



the future is safer with altro

a l t r o

Altro flooring installation practices and detailing guide



explore altro.com

USA: 800.377.5597 / **CANADA:** 800.565.4658



Introduction



This publication is designed to provide technical information to assist in the installation of Altro high performance slip resistant and smooth sheet vinyl flooring. Except where noted, this information applies to the complete range of Altro slip resistant and smooth sheet vinyl floor covering products, referred to throughout this guide as Altro floor covering.

Please note installation information specific to individual Altro products.

The recommendations herein are derived from actual field and laboratory testing by Altro's technical specialists, combined with the recommendations of the Resilient Floor Covering Institute. The procedures are widely accepted in the floor covering industry.

Install Altro floor covering according to the definition of standards in this guide. Any deviations from these definition of standards are to be attempted solely at the risk of those specifying or attempting the actual installation, and are not the responsibility of Altro or its distributors.

Installation of Altro floor covering should follow the instructions detailed in this guide. Bidding and installation of any Altro commercial flooring products should only be undertaken by professional floor covering installers versed in the required tools and techniques for professional installations. Failure to correctly install Altro floor covering will void the Limited Product Warranty.



Table of Contents

| | | |
|-----|---------------------------------|---------|
| 1. | Product Overview | 1 - 2 |
| 2. | Altro Training Courses | 3 |
| 3. | Storage and Handling | 4 |
| 4. | Basic Floor Laying Practices | 5 - 13 |
| 5. | System Accessories | 14 - 17 |
| 6. | Finishing Details | 18 - 19 |
| 7. | Adhesives | 20 - 24 |
| 8. | Installation Procedures | 25 - 29 |
| 9. | Seam Groove | 30 |
| 10. | Welding | 31 - 33 |
| 11. | AltroMastic 100 | 34 - 35 |
| 12. | Drains and Cleanouts | 36 - 39 |
| 13. | Altro Walkway 20SD Installation | 40 |
| 14. | Altro Everlay | 41 - 42 |
| 15. | Freezers and Coolers | 43 |
| 16. | Repairs | 44 |
| 17. | Maintenance | 45-46 |



1. Product overview

1.1 Altro Safety Flooring

Altro high performance safety flooring is a unique combination of plasticized vinyl, aluminum oxide grains and silicon carbide grains with a glass fiber reinforcement. Some ranges also include quartz aggregates.

The underfoot safety of any floor is dependent on the coefficient of friction between the floor surface and the sole of the shoe or bare foot. The safety performance of Altro safety flooring relies on the way in which the vinyl compresses under load, leaving the abrasive grain protruding above the surface to provide a reliable grip.

It is important to remember that suitable floor maintenance also plays a vital part in safety underfoot.

Either Altro Original Easyclean Technology™, Altro Maxis™, Altro Easyclean Maxis PUR™ Technology is incorporated within most Altro safety flooring products. Altro safety flooring is easy to maintain and continues to provide superior slip resistance for many years.

1.2 Product Limitations

Altro floor covering is not normally recommended for use in the following areas:

- Areas exposed to certain conditions that may cause staining. For example, areas such as newly applied asphalt in driveways or parking lots, or antioxidants in certain types of rubber used in mats, wheels, and tires. Certain dark colors of Altro flooring or products with Maxis Technology may minimize this effect.
- Areas which may be subjected to hot objects that may burn or melt vinyl flooring. Vinyl floor covering must be protected from excessive heat, or items exceeding 140°F.
- Areas where forklifts and/or pallet jacks travel at high speed, since friction caused by the floor's slip resistant properties can lead to surface damage from tire burn.
- Where the presence of sharp items, such as nails protruding from pallets or other objects, could cause severe physical damage.
- Areas subject to excessive spillages of alcohol, ketones or other solvents harmful to vinyl.
- Altro cannot accept responsibility for floor damage resulting from excessive moisture or the use of inappropriate, improperly designed, or inadequate floor protection devices. It is the responsibility of the equipment manufacturer to provide suitable floor contacts to prevent indentation or delamination and the responsibility of the end-user/maintenance provider to assure excessive water does not penetrate or damage the finished flooring.



1. Product overview

- DO NOT use markers (sharpies, pens, construction crayons, etc) double faced tapes or paints (construction or other) on the flooring or on the substrate as these items may bleed through or otherwise cause permanent staining.
- Altro assumes no liability for damage to our flooring resulting from the misuse or improper use of double faced tapes, markers, paints, or maintenance products. Please confirm with the manufacturer of all cleaning products and equipment for their recommendations.

Please contact your local Altro distributor for advice regarding any of the above.

Heavy Rolling Loads

Altro flooring is sometimes installed in areas where heavy static and rolling loads occur, as well as in severe surface moisture areas. Hospital beds are a prime example, along with commercial kitchen environments being another example.

While the supplied wheels or floor contact points of certain hospital beds or other commercial equipment should properly diffuse weight, installation precautions can minimize indentation, delamination, and minimize failure.

Areas directly underneath hospital bed wheels, or the point load

of heavy equipment, should be installed with Ecofix 20 with a fine notched trowel. Please consult Technical Services for installation methods.

Severe Surface Moisture Areas

In areas subjected to severe surface moisture after installation, or where at least one floor drain exists, Altro Safety Flooring must be installed with Altrofix 30 two-part polyurethane adhesive.

Contact an Altro representative for installation information concerning these areas.



2. Altro training courses

Altro is dedicated in assisting the resilient flooring installer in developing the necessary skills to install the entire range of Altro high performance products.

Courses vary in length from a few hours to an all-day detailed presentation. The aim is to provide installers of all levels of experience with the confidence, attitude, and professional skills required to install Altro products.

Courses include:

- Moisture testing
- pH testing
- Subfloor preparation
- Adhesives (type and application)
- Installation procedures
- Heat welding
- Flash coving
- Maintenance

For more information on Altro training or to schedule a course, please call 800.377.5597.



3. Storage and handling

- If storage temperature is below 70°F, Altro floor covering must be moved to a warmer place and allowed to reach this temperature before unrolling. The room temperature must not be below 70°F and the floor temperature between 65°F - 80°F.
- Rolls of Altro floor covering must be stored in dry conditions and stood upright on a level floor. If stacked horizontally, there is a risk of “flattened areas” developing which can lead to installation difficulties.
- Safety precautions should be taken to secure rolls standing on end to prevent them from accidentally falling.
- Many of the Altro floor covering ranges incorporate a colored quartz aggregate in the material. **Eye protection** should be used and care taken during cutting and grooving procedures.
- If more than one roll is used, unroll the flooring in numeric sequence.

The flooring should be unrolled with the decorative side up. It should be left unrolled for at least 10 minutes, then back-rolled loosely and again unrolled to eliminate any stress in the material. The flooring must be checked for defects before installation. When installing safety flooring, check carefully to see that drops match in shade. It may be necessary to reverse sheets of Altro floor covering to obtain a side shade match. If a side shade match cannot be accomplished, do not install. Contact your Altro distributor.

Do not install flooring with visible defects.



4. Basic floor laying practices

4.1 Job Site Conditions

- Altro floor covering must be installed at temperatures between 70°F and 85°F, and a slab temperature between 65°F and 80°F.
- Building HVAC must be up and running and in permanent operation prior to installation. A minimum temperature of 70°F must be maintained for at least 72 hours before, during, and 72 hours after installation.
- All materials and subfloors must be fully acclimated to installation temperature.
- The areas to receive floor covering are to be weather tight.
- The areas of installation must be adequately lighted to allow for proper inspection of the flooring and subfloor. This is especially critical when flash coving.
- The installation of floor covering must not begin until work of all other trades has been completed.
- All traffic must remain off finished floors for 24 hours before light traffic, 48 hours before light rolling loads, and 72 hours before heavy loads are allowed.
- Area of installation must not be within 5 degrees of dew point. Please reference the enclosed dew point chart. Low relative humidity (dry air) must exist and be maintained during the application of adhesive. Installations must not take place when the substrate of the area of installation is within 5 degrees of dew point.

- Moisture tests must be taken to ensure the subfloor is sufficiently dry for the installation of the Altro floor covering. Please refer to Section 4.3.

- Prior to starting the installation please advise the general contractor and or end user about the subfloor moisture requirements that will be needed at time of installation.

Control Joints and Expansion Joints

There are two types of joints in concrete. The first type is called a control joint and is saw cut into fresh concrete to “control joint” the slab during the curing process. These should be vacuumed cleaned then filled with an elastomeric compound such as Sikaflex 2c NS. Most Portland based level compounds may also be acceptable.

An alternative would be to install our Joint Cover Strip when there is a potential of control joints showing through the finished flooring.

The second, and most difficult type of joint, is an actual “expansion joint”. Most flooring manufacturers do not recommend bridging these joints with their material.

As flooring cannot be installed over joints designed for continued movement we recommend the use of Altro Joint Cover Strips or other appropriate expansion joint cover.



4. Basic floor laying practices

Dew Point Temperature in Fahrenheit

| Relative humidity | | | | | | | | | | |
|---------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| Air temp (F) | Dew point (concrete surface temperature) | | | | | | | | | |
| 40 | 5 | 8 | 14 | 18 | 24 | 28 | 31 | 34 | 37 | 40 |
| 45 | 5 | 9 | 16 | 23 | 28 | 32 | 36 | 39 | 42 | 45 |
| 50 | 6 | 13 | 21 | 27 | 33 | 36 | 40 | 44 | 47 | 50 |
| 55 | 8 | 16 | 25 | 31 | 36 | 41 | 45 | 49 | 52 | 55 |
| 60 | 9 | 20 | 29 | 35 | 41 | 46 | 50 | 54 | 57 | 60 |
| 65 | 10 | 24 | 33 | 40 | 46 | 51 | 55 | 58 | 62 | 65 |
| 70 | 13 | 28 | 37 | 45 | 50 | 55 | 60 | 64 | 67 | 70 |
| 75 | 17 | 31 | 42 | 49 | 55 | 60 | 64 | 68 | 72 | 75 |
| 80 | 20 | 35 | 46 | 53 | 60 | 65 | 69 | 73 | 77 | 80 |
| 85 | 24 | 40 | 50 | 58 | 64 | 69 | 74 | 78 | 82 | 85 |
| 90 | 27 | 43 | 54 | 62 | 69 | 74 | 79 | 83 | 87 | 90 |
| 95 | 30 | 48 | 59 | 67 | 73 | 79 | 84 | 88 | 92 | 95 |
| 100 | 34 | 52 | 62 | 71 | 78 | 83 | 88 | 93 | 97 | 100 |

Dew point is the temperature at which the humidity in the air begins to condense in and on the concrete substrate. Floor coverings and adhesives should not be installed any time the air temperature or concrete surface temperature is within five degrees of dew point.

Procedure

- Test and read the air temperature in the room.
- Test and read the relative humidity in the room.
- Test and read the concrete surface temperature.
- Find the air temperature on the accompanying dew point chart. (Left hand side, up and down of the chart.)
- Find the relative humidity on the dew point chart. (Top of chart, across.)
- Intersect the air temperature (sideways movement) with the relative humidity (downward movement) on the dew point chart.
- Obtain the figure at this intersection.
- Compare this figure with the concrete surface temperature.
- If these figures are within five degrees of each other floor covering should not be installed.



4. Basic floor laying practices

4.2 Wood Subfloors

ASTMs may be obtained from www.astm.org

Suitable substrates may include:

- Wood
- Concrete
- Metal
- Existing Flooring
- Epoxy

Unsuitable substrates may include:

- Rubber
- Cushioned Flooring
- Stripwood
- Gypsum based underlayment

- Wood floors should be double layer construction with a minimum total thickness of 1". The subfloor must be rigid, free from movement, and have at least 18" of well-ventilated air space below.

- Wood subfloors must not exceed 8% moisture content when measured with a Delmhorst Wood Moisture Tester.

- Crawl spaces shall be insulated and protected by a vapor barrier.

- Do not install Altro floor covering over wood floors built on wooden sleepers directly in contact with any concrete or earth.

- Wood underlayment panels must be suitable for resilient floor covering and installed per ASTM F1482.

- Certain underlayment panels may cause staining. Consult the underlayment panel manufacturer for specific panel recommendations, panel warranties, and application instructions.

- Do not install over particle board, chip board, Masonite™ or Luan type panels unless specifically warranted by the manufacturer for use as an underlayment.

- Regardless of the type and manufacturer of the underlayment panel used, any failures in the performance of the underlayment or floor covering due to the underlayment is the responsibility of the underlayment manufacturer, and/or the underlayment installer.



4. Basic floor laying practices

4.3 Concrete Subfloors

ASTMs may be obtained from www.astm.org

Suitable substrates may include:

- Wood
- Concrete
- Metal
- Existing Flooring
- Epoxy

Unsuitable substrates may include:

- Rubber
- Cushioned Flooring
- Stripwood
- Gypsum based underlayment

- Please reference both ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring and ACI 302.2R-06 Guide for concrete slabs that receive moisture sensitive flooring materials. Please consult www.astm.org and www.concrete.org for the most current editions of these guidelines.

- Moisture testing must be performed on all concrete subfloors, per ASTM F2170. Results are not to exceed 85% IRH. pH testing must be performed per ASTM F710, results not to exceed 9.9.

- Concrete floors must be smooth, rigid, permanently dry, and clean. Floors must be free of all foreign materials, including dust, sealers, paint, grease, oils, solvents, curing and hardening compounds, asphalt, old adhesive residue, and any other contaminants.

- The surfaces of the concrete shall be flat to within the equivalent of 3/16" in 10 ft, per ASTM F710.

- Concrete must have a minimum compressive strength of 3500 psi.

- Lightweight concrete (less than 115 lbs per cubic foot) may be unsuitable for covering with resilient flooring.

- Gypsum based substrates and underlayments are unsuitable.

Control Joints and Expansion Joints

There are two types of joints in concrete. The first type is called a control joint and is saw cut into fresh concrete to "control joint" the slab during the curing process. These should be vacuumed cleaned then filled with an elastomeric compound such as Sikaflex 2c NS. Most Portland based level compounds may also be acceptable.

An alternative would be to install our Joint Cover Strip when there is a potential of control joints showing through the finished flooring.

The second, and most difficult type of joint, is an actual "expansion joint." Most flooring manufacturers do not recommend bridging these joints with their material.

As flooring cannot be installed over joints designed for continued movement we recommend the use of Altro Joint Cover Strips or other appropriate expansion joint cover.



4. Basic floor laying practices

4.4 Metal Subfloors

ASTMs may be obtained from www.astm.org

Suitable metal substrates may include:

- Clean, rigid steel
- Primed steel
- Steel diamond plate
- Galvanized steel
- Metal access raised floor
- Lead

Unsuitable substrates may include:

- Rubber
- Cushioned Flooring
- Stripwood
- Gypsum based underlayment

• Metal subfloors must be clean, rigid, and free from all rust, oil, grease, coatings and all other contaminants.

• In certain circumstances lead as a subfloor may be too soft for the intended use.

• Cleaning/preparation may consist of sanding, grinding, cleaning with TSP (trisodiumphosphate), and priming with Red Oxide primer such as Rust-OLEUM®.

• Joints can be filled and made smooth using Altrofix 30/31 two-part polyurethane adhesive when the finished flooring is to be installed with the same two-part polyurethane adhesive.

• In some instances (such as certain coolers and freezers), when metal panels are prone to movement, Altro Everlay "A" sheet underlayment will be used to allow the installation of finished flooring.

• Final determination of the suitability rests with the flooring contractor.



4. Basic floor laying practices

4.5 Existing Flooring and Adhesive Residue

- Altro recommends removal of all existing flooring whenever possible; however in certain circumstances it may be possible to install over an existing floor. Please consult the following information as well as with your local Altro distributor.
- Altro floor covering may be installed over existing flooring surfaces such as terrazzo, epoxy, ceramic tile, quarry tile, metal floors, and in certain cases resilient floors and VCT, provided they are dry, well bonded, sound, smooth, and free of waxes, polishes and/or any other foreign materials.
- When going over existing flooring, moisture testing must be performed per applicable ASTM standards. Partial removal of the existing flooring may be required to facilitate moisture testing. See Section 4.3 for limits.
- Do not install over cushion-backed, heavily embossed, or multiple layers of flooring. Installations over existing resilient flooring will be more susceptible to indentation, and there is the possibility that the existing flooring will telegraph through.
- The responsibility of determining if the existing floor is a suitable subfloor rests solely with the installer and flooring contractor. If there is any doubt, the existing floor should be removed.
- Caution must always be exercised when removing old flooring or adhesive residues as they may contain asbestos or harbor mold and mildew. Consult with your local authorities as regards to laws pertaining to removal. Also consult RFCI's Recommended Work Practices for the Removal of Resilient Floor coverings at the Resilient Floor Covering Institute website at: www.rfci.com.
- **Do not install resilient flooring directly over residual adhesive or paint. All adhesive and paint must be mechanically removed to a thin well-bonded residue before skimming.**
- Only use mechanical means to remove old residual adhesive, i.e. bead blasting or scarifying. Liquid removers are unsuitable.



4. Basic floor laying practices

4.6 Radiant Heat Subfloors

ASTMs may be obtained from www.astm.org

Suitable substrates may include:

- Wood
- Concrete
- Metal
- Existing Flooring
- Epoxy

Unsuitable substrates may include:

- Rubber
- Cushioned Flooring
- Stripwood
- Gypsum based underlayment

- The subfloor must be fully acclimated to the building's ambient temperature, between 65° F and 80° F.

- The heating system should have been in use for at least one week prior to the installation, and moisture test results should not exceed the limitations as outlined in Section 4.3.

- Heat the slab to the required room temperature range, then turn off radiant heating system 3-4 hours prior to the installation.

- After the installation has been completed, turn the heating system on slowly, and in stages, to achieve normal room operating temperature. Maximum subfloor temperature is 85°F.

Moisture tests must be taken to ensure the subfloor is sufficiently dry for the installation of the Altro floor covering. Advise the general contractor, architect and owner of existing conditions. Altro recommends the use of independent testing agencies.



4. Basic floor laying practices

4.7 Moisture Testing

ASTMs may be obtained from www.astm.org

Use all the test methods described below to determine the dryness of the subfloor and suitability of surface pH as required to ensure initial and long-term success.

- Moisture testing determines the moisture conditions at the time of testing only and does not guarantee or preclude the possible future intrusion of excess moisture.
- All on-grade and below-grade concrete slabs must have an effective moisture vapor retarder.
- Document all tests taken.
- Alkalinity Testing: ASTM F710 Maximum pH of 9.9
- ASTM F2170 Standard Test Method for Determining

Relative Humidity in Concrete Slab Using in-situ Probes: This test method covers the quantitative determination of percent relative humidity in concrete slabs for field or laboratory test. Conduct one test for every 1,000 square feet (minimum 3 tests) to ensure concrete does not exceed 85% internal relative humidity.



Additional optional moisture testing

- ASTM F2420 Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement and Insulated Hood. This test method covers the quantitative determination of percent relative humidity above the surface of concrete floor slabs for field or laboratory test.
- Mat Moisture Tests and Electric Moisture Meters can be used to detect the presence of moisture, however these test methods do not replace the required testing. When electric meter and/or mat moisture tests indicate no moisture and that the subfloor may be dry enough to install flooring, it is at this time that testing per ASTM F1869 and F2170 is to be done.
- ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride: This test method covers the quantitative determination of the rate of moisture vapor emitted from below-grade, on-grade, and above-grade (suspended) concrete floors.
- Although the preceding moisture testing information and recommendations are widely accepted within the resilient floor covering industry, there is currently no known exact amount of lbs of moisture vapor emission, or exact % of RH to know exactly when a floor covering, adhesive, or coating system will fail. Moisture failures are generally a complex, cumulative, and synergistic series of events. The preceding moisture testing information is provided as an industry service and in an effort to help reduce the likelihood of moisture related failures within the floor covering industry.

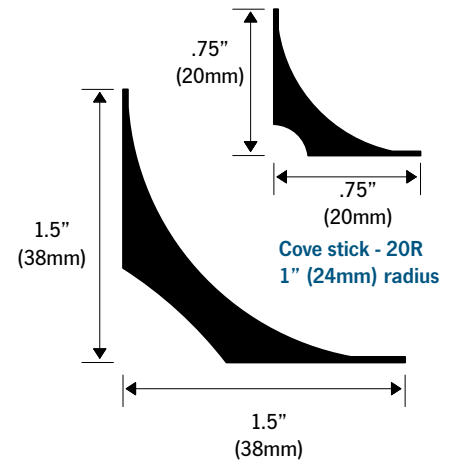
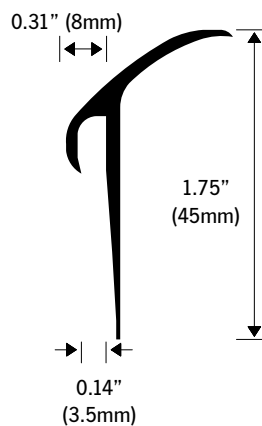
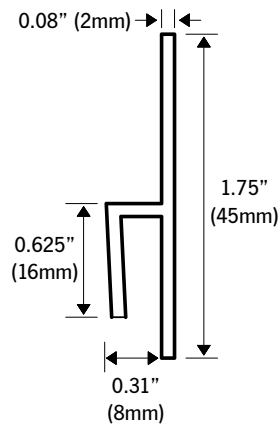
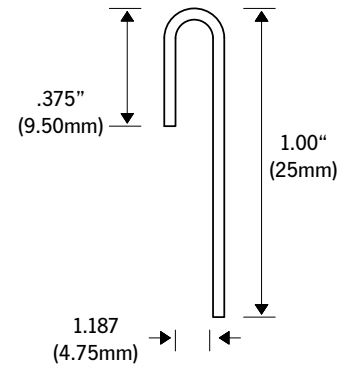
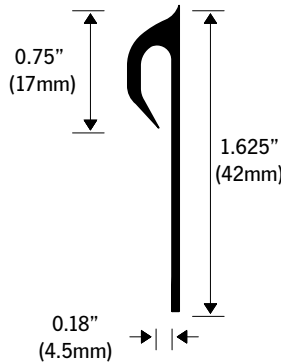
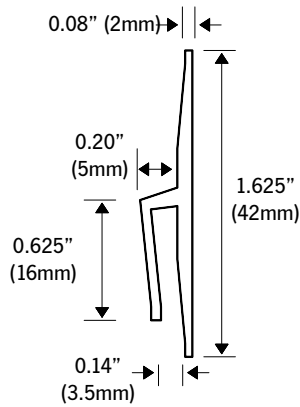
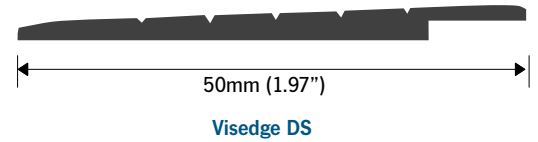
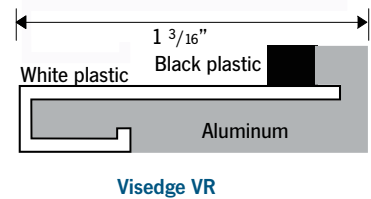
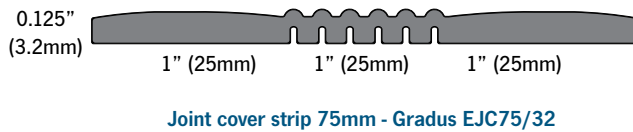
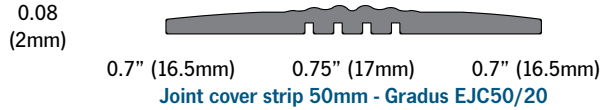
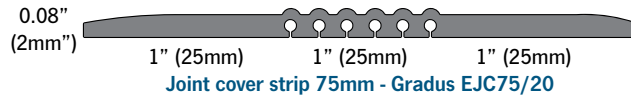
Mat Moisture Test

1. Double faced tape 3' x 3' (0.9m x 0.9m) pieces of polyethylene to the subfloor (approximately 50' or 15m apart) for a minimum of 72 hours.

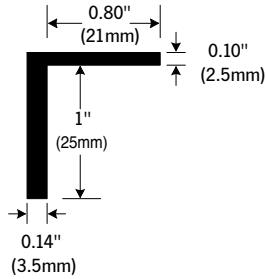
2. Remove the polyethylene after 72 hours and if there is any evidence of moisture allow additional time for the subfloor to dry before testing further, do not install flooring.

- Electric moisture meters are also useful in detecting the presence of moisture; consult with the particular meter manufacturer for meter calibration and reading.
- Adhesive bond tests must be conducted with the flooring and adhesive specified to determine the compatibility of the adhesive with the prepared subfloor.
- Wood subfloors must not exceed 8% moisture content when measured with a Delmhorst Wood Moisture Tester.

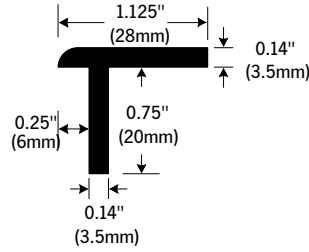
5. System accessories



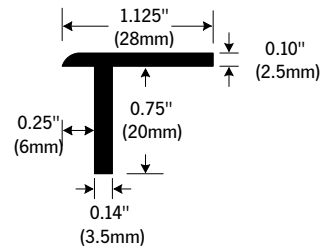
5. System accessories



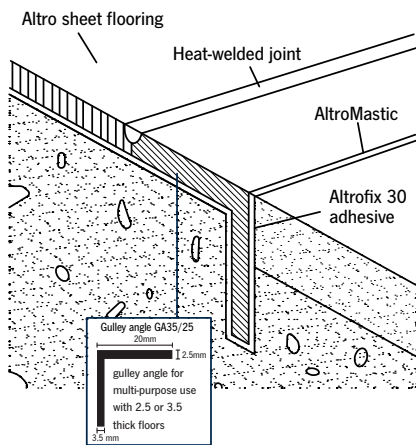
Altro gulley angle - GA35/25



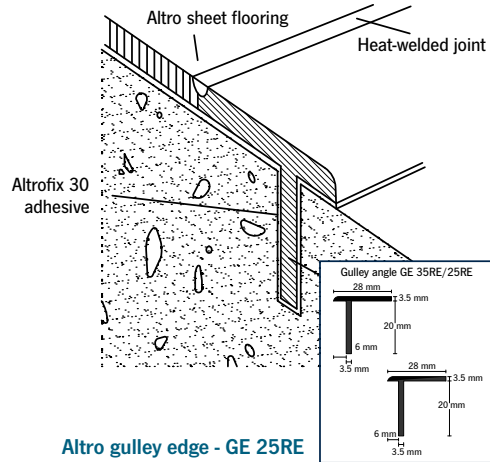
Altro gulley edge - GE 35RE



Altro gulley edge - GE 25RE



Altro gulley angle - GA35/25



Altro gulley edge - GE 25RE

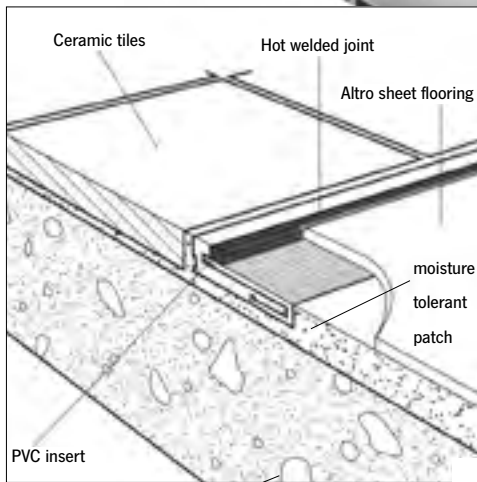
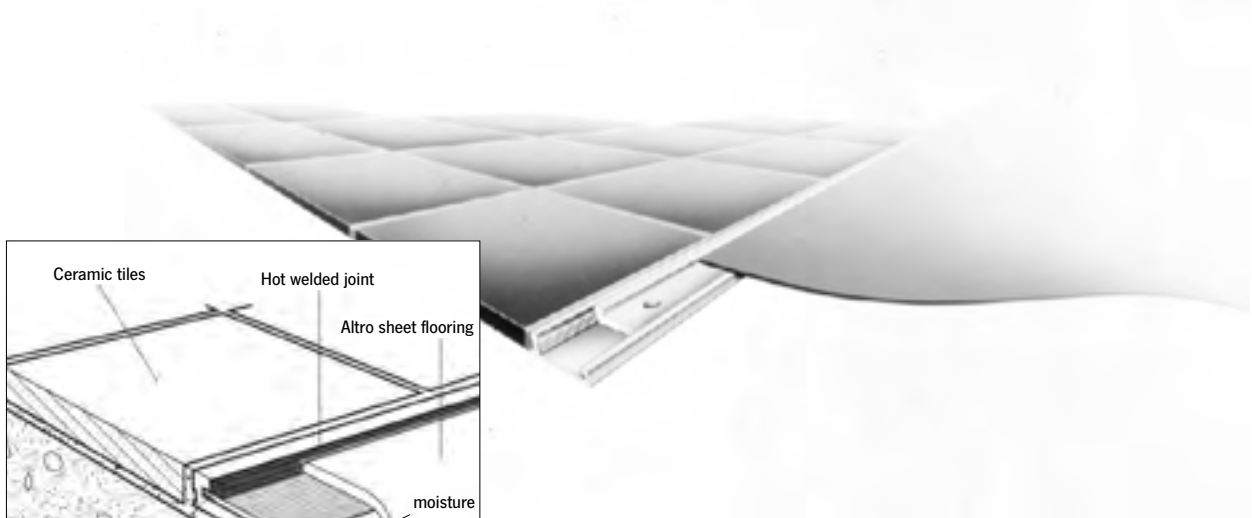
Altro gulley edge - GE 35RE

5. System accessories

Visedge VR Vinyl Securing Strip

Visedge VR is to be used when abutting a raised square edge such as quarry tile or a raised floor sink. The Visedge VR is installed butt up against the raised edge, the backside is then patched/ramped down from the height of the Visedge down to

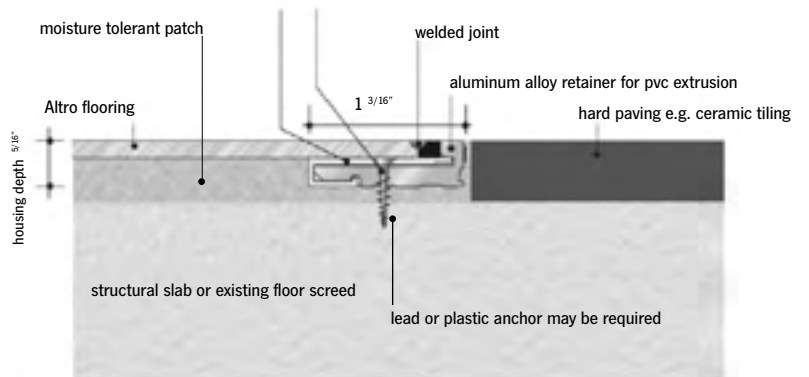
a zero edge using a moisture tolerant cementitious patch. Then the Altro flooring is installed up over the patch and up against the plastic insert that is part of the Visedge, then grooved and heat-welded to the plastic insert.



structural slab or existing floor screed

co-extruded locking pvc insert with rigid base and flexible upstand for bonding and welding respectively to vinyl flooring

edge trim is pre-drilled and countersunk to accept No. 10 screw



Section at paving junction



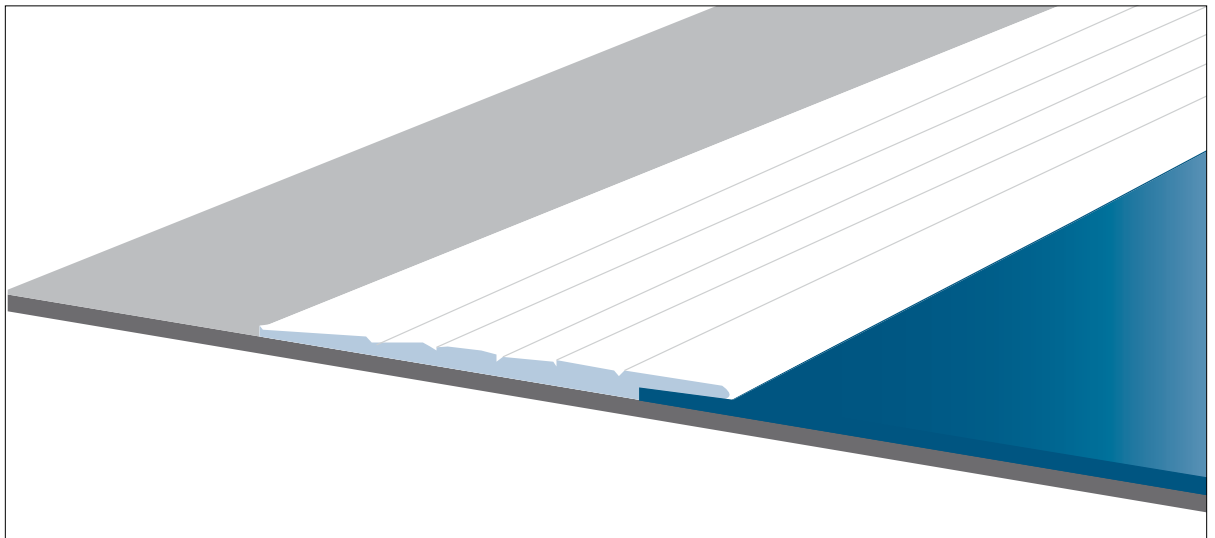
5. System accessories

Visedge DS

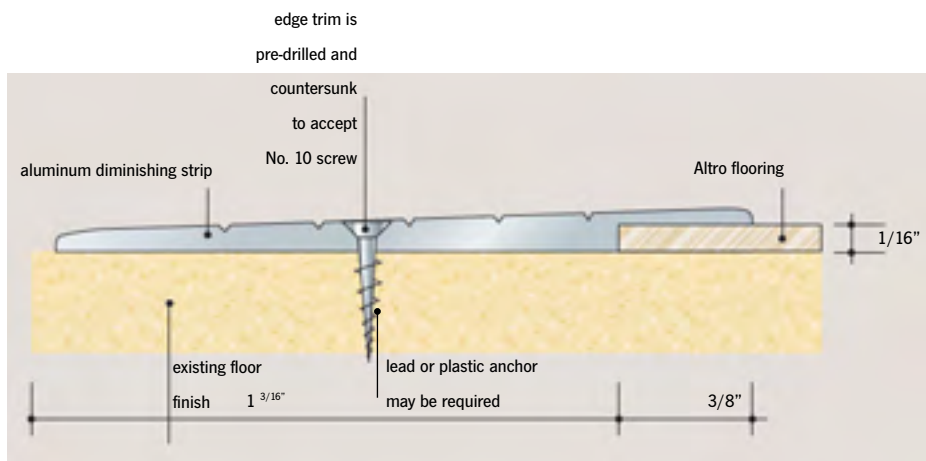
Visedge DS is an over the top reducer threshold to finish a raw edge of Altro flooring where it needs to transition down to zero such as a doorway threshold or where Altro flooring is stopping

and the concrete continues without any floor on top of it. Visedge DS is designed to anchor securely the perimeter of the Altro flooring.

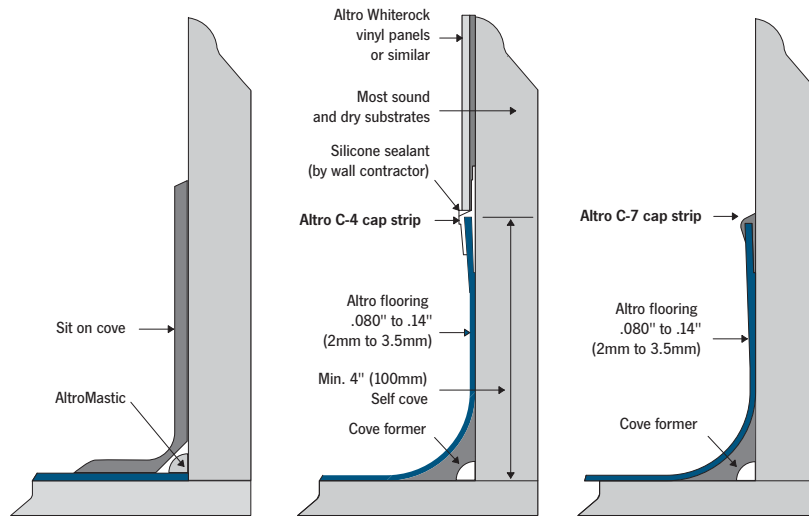
Visedge DS Vinyl Securing Strip



Section at paving junction



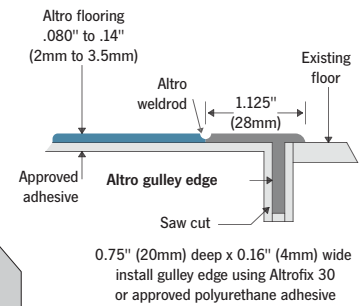
6. Finishing details



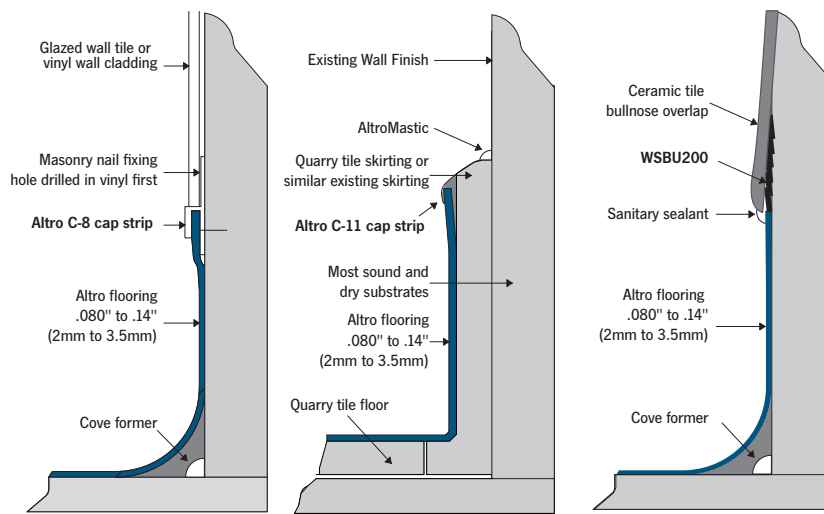
Sit on cove detail

C-4 detail

C-7 detail



Gulley edge detail



C-8 detail

C-11 detail

Ceramic tile bullnose overlap detail

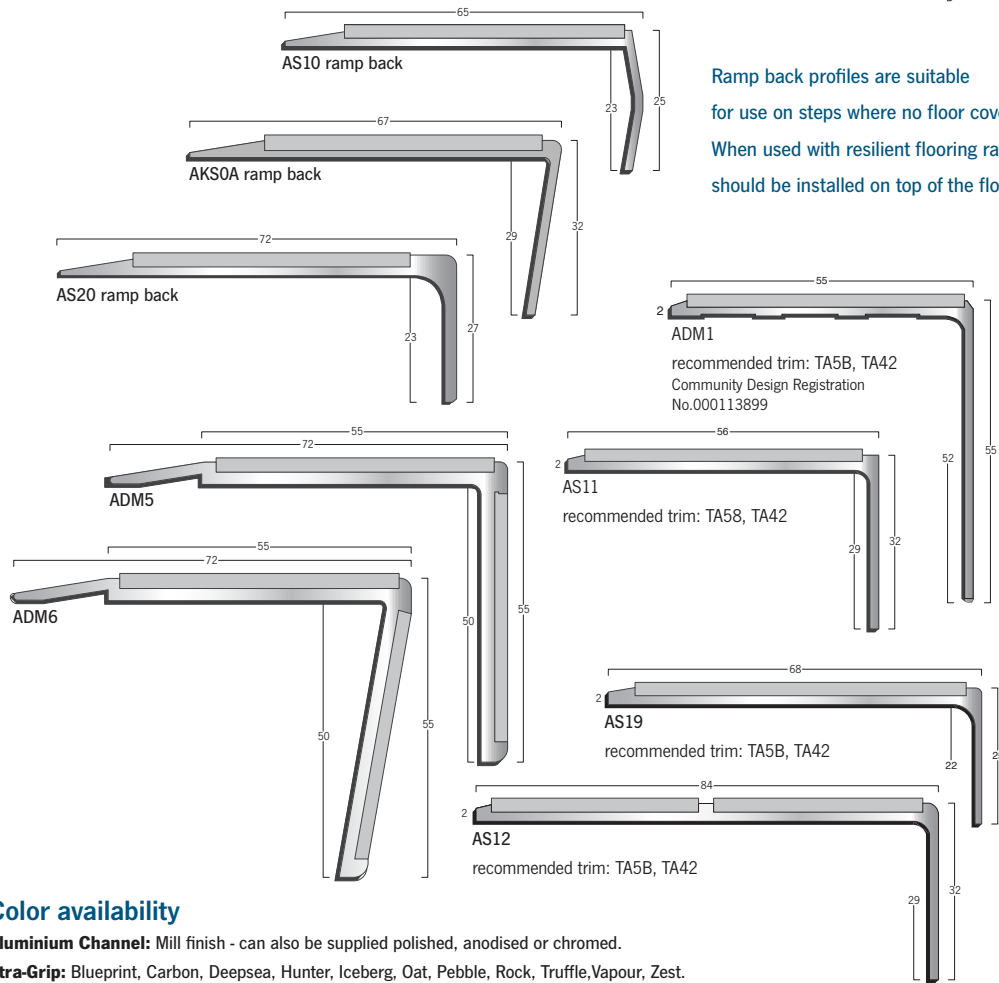
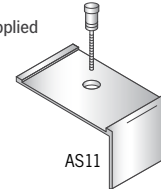
6. Finishing details

Gradus Stair Nosings

A range

Channel: Mill finish aluminum
Insert: Xtra-Grip, Interior or Exterior
Gauge: Typically used with resilient flooring
Profiles: Dimensions shown are nominal.
 Illustrations are full size in mm
 Products subject to minor design alterations without notice

Fusion bonded inserts supplied with capping plugs to conceal screw heads after fixing



Ramp back profiles are suitable for use on steps where no floor covering is used. When used with resilient flooring ramp back profiles should be installed on top of the floor covering.

Color availability

Aluminium Channel: Mill finish - can also be supplied polished, anodised or chromed.
Xtra-Grip: Blueprint, Carbon, Deepsea, Hunter, Iceberg, Oat, Pebble, Rock, Truffle, Vapour, Zest.
Interior Insert: Alpine, Burgundy, Buttercup, Canvas, Cloud, Coffee, Evergreen, Glacier, Ink, Jet, Lavender, Lead, Linen, Midnight, Nutmeg, Ocean, Photoluminescent (only available to suit channels with a 50mm insert), Poppy, Sage, Snowdrift, Steel, Storm, Veranda.
Interior Insert: Grained: Black, Bluebell, Drawn, Drove, Granite.
Exterior Insert: Lignite, Nebula, Nightsky, Sunrise.



7. Adhesives

Adhesive Recommendation for Altro Flooring

| Product | Porous (absorbent) subfloors (most wood subfloors and some concrete) | Non-porous (non-absorbent) Subfloors (most concrete, ceramic, terrazzo, moisture sealers, metal and existing flooring) |
|------------------------------|--|--|
| Safety Sheet Flooring | <p>Altrofix 30/31 (excessively heavy rolling loads and/or excessively wet areas)</p> <p>Ecofix 20 / Altrofix 20 (Canada) (dry areas)</p> | <p>Altrofix 30/31 (excessively heavy rolling loads and/or excessively wet areas)</p> <p>Ecofix 20 / Altrofix 20 (Canada) (dry areas)</p> |
| Smooth Sheet Flooring | <p>Ecofix 20 / Altrofix 20 (Canada)</p> <p>Heavy Rolling Loads Contact Altro Technical Services</p> | <p>Ecofix 20 / Altrofix 20 (Canada)</p> <p>Heavy Rolling Loads Contact Altro Technical Services</p> |
| Altro Walkway 20 SD | <p>Altrofix SD70 Conductive Acrylic</p> | <p>Altrofix SD70 Conductive Acrylic</p> |
| Tiles | <p>Ecofix 25 / Altrofix 25 (Canada)</p> | <p>Ecofix 25 / Altrofix 25 (Canada)</p> |

Most concrete is considered to be non-porous (non-absorbent). To test for porosity, sprinkle a few drops of water on the subfloor, and if it is not absorbed within about one (1) minute, the subfloor should be treated as a non-porous/low absorbency surface. The final determination for subfloor porosity is the responsibility of the flooring contractor.

Please note:

1) Adhesive coverage is only an approximation based on experience, manufacturers recommendations, and subfloor porosity, Altro does not warrant nor guarantee actual adhesive coverages.

2) Altrofix 31 is a faster setting Polyurethane adhesive and can also be used for repair and small installations of sheet material requiring a quicker set time.

3) Adhesive bond tests must be conducted with the flooring and adhesive specified to determine the compatibility of the adhesive with the prepared subfloor.

4) The moisture rating for all our adhesives is less than 85% Internal Relative Humidity (ASTM F2170).

7. Adhesives

| Altro adhesives – description chart 02/2015 | | | |
|---|--|--|--|
| Adhesive name | Description | Typical porous installations | Typical nonporous installations |
| Altrofix 30 Altrofix 31 | 2-part Polyurethane (wet set) | Trowel size recommended: 1/32 deep x 1/16 wide x 5/64 apart. Coverage - approx. 150 sq.ft. per gallon | Trowel size recommended: 1/32 deep x 1/16 wide x 5/64 apart. Coverage - approx. 180 sq.ft. per gallon |
| Ecofix 25 Altrofix 25 | Acrylic Pressure Sensitive dry set / wet tacky) | Trowel size recommended: 1/32 deep x 1/16 wide x 1/32 apart Coverage - 225 to 275 sq. ft. per gallon For very absorbent substrates, please call Tech Services for trowel notch recommendation. | Trowel size recommended: 1/32 deep x 1/16 wide x 1/16 apart. Coverage - 250 to 300 sq. ft. per gallon |
| Ecofix 20 Altrofix 20 | Acrylic Hard Set (wet tacky set) | Trowel size recommended: 1/32 deep x 1/16 wide x 5/64 apart. Coverage - 200 to 250 sq.ft. per gallon For very absorbent substrates, please call Tech Services for trowel notch recommendation. | Call technical services for recommendation and double drop method instructions |
| Altrofix SD 70 | Conductive Acrylic | Trowel Notch: 1/16" x 1/16" x 1/16" Coverage: 200-250 sq ft per gal. | |
| Double Faced Tape | Dry, odorless, double-faced tape to be used for adhering coving on walls | Nominal: 1" x 165' 4" x 165' 6" x 165' | |

Trowel Size

Tile notch of 1/32" deep x 1/16" wide x 1/32" apart.

Sheet notch of 1/32" deep x 1/16" wide x 5/64" apart.

For any areas of high porosity, please consult Altro technical services.





7. Adhesives

7.1 Polyurethane Adhesives

Altrofix 30 & 31

For installations of Safety Sheet Flooring in areas subjected to excessive spillage of water, floors with a drain(s), extreme temperature change, and extremely heavy rolling loads, Altrofix 30 adhesive is mandatory. Altrofix 31 is an extremely fast setting version of Altrofix 30.

Polyurethane adhesives are suitable for all approved subfloors including properly prepared metal. Polyurethane adhesives are generally not suitable for vertical surfaces due to their low initial grab.

7.2 Acrylic Adhesives

Ecofix 20 and 25

Use in areas not subjected to spillage or heavy use of water, or where drains do not exist.

7.3 Contact Adhesives & Double faced tapes

Vinyl cap strips, cove stick, and integral cove may be adhered using a quality neoprene contact adhesive or quality double faced tape.

7.4 Static Conductive Adhesives

A static conductive adhesive must be used with Altro Walkway 20SD, Altro's static dissipative safety flooring.

NOTE: Please contact your Altro distributor for the approved static conductive adhesive for specific applications.



7.5 Important Adhesive Terms

Coverage is the amount of adhesive applied to a given surface. To obtain a good bond, the right amount of adhesive has to be applied with the appropriate trowel, in accordance with the manufacturer's recommendations.

If not enough adhesive is applied, the bond will be too weak and there will be insufficient contact between the adhesive and the material. If the material is porous and a fluid adhesive is used, the adhesive may be absorbed by the substrate or the material, leaving insufficient coverage for proper bonding. If the surface to be bonded is rough, sufficient adhesive has to be applied to ensure that it penetrates into all the nooks and crannies.

If too much adhesive is applied, water may remain trapped inside and not evaporate properly. As a result, the adhesive will not harden at the proper rate, causing blisters or even ungluing. In addition, too thick an application may result in indentation or pockmark problems.

To obtain the correct coverage, the installer must use the appropriate trowel. Furthermore, the notches of the trowel must not be worn down, which may occur when steel trowels are used on hard substrates. When the notches are worn, the trowel will not apply enough adhesive. Worn-out trowels should be replaced. Renotching is not always a good alternative since

7. Adhesives

labor sometimes costs more than a new trowel.

Pot life applies only to reactive adhesives (epoxy, polyurethane, polyester, and dry-set mortars). The pot life is the length of time that an adhesive remains usable after the components are mixed. Depending on the product formula, the chemical reaction will begin immediately or soon after mixing.

Factors affecting pot life include:

Temperature: The higher the temperature, the shorter the pot life, since heat accelerates the chemical reaction producing hardening.

Size of Mixture: In the case of certain products, an exothermic, or heat-generating reaction occurs, with the amount of heat generated increasing in proportion to the mass of the mixture. If too much product is mixed at one time, the reaction could accelerate substantially, causing the adhesive to set prematurely. Therefore, when working with such products, it is advisable to spread the adhesive in a thin coat. This allows the heat of the reaction to escape, thus prolonging the working time.

Tackifying time is the interval of time between the spreading of the adhesive on the substrate and the installation of the

material. During this time, the water begins to evaporate (totally in the case of neoprene cement and partially in the case of a direct gluedown installation). As a result, the adhesive thickens and becomes tacky, producing sufficient cohesion so that the material can be installed without the risk of it lifting.

The tackifying time for various adhesives on the market ranges between 0 and 40 minutes, depending on the type of formula used.

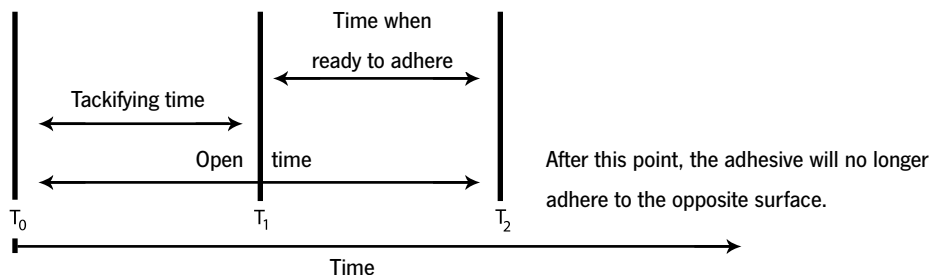
Factors affecting the tackifying time include:

Temperature and humidity: If it is hot and dry, water will evaporate rapidly and the material must be installed faster. The opposite is true when it is cool and humid.

Absorbency of substrate: If the direct gluedown method is being used to apply an adhesive in emulsion or solution, the installer must verify the permeability of the substrate and the material to ensure that the water is able to evaporate out or be absorbed after installation. If not, blistering may occur.

Installer must always respect tackifying time.

Open Time begins when the adhesive is spread and ends when it loses its adhesive properties. Therefore, the interval of time during which the material can be installed depends on the



- The adhesive is spread on the substrate at time T_0 .
- Between T_0 and T_1 , the adhesive starts to acquire its tack and cohesion. The covering material cannot be installed until T_1 .
- After T_2 , the adhesive completely loses its ability to adhere to the covering material. Therefore, the installation of the covering material must be carried out between T_1 and T_2 .



7. Adhesives

tackifying and open time, as shown in the diagram:

Factors affecting the open time include:

Temperature and humidity: Heat shortens the open time by accelerating the evaporation of the water. Cold prolongs open time.

Humidity: In the case of emulsion adhesives, humidity increases open time by slowing the evaporation of water.

High Absorbent Substrates: High absorbents shorten open time by absorbing more adhesive.

Initial Tack is an adhesive's ability to hold the flooring in place as soon as it is installed, so that it does not lift or move. Sufficient initial tack is particularly important for difficult areas such as seams, edges, end-curl, etcetera. If the adhesive does not have enough initial tack, the material will lift after being installed and the installer will have to roll the area again and/or may have to weight the area down until the adhesive has set.

When an adhesive is first spread, it has little tack, but the tack increases along with the tackifying time.

Setting mechanism is the process in which an adhesive begins to cure.

Setting mechanisms include:

Catalyst: two-part polyurethane adhesives - (AltroFix 30/31).

Water Absorption: acrylic adhesives - (EcoFix 20/25)

Setting Stages: there are several stages of setting:

Adequate: When the work site can be opened to foot traffic (in general, a few hours after application, except in the case of reactive adhesives.)

Complete: When the adhesive has acquired 90% or 100% of its maximum properties, including its maximum pull strength. At this stage, the heat can be turned back on without risk of the material lifting and in the case of "wet" rooms, the floor covering can be thoroughly washed with water if required.

Substrate Permeability: When selecting an adhesive, the permeability of the substrate must be taken into account.

Porous material on a porous substrate: This is no problem, since the water can evaporate from both sides.

Non-porous material on a porous substrate: Excess water will be absorbed into that substrate.

Non-porous material on a non-porous substrate: The water MUST be totally evaporated before the material is installed. If not, the adhesive will never set and the water trapped inside may cause blistering. Another solution is to use a reactive adhesive (two-part polyurethane, AltroFix 30/31), which does not require evaporation to set.



8. Installation procedures

8.1 General Recommendations

- Regardless of where Altro floor covering is installed, it is a standard requirement that all seams (horizontal or vertical), internal and external corners are cut in, grooved and heat welded to provide a floor surface conforming to the highest standards of safety and hygiene.
- It is essential to ensure that rolls used in any one area are from the same manufacturing batch and laid in numerical sequential order.
- For shade matching, no sheet should be laid at right angles to another.
- Always protect newly installed floor coverings from work by other trades. Use a non-staining protective covering.
- The initial clean of Altro floor covering is essential. A poor initial clean will make the routine maintenance more difficult.

8.2 Preparation

- Subfloor preparation must be carried out in accordance with the Resilient Floor Covering Institute Installation Practice #1 www.RFCI.com and as recommended by Altro.

Refer to Section 4.2 Subfloors & Underlayments.

- All patching and leveling must be accomplished by using only Portland cementitious underlayment material.

Refer to Underlayment Manufacturer for suitable products.

- Never install over gypsum-based toppings, underlayments, leveling or patching compounds.

Note: Altro is not responsible for failures related to subfloor preparation products recommended and installed by others.

- Surfaces must be prepared in accordance with the underlayment manufacturer's instructions.

- It is best to make rough cuts and let the Altro floor covering become conditioned to the recommended installation temperature. This allows the material to "relax" and makes it easier to install.

- Check carefully to see that drops match in shade. It may be necessary to reverse sheets of Altro floor covering to obtain a side shade match. If a side shade match cannot be accomplished, do not install. Contact your Altro distributor.

- When cutting to length, allow 1" (25mm) at each end for trimming.

8.3 Seaming

- Trim the factory edge in order to remove the edge-curl created during roll storage. Trim a minimum 1/2" (1.25cm) off all seam edges.

- Place material into position and overlap the seam edges 1" (25mm).

- All seams must be cut to fit "net" and not pressure fitted or gapped.

- Do not butt factory edges.

- For products with wood visuals, we recommend all seams be run parallel to the running pattern of the flooring. Cross joints should be avoided where possible as these will stand out against the natural wood pattern of the flooring.

- Altro floor covering seams may be trace cut using the Altro scoring blade followed by the Altro hook blade. Use the trimmed edge as a guide.



8. Installation procedures

- Seams may also be hinged scribed (underscribed) if desired.
- You may straight edge and butt short seams such as doorways.

8.4 Adhesive Application

Two-Part Polyurethane Adhesives

Note: Allow polyurethane adhesives a minimum open time of 10-15 minutes but no more than necessary after spreading.

- Install Altro floor covering into adhesive following adhesive label's application instructions, taking care not to trap any air between the flooring and the subfloor.

Note: Take all necessary precautions to prevent the formation of air bubbles. Spread the adhesive so that the trowel ridges run straight and uniform across the sheet width. For products with wood visuals, spread the adhesive with the grain of the wood.

- Immediately roll the flooring from side to side in the direction of the adhesive ridges using a 100 lbs (45kg) roller to ensure complete contact of flooring material to the adhesive and ensure air is completely removed between the back of the Altro floor covering and the subfloor. Roll again lengthwise. Roll again in one hour. Check for and remove air pockets.

- Weights such as sand bags must be placed over seams or around drains or in areas where pressure is required to keep the back of the Altro floor covering into the adhesive until the adhesive has set.

Note: When using one-part adhesive such as EcoFix 20 or 25 with wood visual products, the adhesive must be spread with all trowel ridges running in the same direction as the wood grain.

8.5 Flash Coving

When flash coving, wall surfaces should be sound, solid, smooth, dry, clean, and free of foreign substances.

- After sub-floor preparation, install cove stick and cap strip as specified. Follow specifications of contract documents for wall cap detailing when coving up walls.

- Apply contact adhesive or double faced tape to the areas being coved per double faced tape or adhesive manufacturers' instructions.

- Roll the Altro floor covering tightly into cove stick and trim as required. Fit floor covering into cap strip and roll with a hand roller.

- Always seal top of cap with appropriate caulking.

8. Installation procedures

8.6 Forming Corners

Forming an Internal Corner



1. After warming the material, push the floor covering as far as possible into the internal corner.



2. Make a cut from the base of the material to the top of the floor covering in line with the corner.



3. Fold in one side and gradually cut off the surplus material to complete the first part of the corner.



4. Fold in the second side.



5. Gradually trim the surplus material to achieve a neat fit



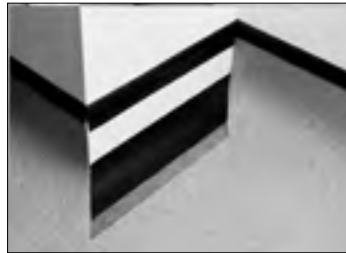
6. Heat weld to complete the section. Refer to Section 10 for more info about heat welding.

8. Installation procedures

Forming an External Corner Using a Side Fill Piece (Boot)



1. Roughly cut the floor covering oversize to meet the required section.



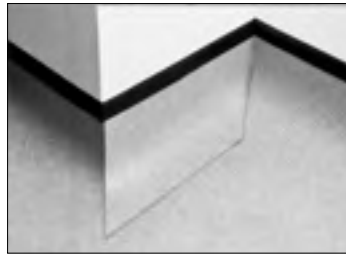
2. Cut in the back and front corner, then cut out the section to accommodate the filler piece.



3. Take a separate piece of floor covering and fit to the back of the internal corner.



4. Cut in the front of the external corner.



5. Heat weld to complete the section. Refer to Section 10 for more info about heat welding.

Note: A butterfly piece, aka V-plug (see next page) is the preferred external corner treatment method and is recommended for safety floor installations where traffic is expected to impact outside corners.

- When adhesive has set, all corners are to be heat welded.
- External corners may be made using a boot and/or a butterfly piece fitted net without any gaps.
- Internal corners are to be cut to fit net without any gaps.

If in doubt on detailing of corners, please contact Altro.

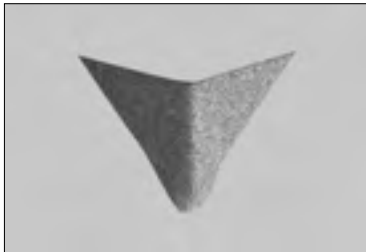
8. Installation procedures

Note: A butterfly piece, also called a V-plug is recommended for safety floor installations where traffic is expected to impact outside corners.

Forming an External Corner using a Butterfly Piece



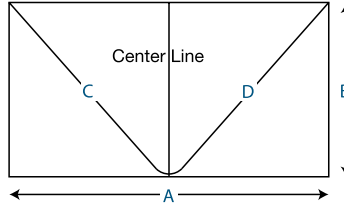
1. Install cap strip and cove stick using approved contact adhesive or approved double faced tape. The outside miter on the cove stick must be rounded at the subfloor line then shaped to match the radius of the cove stick.



4. Finished butterfly piece.



7. Warm the material and ensure the field material is held firmly down against the cove stick while making the final cut.



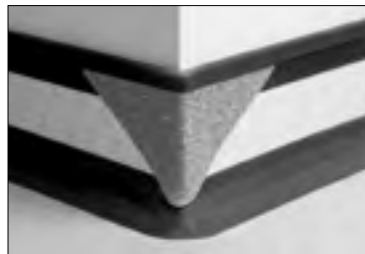
2. To cut a butterfly piece:

(i) Cut a rectangle from a scrap of the floor material.

A = height of the cove x 2

B = distance from the top of the cap strip to half way down the radius of the cove stick.

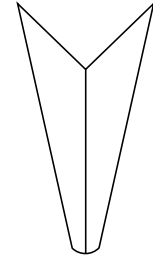
(ii) Cut along lines C and D to make a triangle. Round the bottom point to the radius of a penny.



5. Either place contact adhesive or double faced tape on the back of the corner. Adhere with contact adhesive or double faced tape. Fit the fill piece up under the lip of the cap strip and press into place.



8. Using an Altro hook blade or concave blade, trim the field material to fit net to the perimeter of the butterfly corner fill.



3. Folding a butterfly piece:

- (i) Warm the back of the butterfly fill piece along the center line.
- (ii) Fold the fill piece flat, back to back and along the center line.
- (iii) When cool, open to 90°.



6. Once the butterfly corner fill is in place, the adhesive may be spread and the field material laid into position. The relief cuts must be made so the field material overlaps both edges and the bottom point of the butterfly corner fill.



9. Heat weld to complete the section.



9. Seam groove

After Altro floor covering has been cut in and adhesive is properly set (usually the next day), seam grooving can begin.

A 1/16" deep by 1/8" wide (1.5mm x 3mm) groove must be cut equally along the seam using an Altro Hand Grooving Tool and straightedge. Alternatively, special power grooving blades are available.

Due to the metal particles in the Altro safety flooring, do not use standard grooving blades as the blades will dull very quickly.



9.1 Seam Grooving

Power grooving should only be accomplished by using a machine equipped with an Industrial Diamond Tipped Blade designed for Altro Safety Flooring.

Warning: Do not attempt to groove an Altro Safety Flooring seam with a standard grooving blade as the abrasive particles in the flooring will quickly dull them.

Set the grooving machine to make a channel 1/16" deep by 1/8" wide (1.5mm x 3mm). Line up the grooving machine indicators with the center of the seam and push the machine along the seam.

Practice on a scrap piece of material before grooving the installed material to ensure the correct depth is set for the grooving machine.





10. Welding

10.1 Welding Horizontal Seams

After all seams have been grooved, heat welding can begin. All seams and corners must be heat welded with Altro Weldrod. When welding traditional safety flooring use a 4mm speed tip. For safety flooring with a clear wear surface, use a narrow flow tip. Altro Weldrod is supplied in colors to suit the floor covering being used. Wait overnight for adhesive to set before welding.

Preparation

- Ensure the heat welding nozzle is free of debris by cleaning with a wire brush.
- Make certain the heat welding gun is between 482°F (250°C) and 662°F (350°C). Test on scrap pieces of material.
- Ensure the Altro Weldrod is cut to the correct length for the seam to be welded and that it will not catch on any objects in the area.

Welding

- Move the welding gun along the grooved seam with the thread feeding through the nozzle at a predetermined speed and temperature.
- Do not lean the gun to the right or left. Keep the foot of the nozzle parallel to the floor surface.

10.2 Welding Corners

To weld internal and external corners, turn the nozzle at the end of the welding gun to the “up” position which allows for an easier starting point and proceed as shown. Once all the welding on the coved sections is completed, turn the high speed nozzle to the “down” position and heat weld the grooved floor seams.

A feed roller may be used in lieu of a welding tip. Remove tip and reduce heat setting to approximately 250°F (120°C).

10.3 Trimming Horizontal Seams

Horizontal Areas

In flat areas, trimming of the Altro Weldrod should be carried out in two stages:

- Place a trim plate over the Altro Weldrod and trim off the top layer of the Altro Weldrod with the spatula knife. This can be done while the thread is still warm.
- When the remaining Altro Weldrod has cooled, trim the excess weld flush with the flooring surface using a spatula knife (without the trim plate).

Corners and Vertical Coved Areas

Use X-ACTO blades to trim cooled Altro Weldrod in corners and coved areas.

Altro Marine 20 Safety Flooring

After heat welding Altro Marine 20, use a Slim Trim Chisel, with a straightedge as a guide, to trim the excess Altro Weldrod. Refer to Section 6 for more information about Tools & Equipment.

10. Welding

Welding an Internal Corner



1. Internal corners of traditional safety flooring do not need to be grooved. All other sheet floor needs to be slightly grooved to remove the top surface.



2. The X-ACTO small round router blade should be used for trimming the cooled Altro Weldrod on internal corners.

Welding a Butterfly External Corner



1. The seams must be grooved before the seams are welded.

Welding a Boot External Corner



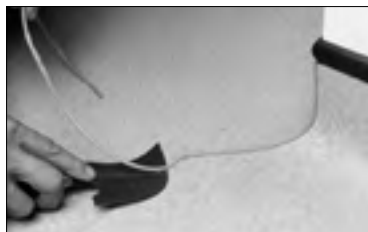
1. The bottom section and floor seams must be grooved before the seams are welded. The top section normally does not need to be grooved as a "V" shape will be formed when cutting in the corner.



2. Adhesive must be properly set. To make it easy to weld the corner, turn the nozzle around and feed the Altro Weldrod through the nozzle and weld down the corner.



2. Feed the Altro Weldrod through the nozzle and weld down the seam, or use a feed roller for better control. Avoid contact with the vinyl cap.



3. Allow the weldrod to cool down before cutting off the surplus with a spatula on the level floor seams.



4. The external corner should be trimmed off using the X-ACTO square router blade



3. Allow the Altro Weldrod to cool down before cutting off the surplus with a spatula. The X-ACTO large round router blade should be used for trimming the Altro Weldrod where the two seams meet at the corner.



10. Welding

10.4 Chemical Seam Sealing of Altro Floorings

While Altro floor coverings are designed for heat-welding, in certain residential or light use commercial installations they may be seamed by a chemical (cold) welding process. Consult Altro technical services for authorization and further information.

For chemical welding to offer the best possible performance, the installation, and in particular the seaming process, needs to be of the best workmanship quality.

Suitability and performance of chemical seam sealing of Altro flooring is the sole responsibility of the specifier, flooring contractor, and installer; any installation performance shortcomings should not be considered an Altro product defect. Altro recommends the heat-welding of all seams.

Chemical/Cold Weld Seam Sealing Procedure

- Wait overnight before welding.
- Areas to be chemically welded must fit net. Do not cut in or fit areas too tight as it will be difficult to chemically weld properly.
- It's imperative to keep the flooring adhesive from touching and contaminating the seam edges.
- Roll area that is to be chemically welded with a hand roller and insure that the area is well adhered and permanently bonded.
- Clean the area that is to be chemically welded with damp soapy cloth, using a neutral detergent and water and allow to completely dry.
- Take the chemical/cold weld unit and lightly squeeze the unit expelling a small amount of air. While slightly releasing the squeezing pressure on the unit, invert the unit and insert the needle-tip firmly down and into the full depth of the seam.
- Reapply a light squeezing of the unit to allow the chemical from within the unit to flow down into the full depth of the seam.
- Pull the unit slowly toward yourself continuing to deposit a bead of chemical weld down into the full depth of the seam and depositing approximately 1/8" to 1/4" wide on the flooring surface.
- When finished chemically welding stop squeezing the chemical weld unit and remove from the seam area.
- Ensure that the chemical weld has penetrated the full depth of the seam as this provides the full strength of the chemical weld throughout the seam thickness.
- No traffic is recommended on the areas for approximately two hours after chemically welding.

11. AltroMastic 100

| | |
|-----------------------------|--|
| Viscosity: | Thixotropic |
| Density: | 1.01 |
| Cure Time: | 24-72 hours |
| Skin Time: | 20 minutes |
| Storage: | Store between 40°F (5°C) to 77°F (25°C) in cool, dry conditions |
| Shelf Life: | At least 12 months, in an airtight container, from date of manufacture |
| Coverage: | Approximately 150 linear feet (48 linear meters) per 1/8th" (3mm) bead |
| Working temperature: | Between 40°F (5°C) to 104°F (40°C) |
| Full bond: | 4 days |
| Contains: | 9.8oz (290ml) |

Instructions for Use

1. AltroMastic is a specially formulated sealing compound for use where Altro floorings abut edges, skirting's, wall surfaces etc, or where the flooring is cut around pipes, door frames etc.

2. AltroMastic is not recommended for use in trafficked areas, as a welded joint will give superior performance. Where flooring abuts drainage channels, access covers, quarry tiles etc, a clamping or welding system should be used.

3. AltroMastic should only be used to seal joints in Altro floorings where obstructions prevent the use of a hot air welding gun.

Procedure

1. Surfaces to be sealed must be dry and free from dirt, oil, or grease.
2. All areas to be sealed should be masked with double faced tape.

Note: Wet spillage of AltroMastic can be removed using adhesive clean-up wipes.

Contains no Solvent or Isocyanate

Can cause irritation by inhalation, skin contact and ingestion

- When using do not eat, drink or smoke
- Do not empty into drains
- Keep out of reach of children





11. AltroMastic 100

AltroMastic™ 100 is used for sealing around pipes and other adjacent surfaces. It is not to be used for sealing seams of Altro high performance floor covering, around drains or internal and external corners. AltroMastic 100 is available in a variety of colors similar to standard Altro colors. Please contact your Altro distributor for the closest color match.

- Altro floor covering is to be fitted to pipes and other adjacent surfaces with close-butted seams. Cut a 1/8" (3mm) channel around the object to receive the AltroMastic 100. Ensure the channel is free from foreign matter.
 - Cover the surface of the Altro floor covering around the area to receive AltroMastic 100 with double faced tape to ensure it does not come into contact with surfaces where AltroMastic 100 is not required.
 - Nozzle on tube must be cut back to allow approximately 1/8" (3mm) bead of AltroMastic 100 to flow from the cartridge.
 - Place nozzle and tube in caulking gun. Nozzle can then be moved along channel at sufficient speed to ensure the channel is completely filled.
 - Use a wet finger to smooth the AltroMastic 100 before it skins over. Wet finger with water or a soapy liquid before touching the applied AltroMastic 100.
 - After application, it is important to remove double faced tape before the AltroMastic 100 skins over.
- One cartridge should cover approximately 164 linear feet (50 linear meters) with a 1/8" (3mm) bead. Skin-over time is approximately 20 minutes.
 - AltroMastic 100 completely cures in 1 to 3 days. Do not allow contact with AltroMastic 100 until at least 8 hours after application.
 - Store and apply AltroMastic 100 at a minimum temperature of 41 °F (5 °C) and a maximum of 77 °F (25 °C) in cool, dry conditions.
 - Keep out of the reach of children.

12. Drains and cleanouts

Altro floor covering must be mechanically fastened to all drain outlets and cleanouts to ensure a permanent watertight installation as outlined in this section.

12.1 Existing Rectangular or Square Drains and Floor Sinks

Altro Gulley Edge/Angle or Visedge may be used. For Gulley Edge/Angle see section 5. For Visedge see section 5.

12.2 Altro Gulley Angle/Edge Strips with Altro safety flooring

Cutting the Concrete

1) Using a small hand held electric grinder or circular saw equipped with a diamond saw blade (wet type preferred), cut a 1" deep x 3/32nd" wide saw cut in the concrete substrate to receive the Gulley Angle/Edge. Two (2) passes may be necessary to achieve the correct width of groove unless the saw blade is 3/32nd" wide. Note: The use of wet type saw blade would, if used correctly, reduce the amount of airborne dust created while cutting concrete. Dry cutting can be done if a dust recovery cutting system is utilized.

2) If the area to be saw cut is in a doorway or abutting a wall, the saw/grinder will be unable to cut all the way to the door casing or wall. In this case a series of 1" deep holes may be drilled in the concrete substrate using a 3/32nd" masonry drill bit and then chiseled out to allow Gulley Angle/Edge to seat flush with the subfloor. You may also cut back the leg of the Angle/Edge to be inserted within 1" of the ends.

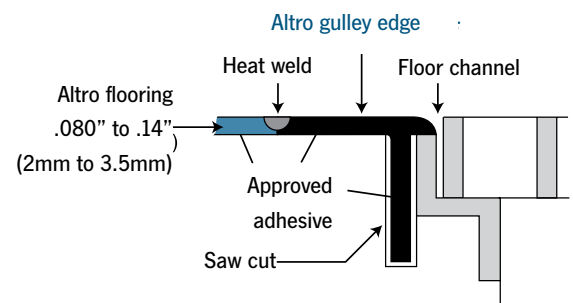
3) If the area to be saw cut is at floor drains or trenches, the cut must be directly up against the drain or trench.

4) On all types of cuts, it's helpful to use some form of straight edge or guide to create a straight saw cut allowing for a professional fit and finish.

5) All water and concrete silt must be removed/vacuumed from the saw cut. The area in and around the saw cut must be allowed to dry completely before gluing can take place

Gluing Process

6) Using double faced tape, tape the outside of perimeters of where the Gulley Edge will be installed, this will aid with the cleanup of excess adhesive after installing the Gulley Edge.



7) Apply adhesive (Altrofix 30/31, 2-part polyurethane or equal) on the floor and in the saw cut.

8) Place the Gulley Angle/Edge into the saw cut making certain that the strip is completely embedded into the adhesive.

9) Using a small scraper or putty knife remove excess adhesive. If adhesive is on the surface of the Gulley Edge remove using a small amount of denatured alcohol on a clean white rag. Note: Do not allow adhesive to dry on the Gulley edge. Once dry, the 2-part adhesive cannot be removed.

10) It may also be necessary to weight down the Gulley edge until the adhesive has a chance to set-up this will insure that the strip is fully seated and without voids.

11) Always allow the Gulley Edge to set up in the adhesive, (typically from four to six hours) prior to cutting and fitting the Altro Safety Flooring to the newly installed strip. The flooring material should be scribe fit to insure a neat net fit seam for heat welding.

12. Drains and cleanouts

Welding Process

12) Heat-welding the new flooring to the edging must not be attempted until adhesive has cured (typically 24 hours on Altrofix 30 and four to six hours on the Altrofix 31).

13) Groove Gulley Edge and flooring as if it were a seam in the flooring material, Gulley Edges are made of vinyl and weld just like the flooring material. Note: When hand grooving, always use a straight edge as a guide to achieve a straight groove.

14) Clean all dirt and debris from grooved seam and weld as you would the Altro flooring material. If applicable, always weld mitered corners with a black rod. Note: Traditionally a black rod is used to weld the flooring to the Gulley Edge. However, a rod color that matches the flooring material can also be used.

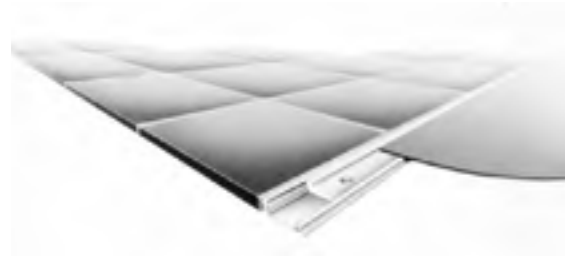
15) Once the welding rod is allowed to cool (typically 30 minutes) trim with a sharp trimming knife using a trim plate for the initial cut followed by the trimming spatula for the final flush cut.

16) Touch-up can be done using a hot tip repair tool or bullet tip repair tool.

Note: Gulley Edge must be fully adhered both inside the saw cut groove and onto the substrate. All joints, flooring to gulley edge as well as corners of the Gulley Edge must be welded. Failure to do so may allow water to encroach compromising the integrity of the flooring and Gulley Edge.

12.3 Visedge VR

A water resistant joint between Altro high performance floor covering and other surfaces, such as ceramic tiles, is achieved by using the Visedge VR vinyl edge securing strip, or gully edge strip.



The flooring is heat welded to either strip, preventing water seeping into the subfloor and protecting the tile edge.

Installation

Visedge needs to be countersunk, or level compound needs to be used, to accommodate the thickness of the edging. Use the predrilled holes to secure the strip to the subfloor. Use the appropriate screws and anchors for the installation. In addition, use a water resistant caulking under the edge to keep water from traveling back under the flooring.

For more information on the Visedge, please see Section 5 System Accessories.

12. Drains and cleanouts

12.4 New Round Drains and Cleanouts

Clamping drains are the best choice for proper installations, and the only choice for areas where water penetration concerns are a priority. These drains are readily available from plumbing supply distributors. They may be installed at time of concrete placement or retrofitted. They are screw on and height adjustable. They come in a variety of drainage pipe diameters and cover sizes. We prefer the larger cover sizes.

The following are acceptable manufacturers and their products:

Zurn Z 415-H

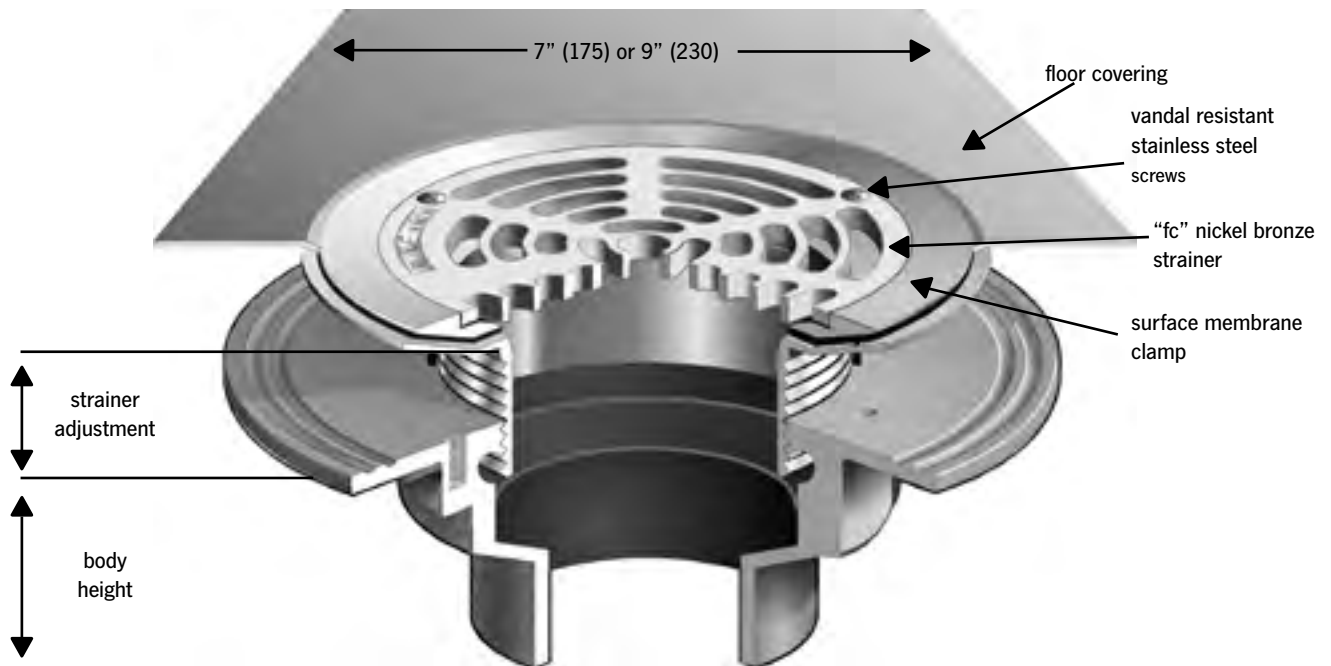
Wade 1100-FC

Mifab F1100 – FC



MIFAB - F1100 - FC

Floor Drain with Surface Membrane Clamp



Sample of an approved clamping

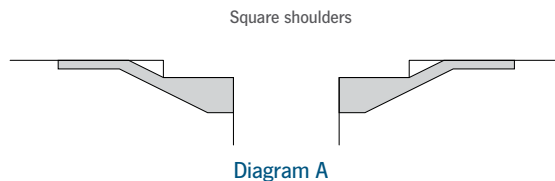
12. Drains and cleanouts

Modifying an Existing Drain

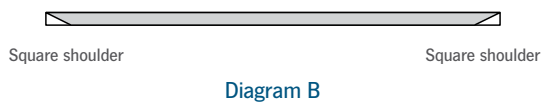
- Remove the drain cover plate.
- With a quality cementitious patching compound, finish the subfloor flush with the drain perimeter.

NOTE: If drain body is higher than the concrete surface, it must be either ground-off or chipped out and lowered. If the drain body is lower than the concrete surface, you must slightly grind the concrete surface to allow for a slight slope-to-drain profile.

- Using a small hand held electric grinder, remove the square shoulder on the inside edge of the drain body to create a 45-degree slope into the drain. (See Diagram A.)



- Similarly, remove the square shoulder from the perimeter of the backside of the drain cover plate creating a 45-degree slope to match the drain body. (See Diagram B.)



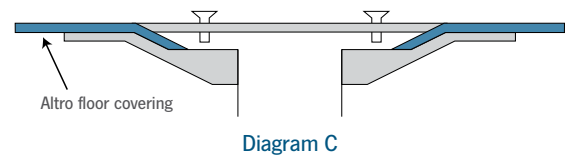
- Replace the cover plate screws for the purpose of land marking the screw holes and preventing the adhesive from filling the holes during the gluing process.

Gluing and Cutting Process

- Apply adhesive (Altrofix 30 two-part polyurethane or approved polyurethane adhesive) on the floor, around, and onto the sloped perimeter of the drain.
- Place the Altro floor covering over the drain, and fit cut only to the inside diameter of the drain plate screws.

Note: Cutting to the outside of the screws will cause the material to be short of the drain plate once it is re-installed.

- Cut small windows in the Altro floor covering at the drain plate screws only.
- After all final fitting is completed, warm material with a hot air blower and secure the drain plate cover in place. This process pinches the Altro floor covering between the drain body and the drain plate cover. (See Diagram C, completed drain)



Note: In most cases, it will be necessary to weigh down the drain area to allow the Altrofix 30 two-part adhesive to set-up.

Caution: Failure to weigh down the drain area during this process may cause a bubble or a pucker in the Altro floor covering, to which there is no remedy.

Approval from the General Contractor/owner must also be obtained before commencing with this procedure.

Altro floor covering must be mechanically fastened to all drain outlets and cleanouts to ensure a permanent watertight installation as outlined in this section.





13. Altro Walkway 20SD Installation

Altro high performance Walkway 20SD is a static dissipative safety flooring that will dissipate static electricity when properly installed.

The installation of Altro Walkway 20SD is the same as all Altro safety floor coverings with the exception of using a static conductive adhesive and the possible requirement for grounding the installation.

Warning: It is imperative that no sealers or acrylic floor finishes be applied to the surface of Altro Walkway 20SD as they would interfere with the static dissipative system.

Excessive cleaning or the use of floor finishes and sealers can adversely affect the electrical properties of the floor. Also, some cleaning agents can leave a film and are unsuitable for use with static dissipative floors – check with the manufacturer of the cleaning agent before use.

13.1 Concrete subfloors

- Concrete subfloors provide a natural grounding when Altro Walkway 20SD is installed using a Static Conductive Adhesive. Grounding is therefore not necessary, unless a resistance to ground requirement has been specified. The concrete floor must be dry, smooth and free of any foreign substances on the surface.

- Static Conductive Adhesive is to be spread in accordance with the manufacturer’s instructions. Altro Walkway 20SD is to be placed into the adhesive while the adhesive is in a tacky/wet state. If any bubbles occur, you should allow slightly more open time. Immediately roll with a minimum 100 lbs (45kg) roller to remove any air and to ensure complete contact between the subfloor and the back of the sheet vinyl.

- Heat welding of seams should not be attempted until the adhesive has set, which is normally the next day.

13.2 Wood or subfloors other than concrete

If the Altro Walkway 20SD is not installed directly on concrete, it may be necessary to provide copper ground strips with a connection to ground.

- Lay the first copper/brass strip (0.1mm thick) into the adhesive 6" (150mm) in from the perimeter of the room, running in the same direction, and the full length of the flooring.

- Allow sufficient ground strip to remain exposed, to be connected to a grounding point by a qualified electrician. It is advisable to use two grounding points in the event that one should become damaged or disconnected.

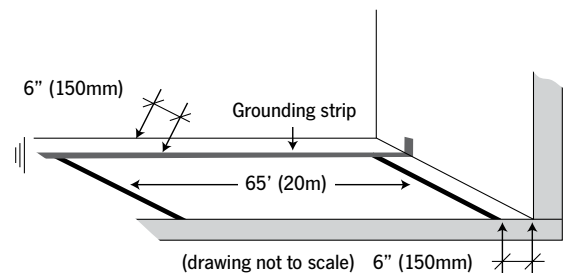
- Lay a second grounding strip at 90° to the first; again, this should be placed 6" (150mm) in from the edge of the room and running across the full width of the room.

- For large areas, lay extra strips at 65' (20m) intervals throughout the area.

- All sheets must be in contact with the conductive strip.

Warning: Do not attempt to do the ground connection as the grounding must be done by a qualified electrician

NOTE: Please contact your Altro distributor for the approved static conductive adhesive for specific applications.





14. Altro Everlay

Altro Everlay™ is an impervious sheet vinyl underlayment designed to overcome the problems that can be encountered when laying Altro high performance sheet floor coverings over damp surfaces, existing resilient flooring, or subfloors contaminated with oil, paint or old adhesive residue.

Although Altro Everlay enables the installation of Altro sheet floor covering over damp subfloors, the system does not constitute a waterproof membrane.

Consult your local Altro distributor for recommendations when considering Altro Everlay over damp subfloors.

14.1 Technical Data

Composition

Altro Everlay is a stabilizing and insulating glass fiber sheet coated with an impervious vinyl layer on both sides and a vinyl channel surface on the underside.

| | |
|---------------|-------------------------|
| Thickness: | Average length of roll: |
| 0.05" (1.2mm) | 164' (50m) |
| Roll width: | Weight per roll: |
| 6'7" (2m) | 220 lbs (100kg) |

Note: Always use Altrofix 30 polyurethane adhesive unless you have consulted with Altro technical services on use of acrylic adhesives and receive written approval.

14.2 Limitations

Altro Everlay must NOT be used in the following areas:

- On subfloors subject to continual moisture or hydrostatic pressure.
- Areas that are subjected to heavy wheeled traffic, chair castors, fork lifts, and industrial pallet jacks, or where indentation is likely to occur.

- Altro Everlay must not be installed in wet areas unless flash coved, caulked, and mechanically fastened at all edges and openings.

- On-grade wood subfloors that are not adequately ventilated.

- On wood block flooring installed over on-grade or below-grade concrete slabs.

- On soft or spongy subsurfaces.

No guarantees can be offered when Altro Everlay is used with products other than Altro floor covering or other products not specifically approved in writing by Altro.

14.3 Installation

Examination

The substrate must be smooth and flat. Existing flooring must be firmly adhered to the substrate. Ensure subfloor is properly sloped to drains. Check for low spots that will result in ponding of water.

Preparation

Remove ridges, bumps, plaster droppings and other foreign matter from the subfloor surface. Fill low spots, joints, holes and other imperfections with a Portland cement base subfloor filler with a minimum compressive strength of 3500 psi.

Prohibit traffic on prepared areas until filler has cured. Install at temperature recommended for specified flooring.

Installation Procedure

1. Sweep or vacuum substrate to remove all dust, dirt and debris.
2. Roll out the Altro Everlay in the same direction as the flooring is to be laid.

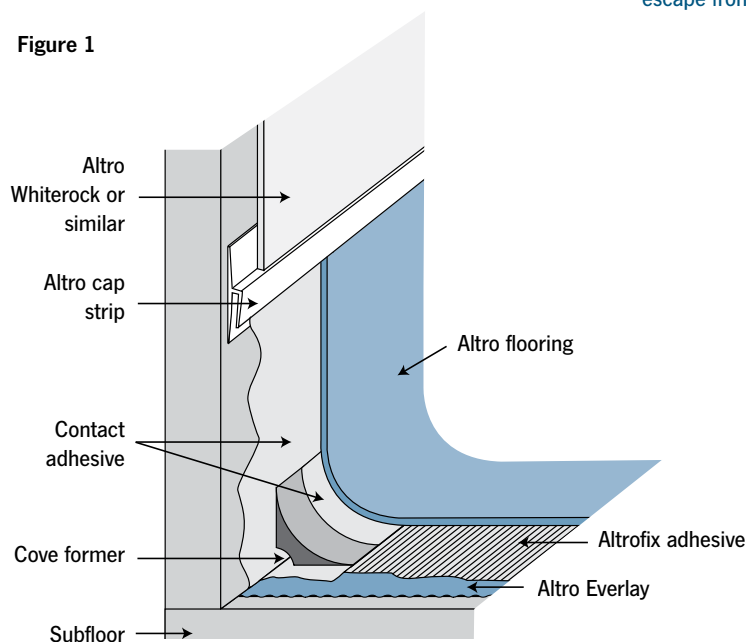


14. Altro Everlay

3. Seams must be laid out to provide for a minimum 12" (30cm) offset from the seam placement of the Altro floor covering to be installed over the Altro Everlay.
4. Seams of the Altro Everlay are to be set factory edge to edge or double cut. Do not pressure fit seams as this could result in peaking.
5. Cut in Altro Everlay to fit from 1/8" to 1/4" (approximately 3mm to 6mm) gap from walls, toe kicks, columns, pipes or other abutments.
6. Door frames and other abutments should be undercut to allow the Altro floor covering and the Altro Everlay to move freely underneath.
7. The Altro floor covering being adhered to the loose-laid Altro Everlay should also be cut 1/4" (6mm) loose of all abutments.
8. Install Altro floor covering over the Altro Everlay in accordance with the instructions in this guide. This is considered a non-porous substrate.
9. Use mechanically fastened thresholds for transition areas where Altro Everlay meets other surfaces in doorways. In areas other than doorways where Altro Everlay meets other surfaces, use a mechanically fastened transition strip or heat weld if applicable.
10. In areas where Altro floor covering is to be covered up the wall, install as illustrated in Figure 1 using appropriate Altro cap strip. Install cove stick to the wall substrate. Refer to Section 8.5 Flash Coving.
11. At flash clamping drains, reduce the clamping ring to a snug fit, not too tight. Allow the Altro Everlay to breathe around the drain.
12. Consult Altro Technical Services for unusual installation details.

Note: The Altro Everlay may be adhered around the drain perimeter but leave at least four pathways [minimum 1" (25mm) wide], unadhered to allow water vapor or liquid to escape from beneath the Altro Everlay.

Figure 1





15. Freezers and coolers

Altro high performance Safety Flooring may be installed in new or existing freezers and coolers following procedures as outlined below.

- Minimum operating temperatures should not drop below -22°F (-30°C) for Altro Stronghold 30 and -4°F (-20°C) for other Altro high performance Safety Flooring products.
- Existing freezers and coolers must be shut down and brought up to proper installation temperature and conditions for installations.
- The freezer/cooler subfloor may then be washed, rinsed, and allowed to dry.
- In order to flash cove Altro safety flooring in freezers/coolers, the freezer/cooler must be completely defrosted. Follow normal temperature recommendations and flash coving procedures as outlined in section 8.
- **It is recommended to adhere directly to the substrates.**

For Metal Subfloors, see Section 4.2

Everlay

- In some instances the extensive shutdown period associated with a conventional flooring installation can be minimized when using Altro Everlay.
- In a heated area, 65°F (18°C) to 80°F (26°C), outside the freezer/cooler, lay out the Altro Everlay and Altro safety flooring following seam layout and adhesive recommendations. See Section 7. Cut materials slightly over the required size. If flash coving, do not run Everlay up walls. This will interfere with adhesion to walls.

In this separate heated area, glue the Altro Floor to the Everlay and allow adhesive to cure 48 hours.

- After the Altrofix 30/31 adhesive has cured, the seams may be heat welded and the flooring assembly trimmed to fit the installation area, unless flash coving. Do not allow Everlay to flash up the wall. Allow for a 1/8" (approximately 3mm) gap between the walls and the edge of the flooring to accommodate the AltroMastic 100 sealant.
- Lay the new flooring in place allowing it to extend under the door threshold.
- Tighten down the threshold and seal the entire perimeter with AltroMastic 100 sealant.
- After applying AltroMastic 100, install rubber base or other suitable wall trim to perimeter.
- Allow 30 minutes for the AltroMastic 100 to skin over before restarting the freezer/cooler.
- The freezer/cooler may then be put back into service.

NOTE: Sectional steel panels must be stable. If not, this type of subfloor should be installed with Altro Everlay.

Only specific grades of Altro floor covering are recommended for "cold" areas. Consult your Altro distributor for recommendations.



16. Repairs

A regular repair and maintenance program should be adopted to identify areas of damage during the life of the floor. Areas to check regularly include:

- Welds
- Seals around abutments
- Drains
- Other areas showing damage

Damage to Altro high performance floor covering should be repaired as quickly as possible.

In typically wet areas such as production kitchens and shower stalls, the Altrofix 30/31 polyurethane adhesive will slow down water migration but will not prevent it.

Cuts in the flooring must be heat welded immediately in order to create a seal against moisture intrusion.

There are specific recommendations as to how best to accomplish certain repairs. Please contact your Altro distributor to discuss these.



17. Maintenance

Develop a regular cleaning program suited to the usage and traffic of the area - Heavily trafficked or highly visible areas need to be cleaned more often than areas which are seldom used, or where appearance is less important. The best and most cost effective method of cleaning Altro flooring is by an auto scrubbing machine. Care should be taken to select the correct pad.

Use recommended cleaning chemicals - Use only recommended cleaning liquids or their equivalent in the correct dilution. Do not mix two different cleaning liquids together, and always follow the manufacturer's instructions. Always check the suitability of cleaners for use on vinyl floors. Do not use cleaner containing pine oil or phenolic sanitizer.

Remove scuff marks regularly - To remove any rubber heel marks by abrasion use the correct machine pad, or scrub by hand. For areas requiring renovation due to neglect or heavy soiling consult Altro Technical Services.

Protect newly laid floors - All newly laid floor surfaces should be covered and protected from all other trades during the contract with a suitable nonstaining protective covering, such as Masonite™.

Dirt control - 80% of the dirt in a building is carried in on shoes. A suitable dirt excluder outside all entrances and a mat inside just prior to the flooring will protect the flooring. Mats should be regularly cleaned to maintain their effectiveness. Dust control mops are also useful.

General notes concerning staining

Some materials are known to cause staining on vinyl floors. Typical examples include:

- Asphalt and bitumen materials
- Cardboard/Hardboard (wet)
- Transfer of some fire treatments and maintenance materials used on carpets
- Dyes from printed literature or packaging
- Rubber-backed carpets and rubber mats

- Rubber furniture rests and wheels
- Shoe soles not made from non-staining materials
- Heat degradation
- Some chemicals used in cleaners e.g. pine oil

High quality cleaning chemicals and equipment ensure efficient maintenance and represent only a small proportion of maintenance costs. The following suppliers offer excellent products:

| Cleaners | | |
|-----------------------------------|-------------|------------------------------------|
| AltroClean 44 and Altro Clean 48W | Altro | 800.377.5597 altro.com |
| | Floor Guy | 877.356.6748 1877floorguy.com |
| Diversey Stride | Floor Guy | |
| Profi Floor Cleaner | Floor Guy | |
| Diversey Break Up | Floor Guy | |
| Super Grease Buster | Floor Guy | |
| Disinfectants | | |
| Virex 128 | Floor Guy | 877.356.6748 1877floorguy.com |
| PerDiem | Floor Guy | |
| VIROX 5 | Floor Guy | |
| Equipment | | |
| Altro Unipad* | Altro | 800.377.5597 altro.com |
| | Floor Guy | 877.356.6748 1877floorguy.com |
| 3M Floor Machine Pads | Floor Guy | |
| Flo-Pac Swivel Scrub | Carlisle | 888.654.8210 carlislefsp.com |
| Deck Brush | Carlisle | |
| Taski Machines | Diversey | 888.352.2249 taskibydiverse.com |
| Auto Scrubbers | Diversey | 888.352.2249 taskibydiverse.com |
| Nilfisk | Advance Co. | 800.989.2235 advance-us.com |

*Altro Unipads are highly recommended for cleaning Altro flooring and are available for both manual and machine cleaning.

Manual - 4" x 14" flat

Machine - 17" round

For complete cleaning and maintenance details please refer to either document below:

Safety flooring cleaning guide

Smooth flooring cleaning guide

USA: 80 Industrial Way, Wilmington, MA 01887

T: 800.377.5597


F: 610.746.4325

CAN: 6221 Kennedy Road Unit 1, Mississauga, ON L5T 2S8

T: 800.565.4658

F: 905.564.0750

[explore altro.com](http://explore.altro.com)

Altro and  are either registered trademarks or trademarks of Altro Limited in the United States and/or other countries. All others are either registered trademarks or trademarks of their respective organizations or corporations.

© Copyright Altro 2015