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Altro Transport products are designed for a long, trouble-free life, providing a higher degree of comfort and safety for your customers, easier maintenance for your staff, less downtime for replacement and repairs, and higher resale value.

To obtain optimum performance from your Altro Transport flooring, careful consideration should be paid to the following:

- Preparation of the subfloor
- Correct installation
- Appropriate, regular cleaning routine

Important: failure to install Altro Transport products correctly will affect the product guarantee.

Installation

1. Subfloor preparation
2. Inspection and tools
3. Layout and cutting
4. Adhesives and installing
5. Flash / self coving
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Step 1: Subfloor preparation

Vehicle inspection

Before installing Altro Transport products, carry out a vehicle inspection. Check the subfloor is properly fixed and all heavy overhead work complete. The area must be clear of all other trades.

Guidance, information and training are available from Altro as part of the Altro Assurance of Customer Satisfaction. Altro will work with your chosen adhesive manufacturer as required.

Wooden subfloors

If the wood has been treated with insecticide or fungicide, allow it to stand for 30 days, or as recommended by the manufacturer, in a dry, warm atmosphere so that the treatment chemicals dry out completely. Note that an impregnated subfloor, i.e. plywood, is normally less absorbant than a non-impregnated one.

Steel and other metal floors

Degrease and abrade metal floors to remove all traces of corrosion and provide an effective key for the adhesive. The surface should be flat and smooth.

Compound floors

Abrade compound surfaces to provide a good key for the adhesive unless a two-component (reactive), epoxy or polyurethane adhesive is used.

Subfloor preparation

Irrespective of the type of subfloor, surfaces must always be clean, smooth, dry and free from dust, dirt, oil, grease, and other contamination which may impair adhesion when the adhesive and flooring are applied. Vacuum cleaning is recommended.

Subfloor preparation for repair or refurbishment

It is important to check the subfloor for such problems as corrosion, moisture penetration and cracks and, if necessary, bring the subfloor up to a suitable standard. In certain instances the installation may benefit from the application of a suitable primer in accordance with the primer manufacturers instructions to achieve a successful bond.

Step 2: Inspecting your materials

Check you have the correct floor style and colour, plus enough flooring to complete the job. All pieces should be from the same batch (dye lot). Turn flooring sheets to get the best match. If there is any shade variation do not install, but call your Altro sales representative. Inspect stair trims and nosings (moldings) and install them in the correct order as some need to be installed before the flooring. Reverse Welded kits and/or rolls require visual inspection, with all jointed seems to be checked prior to installation. Do not install if visual defects are present. Contact Altro Technical Services for further advice.

Check your adhesive

1. Plywood subfloors use acrylic adhesive, an approved contact adhesive or polyurethane adhesive.
2. Steel and aluminium subfloors use a pressure sensitive acrylic adhesive, an approved contact adhesive, or a two-part polyurethane.
3. Areas of water spillage, extreme temperature changes or heavy rolling loads, use water resistant contact adhesive or two-part polyurethane.
4. Cap strips, cove formers and vertical surfaces, use approved contact adhesive.

Tools you will need

1. Standard trimming knife with straight, curved or hook blades and a straight-edge ruler.
2. Notched trowel for adhesives. Contact adhesive may be sprayed on (subject to local legislation).
3. A variety of rollers and weights to ensure proper bonding.

Step 3: Layout and cutting

Environmental requirements

Altro Transport products must be stored and installed at a temperature of between 14°C (58°F) and 27°C (80°F). They should be acclimatised to these temperatures 48 hours prior to use.

Cutting to size

Review floor plan or drawings and establish seam placement.

Lay flooring out on a flat, clean surface and allow material to 'relax' at the recommended installation temperature. Cut pieces to necessary width and length, allowing about 25mm/1 inch extra at each end for trimming. In the case of 'jig-built' vehicles, where the floor area dimensions are constant, a template may be used.

1. Cut material in place by freehand methods using a utility knife, or pattern scribe using a template
2. Flash / self-cove up the side of the vehicle to the required height. A solid PVC cove former must be used when flash / self-coving to support the flooring and to achieve an optimum radius to facilitate cleaning
3. If the flooring is not supplied with pre-welded joints, trim the seams net (not tight).
4. Cut seams using any of the following methods:
 - Straight edge and fit
 - Overlap and trace
 - Underscribe (recess method)
5. If the flooring is supplied with reverse welded joints lay the material in place ensuring the length and width overlap all edges, allow the flooring to 'relax' prior to installation.

Pre-cut kits

In circumstances where accurate blueprints can be provided, Altro can supply pre-cut kits and pre-welded joints to your specification. This can cut installation time and costs – contact your Altro sales representative for details.

Step 4: Adhesives and installation

Application of adhesives

With all types of adhesive, local environmental laws must be observed. It is the responsibility of the applicator to determine such law prior to proceeding.

Water-based acrylic adhesives

1. Coat the subfloor only, using a notched trowel which complies with the adhesive manufacturer's instructions, observing requirements regarding "open time", atmospheric temperatures, humidity and subfloor porosity

If immediate bond is desired, the "double drop" system may be used

1. After applying adhesive to the subfloor, using the recommended trowel
2. Place flooring into wet adhesive and roll thoroughly
3. Pull back flooring, leaving adhesive film on subfloor and back of flooring material. After adhesive becomes touch-dry, re-place the flooring
4. Roll the flooring thoroughly
5. Press down firmly to ensure complete adhesion over the entire area Repeat this process with the second half of the floor covering

Contact adhesive (e.g. solvent-based nitrile and neoprene)

Proper ventilation of the work area is essential where solvent-based adhesives are used. There must be no flames, incandescent or similar heaters or other ignition hazard, which could ignite the fumes from these highly-flammable products. In all cases, follow the adhesive manufacturer's health and safety recommendations.

1. Cut Altro Transport product to size
2. Lay in place
3. Gently fold one half back
4. Apply the adhesive to the subfloor
5. Apply a coat of adhesive to the exposed underside

Application of both types of adhesive is best achieved by spreading with a smooth or small notched trowel or by the spray method.

Reaction adhesives (e.g., based on polyurethane)

Apply adhesive to subfloor only, using a notched trowel which complies with the adhesive manufacturer's instructions, observing requirements regarding "open time", atmospheric temperatures, humidity and subfloor porosity.

1. Cut Altro Transport product to size
2. Lay in place
3. Carefully fold back one half
4. Apply adhesive to subfloor
5. Position floor product on adhesive and roll thoroughly to ensure good contact with subfloor and expel air thoroughly
6. Repeat this process with the other half
7. Avoid pressure points e.g. By the kneeling until adhesive is fully cured
8. Do not walk on the flooring until the adhesive has fully cured - typically 24 hours

Installation of self-adhesive flooring

1. Cut Altro Transflor product to size
2. Lay in place
3. Carefully fold one half back
4. Use a hook blade to cut the liner from the underside of the folded-back floor covering, taking care not to damage the floor covering
5. Carefully remove the protective film liner from the exposed section and dispose of responsibly
6. Position the floor covering into the final location ensuring all air is displaced to perimeter
7. Repeat the above for the remaining floor covering
8. Apply constant pressure using suitable hand rollers to achieve successful bond

Logos to be installed on steps

1. Centre logo or place according to the plan onto sub base
2. Cut Altro Transport Logo to size if required
3. Carefully fold one half back
4. Apply moisture tolerant adhesive to the subfloor as per adhesive manufacturer's instructions
5. Repeat for the other half
6. Use roller or similar to ensure all over contact into adhesive and weight down if required
7. Allow adhesive to cure
8. Remove any protective film

Logos for setting into floor

1. Lay logo in place according to plan
2. Draw around logo perimeter with pencil
3. Carefully fold one half back
4. Apply moisture tolerant adhesive to subfloor as per adhesive manufacturer's instructions within the pencil line
5. Place logo into wet adhesive use roller or similar to ensure all over contact into adhesive
6. Carefully fold the remaining half of the logo back
7. Repeat the above
8. When the adhesive under the logo has cured, roll out main flooring over logo
9. Carefully uplift one half and apply adhesive to subfloor
10. Place flooring back into adhesive
11. Repeat for other half
12. Cut around the perimeter of logo through the overlaid flooring to form a tight joint
13. When the adhesive has cured the joint between the logo and main area of flooring can be grooved and hot welded

Installation of reverse welded flooring

The laying out and handling of reverse welded flooring should be taken into consideration as it can be irregular sized and shaped and be difficult to handle with the possibility of creasing and damage occurring.

Important

Always follow the recommendations of the adhesive manufacturer, taking care to protect surfaces which should not receive adhesive.

Health and Safety Advice

Before using any adhesive, users should refer to the MSDS (Material Safety Data Sheet) for correct safety advice and to determine the level of PPE (Personal Protective Equipment) and RPE (Respiratory Protective Equipment) that is required. A COSHH (Control of Substances Hazardous to Health) assessment and risk assessment should be carried out before using the adhesive. In the case of contact with eyes or skin, rinse immediately with plenty of water and seek medical advice.

For self-adhesive installations, avoid standing on the liner surface prior to installation and ensure that all liner material is disposed of appropriately and responsibly, so as not to cause a trip or slip hazard.

Ensuring Thorough Adhesion

Whatever the application method or adhesive used, it is essential that every part of the floor covering is in contact with and bonded to the subfloor. This can be achieved by using a variety of simple accessories which are available through Altro directly or Altro distributors.

- Pressure roller
- Cork pressure wedge or flat board
- Weighted device
- Sand-filled plastic bags

Step 5: Flash / Self-Coving

Installing Flash / self-coving

It is not recommended that mastic be used for sealing seams between vertical and horizontal surfaces. A mastic bond is not as effective as a weld and cannot be regarded as long term protection against water penetration. Some public vehicle builders use the "corner weld method". Provided the weld is correctly executed, making a watertight seam, this can be an effective solution.

- Ensure walls are solid, smooth, dry and free of all paint, oil, etc

Step 6: Grooving

A 3mm groove, 2/3 of the depth of the material, must be cut evenly along each floor joint using a hand or automatic rotary grooving tool.

Step 7: Heat welding equipment

Tools you will need

- Altro welding rods to weld seams (check all profiles and colour before starting welding).
- Hot air welding gun. Ensure you use the right weld nozzle to match the rod profile.
- Feed roller to hand weld hard to reach areas.
- Spatula to trim welding rod flush with flooring surface.
- Trim plate for initial trimming of welding rod.
- X-ACTO (router) handle and blades to trim welding rod on flash (coved) surfaces, hard to reach areas and corners.

Special welding profiles

Different welding rod profiles have been developed to meet varying customer needs, including round, triangular, mushroom, Spanish, French and SH.

Standard round profile		WR_ _
Standard triangular profile		WR_ _T
Standard Mushroom profile		WR_ _M
Spanish profile		WR_ _B
French profile		WR_ _HB
SH Profile		WR_ _SH

Step 8: Heat welding seams

Preparation

Ensure that there is no gap between one section of flooring and the next. Potentially, seams are the weakest points and most likely source of water ingress, causing the flooring to detach from the subfloor. The Altro heat welding method, correctly followed, eliminates this risk. Seams must be grooved and clear of debris before welding.

Clean hot air welding nozzle with wire brush. Turn gun on, set temperature to between 4-6 depending on local voltage and leave to heat for 10 minutes. Test weld on a scrap piece of flooring. Weld rod should fuse without burning or discolouring.

Welding

When heat setting is correct, cut the right colour of weld rod to the required seam length. Start at one end, put rod into nozzle and begin. Carefully move gun along seam at constant speed.

N.B. ensure fusion between the weld rod and floor covering on either side without leaving a gap beneath the rod. Such a gap results in a weak spot which is easily damaged and allows water to penetrate. If welding is too fast, rod will not fuse properly. Keep speed nozzle at right angles to the floor. Do not lean gun to left or right. You may need to weld half the length of the seam and trim off, then weld from the opposite end overlapping onto the trimmed weld at the centre.

Regulate heat and speed to make a “wake” on either side of the welding rod. If “wake” turns dark, lower heat setting, or go a little faster.

Wheel arches and verticals

Grooving is not always needed where walls and floor form a natural 90 degree angle. Weld around wheel arches and verticals with mushroom or bus weld rod to avoid the need to trim or caulk (mastic). Round rod will require trimming.

Step 9: Heat welding trimming

Trimming

Only when the weld rod has cooled should it be trimmed with a spatula. If excess rod is trimmed while hot, the weld will contract as it cools, thereby leaving a concave seam.

On flat seams, trim weld rod in 2 stages.

1. Place trim plate over weld rod and trim top layer of thread with spatula knife. Thread can be warm or cold.
2. Once the rest of rod cools, use spatula knife, without trim plate, to trim excess weld flush with flooring surface. If defects are present after trimming, regroove and reweld affected area, then trim flat once cool. In corners or coved (flash) areas use X-ACTO (router) blades to trim once weld rod has cooled. Altro strongly recommend that weld in buses be checked at regular intervals, at least annually.

Please contact Altro Technical Services for more advice.

Step 10: Caulking / Mastic

All areas where the floor covering has been cut or is not continuous must be adequately sealed, including seat bolt holes. Where a watertight seal or joint is necessary, but the hot weld method is impractical, select a good quality water-resistant mastic, such as AltroMastic 100.

For AltroMastic 100 colours and installation information visit www.altro.com

Where physical damage is possible, from the frequent contact of luggage over seams, for example, the use of a mastic is no substitute for a weld and is not considered good practice. However, where a mastic is the only possible solution, use one which bonds chemically with the flooring, to avoid its being washed or worn away in use.

Fit flooring neatly in place. For a clean finish, protect adjacent surfaces with masking tape, exposing only the area to be sealed. Cut tube nozzle to allow 3mm / an eighth of an inch bead and insert tube into caulking (skeleton) gun. With steady pressure on trigger, move nozzle along channel, filling gap. Smooth AltroMastic 100 before it dries. Remove masking tape in 5-10 minutes. Curing takes 24-48 hours.

Step 11: Installing step nosings (moldings)

Every vehicle type uses specific, individual finishes and nosings (moldings). Each manufacturer has a unique nosing (molding) and installation procedure. For aluminium step nosing (molding) apply neoprene cartridge adhesive to one surface only. Press into place. Measure and drill holes, counter sinking for screws along top. Sweep up all debris.

Step 12: Protection and clean up

Remove any adhesive on top of the flooring with a suitable wipe or solution.

N.B. Do not use ketones, acetones or other chemicals that will damage the flooring surface. Protect the flooring with non-staining type protection to ensure other trades do not damage the floor.

Altro Transport products do not require sealing, however sealing can be applied using AltroGloss 211 or equivalent emulsion. The application of a sealant affects the slip performance of the flooring and it is the responsibility of the owner to assess the level of slip performance required. Please contact your local Altro sales representative for more information.

Step 13: Cleaning overview

Tools you will need

Regular cleaning of Altro Transport products is essential. There are two cleaning cycles.

- Regular
- Maintenance and Deep (Scrub) Cleaning

An ideal schedule uses both.

1. Sweep or vacuum aisles daily.
2. Wet clean aisles weekly.
3. Major overall clean every three months including stain treatment.
4. If maintenance becomes sporadic, flooring can be restored using the deep (scrub) clean procedure and applying very concentrated solutions of cleaning agents.

If in any doubt about any aspect of cleaning Altro Transport products, please contact your Altro sales representative.

Please refer to the Altro Transflor cleaning guidelines which are available at www.altro.com.

Cleaning agents

The composition of cleaning agents varies widely. They may be designed to remove specific soilings, or be formulated with respect to health, safety and environmental issues or the needs of the flooring itself. Alkaline cleaners are best suited to the cleaning of buses and coaches as they generally deal with the majority of soils.

N.B. Use a twin compartment mop bucket or two buckets to keep clean and dirty water separate as good rinsing of residual dirt and cleaners is essential to prevent discolouring and reduction of slip resistance.

For further information or technical advice

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