



INSTALLATION MANUAL
LINO FATRA

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1. INTRODUCTION

This manual is a guide for anyone involved in designing, preparing projects, installing and maintaining LINO Fatra coverings.

The quality of a floor is determined by many aspects and the floor covering is one of them.

As not even a perfect knowledge and following the instructions and advice given in this manual for installing LINO Fatra systems can replace the skills of a floor covering fitter, FATRA, a.s. recommends contracting an experienced flooring company that will provide a quality guarantee.

OUR GOALS INCLUDE:

- Supporting the customer whether a designer, builder, flooring company or end user.
- Supplying all the information needed for our products to guarantee the best performance.
- Providing instructions to specialised flooring companies so that each installation is carried out professionally with emphasis on the overall aesthetic impression from our wide range of attractive patterns.
- Preventing problems by addressing risks and their consequences before installing the product.

If you have any questions about LINO Fatra floor coverings please contact our Insulation Studio personnel who will be happy to advise you on the suitability, parameters and installation of any LINO Fatra product. The Insulation Studio is a branch of Fatra, a.s. Napajedla that provides technical support for flooring companies, building companies, designers and investors.

2. PRODUCT SELECTION

Selecting an appropriate type of floor covering is crucial. It must comply with the designer's original specification and must also guarantee to the user that it will keep its quality throughout its service life. The selected product(s) must comply with the location and loading of the floor covering. In addition specific acoustic, electro insulating, fire, chemicals, contamination resistance and static and dynamic load requirements must be taken into account. Anti-slip properties must also be considered as they directly affect safety.

The range of LINO Fatra floor coverings is divided into two core product groups according to their design, heterogeneous and homogeneous.

Heterogeneous floor coverings are produced in strips 1500 mm wide and supplied in reels under the commercial names DOMO, NOVOFLOR STANDARD KLASIK, NOVOFLOR STANDARD KOLOR, NOVOFLOR EXTRA DECOR, NOVOFLOR EXTRA MARKET, NOVOFLOR EXTRA SUPER, NOVOFLOR EXTRA STYL, NOVOFLOR EXTRA OPTIMAL, NOVOFLOR EXTRA IDEAL, NOVOFLOR EXTRA AMOS and DUAL.

Homogeneous floor coverings are tiles 608 x 608 mm with the commercial name PRAKTIK N and special homogeneous floor coverings called ELEKTROSTATIK and DYNAMIK.



Rules for using LINO Fatra products

- The base must comply with requirements of ČSN 74 4505 Floors – Common Regulations and Requirements of Manufacturer's Installation Instructions.
- The floor coverings are for indoor use. They must not be installed in rooms without basements unless they are sufficiently waterproofed.
- Avoid wetting (e.g. wet shoes, water spillage, etc.) a base that is ready for installation.
- We recommend using disperse adhesives with high initial adhesiveness and glass fibres for demanding jobs for bonding tiles.
- Do not use any floor covering that is visually damaged; refer to the supplier.
- Tiles should be installed as the final procedure after all industrial construction work is finished.
- Always install floor covering strips in one direction.
- Only weld and load the floor after the adhesive has hardened.
- Do not wet the floor covering for more than 24 hours or expose it to an environment with relative humidity over 75% for a long time.
- Conditions of use: Temperature + 10°C to + 35°C, relative humidity 50% ± 10%.
- Exposure to sunlight in south facing glazed rooms may cause the floor temperature rise over + 35°C. In this case we recommend using adhesives containing glass fibre and shading the floor appropriately.
- The base temperature of floor heating systems must not exceed 28°C.
- Avoid moving objects with sharp edges made of materials harder than the PVC on the floor surface. Gravel, sand, furniture legs and pet's claws can scratch the surface.
- Furniture legs should have suitable soft plastic sliders, textile pads, etc. They should be checked regularly.
- For chairs on casters use "W" type wheels made of soft plastic over a hard core or protective PET boards designed for under movable furniture.
- Do not exceed a spot load pressure on the floor covering of 5 MPa.
- The material can be cleaned with a steam mop. Short-term temperature resistance up to 120°C.
- Glowing and smouldering objects cause irreversible changes of colour and structure.
- Rubber products (usually dark and coloured rubber – rubber wheels, instrument protectors, shoe soles, etc.) in contact with the floor covering can irreparably change the wear layer; the floor covering surface will turn yellow, brown or black at the point of contact with the rubber.
- Direct UV-C radiation (e.g. germicidal lamps and direct sun light) causes gradual surface degradation and permanent colour changes.
- Observing preventive measures such as using sufficiently large cleaning zones and suitable agents for cleaning and maintenance significantly help to keep the floor covering at its best and extend its service life.
- Claims for floor coverings not installed according to the manufacturer's instructions will not be accepted.

If the contact points of mobile furniture that are not properly protected scratch the PUR protective layer this damage is not covered by the guarantee.

3. BASES

A perfect base made according to the specifications of current national or European standards is a must for a proper installation.

The base must meet CSN 74 4505 Floors – Common regulations for local levels, residual wetness, surface integrity, crack repairs, joints and unevenness. In addition the base must also meet the mechanical resistance and stability requirements. The base layers must be completely cured, level, smooth and free of dust, grease, paint, varnish, polishing agents, oil, curing agents, sealants and any other material that might adversely affect the properties of the levelling compound and the adhesive to be used. The base level must be in accordance with the CSN 74 4505 standard (maximum deviation 2 mm per 2 m). The construction project must specify the floor structure quality, in particular the base layer type, the bonding agent to

be used, the arrangement and thickness of individual layers, insulation and sealing properties and the location of expansion gaps. Expansion gaps must have a suitable profile so that both they and the floor covering work properly and other gaps and cracks must be closed with the appropriate materials and systems before ballasting is carried out. The construction project specifications must be included in the list of flooring work and approved by the designer (or building company representatives) and the flooring company representative.

This data is very important because different bases require different preparation. Inspections of whether the construction project specifications were adhered to when making the base floor structure usually focus on the quality of the base surfaces and their moisture rather than on the quality of the entire floor or ceiling structure and effective waterproofing.

Before installing the floor covering, make sure to recheck the quality of the base top layer (usually cement dab, anhydrite, oriented strand boards, etc.). These bases are not usually suitable for binding vinyl floors because they are not level or smooth enough, or the surface strength is insufficient and therefore we always recommend blasting them. Surfaces levelled by knifing filler must be reground and any grinding residues thoroughly removed before installing the floor covering.

When applying levelling knifing fillers follow the manufacturer's instructions. In addition to the base, make sure the walls are perpendicular to the floor and inspect the wall surface quality where skirting or scotias will be installed. Any plaster repairs must be made before installing the floor covering. It is also advisable to specify how heating ascending pipes floor holes are to be finished.

The base surface quality is inspected using standard flooring tools and equipment.

- 2-metre rule (spirit level) with measuring pads to check that the site is level
- Slide gauge
- Measuring instruments to determine the residual moisture in the base
- Thermometers and moisture meters to measure the climate in rooms

Before installing the floor covering recheck the residual moisture in the base and note the result in the construction log or in a separate report, stating the method used. Calibrated measuring tools must be used.

3.1. Cement bases

Cement bases are the most common base structure. They must meet the requirements defined in section 3 of this manual (level site, strength etc.). The maximum permissible moisture of a cement screed in weight percent determined by the gravimetric method according to standard CSN EN ISO 12570, Hygrothermal performance of building materials and products – Determining moisture by drying at increased temperature when installing the wear layer, is 3.5% for PVC, linoleum, rubber or cork. If the floor includes a floor heating system, the maximum permissible moisture of a cement screed is reduced by 0.5%. A suitable alternative method can be used to determine the maximum

permissible moisture of a cement screed, e.g. the carbide method. The maximum permissible moisture of a cement screed must not exceed approx. 2.1% CM (carbide method) for normal use and approx. 1.8% CM for heated floors (CSN 74 4505).

3.2. Anhydrite bases

Anhydrite screeds (AFE) are made from anhydrite binder, aggregate (sand and gravel) and water. In addition, admixtures are frequently used to change the screed's chemical or physical properties, e.g. plasticity, hardening or setting.

Anhydrite screeds are used primarily because of their easy and fast application.

AFE are applied as a liquid self-levelling mixture. Given the processing method, uniform strength and level tolerance values can be guaranteed that cannot be achieved with mixtures containing less mixing water. AFE screeds do not subsequently deform as in the case of curing conventional cement screeds so they are suitable for large areas without gaps.

However, remember that there are 2 disadvantages when installing floor coverings on AFE:

- **Screed moisture**
- **Surface strength**

When installing a floor covering the fitter must follow these instructions and guidelines:

The following empirical rule applies for determining the curing time to achieve the permissible residual moisture of AFE screed up to 40 mm thick: approximately 1 week of curing per 10 mm. If the AFE screed is over 40 mm thick the curing time is more than proportionately longer, i.e. approximately two weeks for each additional 10 mm of screed thickness. These values are always for standard climatic conditions. The empirical rule cannot be used under exceptional climatic conditions such as high air humidity. If the AFE screed is 7 cm and more the period to achieve an acceptable residual moisture value is extremely long.

The maximum permissible moisture of an anhydrite screed in weight percent determined by the gravimetric method according to ČSN EN ISO 12570, Hygrothermal performance of building materials and products – Determining moisture by drying at increased temperature, or by the carbide method in CM percent, must not exceed 0.5 weight percent or 0.5% CM when installing impermeable floor coverings. The residual moisture must not exceed 0.3 weight percent or 0.3% CM with heated screed floor covers (CSN 74 4505 specification).

Dielectric moisture meters are only suitable for approximate measurements, i.e. to identify humid spots.

The gravimetric or carbide CM method must be used to determine the base residual moisture.

As an anhydrite screed is curing, a thin layer appears on the surface that must be removed by regrinding with a suitable grinding machine and grade 16 sandpaper. The ground material must be removed with a vacuum cleaner. Then check the surface to determine its hardness using a base hardness tester (scratch test). This is a simple method where the base surface is mechanically scratched and its hardness determined. Anhydrite base materials with CA-C20-F4 (AE 20) strength usually do not meet the required hardness and therefore the base must be repaired with a levelling compound and bonding primer recommended for anhydrite bases.

3.3. Screeds with floor heating

When installing floor coverings on a floor heating system it must be turned on sufficiently in advance to make sure the base is adequately dry. Each floor heating system has its specific operating conditions depending on the heating system and the base. To avoid problems strictly observe all the standards and regulations specified by the heating system manufacturer.

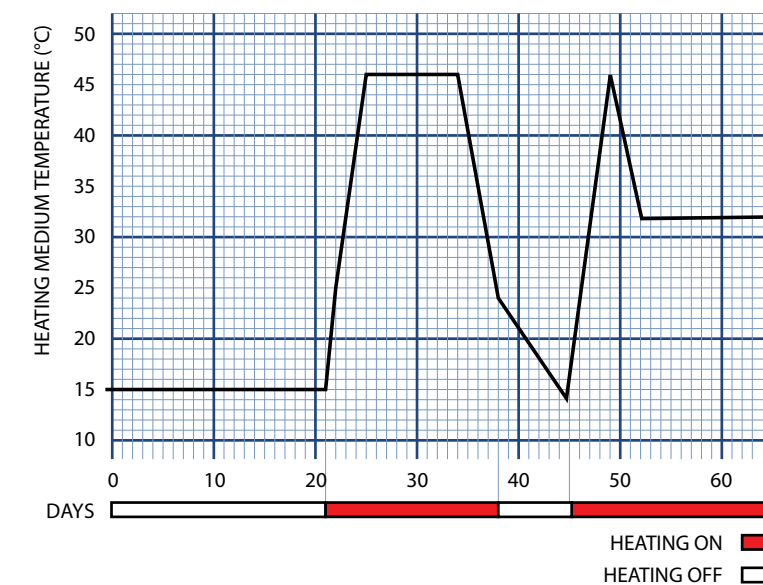


Diagram 1 – Sample floor heating start-up diagram

In screeds up to 70 mm thick with a heating tube in the middle of the layer the heating medium temperature should be increased by 10°C a day until it is 45°C ± 5°C and kept at this for 12 days. Then decrease the temperature by 10°C a day until it reaches where it was before the start of the build-up cycle. After the temperature falls to 15°C other heating is carried out until the maximum temperature is achieved (see Diagram 1). The heating system must be started before installing the floor covering and the residual moisture must be measured. Collecting points must be marked when installing heating tubes so that samples can be collected (to make sure that there is no tube edge at least 10 cm around a mark). The maximum permissible residual moisture is 1.8% CM for cement screeds and 0.3% CM for anhydrite screeds. If the permissible residual moisture is not reached keep the heating medium at 45°C ± 5°C. The heated screed must not be covered with any constructional or other materials. Regular short ventilations are necessary when heating the screed. The installation should be carried out immediately after the permissible residual moisture is reached. If there are more than 7 days between the first heating cycle and the installation, or if water or moisture exposure occurs in the intermediate period from painting, plastering or cleaning, then the screed must be reheated at full power for more than 2 days followed by residual moisture measurement.

A heating test record must be produced and signed by all parties; the customer will submit it before installing the floor covering.

When installing the surface temperature must not fall below +15°C and it must be kept at the same level usually for 24 hours after finishing (until the adhesive is fully cured). If the floor heating system is turned on earlier it may evaporate the residual moisture in the adhesive and create bumps in the floor covering. An alternative heating system to keep the best air temperature for the floor covering must be provided when the floor heating is shut down.

The system temperature should be gradually increased to a maximum base surface temperature of +28°C. The floor can be welded with a rod and exposed to the operating load after the adhesive is cured.

The floor should be finally taken over immediately after the installation and cleaning.

3.4. Magnesite screeds

A magnesite screed is made from caustic magnesite, admixtures (quartz, wood or cork powder) and an aqueous solution of salt, usually magnesium chloride.

Caustic magnesite is a finely ground stone powder that is baked from natural magnesite. A magnesite screed with a raw material density of up to 1,600 kg/m³ is called a xylolite screed. Wood or cork powder is used, among others, as an admixture or filler, hence the term xylolite screed.

Single-layer xylolite screeds are often used as a base for floor coverings which can then be installed after approx. three

weeks if the moisture content is lower than the value specified in the standard. Great experience is needed to determine whether a magnesite screed is cured enough for floor coverings to be laid. A soft base can often remain underneath a relatively hard surface layer. Even greater difficulties arise with old two-layer xylolite screeds where the top layer is usually impregnated with wax or a similar product. In both cases we recommend grinding off the top layers with grade 16 sandpaper and using a suitable bonding primer to prepare the base for a levelling compound.

3.5. Chipboard and cement-chipboard bases

Large boards should be at least 18 mm thick with a density of 700 kg/m³. We recommend using large 1,200 x 2,400 mm or 600 x 2,400 mm. Large boards with locking tongue and grooves are preferable. The boards must be fixed at 350 mm spacing, using recessed head nails or countersunk wood screws at least 2.5 times longer than the board thickness or fastening clips. Boards at least 18 mm thick can be used for supports at no more than 450 mm spacing. Boards at least 22 mm thick must be used for supports at 610 mm spacing. Chipboards and cement-chipboards must not contain any binders that would affect the adhesion of the glue. Install two layers connected by wood screws with overlapping gaps for sufficient rigidity and flatness. All joints must be glued to keep precise fitting and level. We recommend over laying this base type with a levelling compound layer so that the gaps are not imprinted on the final surface.

Materials that might be attacked by fungi or wood-destroying insects must be treated in advance with suitable fungicides and insecticides. Before installing the floor covering the panels and the wooden supporting structures must have a uniform moisture content. We recommend leaving the products for at least 7 days in their intended environment to acclimatise.

3.6. Bases of ceramic and cement tiles and cast terazzo

All tiles must be undamaged, firmly fastened to the base and any loose grout must be removed from the gaps. The surface must be degreased using water-soluble degreaser, washed with a solution of washing soda and hot water and neutralised with clean water. For better adhesion, roughen the surface before applying the bonding primer and the levelling compound approx. 3 mm thick.

3.7. Using original floor coverings as a base

LINO Fatra floor coverings must not be installed on old floor coverings. No claim can be made for a floor covering not installed according to the manufacturer's recommendations. Fatra, a.s. takes no responsibility for the quality of the new floor covering. All original floor coverings must be removed including the adhesive if possible. We recommend regrinding the base before applying the bonding primer and levelling compound. Apply a suitable bonding primer and gravel on the cleaned base. Dispose of the removed floor covering ecologically.

4. 4. TOOLS, EQUIPMENT AND ACCESSORIES

A qualified fitter must have a basic tool kit that should be kept clean and in good condition. The actual choice of tools depends on the fitter's preference, extent of use and type of preparatory work.

Basic tool kit:

4.1. Base preparation

- | | |
|---|--------------------------------------|
| Containers for mixing levelling compounds | 2 m water-level with measuring wedge |
| Moisture meters and thermometers | Floor scrapers, spatulas |
| Aeration (porcupine) roller | Base hardness meter |
| Grinding stone | Rotary grinding machine |
| Steel smoothing tool | Foam plastic roller |
| Industrial vacuum cleaner | CM instrument |

4.2. Area measurement

- | | |
|--------------------|----------------|
| Metre, steel ruler | Pencil |
| Cross laser | Marking string |
| Measuring tape | |

4.3. Dimensional adjustments

- | | |
|---------------------------|------------------------------|
| Flooring knives | Circular cutting knife |
| Drawing instrument | Tile cutter |
| Compasses | Circular cutter |
| Flooring scissors | Mitre box, sliding mitre saw |
| Universal skirting cutter | PVC nosing cutter |
| Steel blade | |

4.4. Installation

- | | |
|---|---|
| Toothed and smooth scraper | Hot-air gun |
| Hand pressing roller | Trimming knife with guide piece for welded joints |
| Sectional pressing roller, weight: at least 50 kg | Brush |
| Joint cutter – Linocut | Cold-welding kit |
| Electric groove cutter | Electrical resistance meter |
| Hand groove knife | Rubber mallet |
| Quick-welding nozzles (ULTRA nozzle for PUR) | Melting gun |

4.5. Accessories

- | | |
|--|---|
| Welding rod | Scotia profiles |
| Transition, levelling and end profiles | Stair nosings |
| Conductive Cu strip | Fixing material |
| Pads under chair casters | Sealants |
| Door stoppers, etc. | Skirting, inside and outside corners, end pieces, roses |

4.6. Cleaning agents

- | | |
|---------------------------------------|------------------------------|
| Clean cloth | Wet and dry vacuum cleaner |
| Water and detergent for tool cleaning | Cleaning machine |
| Bucket | Cleaning mop with applicator |



CM instrument



groove cutter



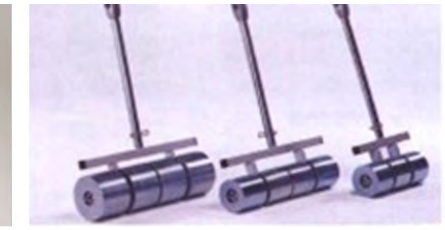
groove knife



straight knife



steel blade



sectional roller



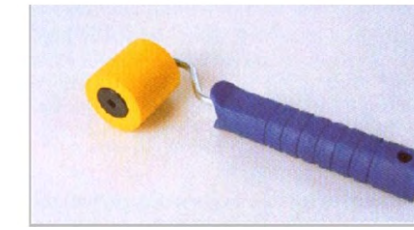
chamfer plane



hot-air welding machine



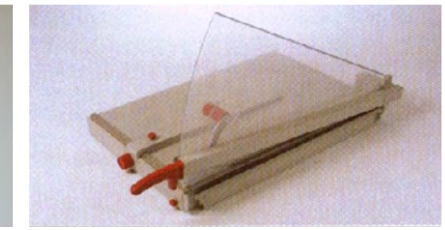
porcupine aeration roller



mating foam roller



floor stripping machine



tile cutter



cradle knife



circular cutter



circular knife



trimming knife with guide piece



trimming knife



cold welding kit



slide gauge



vertical surface gauge



hooked knife

5. BONDING

Bonding is the last operation after all the industrial construction work is finished.

The following information is for guidance only. Always follow all the recommendations and instructions of adhesive manufacturers. Adhesives must always be handled properly.

5.1. Preparing base before ballasting

The base layers must be completely cured and have flexural tensile strength according to the CSN EN 13813 standard. The base or traffic layer of industrial floors must meet at least strength class C20/25 specified in the CSN EN 206-1 standard or the strength class determined by a structural calculation. The minimum value of the tensile strength for the surface layers under the wear layer is 1.25 MPa for non-traffic floors. The base structure must be free of cracks, holes and protrusions. In addition, it must be dry, clean and free of dust, grease, paint, varnish, polishing agents, oil, curing agents, sealants, wax and any other material that might adversely affect the adhesive properties. The base layer must be smooth, flat and level. The flatness and level of the base must conform to the CSN 74 4505 standard, Article 4.3 and Table 1, Maximum deviations from the wear layer local flatness.

All cracks and gaps must be properly repaired, e.g. by clips. Expansion gaps must be preserved and fitted with a suitable expansion profile. The system supplier should be consulted about keeping or closing expansion gaps for separate floor heating circuits. Gaps and cracks should be filled with repair resin. Do not use gypsum-based products (e.g. modelling or plastering gypsum)! The base layer surface must not be wet. Avoid wetting (e.g. wet shoes, water spillage, etc.) a prepared base. The floor flatness and moisture must be in accordance with the CSN 74 4505 standard (maximum deviation 2 mm per 2 m).

5.2. Screeding

A connecting bridge – a bonding primer must be used for a high quality screed. There are two types of bonding primer – for absorbent and non-absorbent bases. It is best to apply two layers of bonding primer for extremely absorbent bases (the first layer is diluted). The purpose of bonding primer is to reduce and unify the base absorption capacity so that moisture needed for curing the screed is not removed. If the base is flat enough the screed should ideally be about 3 mm thick. The screed is usually spread with a steel smoothing tool. A porcupine roller should be used for the final adjustment. After the screed dries and is reground the base is ready for bonding. The flatness and appropriate design of the screed is one of the most important influences on the overall appearance of the finished floor and therefore great care should be taken with this phase of base preparation. Any imperfections and faults in the screed will affect the final floor appearance.

5.3. Applying the adhesive

We strongly recommend keeping all adhesives at over 18°C for at least 24 hours before use. The adhesive is usually applied with a toothed scraper. The type of screed and amount of adhesive are specified by the adhesive manufacturer (most often A1, A2). However, if bonding with solvent adhesives use a smooth scraper instead. Let the adhesive partially dry. Partial drying allows excessive water to evaporate giving the best adhesion. The best aeration time is specified by the manufacturer and depends on environmental conditions. The right time to start bonding is when the adhesive bonds when touched and "does not pull fibre" – also called a dry bond (it does not stick to the fingers when touched). The "bonding time" or working time begins then. This time is defined by the adhesive manufacturer and is the bonding interval. It may be influenced by the ambient temperature, relative humidity and other aspects that may shorten or significantly lengthen the bonding time. High relative humidity may be necessary in some cases to achieve the required bonding time.

Only apply the area of adhesive that you can install the floor covering on during the bonding time.

The adhesive can be easily cleaned off the floor covering with wet cloth. To remove dried adhesive use a small amount of solvent cleaning agent recommended by the adhesive manufacturer. Using too much cleaning agent may change the colour and soften the surface of the floor covering.

5.4. Rolling the floor

Remove any dirt immediately before you start to roll the area. Immediately after installing the floor covering or part of it (see bonding period, subsection 5.3.) must be rolled with at least a 50 kg sectional roller. Rolling with a sectional roller makes sure the adhesive has good contact with the floor covering, removes residual air and smoothes adhesive traces.

Repeat this after 1 to 4 hours!

5.5. Adhesives

A wide range of adhesives is available and the choice depends on many different factors. An adhesive should be selected when planning the construction project taking into account the adhesive's properties when installing, using as well as removing. In addition, the recommendations of floor coverings and adhesive manufacturers should be considered and strictly followed. In particular the recommended amount, the type of toothed scraper used to spread the adhesive and other recommendations should be followed. The main factors when selecting an adhesive include the type of floor covering, the site conditions and the floor's operating conditions. For details about adhesive type, use, installation time, storage conditions and safety regulations see the technical and safety sheets and pack labels.

6. DELIVERY INSPECTION

After delivery and before storage, check that the type, pattern and colour matches your order, that the quantities match and the floor covering is not damaged. In particular check that the floor covering comes from an identical batch. Floor coverings manufactured on different dates may have minor colour differences in accordance with the technical sheet and these are not covered by the guarantee.

If you can see imperfections or damage do not install the floor covering.

We recommend keeping the ID tag from each packaging in case a guarantee claim is made later. We also recommend checking any other materials delivered for the contract as above.

7. INSTALLING STRIPS OF HETEROGENEOUS FLOOR COVERING

7.1. Product details

Heterogeneous floor coverings consist of a wear (functional) layer and additional one or more base layers of various compositions. They are manufactured in strips 1,500 mm wide.

Please see the relevant technical sheets and catalogue lists for specific technical parameters.

7.2. Base preparation

See Section 3.

7.3. Preparing the floor covering

After the delivery inspection as described in Section 6 first unroll the floor covering and visually check the quality of its appearance and pattern. Do not install any floor covering that has visible defects. Instead, file a guarantee claim with your supplier. When installing use the rolls successively according to their serial number on the label to avoid any colour differences. We recommend installing floor covering strips in one direction for uniform gloss and colour. Cut the floor covering strips to the required size with a 5–10 cm overlap. Let them lie for 48 hours before installing. The room temperature must not drop below +18°C. The dimensions will stabilise and minor ripples will smooth out automatically during this time.

7.4. Bonding with dispersion adhesives

This method is also known as one-sided (adhesive) bonding and is especially used when bonding a floor covering to absorbent bases. This method can also be used for non-absorbent bases with particular adhesives.

Cut the entire length of the floor covering strip so that it fits the wall profile (alcoves, projections). Then move the strip approx. 0.5 cm from the wall (expansion gap) and bend it in half lengthways.

Remove any dust and impurities from the base and then use a toothed scraper (the type recommended by the adhesive manufacturer) to apply the dispersion adhesive on half the width of the floor covering strip. Allow the adhesive to partly dry. The partial drying time depends on the absorption properties of the base, relative humidity and the room temperature. If the base is very absorbent or has an open structure we recommend applying a suitable bonding primer with a plastic foam roller before applying the adhesive. Then attach the strip carefully, making sure it does not move from its position, and roll the entire area with a sectional roller (minimum weight 50 kg). Repeat this process on the other half of the strip.

For opposite walls, cut the edge of the floor covering so that the strip can expand (leaving a gap of approx. 5 mm). Place a second (third, fourth, etc.) strip making sure it slightly overlaps the bonded strip, and bond it as above. After bonding cut the overlaps using a cradle knife. After the entire area is covered, roll the floor covering again with the sectional roller. Any adhesive on the floor covering must be removed immediately with a wet cloth. However if the adhesive dries, it becomes water resistant and can only be removed with the solvents recommended by the adhesive manufacturer and approved by the floor covering manufacturer or with benzine.

After installing do not load the area for at least 24 hours. After this weld the floor covering and install the skirting.

7.5. Bonding with solvent adhesives

When using solvent adhesives make extra sure that the base is of the best possible quality. In particular pay special attention to the strength, cohesion and flatness of the contact surface. If the base has a rough surface the adhesive layer is sometimes thicker and then not enough solvent will evaporate from the adhesive. This may cause ripples and bubbles after the floor covering is installed.

This method is similar to that of dispersion adhesives. However, the adhesive is applied on both the underneath of the floor covering and the base; this is a two-sided technique, known as contact bonding. After preparing the first strip, i.e. adjusting the strip edge to the wall, use a pencil or a felt-tip pen to mark on the base the entire length of the strip edge where a second strip will join. The line will help you to position the strip exactly when installing. The strips cannot be repositioned by sliding on the base during the installation. Repeat the marking and installation process for the other strips over the entire area.

Before installing both surfaces must be coated with adhesive. Apply adhesive to the underneath of the floor covering and the base with a smooth scraper and a brush for the edges of the floor covering. If the base is very absorbent, recoat it after it dries. The adhesive drying time depends on the room temperature and ventilation. When properly dried, the adhesive is sticky to touch but no longer creates a “hair”. If the adhesive is too dry or insufficiently dry the floor covering will not adhere to the base properly.

Be very careful when installing because errors are very difficult to rectify. Repositioning a bonded floor covering strip damages the base structure or the underneath of the floor covering.

The rest of the process is the same as using dispersion adhesive.

Any adhesive on the floor covering must be removed immediately with benzine using appropriate safety measures. Since an explosive mixture of solvent vapours and air can be created it is very important to ventilate the room while the adhesive is being applied and the floor covering installed and cleaned. It is therefore essential to strictly follow the safety instructions and put danger signs on the access route to the workplace.

7.6. Joining with a welding rod

A U- or V-shaped gap needs to be cut in the joint of two adjacent strips before welding. The gap should be a maximum of 2/3 of the floor covering thickness.

Cutting the gap is necessary:

- To remove stuck adhesive or impurities from the joint
- To properly position the welding rod
- For a uniform gap width

Unwind the welding rod, which must be approx. 50 cm shorter than the length of the floor covering strips, place it along the gap and weld both strips. In the opposite, direction start from where the complete joint ends. The gap must be properly prepared and a suitable welding machine, with a temperature range from 20 to 700°C, continuous control and an adapter for an appropriately shaped quick-welding nozzle used for a good weld. We recommend using the ULTRA quick-welding nozzle with a regulated and projecting air hole to weld floor coverings with a polyurethane protective layer. This will prevent the the PUR lacquer surface layer thermally degrading at the point of welding.

It is best to use a motorised semi-automatic welding machine for larger areas. When doing so, make sure to synchronise the hot air temperature and the speed of movement. In addition, check that the guide wheel does not run out of the gap and that the welding rod is placed uniformly in the gap. The welding speed depends on the ambient conditions, the set welding temperature and the fitter's skills.

The weld area must be slightly shiny and the rod edges must be slightly melted but without colour changes. An excessively high welding temperature makes the rod area turn brown or even black. If the weld is not done properly, the welding rod will not adhere and will come out of the gap when being cut to size. Both these are unacceptable.

After welding let the rod cool down to room temperature and cut it twice using a quarter moon shaped knife. First use either a guide piece or a plane suitable for welded joints; then use the knife without a guide piece and cut to the floor covering level. To repair a defective weld cut the rod out of the defective place and then make a new weld with an overlap of approx. 5 cm on both sides.

The approximate consumption of welding rod when welding tiles is about 3.5 cm/m² of floor area.

7.7. Cold-welding

This bonding method is suitable for places with reduced use and where a floor covering without gaps is required. To make perfectly tight joints (where both overlapping strips are cut when on top of each other, known as a double cut) use a cold welding SEAL "A" solution in a tube or a bottle fitted with a type "A" nozzle. Attach a paper tape over the floor covering joint and cut it at the joint point. Then put the cold-welding solution into the gap. After the THF evaporates a watertight and almost invisible joint will be created. The welded joint may be loaded after approx. 10 minutes. The joint will reach its optimum strength after approx. one hour at a temperature of 18 – 20°C. We recommend welding the joints immediately after laying the floor covering. To join floor covering strips with joints that do not fit closely together (maximum width of 3 mm) or that were previously installed and have been used, to make corrections or to weld PVC floor strips onto floor coverings use a cold-welding SEAL "C" solution – matt paste with a type "C" nozzle. We recommend welding at temperatures of 18 – 20°C.

8. INSTALLING HOMOGENEOUS FLOOR COVERING TILES

8.1. Product details

Homogeneous floor coverings are manufactured as 608 x 608 mm tiles. Please see the relevant technical sheets and catalogue lists for specific technical parameters.

8.2. Base preparation

See Section 3.

8.3. Preparing the floor covering

Keep the floor covering at 18 – 26°C for at least 48 hours before installing. The base temperature must not drop below + 15°C. Remove the cartons from the pallets and place them open in the room where they will be installed. If the outside temperature is above 12°C during shipping and transport a maximum of 5 boxes can be stacked on each other. The temperature during installation and for 24 hours after must be kept constant at 18 to 26°C to prevent any temperature-induced changes and expansion of individual flooring tiles.

8.4. Bonding the tiles

The area covered with the adhesive during one operation depends on the site conditions that affect the adhesive gel-ling properties such as relative humidity, air temperature and air circulation as well as the pattern and the fitter's skills. Always follow the adhesive bonding time specified by the adhesive manufacturer. It is best to divide the installation area into sections where the peripheral tiles are bonded only after the main area is installed. Sections 7.4 and 7.5 of this manual describe The methods of bonding with dispersion and solvent adhesives.

8.5. Bonding the main field

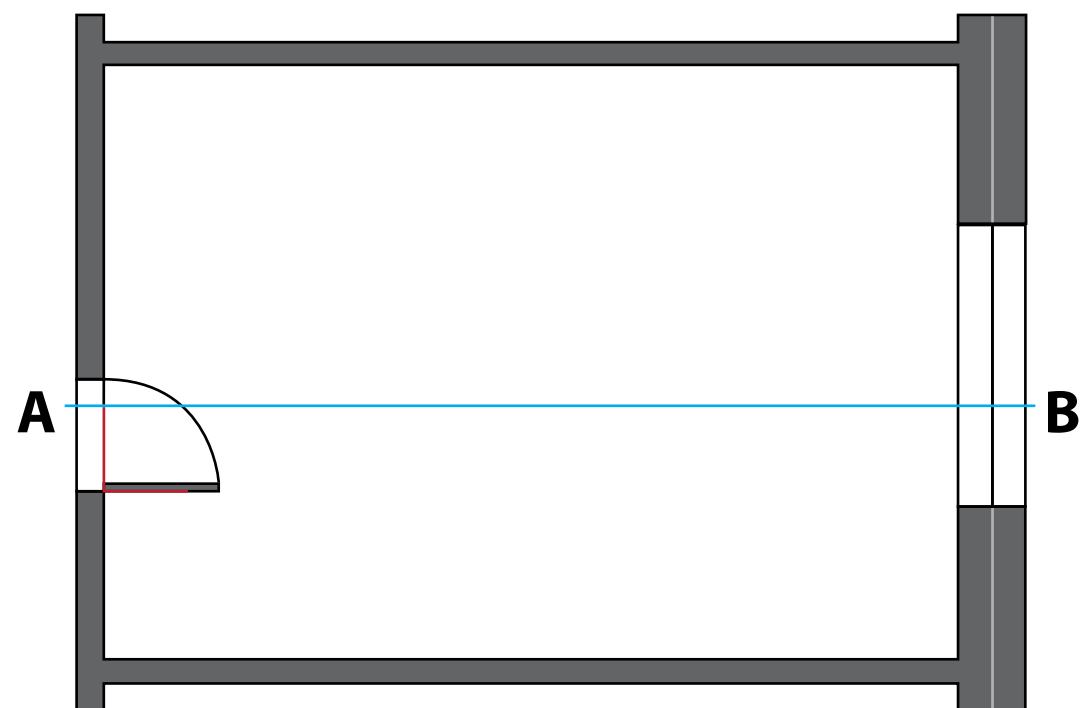
Because the tile pattern is irregular we recommend spreading or arranging the tiles. After measuring the room and marking the installation entry line apply the adhesive to the base using a toothed scraper. As soon as the adhesive is ready for bonding, place the first tile at the initial point of the entry line. Press firmly on the tile centre and then slide your hand or a roller towards the tile edges to force out air and make perfect contact between the tile and the adhesive. Place the next tile, changing the colours and marbling if desired, and proceed along the entry line. The tiles must be laid exactly and precisely along the line, if they are not a V-shaped gap will be created. Make sure there are identical gaps between the tiles. The gaps must not be wider than 1.5 mm! They form guiding grooves for future cutting. Then complete the entire section, working from the entry line and making sure that the tiles are properly bonded. After the section is installed (except the edges) roll it in both directions using a 50 kg sectional roller. Repeat the process for each section until the main field is laid.

8.6. Cutting peripheral tiles

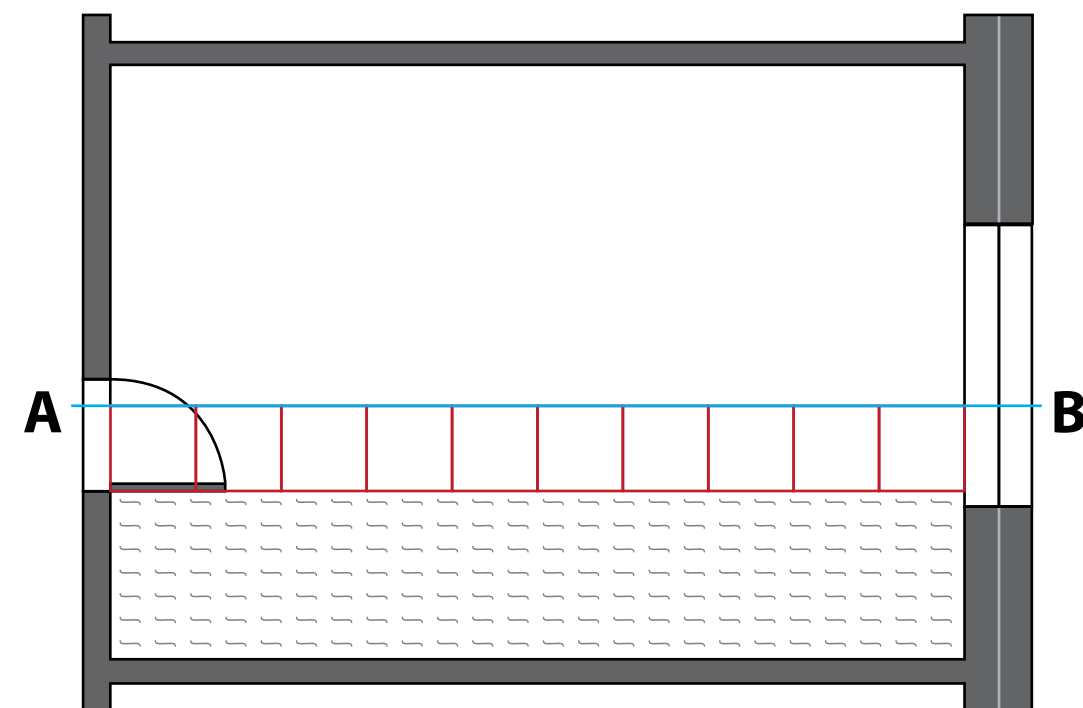
Peripheral tiles are cut during the installation. After cutting the tiles must be placed with the cut side against the wall with a 5 mm expansion gap. Keep this expansion gap for all protruding or linked structures (e.g. heating or another type of floor covering).

Note:

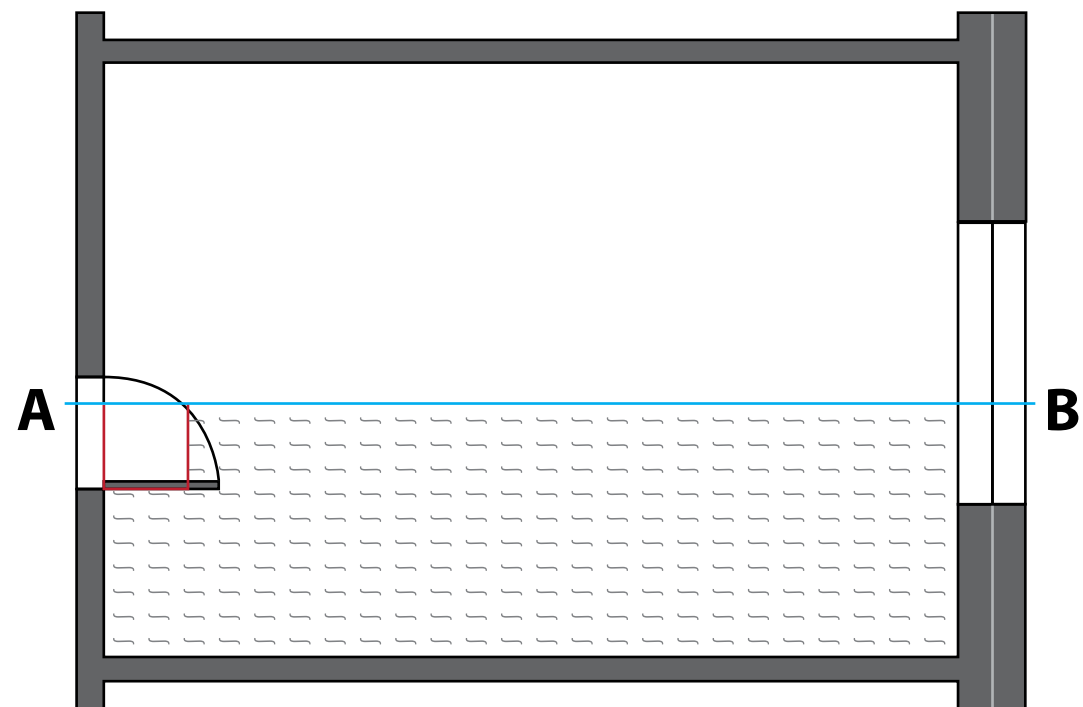
When plotting irregular shapes such as door frames we recommend making a template or using a master template for tile-layers and floor-layers.



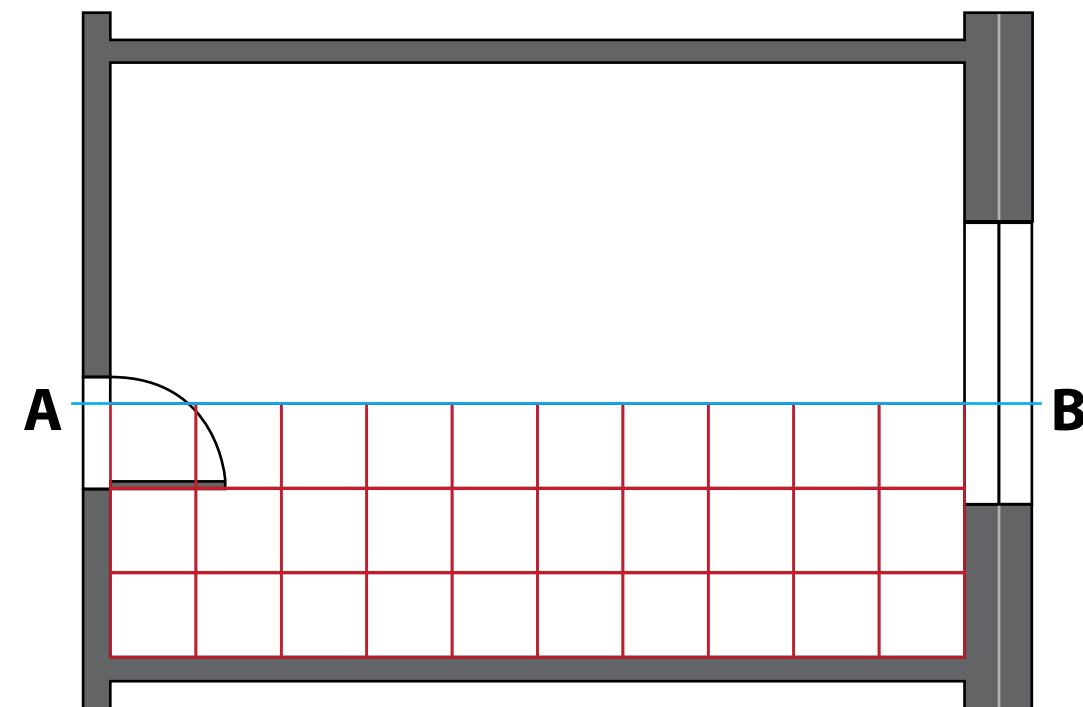
Picture 1. Carefully measure the floor of the room prepared for the installation and mark the A-B entry line.



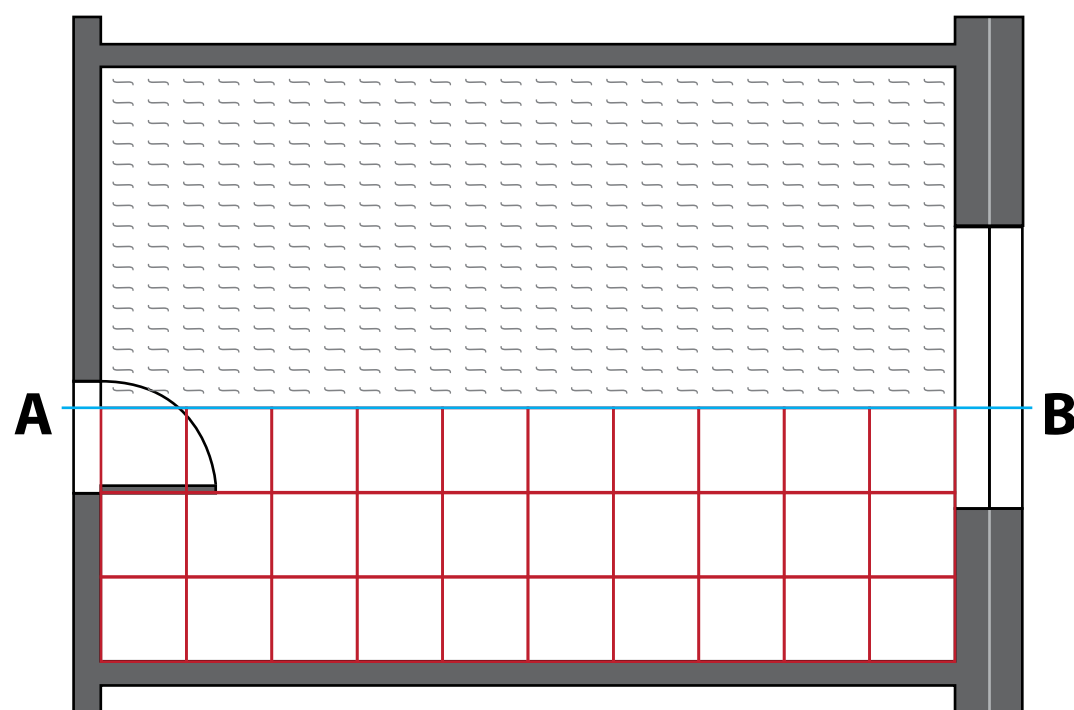
Picture 3. Lay the first row of tiles exactly along the A-B entry line. Make sure there are identical gaps between the tiles.



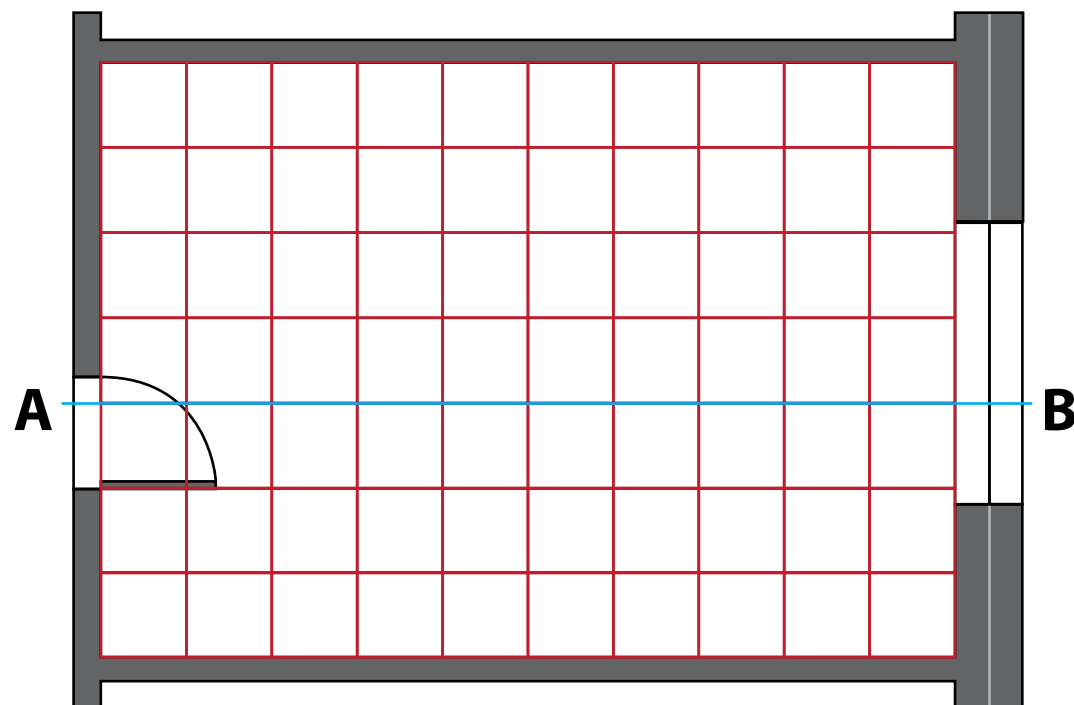
Picture 2. Apply the adhesive with a toothed scraper and let it partially dry. As soon as the adhesive is ready for bonding lay the first tile exactly along the A-B entry line. Press firmly on the tile centre and then slide your hand or a roller towards the tile edges to force out air.



Picture 4. Lay the second row and complete the entire section. Roll the floor covering with a sectional roller of at least 50 kg.



Picture 5. Repeat the procedure in the second section.



Picture 6. After laying the second section roll the entire floor surface. Repeat rolling after 1 - 4 hours. Only weld and load the floor after the adhesive hardens.

9. CONDUCTIVE FLOOR COVERINGS

Conductive floor coverings are used on premises where the electrostatic charge must be removed (hospitals, IT facilities, explosion hazard areas, electricity distribution stations, paint shops where paint is applied in an electric field etc.).

The floor coverings are classified according to their electrostatic properties (internal R_v resistance) into electrostatic conductive and static dissipative (formerly known as antistatic) groups.

ELECTROSTATIC CONDUCTIVE FLOORS - are used where the required leakage resistance of the floor is $R_v \leq 10^6 \Omega$ (i.e. up to 1,000,000 Ω).

STATIC DISSIPATIVE FLOORS - are used where the required leakage resistance of the floor is $R_v \leq 10^9 \Omega$ (i.e. up to 1,000,000,000 Ω).

Bonding electrostatic conductive floor coverings

Electrostatic conductive floor coverings are used where the required leakage resistance of the floor is $R_v \leq 1 \cdot 10^6 \Omega$. For use with conductive adhesives, Fatra recommends the following systems: Fatra – Uzin, Fatra – Henkel, Fatra – Mapei, Fatra – Schönox, Fatra – Kiesel, Fatra – Bralep and Fatra – Bostik. They have all been tested by the State Testing Laboratory 210 (Report of the State Testing Laboratory 210; No. 10/0007, No. 01/0028-1, No. 02/0001-1, No. 03/0035, No. 07/0070-1, No. 06/0024-1 and No. 11/0072).

9.1.1. Fatra – Henkel system

This floor system includes the following components:

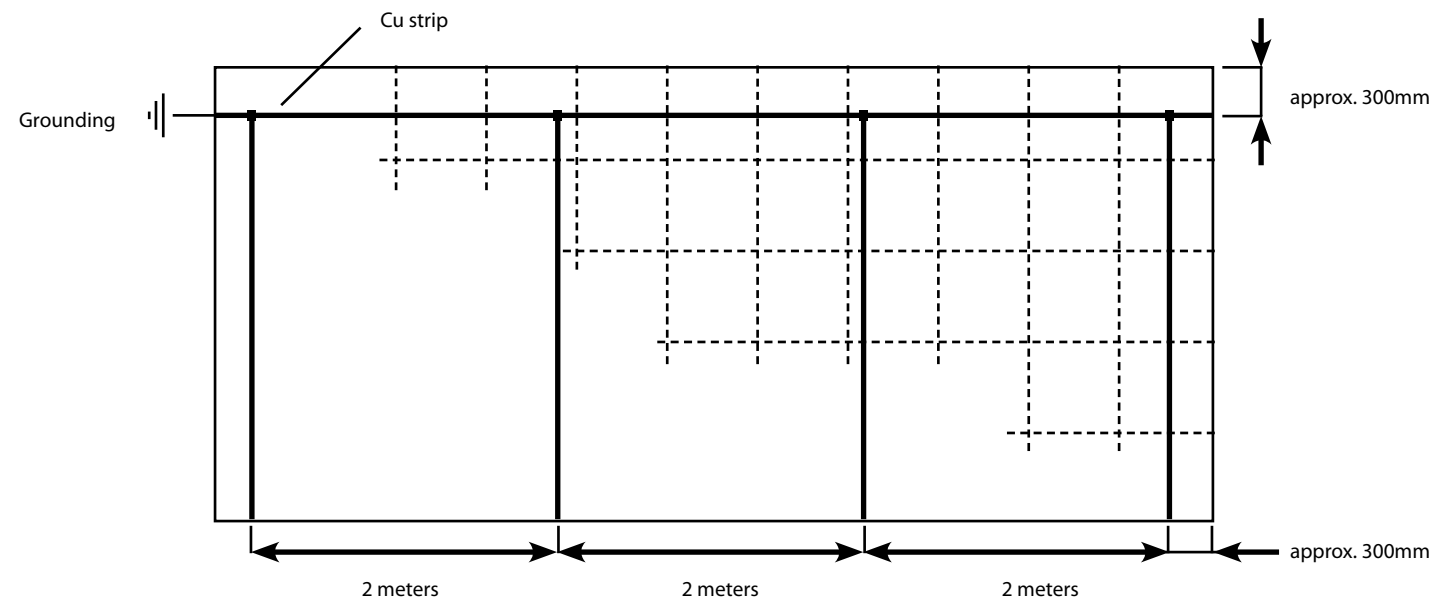
- Elektrostatik floor covering
- CU strip
- Thomsit K 112 conductive adhesive
- Thomsit R 762 conductive base coat
- Thomsit DD self-levelling compound

Bonding primer depending on the base type (absorbent – non-absorbent)

9.1.1.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat with a plastic foam roller (replaces the Cu strip mesh) onto the base with the self-levelling compound. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh on the dry base so that no point of the floor covering is more than 1 m from the Cu strip. Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed.



When dry, solder all intersections on the strip with solder tin (CSN 42 3655). The solder layer must be flat so that the tin does not deform the floor covering once installed. Do not use soldering acid to stop rust in the joint. Ends of the copper strip are fitted with a disconnectable terminal that is used to check electrical resistance. These ends are connected to grounding mesh using a disconnectable terminal that is used to check electrical resistance. The ends are connected to the main protective terminal in accordance with the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.2. Fatra – Mapei system

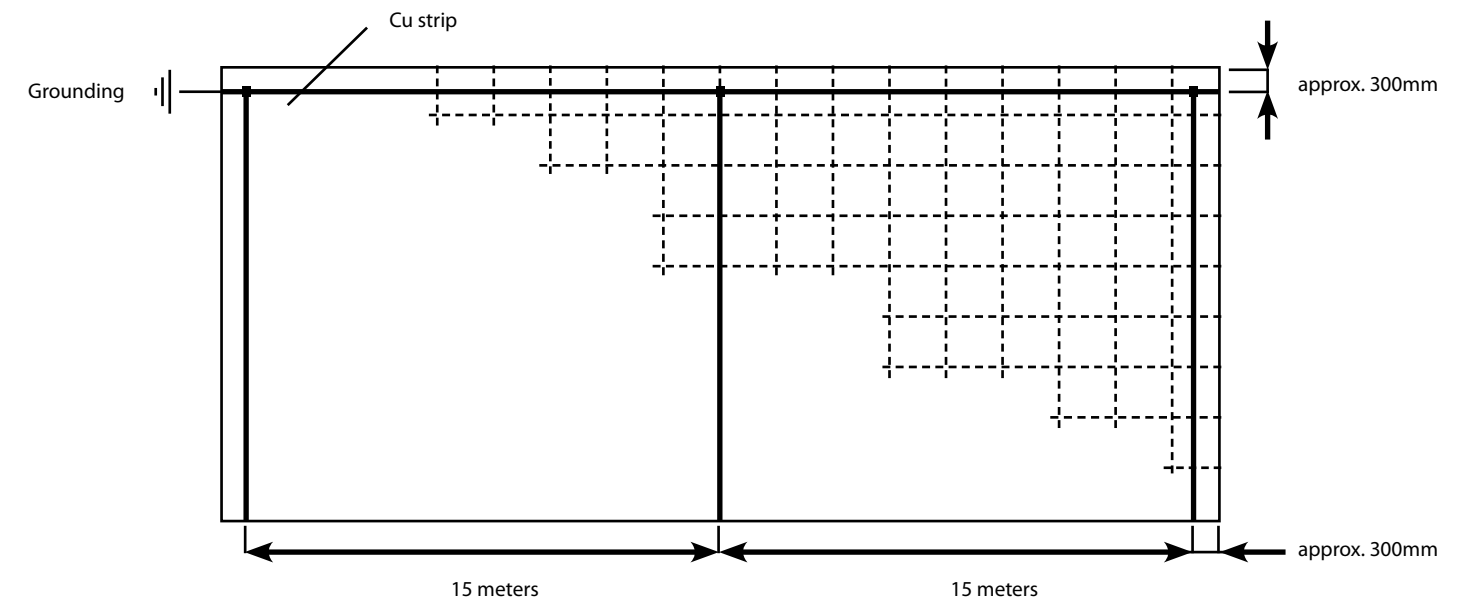
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Ultra / Bond Eco V4 conductive adhesive
- Primer G conductive base coat
- Plano 3 self-levelling compound
- Primer G adhesive (connecting) bridge

9.1.2.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh on the dry base so that no point of the floor covering is more than 7.5 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra – Mapei floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.3. Fatra – Uzin system

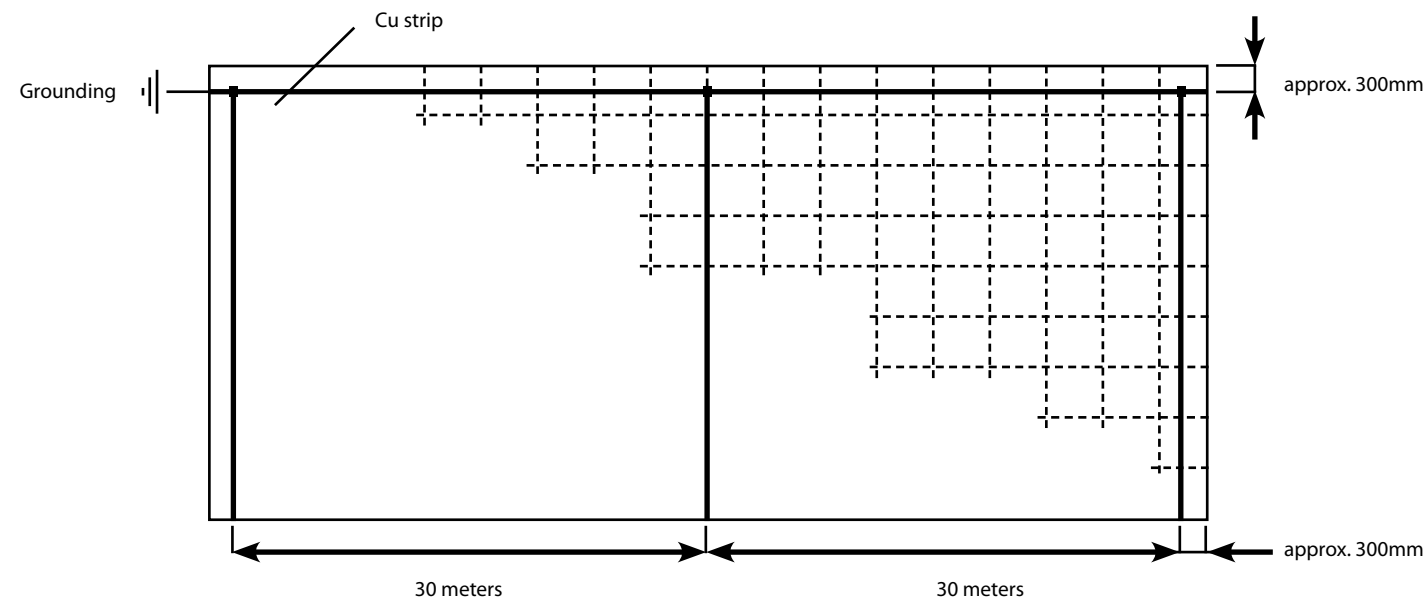
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Uzin KE2000 SL conductive adhesive
- Uzin-PE260L conductive base coat
- Uzin-NC150 levelling compound
- Bonding primer depending on the base type

9.1.3.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra-Uzin floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.4. Fatra – Schönox system

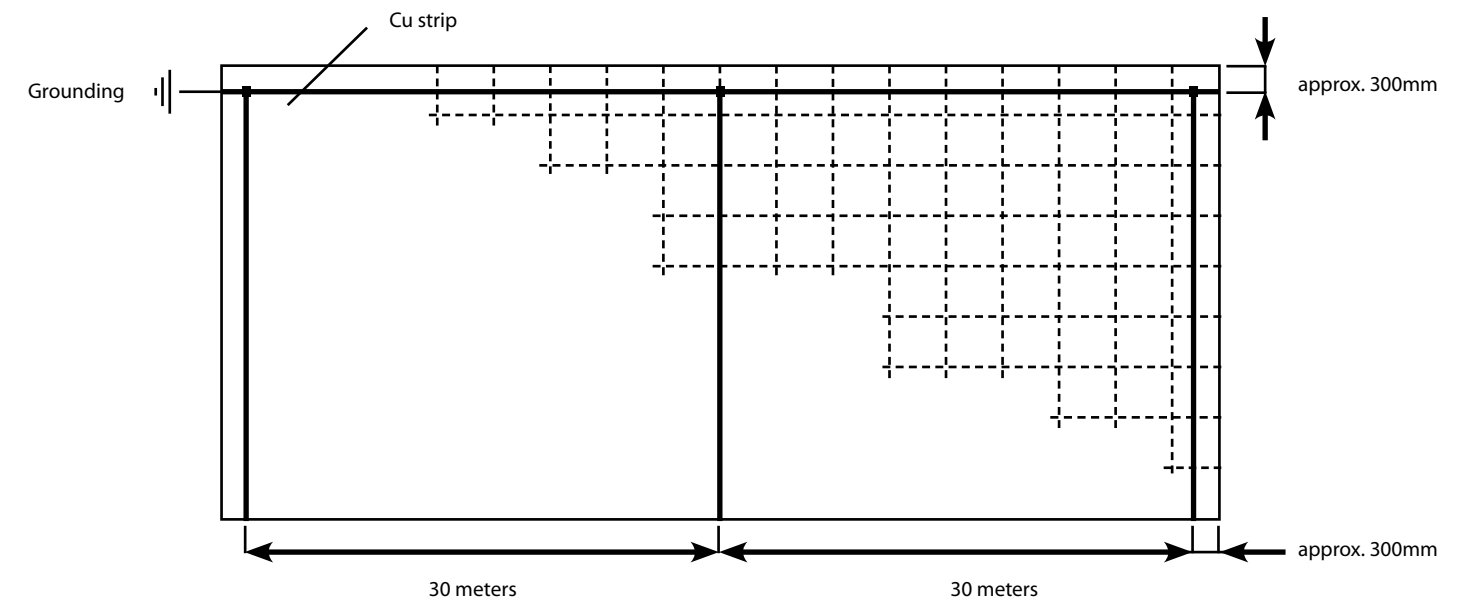
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Schönox Combileit conductive adhesive
- Schönox SuperPlan self-levelling compound

9.1.4.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra- Schönox floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.5. Fatra – Kiesel system

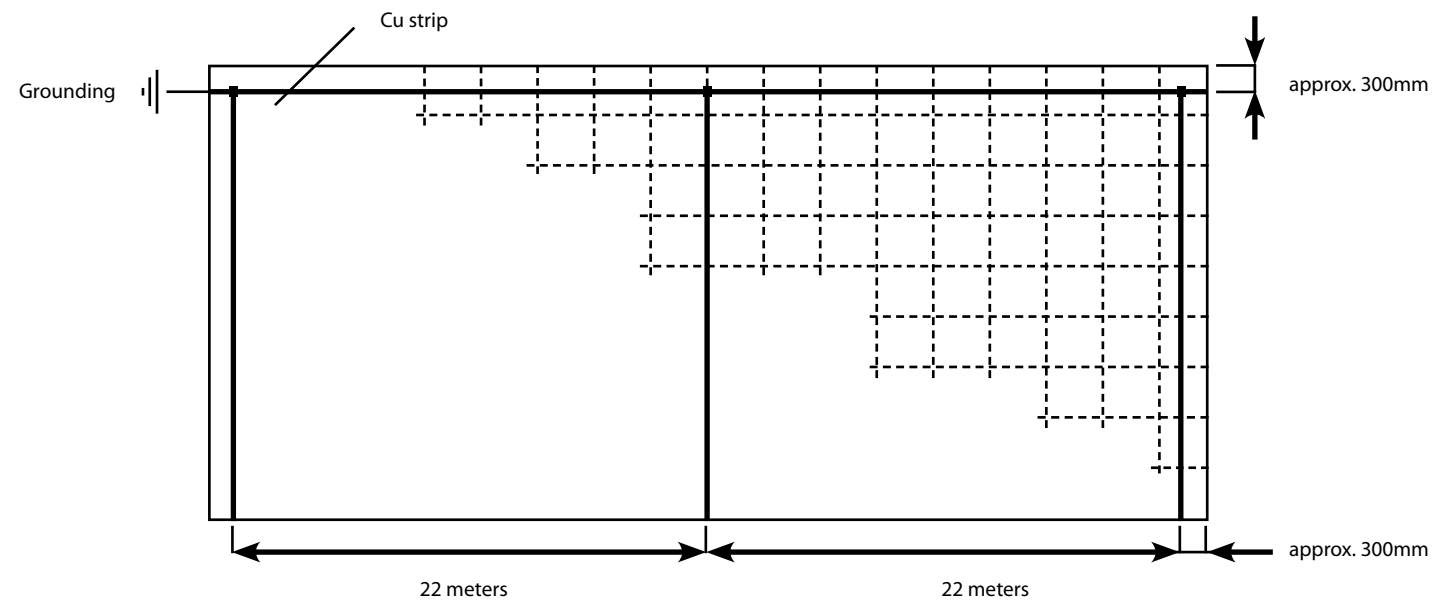
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Okatmos megaStar L conductive adhesive
- Okamul HD 11-L conductive coat
- Servofix USP self-levelling compound

9.1.5.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 11 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra - Kiesel floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.6. Fatra – Bralep system

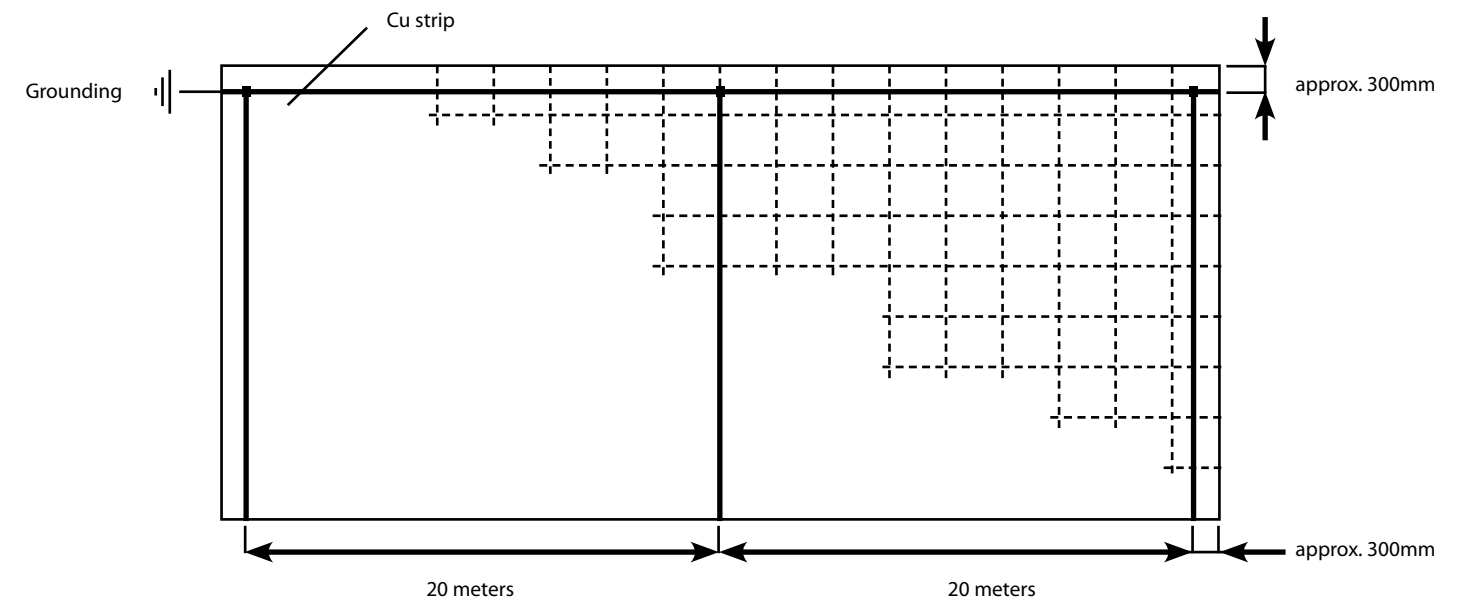
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Bralep Floor 500L conductive adhesive
- Bralep 280 L conductive coat
- Bralep RTN 2020 self-levelling compound
- Bonding primer depending on the base type

9.1.6.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 10 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra – Bralep floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.1.7. Fatra – Bostik system

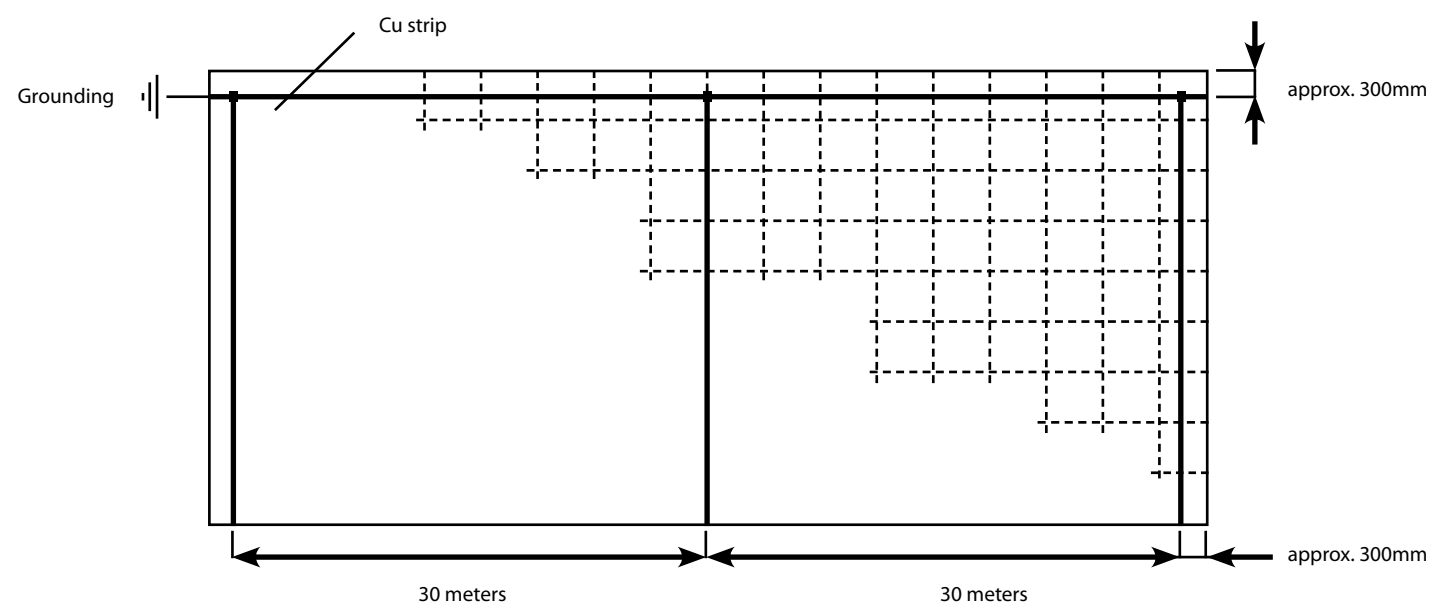
This floor system includes the following components:

- Elektrostatik floor covering
- CU strip
- Bostik POWER-MULTI SL 850 conductive adhesive
- NIBOPLAN BEST levelling compound
- Bonding primer depending on the base type

9.1.7.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra-Bostik floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R. The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2. Bonding static dissipative (formerly antistatic) floor coverings

Static dissipative floor coverings meet the requirement for the leakage resistance $R_v \leq 10^9 \Omega$.

For use with conductive adhesives, Fatra recommends the following systems: Fatra – Henkel, Fatra – Mapei, Fatra – Uzin, Fatra – Schönox, Fatra – Kiesel nebo Fatra – Bralép and Fatra - Bostik. They have all been tested by the State Testing Laboratory 210 (Report of the State Testing Laboratory 210; No. 10/0007, No. 01/0028-1, No. 02/0001-1, No. 03/0035, No. 07/0070-1, No. 06/0024-1 and No. 11/0072).

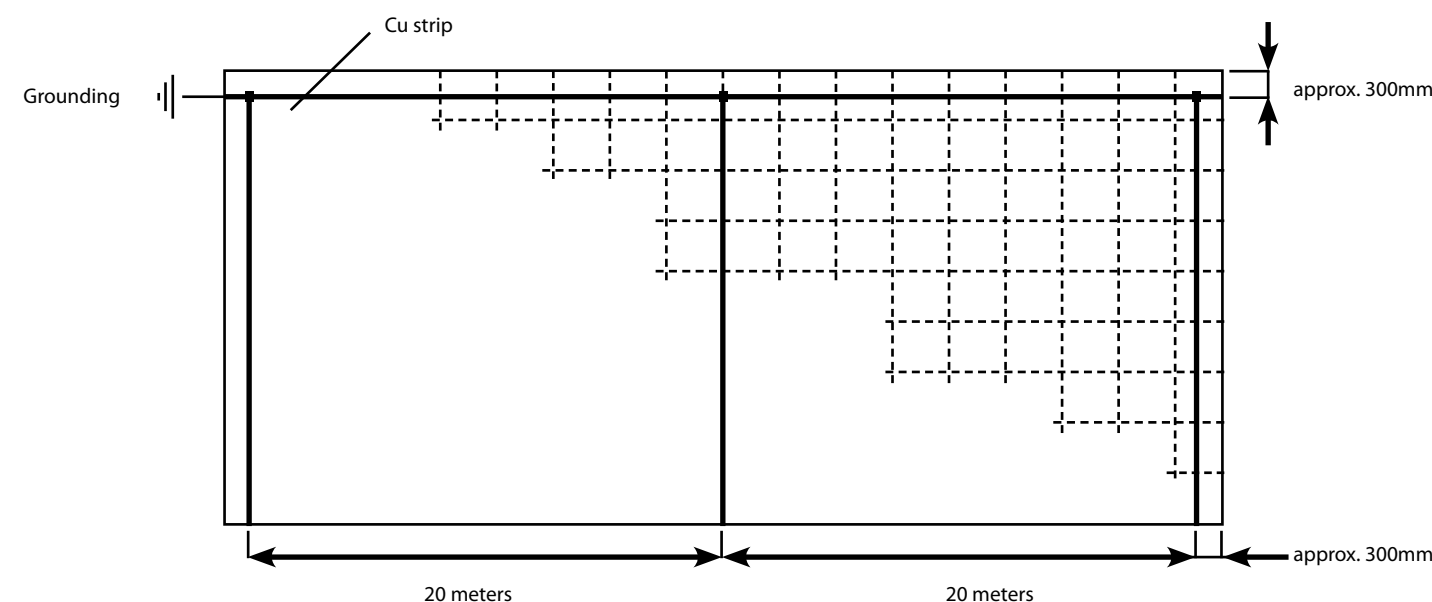
9.2.1. Fatra – Henkel system

This floor system includes the following components:

- Dynamik floor covering
- CU strip
- Thomsit K 112 conductive adhesive
- Thomsit R 762 conductive base coat
- Thomsit DD self-levelling compound
- Bonding primer depending on the base type

9.2.1.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry. Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 10 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra-Henkel floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.2. Fatra – Mapei system

This floor system includes the following components:

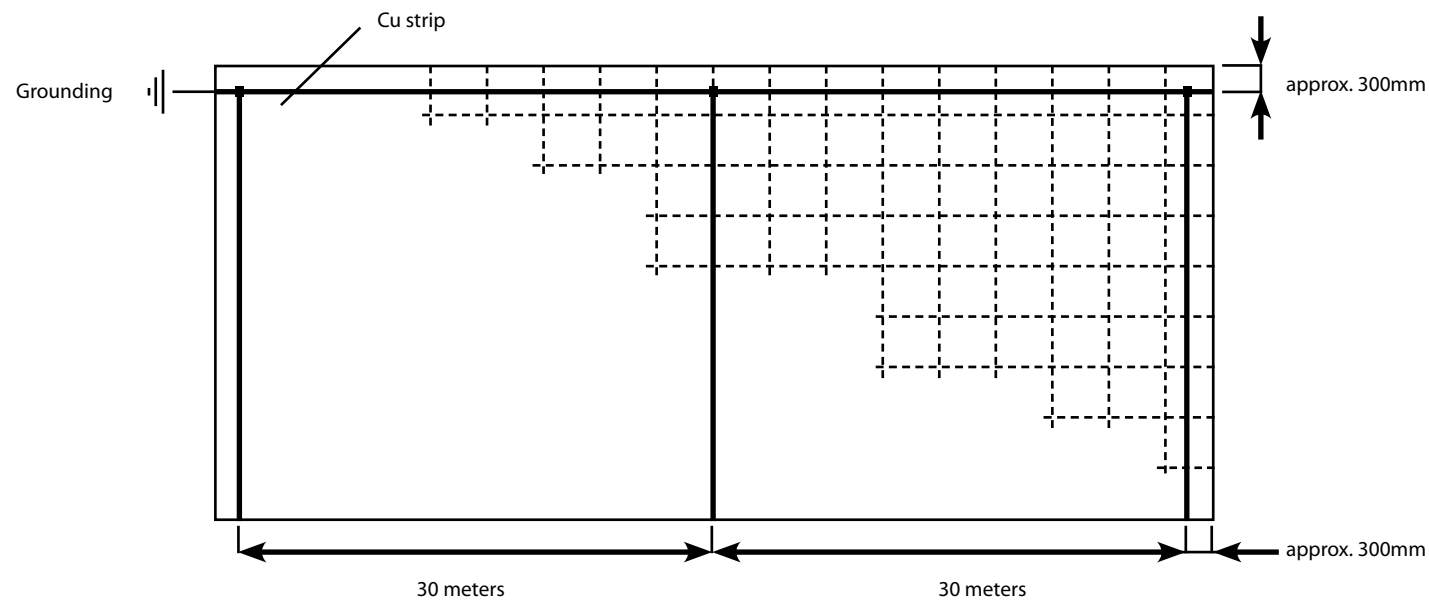
- Dynamik floor covering
- CU strip
- Ultra/Bond Eco V4 conductive adhesive – dispersion adhesive (Adesilex G 19 conductive – polyurethane adhesive)
- Primer G conductive base coat
- Plano 3 self-levelling compound
- Primer G adhesive bridge

9.2.2.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip.

In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra-Mapei floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.3. Fatra – Uzin system

This floor system includes the following components:

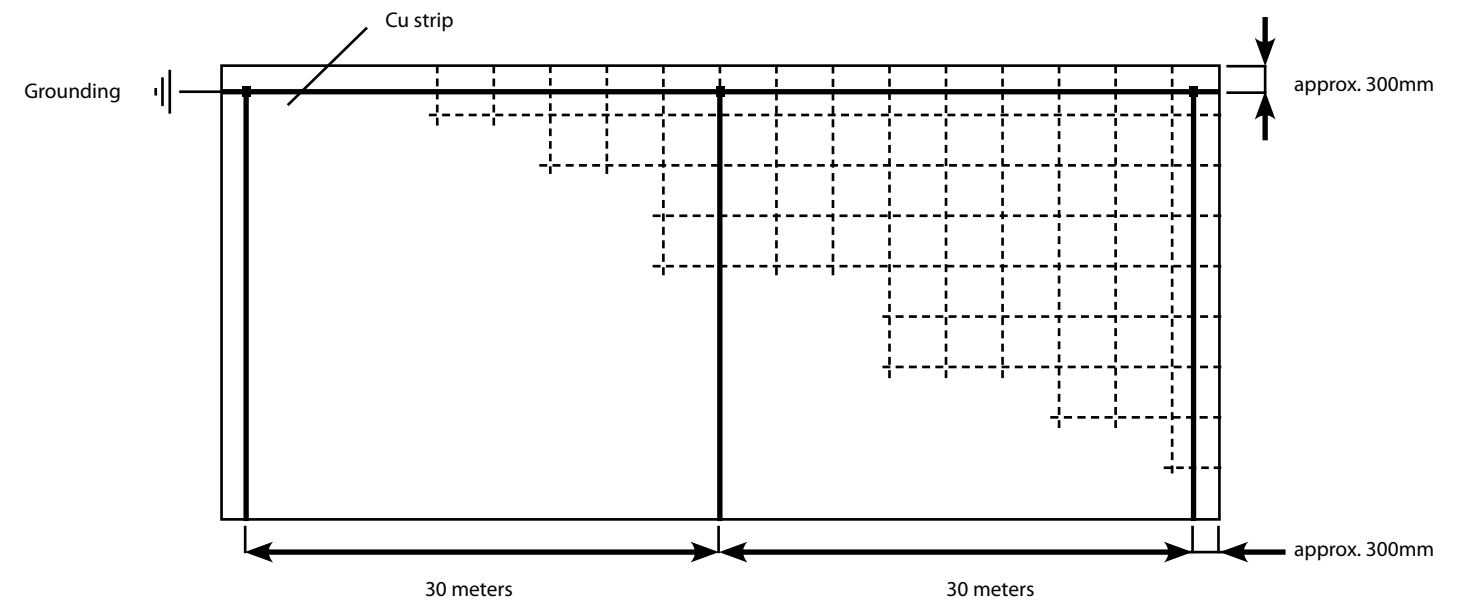
- Dynamik floor covering
- CU strip
- Uzin KE2000 SL conductive adhesive
- Uzin-PE260L conductive base coat
- Uzin-NC150 levelling compound
- Bonding primer depending on the base type

9.2.3.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip.

In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra - Uzin floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.4. Fatra- Schönox

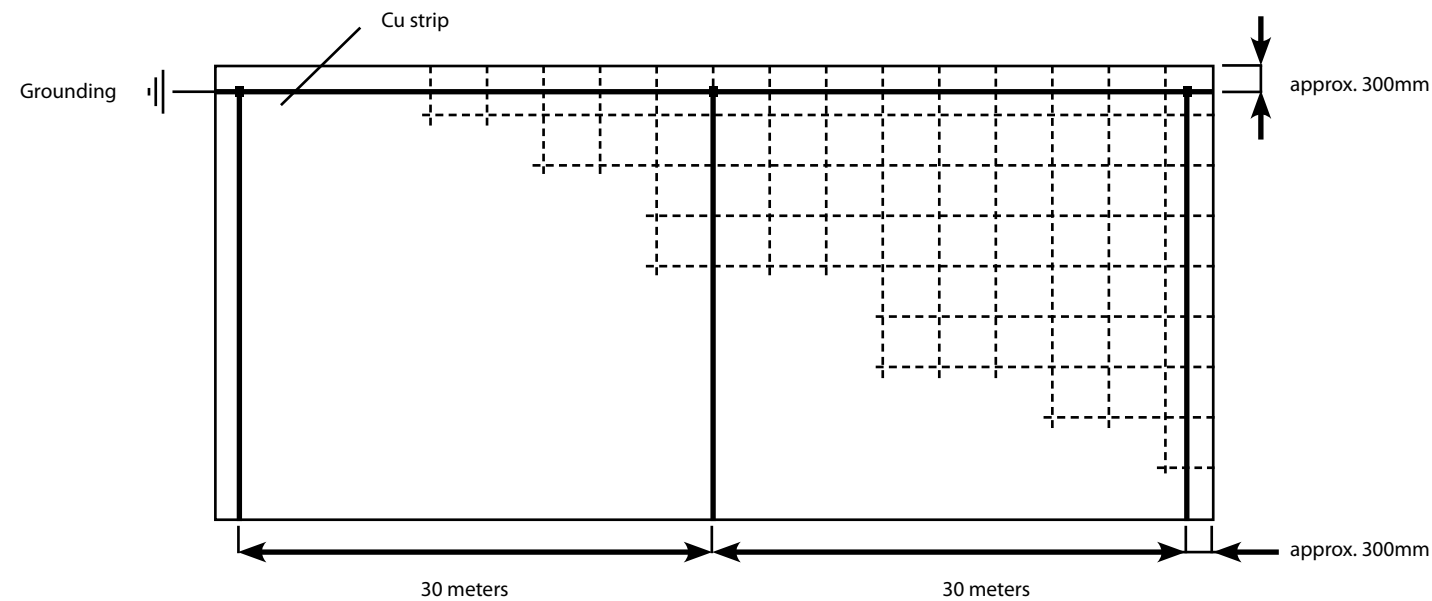
This floor system includes the following components:

- Dynamik floor covering
- CU strip
- Schönox Combileit conductive adhesive
- Schönox SuperPlan self-levelling compound

9.2.4.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra - Schönox floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.5. Fatra- Kiesel

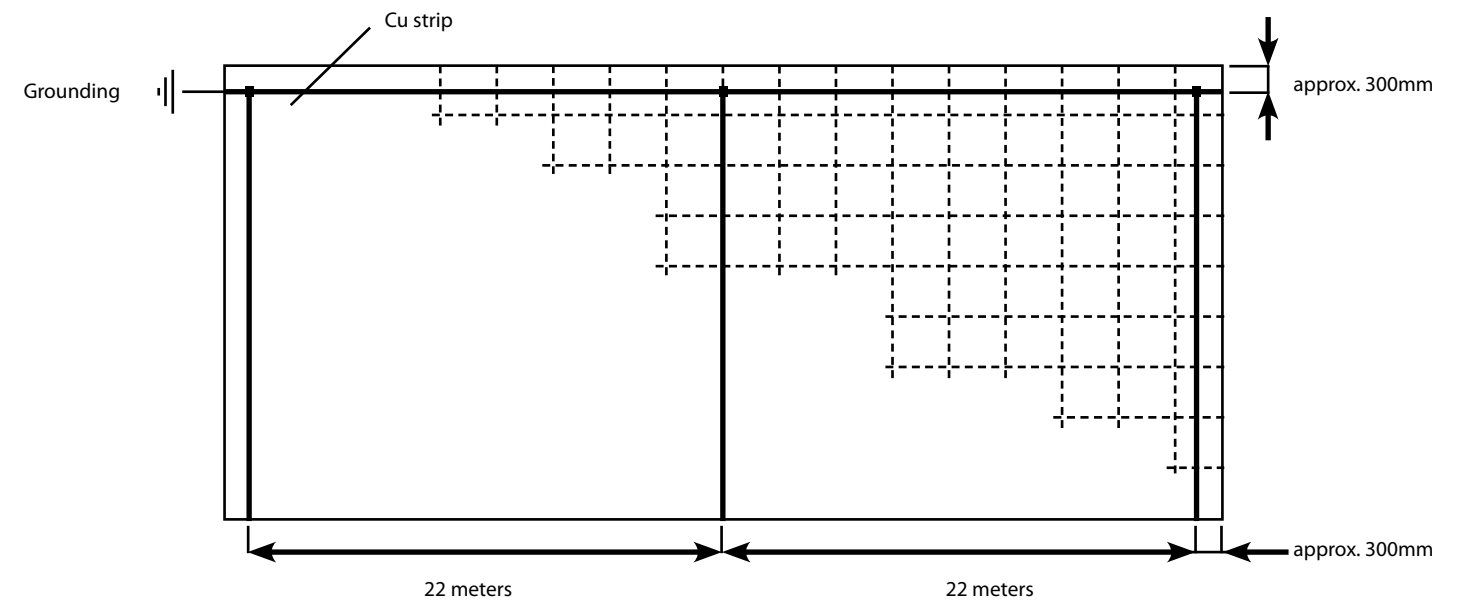
This floor system includes the following components:

- Dynamik floor covering
- CU strip
- Okatmos megaStar L conductive adhesive
- Okamul HD 11-L conductive coat
- Servofix USP self-levelling compound

9.2.5.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 11 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra-Kiesel floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.6. Fatra – Bralep system

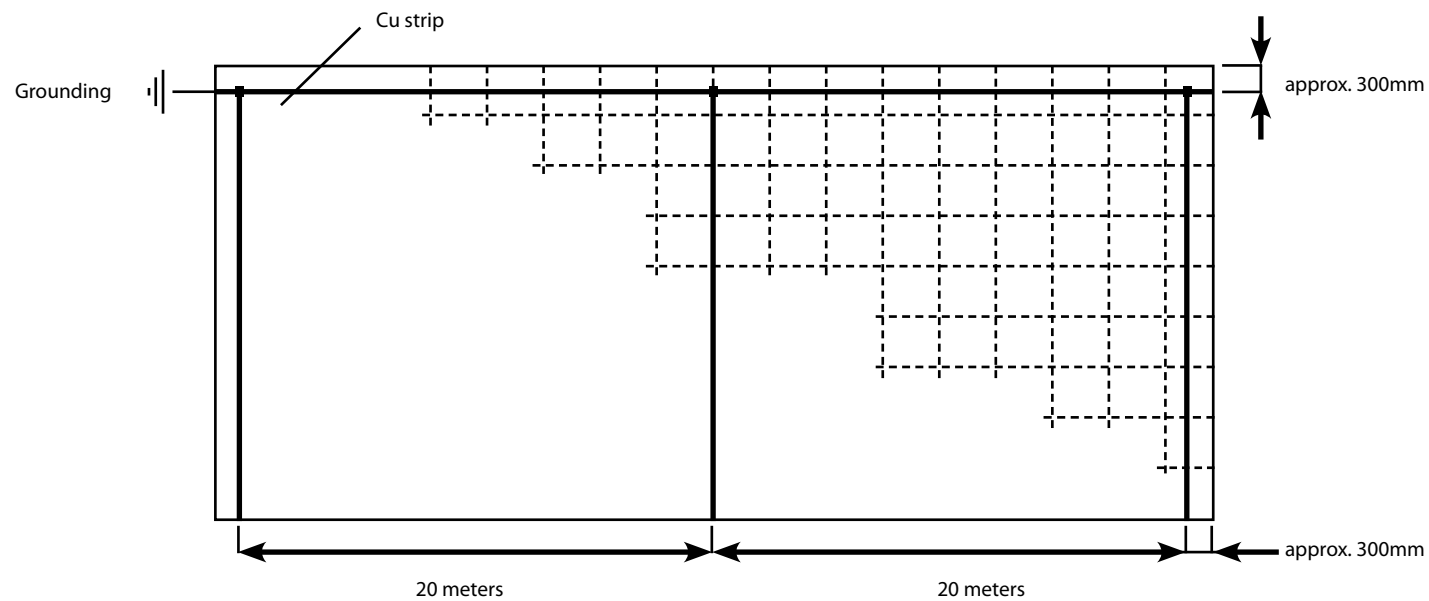
This floor system includes the following components:

- Dynamik floor covering
- CU strip
- Bralep Floor 500L conductive adhesive
- Bralep 280 L conductive coat
- Bralep RTN 2020 self-levelling compound
- Bonding primer depending on the base type

9.2.6.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 10 m from the Cu strip. In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra – Bralep floor system is 1 m.



Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the conductive mesh is installed, measure the R_{Cu} resistance.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.2.7. Fatra – Bostik system

This floor system includes the following components:

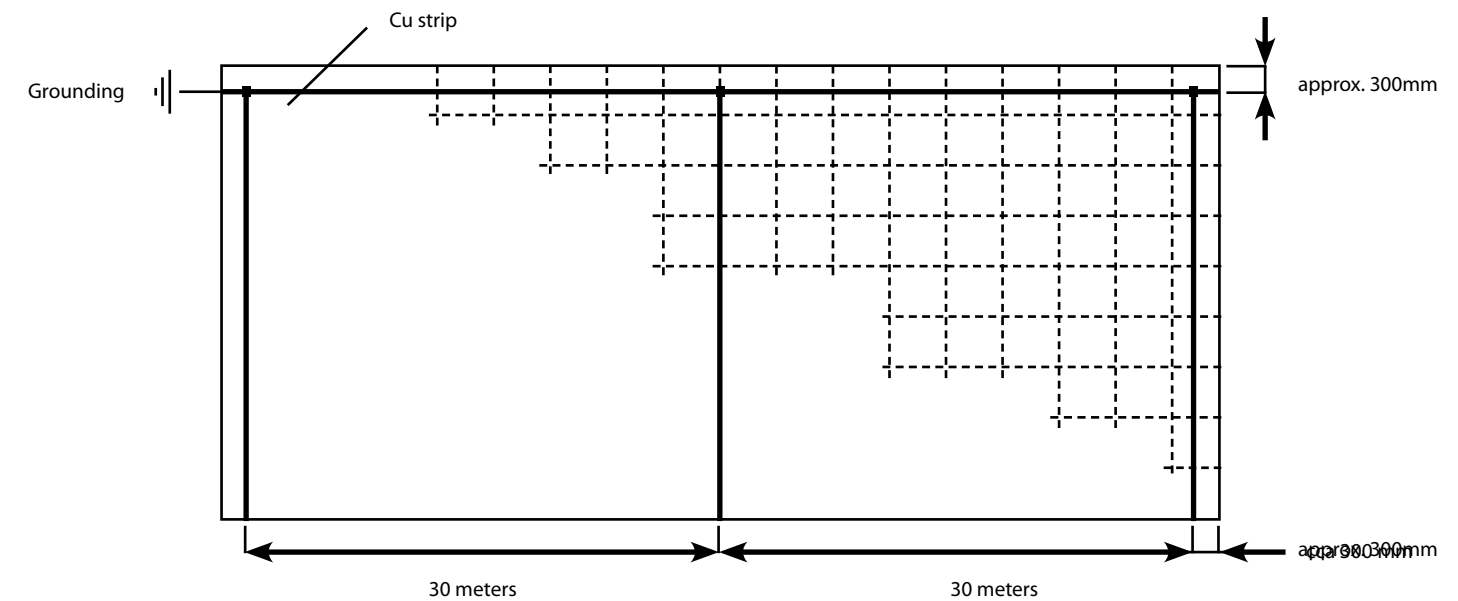
- Dynamik floor covering
- CU strip
- Bostik POWER-MULTI SL 850 conductive adhesive
- NIBOPLAN BEST levelling compound
- Bonding primer depending on the base type

9.2.7.1. Installing the conductive mesh

Apply a uniform layer of the conductive coat onto the base with the self-levelling compound with a plastic foam roller or a brush. Allow the coat at least 12 hours to dry.

Arrange the conductive mesh onto the dry base so that no point of the floor covering is more than 15 m from the Cu strip.

In smaller rooms, install only one grounding end of the Cu strip. The minimum length of the Cu strip that must be installed in the Fatra - Bostik floor system is 1 m.



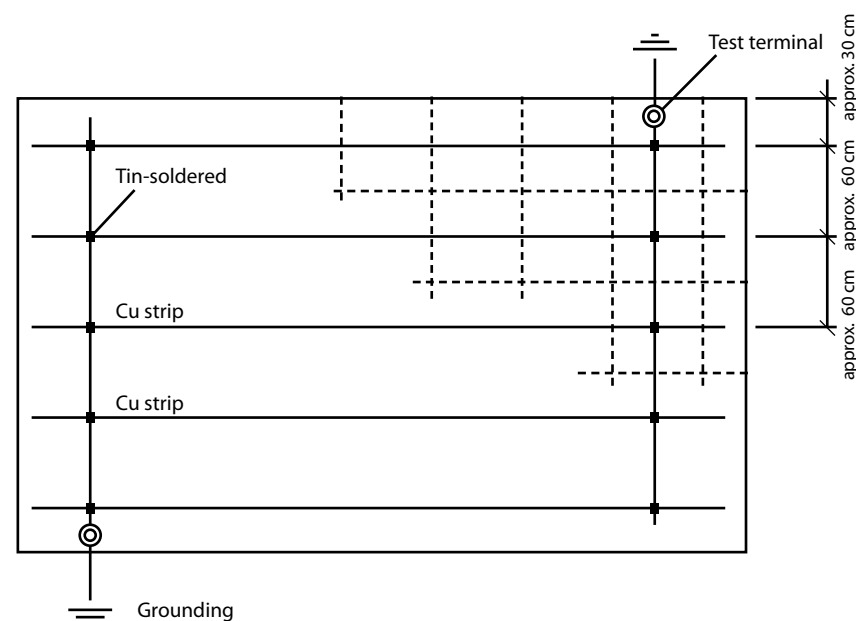
Use a brush to apply a thin and approximately 3 cm wide layer of the conductive dispersion adhesive into which the Cu strip will be pressed. All intersections must be soldered in accordance with section 9.1.1.1. The loose ends of the copper strip have a disconnectable terminal to check the electrical resistance. The ends are connected to the main protective terminal according to the CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed, measure its resistance R.

The remaining steps are the same as those described in sections 8.4 to 8.9.

9.3. Installing a conductive mesh made of a Cu strip

If the base structure does not allow applying conductive bonding primer and conductive adhesive a conductive mesh needs to be made of Cu strips. The conductive mesh must be installed in a way that the electrostatic charge is removed from each tile! Measure the room accordingly before the installation. Choose the most direct wall of the room and mark the position of the first strip approximately 30 cm from the wall (half the tile width). Starting from that line mark the position of the remaining Cu strips at approx. 60 cm intervals across the entire room width. The last Cu strip at the opposite wall must also be positioned at half the width of the last tile. Transverse discharge strips are usually installed in such a way that they join directly to the measuring terminal of the conductive mesh. The number of ends depends on the room area. If the area is 100 m² or smaller, there must be two ends (usually in opposite room corners). Another end must be provided for each additional 100 m².

Apply the adhesive in width of approx. 3 cm on the marked positions of the Cu strip and then affix the copper strip. Transverse strips must extend approx. 50 cm above the floor level and be temporarily attached to the wall, using paper tape. When dry, solder all intersections on the strip with solder tin (CSN 42 3655) according to section 9.1.1.1. The solder layer must be flat so that the tin does not deform the floor covering once installed. Do not use soldering acid to eliminate the occurrence of rust in the joint. Loose ends of the copper strip must be professionally connected to a disconnectable terminal to check electrical resistance. The ends are connected to the main protective terminal according to CSN 33 2000-5-54 standard (Grounding and protective conductors). Once the Cu conductive mesh is installed measure its resistance.



9.3.1. Bonding electrostatically conductive floor coverings to the conductive mesh made of Cu strip

This bonding method is identical to that for homogeneous floor coverings, see sections 1–8. It is necessary to use conductive adhesive of any type.

Note: It is essential to roll electrostatically conductive and antistatic floor coverings either for the reasons described in section 5.3 of this manual and in particular to achieve the specified leakage resistance of the floor.

10. BONDING HOMOGENEOUS FLOOR COVERINGS WITHOUT ELECTRIC PROPERTIES

All types of homogeneous floor coverings (Elektrostatik, Dynamik, Praktik) may be used to install homogeneous coverings that are not required to discharge the electrostatic charge.

During the installation proceed according to section 8. No conductive mesh of Cu strips is installed and no conductive base coat or conductive adhesive is applied.

11. FINISHING

11.1. Joining tiles with welding rod

Bonded tiles may not be loaded for at least 24 hours before welding. After that time you may weld the floor covering. A U- or V-shaped gap needs to be cut before welding. The gap should have a maximum depth of 2/3 of tile.

Cutting the gap is necessary to:

- Remove stuck adhesive or impurities from the joint
- Properly position the welding rod
- Ensure a uniform gap width

Unwind the welding rod, which must be approx. 50 cm shorter than the length of the floor covering strips, place it along the gap and weld both strips. In the opposite direction start from where the complete joint ends. A quality weld requires properly preparing the gap and using a suitable welding machine, with a temperature range from 20 to 700°C, continuous control and an adapter for an appropriate quick-welding nozzle.

We recommend using a motorised semi-automatic welding machine for larger areas. When using this machine, make sure to synchronise the hot air temperature and the speed of movement. In addition, check that the guide wheel does not run out of the gap and that the welding rod is placed uniformly in the gap. The welding speed depends on ambient conditions, the set welding temperature and the fitter's skills.

The weld area must be slightly shiny and the rod edges must be slightly melted but without colour changes. Using an excessively high welding temperature causes the rod area to turn brown or even black. If the weld is not made properly, the welding rod will not adhere and will come out of the gap while being cut to size. Neither of these conditions is acceptable.

After the welding allow the rod to cool down to room temperature and cut it two times using a quarter moon shaped knife. In the first step use either a guide piece or a plane suitable for welded joints; in the second step use a knife without guide piece and cut to the floor covering level. To repair a defective weld cut the rod out of the defective place and then make a new weld with an overlap of approx. 5 cm on both sides.

11.2. Installing floor strips

To join floor coverings to walls use floor strips, e.g. Novoplast strips. Place the strips along the walls and cut them to the required size plus approx. 5 cm.

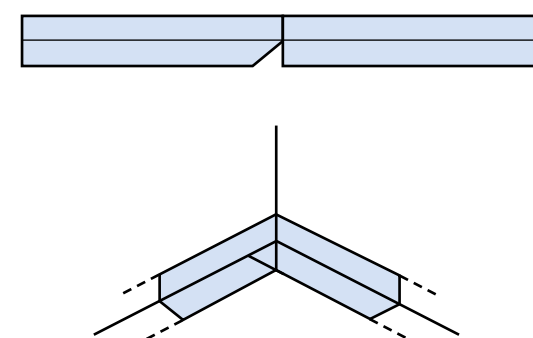
Use a brush to apply solvent adhesive onto the wall that must be smooth up to the strip height. The adhesive layer must end 0.5 cm below the strip height. For aesthetic purposes, the wall above the strip must not be stained with the adhesive. Use the same method to apply adhesive on the floor covering. We recommend using a suitable round long-haired brush for applying the adhesive to the wall. Then apply the adhesive onto the strip underside. For this preferably use a brush that is 1 cm narrower than the strip width. We recommend using an adhesive-applying machine for larger areas.

The adhesive on the strip and the wall must not become over-dry; the adhesive must be optimally dry. Ventilation must be provided since the adhesive is a class I flammable and there is risk of an explosive mixture being created.

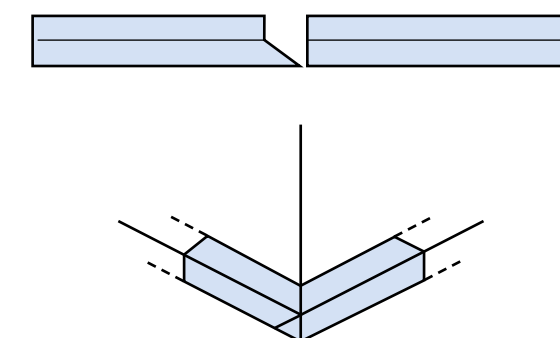
Start the installation in a corner and bond the entire strip while pressing it continuously. In inside and outside corners, place the strip edges so that they overlap, cut them, remove the overlaps and bond the strips edge-to-edge.

The strip must form a compact and aesthetic unit with the floor covering. Any adhesive stains on the floor covering and the strip must be removed using benzene.

Inside corner

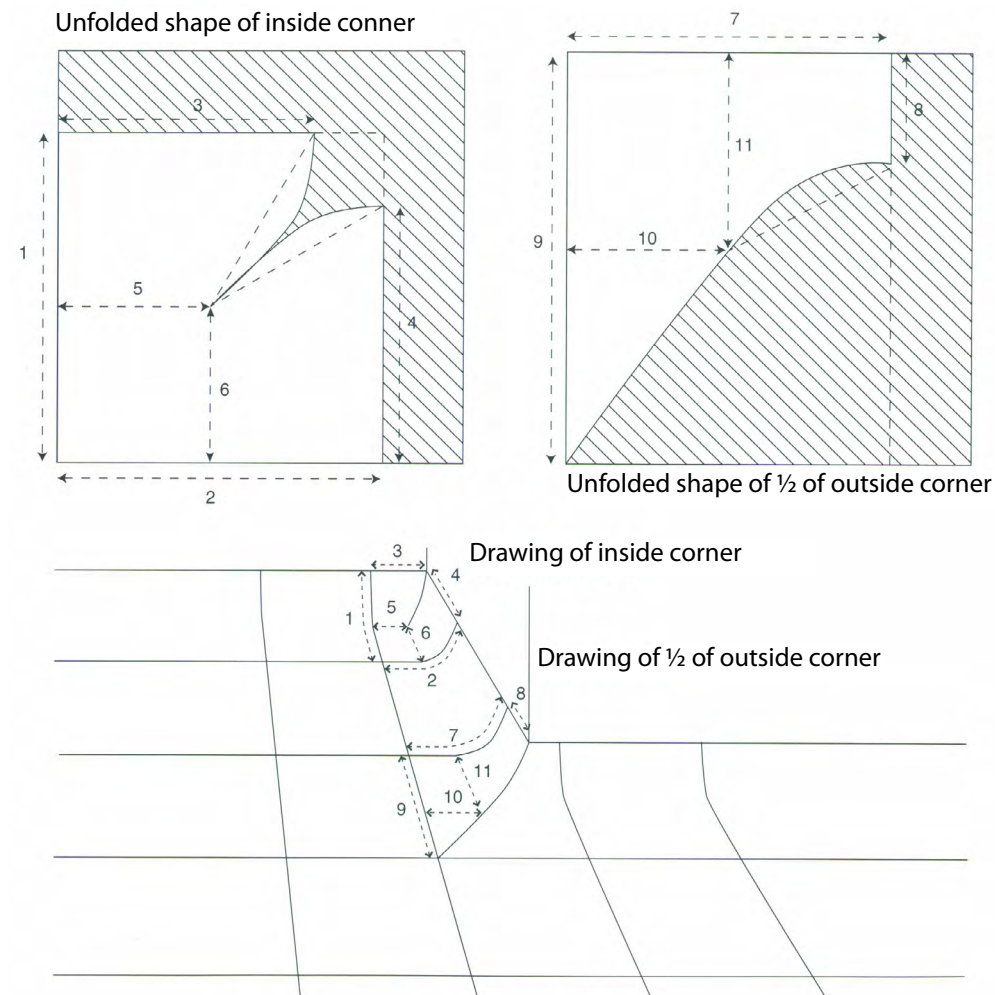


Outside corner



11.3. Finishing the floor with scotia

All types of floor coverings may be finished with a scotia. Using scotias is becoming increasingly popular for aesthetic, practical and especially sanitary reasons.



Drawing: Unfolded shape of inside and outside corners

11.4. Creating scotias using scotia and end profiles

First install the main field as described in sections 7, 8 and 9 of this manual and finish it in all directions approx. 100 mm from the wall.

When taking the room dimensions, always make sure that the tile width adjacent to the scotia is not too small.

If the main axes are oriented diagonally (diagonal installation), we recommend keeping a minimum height of 100 mm in any additionally cut triangle of the main field. When completing the installation of the main field bear in mind the overlap of individual tiles on the planned scotia edge so that the edge can be additionally aligned (cut) to guide the scotia.

After completing the main field bond the profile No. 1953 and No. 2198 (scotia and end profile) or the profile 2345 (scotia with end profile in one piece). Use contact (usually solvent) adhesive for the bonding. The bonding process is identical to that used for floor strips.

Trouble-free arrangement and installation of scotias requires maintaining the level line of the end profile.

The method of bonding scotias is identical to that used for the main field and we recommend using contact (solvent) adhesive due to shorter bonding times and better adhesion in comparison to dispersion adhesives.

When choosing the scotia, attention must be paid to the architect's design, user's wishes and, last but not least, to minimising floor covering waste.

In general, scotias may be joined using two methods:

- Cold-welding scotias edge-to-edge
- Leaving a gap between scotias and joining them with a welding rod (as specified in sections 7.6 and 8.8)

11.4.1. Creating scotias without using an end profile

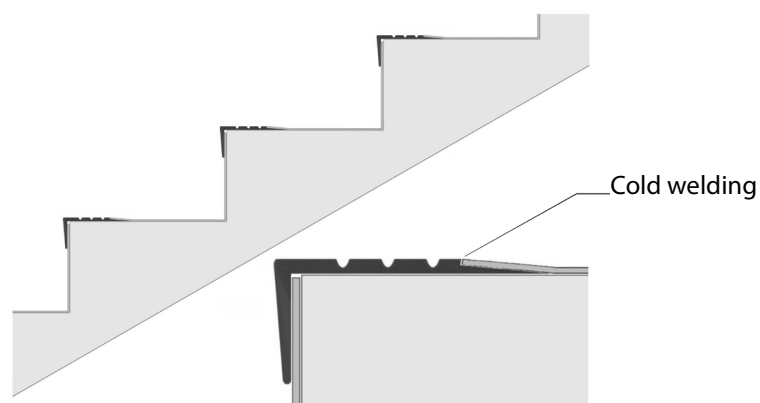
This installation method is identical to that described in section 10. Bond a prepared scotia onto the wall using contact (solvent) adhesive, up to the level line that you drew before. Any height differences may be removed by cutting the scotia top edge along an attached steel blade. We recommend using silicone or acrylic sealant to finish the scotia top edge on the wall. This method is more difficult in terms of the accuracy of scotia preparation and installation.

11.4.1.1. Creating inside and outside corners

To create inside and outside corners it is necessary to draw in advance the unfolded shape of the inside corner/of half of the outside corner on the scotia preferably using a template. After cutting out the shape make sure to check its accuracy by putting it in place and adjusting it if necessary. Only after that may the scotia finally be bonded. Cold-welding is usually used to connect inside and outside corners with the main field of the floor covering.

11.5. Bonding PVC star nosings

LINO FATRA floor coverings are commonly installed on stairs, landings and intermediate landings. Bonding stair nosings in the LINO FATRA system is a finishing operation that greatly impacts the overall appearance of the floor covering as well as its technical properties and performance. The LINO FATRA range includes a single stair nosing type available in three dimensions and designs. This universal nosing type allows you to make a perfect connection to the floor covering. Concrete stairs are the most suitable for the application. The stairs must be level, clean, firm, rigid and free of dust, cracks and protrusions. All cracks, protrusions, grease stains and other impurities must be removed.



Installation instructions:

- The base quality must comply with the CSN 74 4505 standard.
- Pay special attention to the geometry of stair edges; any edge rounding is unacceptable!
- Before bonding dimensions of the stair nosings must be stabilised in a manner identical to that for floor coverings, i.e. make sure the temperature is $\geq 18^{\circ}\text{C}$ for at least 24 hours before installation.
- The solvent adhesive layer must be spread as evenly as possible. Failing to do so may locally increase the adhesive layer which could cause bubbles or ripples on the stair nosing if the solvent does not evaporate sufficiently.
- Before bonding the stair nosing check on both bonded surfaces if the solvent is sufficiently evaporated from the applied adhesive layer. When dried optimally the adhesive is sticky to touch but it no longer creates a "hair". Use a brush to apply the adhesive onto the base and the stair nosing and a smooth scraper to apply the adhesive onto the treads, risers and floor covering strips.
- A white rubber hammer must be used for perfect shaping of bonded nosings. Gently tap the bonded nosing to join it perfectly to the base and eliminate the occurrence of any gaps.
- Always bond the entire area of stair nosings, i.e. both the tread and the riser.
- When bonding the floor covering on a flight of stairs always start from the first stair working upwards to the last top stair.
- A finished floor covering may not be loaded for at least 24 hours after completion of installation. Since vertical paths in new and renovated buildings are exposed to heavy use, we recommend protecting, in particular, the stair nosings with suitable material.
- Use solvent adhesive to bond the floor covering on the stair horizontal surface as far as the edge of the stair nosing. In order to eliminate the ingress of impurities into the gap and the subsequent separation of the floor covering we recommend welding the joint with a welding rod coloured identically to the floor covering or cold-welding the joint with the type "C" paste.
- After installing the floor covering make sure to remove any impurities and excessive adhesive. Scrape off any dried adhesive taking care that the floor covering is not damaged. Use benzine to remove adhesive residue.
- Adhere to the occupational health and safety rules set out in the Labour Code and relevant safety regulations, in particular those relating to the safety of work with flammables. While applying any solvent adhesives the premises must be adequately ventilated to prevent the occurrence of explosive concentrations of vapours and the air. Danger signs must be posted on access routes to the premises to advise other persons that flammable and explosive substances are used in the building.

12. CHECKING AND REVIEWING FLOOR QUALITY

Provisions of the CSN 74 4505 standard apply to the floor approval process. The appearance should be assessed under daylight but not direct sunlight, from a height of 160 cm. Views against the light source must be eliminated (light source must be situated behind the observer). Light conditions must be identical to those under which the floor is mostly used. The installed floor covering must be free of any ripples or other deformations.

For a possible claim you must submit certificates of completion and acceptance as well as a certificate of constructional readiness, see a sample base completion certificate, preliminary work and finished floor at www.fatrafloor.cz.

12.1. Checking the quality and reviewing floors with electrical properties

The general provisions of the CSN 74 4505 and CSN 33 2030 standards apply to the process of accepting floors with electrostatically conductive coverings. Floor coverings are manufactured with different conductivity levels (internal resistance), which is measured by the manufacturer before shipment. In addition to the floor covering, an electrostatically conductive system includes accessories and auxiliary materials (strip, welding rod, conductive adhesive, levelling compound, bonding primer, etc.). The system must be installed in accordance with instructions of the floor covering manufacturer as well as instructions given by manufacturers of the other materials in use.

Before putting a floor with electric properties into use the leakage resistance of the floor must always be checked. According to the CSN EN 1081 standard such check measurement is usually performed by the floor fitter.

Floor acceptance must take place within 28 days of installation completion and the first measurement must be performed during this time to be arranged by the floor user (compulsory measurement – to be made no earlier than 2 weeks after floor installation and to be repeated on an annual basis).

The acceptance under the CSN EN 1081 standard shall be made by an electricity inspector. If requested and if the covering is to be used in an explosive hazard environment the approval shall be performed by the Physical-Technical Testing Institute, State Laboratory 210, Ostrava – Radvanice.

A test report is issued after acceptance and inspection and should indicate as follows:

- Building name
- Floor covering manufacturer, brand and type
- Installation method (system)
- Date of floor installation and name of the contractor
- Date and values of the floor leakage resistance measurement – 1st measurement
- Layout plans of measured floor points including temperature and relative humidity during measurement
- Reference to the CSN EN 1081 standard, measuring voltage
- Assessment of measurement results and the decision as to whether the floor is capable of being used
- Signature, stamp and date

13. SAFETY, OCCUPATIONAL HYGIENE AND FIRE PROTECTION

The provisions of the Labour Code, Act 262/2006 Coll., Government Decree 591/2006 Coll. on the essential occupational health safety standards at construction sites and Act 309/2006 Coll. setting forth additional occupational health and safety requirements apply to ensure occupational health and safety during the use of solvent adhesives. Legislative requirements regarding fire safety are set forth, in particular, in Act 133/1985 Coll. on fire safety as amended, Decree 246/2001 Coll. on fire safety conditions and the state fire supervision performance (the latter is an implementing decree for the Act on fire safety) and other technical standards.

14. CARE AND MAINTENANCE

Regular cleaning and maintenance greatly influence the appearance, hygiene and service life of all floor coverings. Cleaning costs and maintenance intervals depend on the frequency of use and related soiling of the floor. Preventive measures must be taken to reduce the amount of dirt on the floor to the minimum. Entrances of heavy use buildings must be equipped with effective facilities to contain dirt, i.e. so called cleaning zones. The dimensions, location and design of a cleaning zone must be determined as early as the designing phase and the zone length should not be less than 3 metres. In addition, these cleaning zones must be subject to regular cleaning. If doormats or carpets are used, they must be immediately replaced if they no longer meet their intended function. Important preventive measures include choosing the right floor covering since it influences the future cleaning and maintenance costs. The floor covering design and and colour play an important role. It generally holds that multi-coloured floor coverings are less sensitive than single-coloured ones and that muted colours are more suitable than light colours.

The following recommendations on cleaning and maintaining LINO FATRA floor coverings using CC-Dr.Schutz and RZ agents are based on many years of practical experience and reflect the current trends in building chemistry and cleaning technology. However as local conditions may vary our recommendations are not binding. Wordings of individual IFUs were produced by the concerned companies representatives and no warranty can be provided regarding the specified cleaning and maintenance products by Fatra a.s. If you are in doubt, the instructions given by the manufacturer of the care product shall be authoritative.

When using any floor cleaning and maintenance products always adhere to the instructions given by the manufacturer and consult the manufacturer's technical staff if necessary.

Do not use any aggressive products for routine cleaning (e.g. conventional detergents, cleaning products with abrasives, alkalis or a high content of organic solvents and degreasers).

Most of the dirt on the floor covering may be eliminated using cleaning mats in front of the entrance and cleaning zones in the entrance. Both must be cleaned on a regular basis.

If using a floor covering with a PUR protective layer, suitable means of protection must be installed on all surfaces coming into contact with the floor (e.g. textile pads under chair and table legs or PET boards under caster chairs). These must be regularly checked for functionality and cleaned.

14.1. Cleaning and maintenance with CC-Dr.Schutz products

14.1.1. Cleaning and maintenance of floor coverings with PUR protective layer

Cleaning after the installation

Before being put into service a newly installed floor covering must be cleaned thoroughly to remove all impurities from production and installation.

For this purpose, use the CC-PU cleaner diluted with water in the ratio 1:10. The concentration may be increased if the amount of dirt is small. Apply the cleaner evenly onto the floor and after approx. 10 minutes scrub with the CC-SRP single-disc rotary machine or the CC-SRP 2+S with a brush or a red pad. Use a water vacuum cleaner to remove any dissolved dirt and thoroughly neutralise the entire area with clean water until all residues of the cleaning solution are removed.

Routine cleaning and maintenance

Dust removal:

Use a wet mop to remove loose dust and dirt.

Manual or machine wet cleaning:

To remove adhering dirt use a **CC-PU cleaner** diluted with water in the ratio of 1:200 and manually clean the floor using a suitable mop (e.g. CC-Quick-Step) or use an automatic cleaning machine (e.g. CC-Premium F2). On premises that require a regular surface disinfection cleaning use the **CC disinfectant – concentrate**.

Inter-stage intensive cleaning:

If routine cleaning is insufficient to remove adhering dirt we recommend to perform inter-stage cleaning using a solution of the CC-PU cleaner and water in a concentration suitable for the amount of dirt (e.g. 1:50 up to 1:100). Use a brush or an automatic cleaning machine (e.g. CC-Premium F2 for hard floors) or the spray method. In order to maintain the floor value we recommend polishing it regularly using the CC-SRP 2+S single-disc rotary machine with a white pad or a polishing brush.

Removing stains and lines from rubber heels

To remove stubborn stains and lines made by rubber heels, use the undiluted CC-PU-cleaner and a cloth or a smooth white pad. Finally wash with clean water. If possible, remove all stains immediately since some of them may migrate into the surface as they age, making their complete removal very difficult or impossible.

Complete cleaning

Complete cleaning is performed when extremely stubborn dirt and stains that spoil the floor appearance cannot be removed during usual daily cleaning or when worn floor surface must be prepared for renovation with the CC-PU-matt sealer.

For complete cleaning, use the **CC-R basic cleaner** diluted with water in the ratio of 1:5. Apply the solution onto the floor and after approx. 10 to 15 minutes scrub thoroughly, using the CC-SPR single-disc rotary machine with green pad. If no surface treatment is to follow use a red pad or a brush. Use a water vacuum cleaner (e.g. CC-Extraktor or CC-Premium F2) to remove any dissolved dirt and thoroughly neutralise the entire area with clean and preferably warm water until all dirt and residues of the cleaning solution are removed (until the water stops foaming).

Proactive long-term protection/renovation

In order to consistently maintain the properties of the PU factory finish, i.e. protection, reduced adhesion of dirt, simpler daily cleaning, we recommend carrying out proactive long-term protection of the PU factory finish and making timely renovation of any damaged spots.

Proactive long-term protection:

After a prolonged period of use but no later than the first worn spots appear we recommend rejuvenating the PU factory finish using the **CC-PU protection sealer** (matt, extra matt or glossy). For this use the **CC-PU-protection sealer** activated with a suitable hardening agent and apply it undiluted to thoroughly cleaned surface (see Complete cleaning). In addition, make sure to follow the instructions in the product's technical sheet! Apply the **CC-PU-protection** layer on a perfectly dry surface using the CC "Aquatop" 10mm lacquer roller while strictly following instructions for use. The floor may be used again approximately 12 hours after the last layer is applied. Allow the protective system approx. 7 days to achieve its final resistance.

Renovation:

If the PU factory finish is extensively worn out the **CC-PU protection sealer** must be applied twice. Before applying the second layer always allow the first one to dry sufficiently (at least 2 hours). Both coatings must be applied on the same day.

Note:

All chemically soluble protection coatings must be removed from old floor coverings! In case of floor coverings with the PU/PUR-surface finish from the production it is necessary to carry out dry regrinding using the CC-SRP 2+S single-disc rotary machine and the **CC-PU-grey renovation pad** after the complete cleaning and before applying the **CC-PU protection** layer. This will make surface matted, visually uniform transition points and ensure perfect adhesion of the protective coat. This matting using an abrasive pad cannot be done for floor coverings with a thick structure. In such case and if you wish to treat the floor covering with electrical properties contact our Technical Consultancy.

Maintaining the product value on special premises

Using the CC-PU protection sealer creates the best possible protection on the surface that is comparable to the factory finish. Please contact our technical consultants if a floor installed on special premises, such as medical facilities, hair salons, car showrooms, requires protection against colouring effects (e.g. to minimise surface discolouring by substances such as wound disinfectants, hair dyes, softeners) or if the CC hard protective layer must be used due to building specific requirements.

14.1.2. Cleaning and maintaining floor coverings without a PUR protective layer

Cleaning after the installation

Before being put into service a newly installed floor covering must be cleaned thoroughly to remove all impurities from production and installation.

Clean smooth or slightly structured surfaces with the CC-R basic cleaner diluted with water in the ratio of 1:5 to 1:10. The concentration may be increased if the amount of dirt is small. Apply the cleaner evenly onto the floor and after approx. 10 minutes scrub the entire area with the CC-SRP single disc rotary machine with a green pad. Use a water vacuum cleaner, e.g. CC-Premium F2, to remove any dissolved dirt and thoroughly neutralise the entire area with clean water until all residues of the cleaning solution are removed.

For floor coverings with a thick surface structure or if the floor is not to be treated with some CC hard protection sealer (article 3.1), use a brush extension instead of pad to clean the floor after the installation.

Protective layer

Applying a protective layer will create a resistant film on the surface that protects the floor covering, reduces dirt sticking and makes everyday routine cleaning easier. We do not recommend applying the protective layer in damp environments.

Use a **CC CC-SG shine hard sealer** (glossy surface) or **CC-Secura hard sealer** (silky matt surface) to create a protective layer on smooth or slightly structured surfaces. Apply undiluted in two layers as a regular thin film. Apply three layers for heavy duty use (shopping malls, department stores etc.). Use a CC-Lasicka mop with a special coat or a flat mop (e.g. CC-Quick-Step) to apply the sealer. Apply the sealer crosswise. Always allow to dry sufficiently before applying the next layer. The floor can be used after the last layer is thoroughly dry (approx. 12 hours, preferably overnight). In special environments where, for example, disinfectants are used (certain hospital departments, general practices, etc.) use a **CC-Medica hard sealer** or special treatment with a **CC-R 1000 cleaning agent**. Also treating floors coverings with electrical properties or dual floors needs an individual approach and consultancy. Please follow our recommendations or contact our technical staff when treating these floor types.

Use a **CC-R 1000 cleaner** diluted 1:10 with water and wipe any floor coverings with a thick surface structure or in premises where a hard sealer cannot be used. The protection film must be finally and then regularly polished after each routine cleaning with a CC-SRP 2+S single-disc rotary machine with a polishing brush to make it more dense and compact.

Routine cleaning and maintenance

Dust removal:

Wipe loose dust and dirt off with a wet mop.

Manual or machine wet cleaning:

To remove stuck on dirt use a **CC-R 1000 cleaner** diluted 1:200 with water and wipe the floor by hand (e.g. the CC-Quick-Step flat mop) or with an automatic cleaning machine. In premises that need regular surface disinfection use **CC disinfectant – concentrate**. To restore the shine the surface can be coated with CC-3000PU gloss diluted 1:200 with water.

Renovating and thickening the protective layer

Regularly renovating and thickening the protective layer maintains the resistance and protection of the floor covering and extends the interval between routine cleaning. We recommend regularly (e.g. once a week) polishing the protective layer with a CC-SRP 2+S single-disc rotary machine with a polishing pad or polishing brush. If the surface is treated as in section 3.1 using one of the CC hard sealers areas where the protective layer is damaged or worn out (e.g. exposed to the heaviest use) can be renewed using the protective layer dry renovation method. This measure is of particular importance in high use buildings to maintain the product value. The floor covering must be professionally installed, without any bubbles or unevenness for dry renovation.

Inter-stage intensive cleaning

If routine cleaning is insufficient to remove stuck on dirt we recommend inter-stage intensive cleaning using a solution of the **CC-active cleaner R 280** and water in a concentration suitable for the amount of dirt (e.g. 1:50 up to 1:100). Use a brush or an automatic cleaning machine.

Complete cleaning

Complete cleaning is necessary if the protective layer is worn out or extensively damaged. Depending on the floor use and standard cleaning method, this needs to be done once every 6 to 12 months if the protective film is not regularly renovated. Complete cleaning thoroughly removes old protective layers, stubborn dirt and other stains that spoil the appearance of the floor covering.

If the floor covering is treated with some of the **CC hard sealers** use undiluted **CC-R basic cleaner** or **CC-Profi entry cleaner** diluted 1 up to 5 with water for complete cleaning. Apply the solution and after approx. 15 to 20 minutes scrub thoroughly, using a CC-SPR single-disc rotary machine with a green pad. Use a water vacuum cleaner, e.g. CC-Premium F2 to completely remove any dissolved dirt and thoroughly neutralise the entire area with clean and preferably warm water until all dirt and cleaning solution residues are removed (until the water stops foaming).

If the surface is to be treated with CC-R 1000 cleaner use **CC-R basic cleaner** diluted 1:5 to thoroughly clean the floor. Use a brush to clean the surface and let the cleaner work for 10 to 15 minutes.

Removing stains and rubber heel marks

Use undiluted **CC-Elatex** cleaner and a cloth or smooth white pad to remove stubborn stains and rubber heel marks. Finally wash the area with clean water. As the product also dissolves the protective layers the cleaned area must be renovated using the product that was used create the protective layer. If possible remove all stains immediately some may become ingrained in the surface over time making them very difficult or even impossible to completely remove.

Treatment for special premises using the CC-PU protection system

Premises with special surface load and protective film chemical resistance requirements may be more appropriately treated with **CC-PU sealer** and routine cleaning with **CC-PU cleaner** instead of as above. For more information about this procedure please contact our Technical Consultancy.

14.2. Cleaning and maintenance with RZ products

14.2.1. Cleaning and maintenance of floor coverings with/without a PUR protective layer in buildings

Cleaning after all construction is finished

Before it can be used the new floor covering must be cleaned after the construction work. This cleaning process removes residual production and installation dirt. Use the **RZ 181 Elastic Wischpflege cleaner** (diluted 1:10 with water depending on the actual contamination) or the **RZ 150 Grundreiniger cleaner** (diluted 1:100 with water depending on the actual contamination) for this type of cleaning.

Choose the concentration according to the contamination. Apply the diluted cleaner let it work for about 5 minutes and then scrub the floor covering either manually or with a **RZ Bodenprofi** single-disc machine (or Wolff Rumba or Tango machines) with a white or red pad. The created mixture of the cleaner and loose dirt must be thoroughly removed and then the floor covering neutralised twice with clean water.

Complete cleaning

Depending on the actual traffic and contamination complete cleaning needs to be carried out at particular intervals. Complete cleaning removes old protective layers (films), stubborn dirt and other stains that spoil the appearance of the floor surface. Use the **RZ 150 Grundreiniger** cleaner either undiluted or diluted up to 1:10 with water according to the instructions. Let it work for about 15 minutes and then scrub the floor with a **RZ Bodenprofi** single-disc machine (or a Wolff Tango) with a green pad. To remove hard stuck on dirt use undiluted **RZ 150 Grundreiniger cleaner**. Thoroughly remove the created mixture of dirt and cleaner with a wet vacuum cleaner and then completely neutralise the floor with clean water until the mixture is removed completely.

Long-term protection

After prolonged use or when visible wear appears, i.e. frequent spots, it is highly advisable to use the **RZ 170 Turbo Protect** a very resistant two-component impregnating paint on the floor covering. Mix both components according to the instructions and uniformly apply the compound on the floor with a short-hair **RZ Turbo lacquer roller**. For housing premises use the **RZ Turbo L roller** (5mm, micro-fibres, width 25cm).

For commercial premises use the RZ Turbo XL roller (11mm, micro-fibres, width 50 cm). Pre-coat a maximum of 2cm of the edges with a suitable brush. If possible apply the **RZ 170 Turbo Protect** in the direction the floor covering was installed. Avoid paint accumulation at points where individual roller strokes join. Observe the information contained in the technical sheet and the instructions!

Routine regular cleaning

Routine cleaning should be continuously carried out depending on the contamination. This removes dust, dirt and stains completely from the floor. This cleaning also prolongs the floor covering service life so valuable floor coverings are protected with high-quality care products. Use the **RZ 181 Elastic Wischpflege cleaner** (follow the instructions) for regular routine cleaning.

Note: Changing the cleaner may have a negative affect on the treatment.

Removing spots, stains and rubber sole marks

Use the **RZ 190 Boden Fleckenlöser cleaner** for stubborn stains and marks from shoes that cannot be removed by regular routine cleaning. Spray the cleaner on a white non-fraying cloth and remove the stains and spots. Then wipe the floor with a clean damp cloth. **RZ 190 Boden Fleckenlöser** can be used on floors coated with the **RZ 170 Turbo Protect** after it is completely cured, i.e. not before 7 days.

14.2.2. Cleaning and maintenance of floor coverings with/without a PUR protective layer in buildings

Cleaning after all construction is finished

Before it can be used the new floor covering must be cleaned after the construction work. This cleaning process removes residual production and installation dirt. Use the **RZ 181 Elastic Wischpflege cleaner** (diluted 1:10 with water depending on the actual contamination) or the **RZ 150 Grundreiniger cleaner** (diluted 1:100 with water depending on the actual contamination) for this type of cleaning. Choose the concentration according to the contamination. Apply the diluted cleaner let it work for about 5 minutes and then scrub the floor covering either manually or with a **RZ Bodenprofi** single-disc machine (or Wolff Rumba or Tango machines) with a white or red pad. The created mixture of the cleaner and loose dirt must be thoroughly removed and then the floor covering neutralised twice with clean water.

Complete cleaning

Depending on the actual traffic and contamination complete cleaning needs to be carried out at particular intervals in buildings each 12–18 months. Complete cleaning removes old protective layers (films), stubborn dirt and other stains that spoil the appearance of the floor surface. Use the **RZ 150 Grundreiniger** cleaner either undiluted or diluted up to 1:10 with water according to the instructions. Let it work for about 15 minutes and then scrub the floor with a **RZ Bodenprofi** single-disc machine (or a Wolff Rumba or Tango) with a blue/green pad. To remove hard stuck on dirt use undiluted **RZ 150 Grundreiniger cleaner**. Thoroughly remove the created mixture of dirt and cleaner with a wet vacuum cleaner and then completely neutralise the floor with clean water until the mixture is removed completely. The next steps involve repeated complete treatment (see the section First treatment / complete treatment).

Long-term protection

The first treatment / complete treatment must be carried out after each cleaning, construction work or complete cleaning before the floor can be used. The first treatment reduces sticking dirt, protects the floor covering and helps routine cleaning.

Use the **RZ 161/ RZ 162/ RZ 163 Elastic Siegel** glänzend/seidenglänzend/matt, (gloss, semi-gloss, matt) for the first/ complete treatment of smooth or slightly structured floor coverings. Use the **RZ Klapphalter** snap-fit holder with a **RZ Feinfaser-Mopp** mop with fine hair. Apply two undiluted layers with the second layer crosswise to the first layer.

Routine regular cleaning

Routine cleaning should be continuously carried out depending on the contamination. During this procedure dust, dirt and stains are removed completely from the floor. This cleaning also prolongs the floor covering service life so valuable floor coverings are protected with high-quality care products, and if the first treatment was carried out on them then the resistance of the first treatment will be increased significantly. Only use **RZ 181 Elastic Wischpflege** for regular routine cleaning of all floor coverings coated with **RZ 161/162 Elastic Siegel** glänzend/seidenglänzend surface finish. Follow the instructions and use a snap-fit holder with a mop of fine hair to apply. Do not wipe, let the remaining moisture dry.

Note: Changing the cleaner may have a negative affect on the treatment.

After-care / renovation of the protective layer

To restore the shine and remove daily dirt or any traces use undiluted **RZ 165 Bodensanierer**. Strictly follow the instructions for the dose. Do not overdose! **RZ Bodensanierer** can be easily applied with a snap-fit holder and a mop with fine hair or a **RZ Bodenprofi** single-disc machine (e.g. Wolff Rumba or Tango) with a white pad. Note: Only use after individual consultancy and recommendation. Observe the manufacturer's recommendations. In principle **RZ 161 Elastic Siegel** glänzend can be used on coated (treated) floor coverings.

Procedure: Spray the undiluted RZ 165 Bodensanierer on the floor and process/polish it with the RZ Bodenprofi single-disc machine (Wolff Rumba or Tango) with a white pad. This easily and perfectly cleans, treats and improves damaged spots in the protective film. It is suitable for renovating and restoring (regenerating) all elastic floor coverings.

Removing spots, stains and marks from rubber soles

Use the **RZ 190 Boden Fleckenlöser cleaner** and a cloth or a white/green pad for stubborn stains and marks from shoes that cannot be removed by regular routine cleaning.

Attention: This product removes the protection film as well. If possible try to remove stains immediately as some types of stains will become ingrained after time making them extremely difficult to remove completely. Always carry out complete cleaning after removing stains.

14.3. Summary of CC-Dr.Schutz recommended products for cleaning and maintaining LINO Fatra floor coverings

	Dr. Schutz	Cleaning after installation	Protective layer / first treatment	Routine daily wet cleaning	Routine daily wet cleaning + surface disinfection	Interstage intensive cleaning without damaging protective coatings	Complete cleaning
Floor coverings with a PUR protective layer Novoflor Standard Novoflor Extra Dual Modul		CC-PU cleaner	CC-PU matt sealer ⁵⁾ (proactive long-term protection/renovation of PUR factory finish)	CC-PU cleaner	CC disinfectant ¹⁾	CC-PU cleaner	CC-R basic cleaner
Floor coverings without a PUR layer NFE Amos Domo Fatraflor Standard Praktik		CC-R basic cleaner	CC-SG shine hard sealer ⁴⁾ CC-Secura hard sealer ⁴⁾ CC-Objekt Mat hard sealer ⁴⁾	CC-R 1000 cleaner	CC disinfectant ¹⁾	CC-active cleaner R 280	CC-R basic cleaner
Electrostatically conductive and static dissipative floor coverings: Elektrostatik Dynamik NFE STATIK SD		CC-R basic cleaner	CC-Shine 3000PU CC-R 1000 cleaner CC-Secura hard sealer ²⁾ ⁴⁾ CC-PU sealer + CC-Conduct Plus admixture	CC-R 1000 cleaner	CC disinfectant ¹⁾	CC-active cleaner R 280	CC- Profi basic cleaner ³⁾ CC-R basic cleaner

- 1) Tested in accordance with DGHM and DVG regulations.
- 2) Only in exceptional cases. No more than two thin layers of the CC polymer dispersion must be applied. First treat a test surface and measure if the conductivity is sufficient.
- 3) If the surface is treated with the CC hard sealer, use the CC-Profi basic cleaner for complete cleaning.
- 4) In environments where enhanced resistance to disinfectants is required, use the CC-Medica hard sealer or the CC-PU matt sealer for treatment. Follow the instructions and recommendations in our information leaflet. If in doubt, contact our technical consultants.
- 5) For long-term active protection and renovation of the PU factory finish after use. Complete thorough complete cleaning with the machine and a green pad first.

14.4. Summary of RZ recommended products for cleaning and maintaining LINO Fatra floor coverings

	r ^z	After finishing construction work	Comlete cleaning	Long-term protection	Routine regular cleaning	Renovation of protective layer	Removing spots and stains
Floor coverings with/without a PU protective layer light duty (household)		RZ 181 RZ 150	RZ 150	RZ 161 shine RZ 162 shine RZ 163 mat	RZ 181	RZ 165	RZ 190
Floor coverings with/without a PU protective layer heavy duty (commercial buildings)		RZ 181 RZ 150	RZ 150	RZ 170 mat	RZ 181	-----	RZ 190
Floor coverings antistatic El. conductive		RZ 181	RZ 150	-----	RZ 181	-----	RZ 190



14.5. Cleaning and maintaining floor coverings with defined electric properties

CAUTION! Do not use maintenance and polishing emulsions that prevent the removal of electric charges on floors with defined electric properties.

14.5.1. Renovation and maintenance with CC-Dr.Schutz products

CC-Dr.Schutz Conduct Plus admixture can be used for floor coverings with defined electric properties that are extensively worn or need surface renovation which in combination with the CC-PU sealer (extra-matt, matt, gloss) meets the requirements of the EN 61340-5-1 and 61340-4-1 standards. Should only be applied by professional companies and in combination with the CC-PU sealer.

Cleaning after installation / complete cleaning

The floor covering must be completely cleaned to remove all production and installation impurities before applying the **CC-PU sealer + CC-Conduct Plus admixture conductive coat**, or all chemically soluble protection coatings must be removed from new floor coverings. All residues of old protective coatings, used cleaners, disinfectants and impurities must be removed from old floor coverings by complete cleaning.

Use the **CC-R basic cleaner** diluted 1:5 with water. **Attention:** The concentration must be adjusted according to the actual circumstances, the resistance of old coatings and the amount of impurities. Apply the cleaner evenly and after approx. 10 to 15 minutes scrub the entire area with a CC-SRP single disc rotary machine with a green pad or brush (only for very structured surfaces). Use a water vacuum cleaner to remove any dissolved dirt and thoroughly neutralise the entire area with clean and if possible warm water until all cleaning solution residues are removed (the water stops foaming when wiped when neutralised!). After removing old protective coats from floor coverings that are resistant to alkaline cleaners use the **CC-Profi basic cleaner** for complete cleaning. Use a single-disc machine and a red pad for cleaning if the **CC-PU sealer + CC-Conduct Plus admixture** combination of conductive coats will not be applied after complete cleaning!

Conductive protective coat CC-PU sealer + CC-Conduct Plus admixture

To protect the surface, help daily routine cleaning and prolong the service life of the floor covering apply the **CC-PU sealer + CC-Conduct Plus admixture protective coat** after complete cleaning. This long-term polymeric-polyurethane coat is extremely resistant to wear and highly resistant to chemicals.

First treatment:

Prepare the mixture of **CC-PU sealer, CC-Conduct Plus admixture** and hardening agent precisely according to the instructions on the technical sheets. Apply the mixture once or twice using a CC Aquatop 10 mm lacquer roller on the thoroughly cleaned and dry surface (see Chapter 2 Cleaning after installation / Complete cleaning). Allow the coat to dry for at least 2 hours before applying the next layer but all layers must be applied on the same day.

Renovation / restoration:

Depending on the frequency and conditions of use the protective coat must be regularly checked for wear and renovated it if necessary. Prepare the mixture of **CC-PU sealer, CC-Conduct Plus admixture** and hardening agent precisely according to the instructions on the technical sheets. Apply the mixture once or twice using a *CC Aquatop 10 mm lacquer roller* on the thoroughly cleaned and dry original coat (see Chapter 2 Cleaning after installation / Complete cleaning). Allow the coat to dry for at least 2 hours before applying the next layer but all layers must be applied on the same day.

Note: Before applying new coats during renovation the original coat must be dry reground (matting) with a CC-SRP 2+S single-disc machine with a CC-PU grey renovation pad after complete cleaning to unify transitions and for the best adhesion of the new coat to the old one. Newly treated floor coverings can be carefully used 24 hours after the last coating. The protective system will reach its final resistance after approx. 7 days.

Routine cleaning and maintenance with a CC-PU cleaner

Dust removal:

Use a suitable wet mop to remove loose dust and dirt.

Manual or machine wet cleaning: To remove stuck on dirt use a **CC-PU cleaner** diluted 1:200 with water and manually clean the floor with a suitable mop (e.g. CC-Quick-Step) or an automatic cleaning machine.

Note: Use the **CC-PU cleaner** for daily routine cleaning to keep the system conductivity long-term. This must be done for the guarantee to be valid!

Inter-stage intensive cleaning:

If routine cleaning is insufficient to remove stuck on dirt we recommend inter-stage cleaning using a solution of the CC-PU cleaner and water in a suitable concentration for the amount of dirt (e.g. 1:50 up to 1:100). Use a brush or an automatic cleaning machine or spraying with a CC-SRP single-disc machine with a red disc for cleaning.

Removing stains and marks of rubber heels

To remove stubborn stains and marks of rubber heels, use undiluted CC-PU-cleaner and a cloth or a smooth white pad. Finally wash with clean water. If possible, remove all stains immediately because some may become ingrained into the surface after time, making them very difficult or impossible to completely remove.

Important notes

When installing certain types of elastic floor coverings avoid increased moisture, standing water and pools during complete cleaning as water can be absorbed between individual strips into the base. This especially applies to floor coverings installed edge-to-edge (without welding) on moisture sensitive bases and dual floors. In these situations contact our technical consultants.

Before starting work carry out all the recommendations in the technical sheets of individual products and the instructions in the "Important notes for applying conductive PU coats".

14.6. Using disinfectants and surface disinfection

In rooms where disinfectants are used or surface disinfection carried out it is extremely important to observe the instructions supplied by the manufacturer, in particular the recommended disinfectant concentration and the instructions and procedures for use.

Because of the large number of distributors and disinfectant products Fatra a.s. cannot test the effects of all products on the surface of PVC floor coverings. In general only products which the manufacturer identifies as suitable for disinfecting PVC floor covering surfaces can be recommended. Using inappropriate disinfectants may have undesirable effects on the mechanical and physical properties (surface colouring, softening or corroding) of floor coverings.

As most disinfectants create a protective film on the floor covering surface a "preservation" of impurities between individual layers of disinfectants may occur. Therefore we recommend complete cleaning (see section 14.1 or 14.2) once every 3 to 6 months which will thoroughly remove the old layers of disinfectants, stubborn dirt and other stains.

15. CHEMICAL RESISTANCE

Vinyl floor coverings have above-average resistance to mild and diluted acids, alkalis, soaps and solvents. Petroleum and strong acids will not damage the floor covering if the stains are immediately removed. Ketones, chlorinated solvents, acetone and similar solvents must not come into contact with the floor covering but if they do the damage can be limited by immediately washing the place and giving the residues of these reagents time to evaporate before using the floor again. Vinyl floor coverings are suitable for use in most environments where chemicals are handled and where there is a risk of accidental spillage. However, some chemicals contain very strong colouring agents that will leave stains on the floor, even after short contact. Where these chemicals are used, we recommend choosing dark vinyl colours to minimise the risk of staining.

Rubber products (mostly dark and coloured rubber – rubber casters, device protectors, shoe soles etc.) cause an irreversible change in the wear layer when in contact with floor coverings turning the surface yellow, brown or even black. Burning and smoking items leave indelible marks on the surface.

The tables below show the general chemical resistance of vinyl floor coverings (see the note for a description of the testing method).

15.1. Organic substances

TYPE OF CHEMICAL	EFFECT	REMEDY
Aldehydes Esters Halogen hydrocarbons Ketones	The floor covering is attacked after a few minutes.	Wipe the floor immediately.
Alcohols Ethers Glycols Hydrocarbons (aromatic and aliphatic) Paraffin Edible oil	Plasticizers are released after a few days, accompanied by shrinkage and brittleness.	Wipe the floor immediately.

15.2. Water solutions

TYPE OF CHEMICAL	EFFECTS	REMEDY
Mild acids and alkalis	No effect.	
Strong alkalis	Shine damaged, may cause some colours to fade.	Dilute and remove.
Strong acids	Prolonged contact may make colours fade.	Dilute and remove immediately.
Colouring agents (indicative)	KContact may make colours fade.	Dilute and remove immediately.

NOTE: Chemical resistance is tested over 24 hours with the product in contact with the chemical at a room temperature of 21°C. The product is then washed with cold water. Some stains may be ground off with a nylon cube.

16. HETEROGENEOUS PVC WALL COVERINGS

16.1. Product details

Heterogeneous PVC wall coverings consist of a wear layer and a base layer. These coverings are manufactured in 1,500 mm wide strips. The coverings contain a PUR protective layer that makes cleaning easier, reduces maintenance costs and provides resistance to micro-organisms.

Please see the relevant technical sheets and catalogue lists for specific technical parameters.

16.2. Preparing the base

In general the bases for PVC wall coverings must meet requirements similar to those for floor coverings (see section 3). The base must be level, smooth, free of cracks and dust and sufficiently firm, clean and dry. Grease stains and other impurities must be removed. Walls with oil paints must be scraped. Unevenness, cracks, joints and different levels must be repaired or levelled.

The residual moisture of the base must not exceed 2.1% CM and 0.5% CM for cement and gypsum bases respectively. Wall coverings must not be installed in rooms that are not sufficiently moisture insulated.

16.3. Preparing the covering

After the delivery inspection (see Section 6) unroll the covering and visually check the quality of its appearance and pattern. Do not install (hang) any wall covering with visible defects. Instead complain to your supplier.

Before hanging keep the unrolled wall covering for at least 24 hours, or preferably 48 hours, in the room where it will be hung. The dimensions will stabilise and minor ripples will smooth out automatically during this time. The room temperature must not drop below +18°C when hanging.

16.4. Installation

Cut the wall covering strips to the required dimension, keeping a 5–10 cm overlap. If the base is highly absorbent or has an open structure we recommend applying a suitable bonding primer before the adhesive.

As with floor coverings, wall coverings are bonded over their entire area with dispersion adhesives and the basic principles of this bonding method must be followed (see section 7.4).

However, hanging wall coverings has its special features and the instructions of the adhesive manufacturer must be followed for the amount to use and the ventilation time.

The adhesive should preferably be applied with a roller (not a foam roller). Applying the adhesive with a toothed scraper may leave visible scraper movement traces on the wall.

When bonding the strips, make sure to force out the air with a rounded edge board or a hand roller. It is best to work from the top downwards and from the centre to the sides of the strips.

The maximum gap between adjacent strips (without overlap) must not be more than 1 mm.

When hanging the wall covering in outside or inside corners, a hot-air gun can be used to gently heat the covering for easier shaping and better installation.

Once the installation is complete roll the entire area again with a hand roller and do not expose it to any load for at least 24 hours. Then weld the wall covering. Individual strips of the wall covering can be joined with a welding rod or cold-welded (see sections 7.6 and 7.7).

16.5. Care and maintenance

When using any floor cleaning and maintenance products always follow the manufacturer's instructions and consult the manufacturer's technical staff if necessary.

Use tepid water with a recommended detergent for standard cleaning. Adjust the dose to the manufacturer's recommendations; increased detergent may cause excessive staining of the surface during use. Apply the cleaning solution to the wall covering, allow it to work for the time stated by the manufacturer, clean the surface manually or with the machine and remove the solution. Then wash the cleaned surface thoroughly with clean water and allow it to dry unless otherwise specified by the detergent's manufacturer. Failure to follow the detergent dosing instructions (increased dose) may cause excessive staining of the surface during use.

Do not use any aggressive products for routine cleaning (e.g. conventional detergents, cleaning products with abrasives, alkalis or a high content of organic solvents and degreasers).

In addition, only use products that manufacturers recommend for the maintenance and care of coverings with a PUR protective layer (e.g. CC-PU cleaner). The wall covering must be protected against staining from asphalt, ink, aniline paint, coloured oils, iodine tincture, Castellani's paint, methylene blue, potassium permanganate and all agents containing paint and organic solvents. We recommend using Chloramin B, Chlorseptol and Orthosan BF 12 for disinfection. Any other products must be tested before use.

Rubber products (mostly dark and coloured rubber – rubber casters, device protectors etc.) irreversibly change the wear layer colour when in contact with wall coverings making the wall covering surface turn yellow, brown or even black.

17. PUR PROTECTIVE LAYER

Using a PUR (polyurethane) protective layer is the current trend among all leading floor covering (PVC, linoleum) manufacturers.

Reasons for using a PUR protective layer:

- It replaces the first protective layer after the floor covering application.
- It greatly reduces maintenance costs.

A thin polyurethane film is applied to the floor covering surface during manufacture filling microscopic defects that keep dirt on the surface. Dirt then cannot penetrate the product. If the floor covering is cleaned properly, i.e. using only detergents that are suitable for coverings with a PUR protective layer (e.g. Dr. Schutz), the floor covering will remain in good condition.

Fatra, a.s. is in the forefront of development in its field. A protective layer is currently used for the following products:

Novoflor Standard, Novoflor Extra, Dual and Thermofix, FatraClick, Imperio.

If these floor coverings are used, all mobile furniture surfaces coming into contact with the floor in building interiors (e.g. textile pads under chair and table legs or PET boards under caster chairs) must have suitable protection. We recommend checking them regularly.

Floor coverings with a PUR protective layer resistant to staining reduces maintenance costs especially in heavy duty environments (shops, corridors etc.). This is where the protective layer resistance to abrasion plays an important role. **But abrasion is not wear.**

The PUR protective layer does not replace cleaning zones at room entrances.

Floor coverings with the greatest wear are those in classrooms, canteens, meeting rooms, offices etc. Not installing protection on moveable furniture contact points will inevitably result in scratching the top layers of all floor coverings, including those with a PUR protective layer. Although surface scratches do not affect the functionality of floor coverings they tarnish their aesthetic appearance.

Scratches on the PUR protective layer from the contact points of incorrectly protected moveable furniture are not covered by the guarantee.

The Fatra, a.s. product range also includes floor coverings without a PUR protective layer the thermal finish and homogeneous structure of which give them enhanced wear resistance. They include Elektrostatik, Dynamik and Praktik N floor coverings.

FATRA, A.S. NPAJEDLA WISHES YOU EVERY SUCCESS WITH ITS PRODUCTS.

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