When installing Marmoleum Sheet Decibel a low emission EC1 adhesive is required, such as Forbo Eurocol 540 Eurosafe special. If alternative products are to be used consult with the supplier for more information, guidance and warranty.

Use a 2mm x 6mm V notched A2 trowel to apply the adhesive.

Note: Trowels will wear during use, check the trowel both before and during use to ensure that the proper, specified trowel notch is used and maintained.

Note: the adhesive must be spread evenly over the entire floor area with particular attention to edges – this will ensure that the sheet is fully bonded at the perimeters.

Install one length of sheet at a time, making sure to place the material into wet adhesive and roll afterwards with a 50-70 kg roller, rolling in all directions to ensure a firm bond. It is important to only spread sufficient adhesive that can be covered within the open time of the adhesive.

Areas that cannot be rolled with the large roller e.g. abutments such as door frames or skirting boards should be rolled with a hand roller or pressed into the adhesive with a rubbing hammer.

Always clean away excess adhesive with a damp cloth before it is allowed to dry.

Installation

Forbo recommends that Marmoleum® and linoleum sheet flooring be installed one sheet at a time. Always install all Marmoleum® sheets in the same direction. It is recommended that each sheet be scribed to fit and that the factory edge be properly removed before adhering (see below). Seams should always be under-scribed after the material has been placed into the adhesive and rolled. Following these recommendations will give the installer the best opportunity to manage the open and working time of the adhesive and ensure that the flooring material is placed into wet adhesive.

Cut the sheet material to the required lengths and then back roll each cut length before scribing to the long wall and length ends in order to release any roll tension from the winding of the sheet linoleum. Once the sheet has been back rolled stand the cut lengths upright in this state for approximately 15 minutes before unrolling for fitting.

Note: Whether seams are to be welded or not, they should be cut to leave a Net fit (closed) seam. However, when cutting seams in linoleum sheet, allowance must be made for a fractional expansion in the width of the hessian backed material as it picks up moisture from the adhesive. This expansion is minute and will be halted by the curing of the special linoleum adhesive, but unless allowed for in cutting, tightly cut seams will peak and fail (this is not a product defect).

Fitting the first sheet

Once scribed to the walls cut a true edge along the factory edge of the sheet, using a straight edge and utility knives with straight and hooked blade (Fig 1.) or a seam cutter tool like Wolff green cut. Place the straight edge approximately 2cm in from the factory edge and score the Marmoleum using a utility knife and a straight blade.

After scoring the material cut through the sheet using a utility knife and a hooked blade holding the knife at an angle to give a slight undercut along the seam. After trimming the factory edge trace the line of the seam edge onto the subfloor with a pencil, this will serve as a guide line for spreading the adhesive.

Fig. 1

Pull the sheet back to approximately half of its length and spread the adhesive ensuring that the adhesive is spread right up to all perimeter edges and the marked pencil line Fig.2.

Tip: As an alternative to pulling the sheet length back, the roll core may be placed under the sheet to create the necessary gap between the sheet end and the wall. This will also help to prevent creasing the sheet when pulled back.

Feed the sheet back into the adhesive and roll immediately first across the width of the sheet and then along the length to ensure that complete wet adhesive transfer is achieved. Again pay particular attention to the perimeters Fig.3. A seam roller or rubbing hammer can be used to ensure the sheet is pressed into the adhesive around harder to reach areas such as door frames and overhangs from furniture of fittings.

Fig. 2

Fig. 3

Pull the other half of the sheet back and repeat the above process.

As with stove bars, to ensure the end of the linoleum sheet beds well into the adhesive, fold the end of the sheet back diagonally and feed the hessian backing down into the adhesive with a 'bouncing action as in the illustration (Fig.4). Do not make this so severe as to risk cracking the linoleum. This will ease the tension across the end of the length and the linoleum will have good contact with the adhesive. Roll thoroughly.

Fig. 4

Fitting the second (and subsequent) sheet/s

Unroll the next sheet and lay it on the floor overlapping the trimmed edge of the first fitted sheet by approximately 2cm. Trim the factory edge on the opposite side of this sheet as above and mark this edge of the sheet on the subfloor with a pencil. Scribe the ends of the sheet. Pull the sheet back halfway and adhere and roll the sheet as above.

Welded Seams

General advice

Welding and trimming techniques for linoleum are the same as those used for vinyl products; however, the composition of linoleum weld cable requires a different welding temperature and speed. Problems encountered with welding are usually due to either welding at the wrong temperature and/or speed of application, or use of incorrect trimming techniques.

Seam forming and grooving

Seams for welding should be formed in the same manner as above. A net fit seam is still required. Seams should be grooved out to a depth just above the hessian backing (Fig.5). A 'P' Type groover (Fig.6) is recommended for manual grooving of seams, however, automatic or power groovers (Fig.7) may be more productive on larger installations. If a grooving tool such as an electric grooving machine is being used a small, consistent, gap (<0.5mm) may be left to accommodate the guide wheels of the grooving machine.

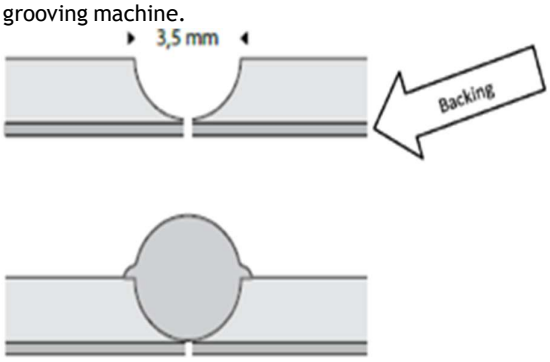
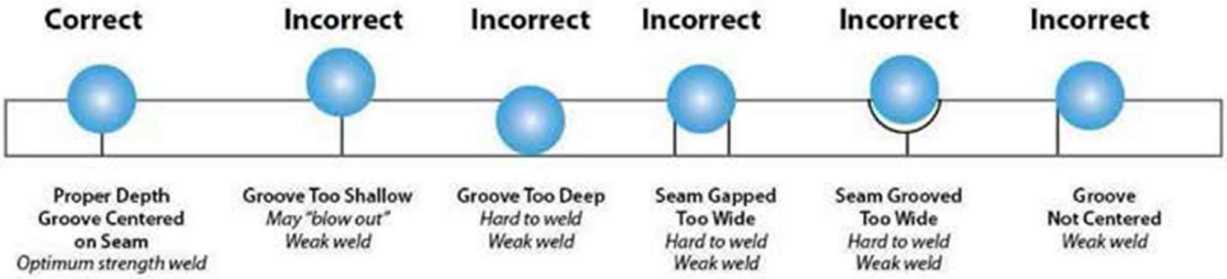


Fig. 5

Fig. 6

Fig. 7

forbo FLOORING SYSTEMS



Welding

Switch on the hot air gun and allow 5 to 7 minutes for it to reach the selected temperature. Linoleum should be welded at a temperature of approximately 350ºC. (see weld gun manual for setting details). Fit the welding nozzle before switching on the hot air gun.

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. Marmoleum should be welded with a 5mm Speedweld nozzle.

Make sure the groove is thoroughly clean 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. The top of the welding rod should flatten slightly, and a small bead should form on either side of the welding tip (Fig. 5 and 8). After the first 30cm check the weld adhesion is good by gently pressing the cable in the welded section from side to side. If the speed/heat/pressure combination is incorrect the weld will either come out or the cable will have melted over the sides of the groove, possibly with charred material either side of the groove. Fig 9 below is an example of a weld application that is too hot.

Fig. 8

Fig. 9

Trimming

Note: To avoid unintended damage to the floor covering Forbo recommends to use the Mozart knife for trimming the weld cable. If a sharp quarter moon knife is being used special care should be given to avoid damaging the sides of the seams.

While the cable is still warm trim off most of the top half of the cable down to approximately 0.5mm using a sharp quarter moon knive and slide or Mozart knife 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. Alternatively, trim flush with a flat profile 'X-acto' router blade. This blade is slightly concave, so blunt the corners to avoid scratches on either side of the weld. If trimming pulls out the weld this shows it is unsuccessfully adhered and the seam should be re-done with fresh welding cable.

Spatula

Slide

Mozart knife

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

When Marmoleum and Linoleum products are installed adjacent to a vinyl flooring product, Marmoweld welding rod must be used to heat weld the seam if heat welding is specified. A vinyl welding rod will NOT bond to Marmoleum and Linoleum products, but Marmoweld will achieve an adhesive bond to most vinyl flooring products.

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 (Fig.10).

Fig. 10

Bight marks in Linoleum

During the manufacture of linoleum, it is hung in large stoves in continuous festoons up to 16 metres high to mature. At the top, the linoleum passes over a pole, face inwards, and at the bottom forms a loop, or bight, face outwards. During the 2-3 week curing process the weight of the material causes the linoleum to mould a little to the pole causing a mark across the width (a pole mark) which is always cut out at the factory.

The fold or bight at the bottom is however more gentle, though sometimes detectable as a slight ridge across the sheet, about 15cm wide (known as a stove bar).

With modern flexible linoleum formulations, this can usually be stuck down in 2.5mm or 2.0mm linoleum using normal adhesive spreading techniques provided the site is warm and the stove bar area is well rolled, firstly across the sheet and then along it. With 3.2mm material or if site conditions are unfavourable it may be necessary to adapt the installation technique. Some floor layers prefer instead to cut stove bars out (especially when using 3.2mm thick material).

When site conditions are good, stove bars should present no problems using Forbo Eurocol 540 adhesive correctly spread with the specified 2mm x 6mm serrated trowel – a little extra attention is all that is required.

Pull back the sheet approximately half its length and spread the adhesive. As the sheet is fed into the wet adhesive and the stove bar is reached lean gently on the stove bar to reduce the radius and rock in and out of the adhesive looking to make sure that complete wet transfer of adhesive is achieved on the hessian backing over the whole width of the stove bar. Once the remainder of linoleum still to be fed into adhesive clears the area of the stove bar roll immediately with a 50-70 kg roller [insert local weight if different] as above, dealing with any bubbles or trapped air before moving on. Repeat the rolling of the stove bar at 15 minute intervals until fully bonded to subfloor.

An alternative method is to mark the subfloor where the stove bar falls (Fig.8), pull back the sheet and spread the adhesive on the subfloor stopping just short of the start of the stove bar. Feed the linoleum into the wet adhesive up to this point and roll in both directions as above. Next spread the adhesive over the area of subfloor to be covered by the stove bar (Fig.9). Lean gently on the stove bar to reduce the radius and rock in and out of the adhesive looking to make sure complete wet transfer of adhesive is achieved on the hessian backing over the whole width of the stove bar. Roll the bight mark first across the width of the sheet and then lengthways. Spread the adhesive to the remaining area of the subfloor and roll the sheet as above, starting by re-rolling the area of the stove bar.

Fig. 8

Fig. 9

Perimeter sealing

If the purpose of specifying welded seams is to prevent the risk of moisture getting under the floorcovering then logically the specification must ensure that perimeters are also sealed, together with any areas where pipes, etc. come up through the floorcovering. This is usually done with a silicone sealer but in special areas, such as prisons, a hard-setting epoxy may be used.

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 swept or vacuumed and any traces of adhesive residues removed from the floor and skirtings.

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 linoleum products are available for download at: Forbo Flooring Systems

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:
question@forbo.com