Installation Guidance Note: Marmoleum Ohmex

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.

Forbo floor coverings are manufactured for internal use only. The product performance is not guaranteed for use in external environments.

Subfloor preparation should be carried out in accordance with BS8203:2017 Code of practice for the installation of resilient floor coverings. Areas to receive flooring should be clean, free from other trades, fully enclosed and weather tight. Subfloors should be clean and free of contaminants, smooth, sound and permanently dry.

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 18 to 27˚C for 48 hours prior to, during, and for 24 hours after installation. The material and adhesive should be conditioned in the same environment for at least 24 hours prior to the installation. Rolls should be stored vertically at all stages of the contract up to installation.

Note: *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.*

The open time of the adhesive will depend on site conditions and porosity of the subfloor. 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 any potential bonding problems.

Ensure that all recommendations for substrate and site conditions are met, prior to beginning the installation.

Note: *Starting the installation is an implied acceptance of site conditions by the parties involved and liability for any failure directly related to inadequate site conditions may become the responsibility of the installation company.*

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.

As with all newly installed floor coverings Marmoleum Ohmex should be protected from heavy traffic for 72 hours or, if the floor is to be subjected to high point load or wheeled traffic, for five days. The floor must ***not*** be washed for 48 hours after installation.

Underfloor heating

Marmoleum Ohmex 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 18˚C – 27˚C.

Gradually increase the temperature over several 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 27˚C 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.

Further information on the requirements for underfloor heated subfloors can be found in BS8203:2017.

Adhesive recommendations and application

When installing Marmoleum Ohmex, low emission EC1 adhesives are recommended, such as Forbo Eurocol 615 Eurostar Lino EL (conductive adhesive), always in combination with a copper strip.

Use a TKB S1 trowel for Forbo Eurocol 615 Eurostar Lino EL (conductive adhesive) 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. 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.*

The subfloor should be primed using Forbo Eurocol 041 Europrimer EL applied with a suitable roller covering the entire floor area including the copper strip(s).

The primer must be allowed to dry completely before installing the Marmoleum Ohmex with Forbo Eurocol 615 Eurostar Lino EL (conductive adhesive).

Any surplus adhesive should be removed immediately using a damp cloth.

If welded seams are required, allow 24 hours for the adhesive to set, then weld using Marmoweld MC matching weld cable.

Note: *If alternative adhesives are to be used consult with the supplier for more information, guidance and warranty.*

Install one length of sheet at a time, making sure to place the material into wet adhesive and roll afterwards with a 68 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.

Electrical grounding – layout and installation

General recommendations:

Before starting the installation make a floor plan considering:

- Position of the sheets
- Location of earthing points
- Position of the copper strips
- Position of seams

Copper strip (self-adhesive type are recommended) for electrical grounding must be installed first.

Electrical Grounding:

Marmoleum Ohmex is a static dissipative linoleum and should be installed in conjunction with a conductive adhesive and an earthing grid of copper tape adhered to the subfloor prior to installing the linoleum.

For floor areas less than 36m²

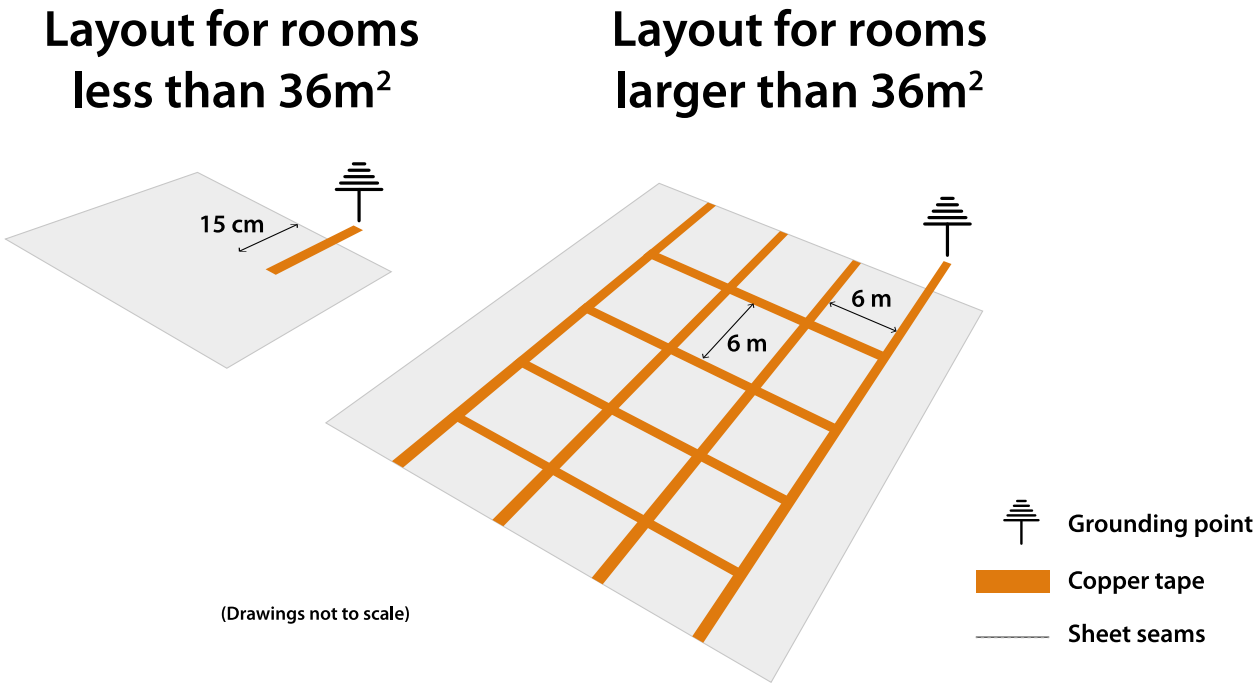
A 15cm length of copper tape should be adhered to the subfloor using Forbo Eurocol 615 Eurostar Lino EL (conductive adhesive) at a suitable point in the floor to be connected to earth. The strip should protrude sufficiently from the edge of the flooring installation to allow connection to the earth point.

For areas over 36m²

A strip of copper tape should be adhered to the subfloor running the full length of the floor area spaced at 6m intervals.

Further strips should then be laid at right angles to the first strips at the same 6m spacing forming a 6m x 6m square grid covering the entire floor area.

One of the strips should protrude sufficiently from the edge of the flooring installation to allow connection to the earth point.



Lay the copper tape to create a circuit as shown in above. Punch the copper strip at intersections to ensure proper contact and test the conductivity of the copper strip circuit with an appropriate testing device prior to starting installation of the material.

Note: *Avoid seams close to grounding points to prevent the risk of damaging the copper strip when welding the seam or trimming the weld cable.*

Note: *If Marmoleum Ohmex is to be laid in large areas (over 200m²) or in partitioned areas then consideration should be given to the provision of several earthing points within the installation, e.g. at opposite corners or sides of large rooms. This will facilitate any subsequent testing that might be required on completion of the installation.*

Note: *Marmoleum Ohmex should not be treated with any polish or other surface seals as this may impair its conductive properties.*

All connections to earth should be carried out by a qualified electrician.

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 nett 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, a 'strip and seam cutter' is designed to carry out this operation in one cut (Fig.1).

Fig. 1

Fig. 2

Alternatively, the factory edge can be trimmed using a straight edge and utility knives with straight and hooked blades. 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 (Fig. 2). 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.

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. 3).

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. 4).

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. 3

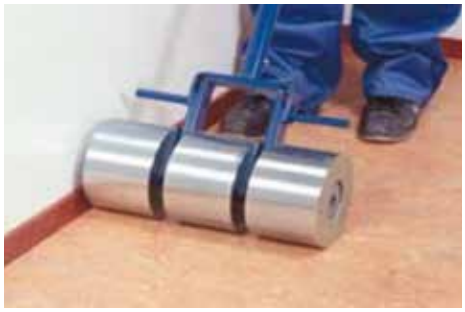


Fig. 4

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

As with bight marks (see below), 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 below (Fig.5).

Fig. 5

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.

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.

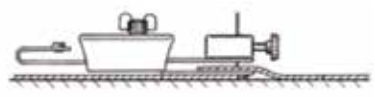
Immediately after rolling the sheet trace the seam with recess scribers (Fig. 6) along the trimmed edge of the first sheet and cut through with a utility knife and hooked blade, again with a slight undercut.

Once the seam is cut, the cut edge should just fall into place alongside the edge of the first sheet - if the sheet needs to be pushed against the previously stuck sheet the seam is too tight and will peak. A seam cutter (Fig. 7) can be used to cut the seam in one operation.

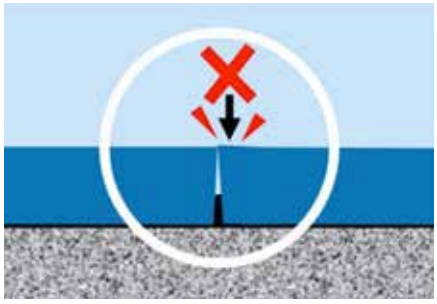
Roll the seam with a seam-roller to ensure full contact with the adhesive. Repeat the process for the second half of the sheet length.

Fig. 6

Fig. 7



Tip: *If the guide on your recess scribers is too thick it could remove adhesive from the subfloor when scribing the seam. Sanding the bottom of the guide on the recess scriber to reduce its thickness will prevent this and will also help to keep the guide clean and free of adhesive contamination.*



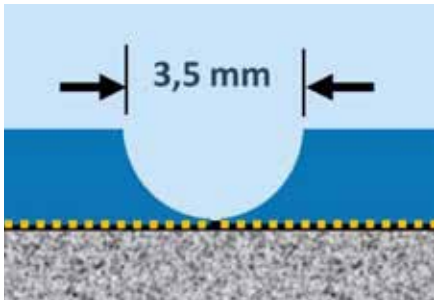
Note: *it is important to cut and roll the seam whilst the adhesive is still wet (to avoid peaking seams). Remove any adhesive residues at the seam straight away with a damp cloth.*

Welded seams

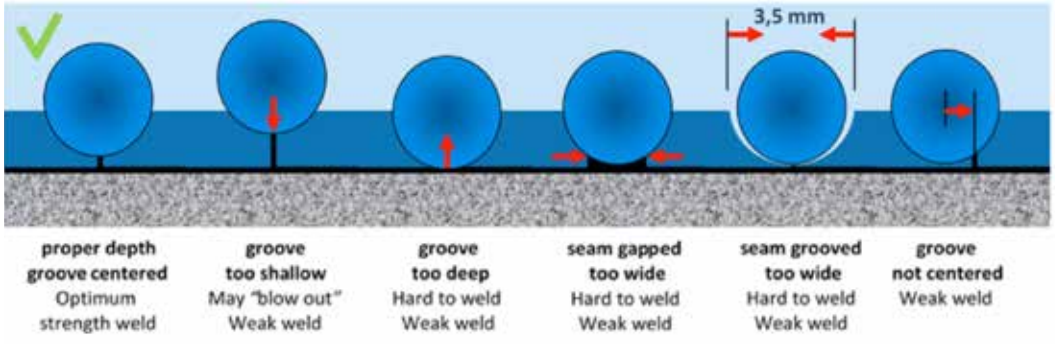
Welding and trimming techniques for linoleum are the same as those used for vinyl products; however, the composition of linoleum weld cable requires a different welding temperature and speed. Problems encountered with welding are usually due to either welding at the wrong temperature and/or speed of 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 to a depth of approx 2/3rds of the material thickness. A 'P' Type groover is recommended for manual grooving of seams, however, automatic or power groover machines may be more productive on larger installations.



Welding

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

Tip: 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.

Trimming
While the cable is still warm trim off most of the top half of the cable down to approximately 0.5mm using a sharp spatula 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.

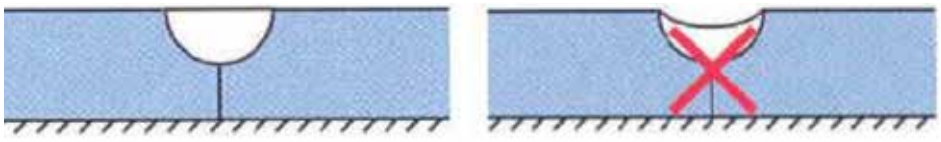
Note: *To avoid unintended damage to the floor covering, Forbo recommends the use of the Mozart knife for trimming the weld cable. If a sharp spatula is being used special care should be given to avoid damaging the sides of the seams.*

Mozart knife

Spatula

Slide

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



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.

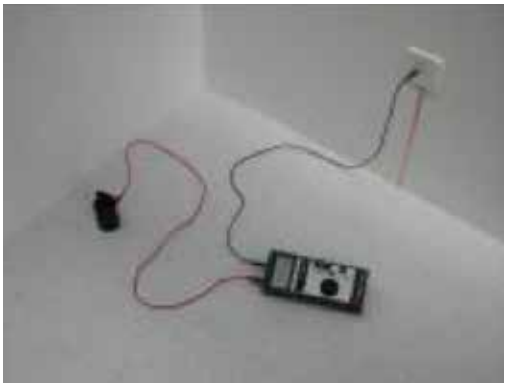
The use of the wrong type of cleaning products and /or abrasive cleaning pads can damage the flooring.

If the optimum performance of any new floor covering is to be achieved, it is important that the correct cleaning and maintenance products and procedures are used from day one.

Cleaning and maintenance guides for all Forbo Flooring sheet vinyl products are available for download at:
www.forbo-flooring.co.uk/downloads

Important note for conductive installations: Do *NOT* apply any wax or emulsion floor finishes in ESD protected area as these will adversely affect the conductive properties of the floor.

Electrical resistance testing after installation:



Point-to-ground electrical resistance tests according to approved relevant standards should not be carried out earlier than 14 days after installation. First random control measurements can be made after 24 hours.

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/downloads

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:

Forbo Flooring UK Ltd
Tel: **0800 121 4780**
Samples: **0800 731 2369**
Info.flooring.uk@forbo.com
www.forbo-flooring.co.uk

Additional Reference documents and information:

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