

altro

Updated 03/12/20



Altro flooring installation guide

General information and guidance for all products



This publication is designed to provide technical information to assist in the installation of Altro flooring. Except where noted, this information applies to the complete range of Altro 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 this 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.

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.

Technical Department

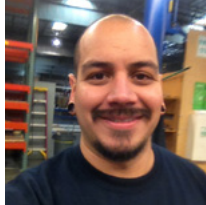
Our technical department, product knowledge and flooring expertise is what sets Altro apart from our competitors. We are here for you every step of the way from planning, through installation and even maintenance for the expected life of the floor.



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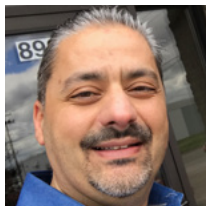
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Join us at the Altro Training Academy!

The goal of the Altro training academy is to train and qualify a network of professional flooring installers who wish to become part of a specialized group of recommended Altro installers and fitters.

The floors clinic is ideal for journeyman or above skill levels. Attendees are expected to have previous floor laying knowledge.

Altro stands behind our installers and always recommends that customers use Altro trained installers.

Three training centers

- Wilmington, MA USA
- Santa Fe Springs, CA USA
- Mississauga, ON, CAN

Course content

- Adhesive application
- Scribing and trimming
- Corners
- Heat welding
- Flash coving
- Integrated drains
- Best practices
- Advanced wet area training



Contact Lesley for more information or to register for a class!

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Chapter 1

Introduction

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1.1 Safety flooring

Altro Stronghold 30, Altro Classic 25, Altro Atlas 40, Altro Aquarius

Areas like busy commercial kitchens and wet environments have additional contaminants, which are continuously present and spillages cannot be avoided. The likelihood of a slip is significantly increased, raising the slip risk level to “extremely high”. These locations demand safety flooring that retains a slip risk level of one in a million with contaminants such as grease, oil, shampoo and shower gels.

1.2 Slip-resistant flooring

Altro Reliance 25, Altro Walkway 20, Altro XpressLay, Altro Tungsten

In many commercial areas your slip risk is not as high as the specialist area types described above. But, your patrons, patients, students and employees still deserve to be secure on their feet — and you deserve peace of mind. We offer slip-resistant flooring that meets and exceeds safety standards. It reduces the risk of slips and falls and looks good doing so. It has become a practical and durable commercial flooring solution in a variety of application areas.

1.3 Smooth flooring

Altro Symphonia, Altro Orchestra, Altro Operetta, Altro Serenade, Altro Wood, Altro Wood Comfort, Altro Wood Acoustic, Altro Cantata, Altro Zodiac Smooth, Altro Lavencia LVT, Altro Lavencia LVT Plus and Click, Altro Quartz Tile, Altro Dolce Tile, Altro Dolce Essentials

Altro smooth flooring has had a significant makeover. Featuring smooth sheet, vinyl tile, quartz tile and LVT looks that offer versatile, flexible designs that are easy to maintain and install. Most of our smooth color palette has been hand selected to coordinate and contrast with our wall panels and safety flooring, and slip-resistant flooring ranges. Please use tile/plank specific installation guides for underlined products.

1.4 Adhesive-free flooring

Altro Cantata, Altro XpressLay, Altro Lavencia LVT Click

With our slip-resistant sheet, smooth sheet and LVT options your installation becomes simple, quick and effective.

Our adhesive free flooring was created with speed in mind, capable of being installed and walked on within 24 hours —and with options to fit into a wide range of spaces, our adhesive-free flooring can save you time, money and hassle.

1.5 Product limitations

Not recommended 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 Altro Easyclean 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 (60°C).
- Areas where forklifts and/or pallet jacks travel at high speed, since friction caused by the tires can lead to surface damage from tire burn.
- Areas 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.
- 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.
- Areas directly underneath hospital bed wheels, or the point load of heavy equipment, should be installed with EcoFix 20E with a fine notched trowel. Please consult Technical Services for installation methods.
- Areas with excessive moisture.
- It is the responsibility of the end-user/maintenance provider to assure excessive water does not penetrate or damage the finished flooring.
- 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.
- DO NOT use markers (sharpies, pens, construction crayons, etc.), tapes or paints (construction or other) on the flooring or on the substrate as these items may bleed through or otherwise cause permanent staining.
- Use only recommended cleaning chemicals or their equivalent in the correct dilution. Do not mix two different cleaning products together, and always follow the manufacturer's instructions. Always check the suitability of cleaners for use on vinyl floors with the chemical manufacturer. Do not use cleaner containing pine oil, phenolic sanitizer, or enzyme cleaners that will be left on the surface of the flooring.
- Altro assumes no liability for damage to our flooring resulting from the misuse or improper use of markers, paints, or maintenance products. Please confirm with the manufacturer of all tape, cleaning products chemicals and equipment for their recommendations.

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

Notes

1.6 Storage and handling

If storage temperature is below 68°F (20°C), 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 68°F (20°C) and the sub-floor temperature between 65°F (18°C) and 80°F (27°C).

- 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.
- Store all cartons of tile and plank on a dry flat level surface, carefully stacked squarely on top of each other.
- 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.
- Sheet 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.
- Flooring must be checked for defects before installation.
- When installing 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.
- Caution should be used in moving and lifting of rolls. Allow for appropriate equipment and manpower to safely move materials.
- When installing tiles the tiles should all be of the same dye-lot / batch number.
- Do not install flooring with visible defects.

Chapter 2

Basic practices

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2.1 Job site conditions

- Before job testing, the building envelope must be sealed and weather tight (walls, roofing, windows, doorways etc.).
- The installation of floor covering must not begin until work of all other trades has been completed.
- Building HVAC must be up and running and in permanent operation prior to installation. A minimum temperature of 68°F (20°C) must be maintained for at least 72 hours before, during, and 72 hours after installation.
- The installation area and Altro materials must be maintained and installed at a minimum of 68°F (20°C) and a maximum of 85°F (29°C) Slab temperature should be between 65°F (18°C) and 80°F (27°C). Relative humidity level extremes should also be avoided.
- All materials and subfloors must be fully acclimated to installation temperature.
- 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.
- 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 see 2.2 Moisture testing on page 8.
- Prior to starting the installation please advise the general contractor and/or end user about the subfloor moisture requirements, all applicable job site, and site storage requirements that will be needed at time of installation.
- Remember if you cover a subfloor, underlayment or other surface with floor covering, you have, in essence, approved it.
- 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.

Dew points and humidity

Dew point is the temperature at which the humidity in the air begins to condense in and on a surface. Floor coverings and adhesives should not be installed any time

the air temperature or concrete surface temperature is within five degrees of dew point. See the chart on the next page for a breakdown of dew points in different conditions.

Procedure to determining a dew point

- 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 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.

2.2 Moisture testing

ASTMs may be obtained from www.astm.org

Moisture testing is an essential part of determining the suitability of a concrete slab to receive a resilient floor covering. Moisture testing must be performed on all concrete slabs, regardless of their age or grade level, including areas where resilient flooring has already been installed. Moisture testing should be conducted with the area or building at service conditions, (i.e., fully enclosed, weather-tight, and with the permanent HVAC in operation). In general, moisture testing should be conducted on concrete surfaces that exhibit the final prepared stage before the installation of the flooring material and before installation of smoothing or leveling compounds.

NOTE: Moisture failures are generally a complex, cumulative, and synergistic series of events. The moisture testing information below is provided as an industry service and in an effort to help reduce the likelihood of moisture related failures within the floor covering industry.

Use 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

Dew point temperature in Fahrenheit

Air temp (F)	Relative humidity									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	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

preclude the possible future intrusion of moisture.

- All on-grade and below-grade concrete slabs must have an effective moisture vapor barrier that meet the current requirements of ASTM E1745.
- Document and record with all appropriate parties all tests taken for moisture, pH and any other tests taken.
- Alkalinity Testing - Maximum pH of 9.9 for Altrofix 30, Ecofix 20E and Ecofix 25E adhesives, maximum pH of <11 for Ecofix 65 spray and Ecofix 35 spray adhesive. (As a concrete surface reacts with carbon dioxide in air, the pH of the surface gradually is reduced to about 8.5 through a process called carbonation. A concrete slab that is carbonated and ready to receive a flooring adhesive should have a pH of about 8.5. This means the surface of the concrete has had minimal moisture vapor movement. The higher the concrete surface pH the greater this higher pH is an indicator that moisture has recently passed through the concrete and must be tested for.

NOTE: Altro requires that moisture testing be done per ASTM F2170 and results be within warranted levels. A secondary test of ASTM F1869 can also be done. Results are to be below 8 lbs.

The reason for both tests to be done is that the Relative Humidity test tells us how much water is within the concrete (this is the important number and information) and then the Calcium Chloride test tells us how much and how fast this quantity of relative humidity is then evaporating out the top ½" to ¾" inch of the concrete.

- 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 the recommended RH for the flooring product and the adhesive being used.

- ASTM F2170 - Equal to and not exceeding 90% RH for adhesives Altrofix 30, Ecofix 20E and Ecofix 25E, <95% RH for Ecofix 65 spray and EcoFix 35 spray adhesive.
- 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) bare concrete floors. Equal to and not exceeding 8 lbs. / 24 hours / 1000 square feet for all adhesives.
 - To employ F1869, the surface of the concrete must be porous. Hard machine troweled concrete or concrete surfaces with extraneous substances on the surface such as residual adhesive, sealers, curing compounds, etc. must be mechanically removed prior to testing.
 - For moisture readings exceeding the RH limitations and/or exceeding 8 lbs. / 24 hours / 1000 square feet, a dehumidification system shall be utilized until moisture readings when retested are within warranted levels. For excessive readings, the application of a high-quality moisture mitigation system may also be employed. Any warranties and/or guarantees for the performance of the mitigation system are the responsibility of that products manufacturer, not Altro.

Additional tests

- 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

Notes

enough to install flooring, it is at this time that testing per ASTM F1869 and F2170 is to be done.

- Mat Moisture Test:
 1. Double face 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.
- Wood subfloors must not exceed 8% moisture content when measured with a Delmhorst Wood Moisture Tester.
- If test results exceed the allowed limit for the adhesive and floor, the installation must not proceed until the problem is corrected. Altro does not warrant any particular product or procedure for remediation of high moisture content. There are several companies that manufacture products suitable for moisture remediation. We suggest you refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring and ASTM F3010 "Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings".

ASTM F2420 (Withdrawn Standard) - Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement an Insulated Hood. This test method covers the quantitative determination of the percent of relative humidity evaporating out the top surface of the concrete, it does not correlate to internal RH (F2170 testing) nor does it correlate to F1869 CC testing.

NOTE: 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.

2.3 Substrates

Suitable substrates may include:

- APA certified plywood
- Poplar
- Birch plywood
- Concrete
- Metal
- Existing flooring
- Epoxy

Unsuitable substrates may include:

- Particleboard
- Chipboard
- Construction grade plywood
- Flakeboard
- OSB
- Treated plywood
- Stripwood

Wood subfloors

Wood underlayments for Altro flooring must:

- be structurally sound.
 - be designed for resilient flooring underlayment purposes.
 - have panels smooth enough so that texture or graining will not telegraph through.
 - resist dents and punctures from concentrated loads.
 - be free of any substance that may stain vinyl such as marking inks, paints, solvents, adhesives, asphalt, dye, etc.
 - be of uniform density, porosity and thickness.
 - be installed in strict accordance with the board manufacturers recommendations.
- 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.

grinding, cleaning with TSP (trisodium phosphate), 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.

2.4 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.
- 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 regarding 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.
- Only use mechanical means to remove old residual adhesive, i.e. bead blasting or scarifying. Solvent/citrus based adhesive removers are unsuitable. Follow The Resilient Floor Covering Institute’s (RFCI) “Recommended Work Practice for Removal of Existing Floor Covering and Adhesive”, and all applicable local, state, federal and industry regulations and guidelines. When removing asbestos and asbestos containing materials, follow all applicable OSHA standards.

2.5 Radiant heat subfloors

Altro flooring and underfloor heating

In the past, Altro used to recommend a maximum figure for underfloor heating of 85°F (30°C) without any reported problems. However, due to the concerns of flooring manufacturers that some underfloor heating systems could operate at up to 95°F (35°C), Altro recommends that the following guidelines be followed.

- Before any floor covering is installed, the heating system should be commissioned to ensure it is functioning correctly, and to ensure the substrate and screed is dry and in a stable state to receive the flooring. When the subfloor/screed containing the heating system has been laid, cured and dried, prior to installing the flooring, it should be heated very slowly to its operating temperature and maintained for several days before cooling down to room temperature, but not below 60°F (15°C).
- Ensure that the underfloor heating is switched off 48 hours prior to the floor covering installation commencing and remains off for at least 48 hours after the installation is complete.
- The temperature of the heating system should be increased gradually over a number of days, by only a few degrees per day, until the desired room temperature is reached. The temperature at the underside of the floor covering, i.e. the adhesive line, should never exceed the maximum of 80°F (27°C).
- During the period of decommissioning and shutting down of the underfloor heating system, an alternative heating source should be provided, if required, to ensure that the area of installation is kept at a constant temperature between 65°F (18°C) - 80°F (27°C).

Failure to follow these guidelines can result in the floor covering debonding, joints opening, and on some occasions discoloring. All of which can occur within a long or short period of time.

Altro adhesive-free flooring and underfloor heating

Altro adhesive-free flooring can be installed over underfloor heating which has been installed in accordance to Altro’s recommended guidelines and switched off for a period of 48 hours prior to commencement of installation. Upon completion of the flooring installation, the underfloor heating is switched on and gradually increased in temperature over a number of days by 5 degrees per day until the desired temperature is reached. The temperature should not exceed maximum of 80°F (27°C) at the underside of the floor covering.

If the heating has not been commissioned, upon completion of the flooring installation the underfloor heating should be switched on and gradually increased in temperature over a number of days by 5 degrees per day until the desired temperature is reached. The temperature again should not exceed the of 80°F (27°C) at the underside of the floor covering.

Chapter 3

System accessories

Topics

3.1 Accessory diagrams 14

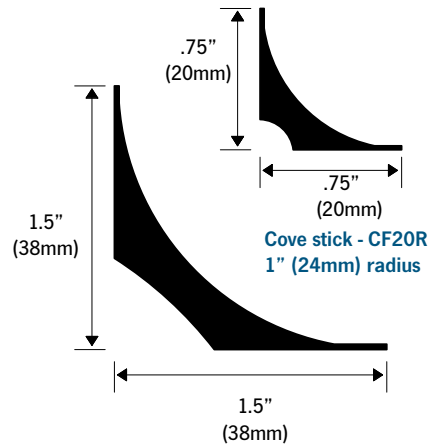
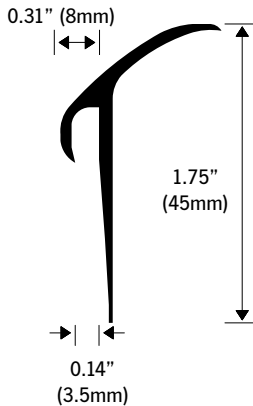
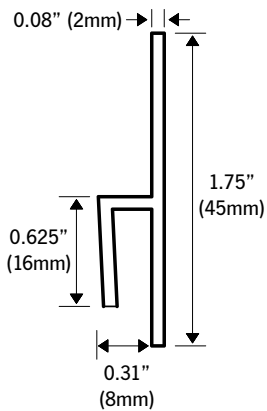
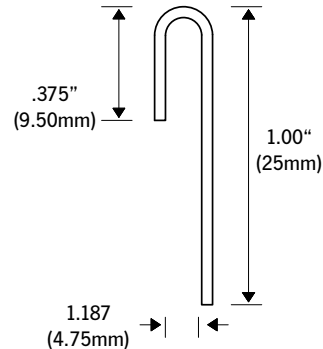
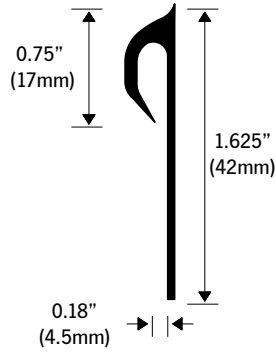
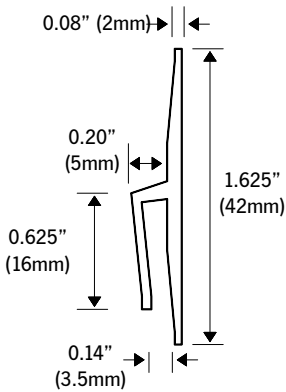
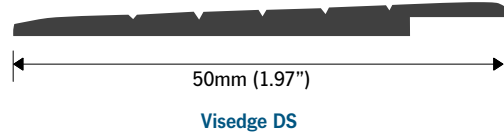
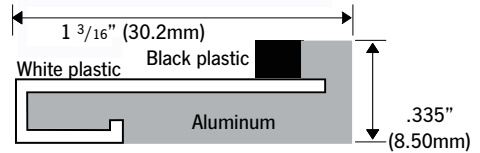
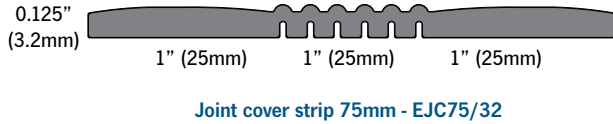
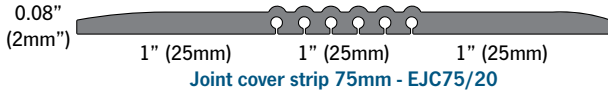
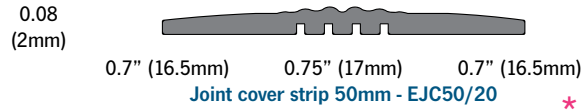
3.2 Gulley angles and edges 15

3.3 Visedge VR vinyl securing strip 16

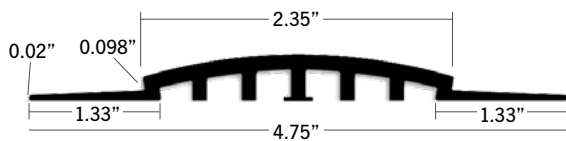
3.4 Visedge DS vinyl securing strip 17

3.5 Finishing details 18

3.1 Accessory diagrams

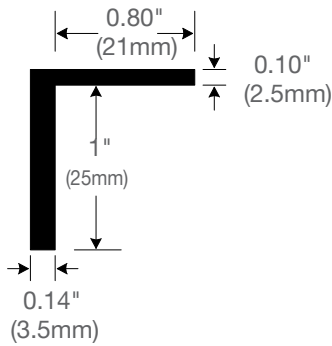


Cove stick - CF38R
1.75" (45mm) radius

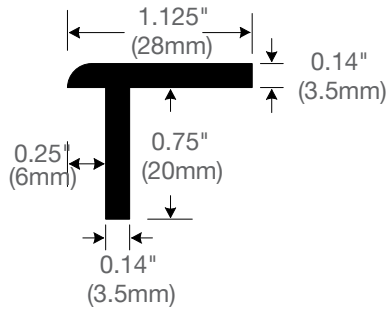


Shower transition trim - ASF WETTRIM

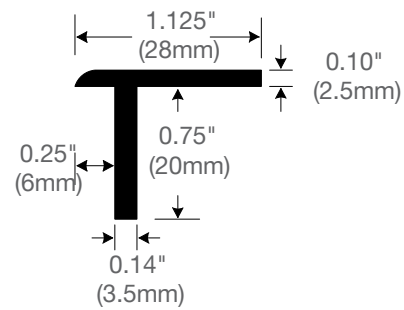
3.2 Gulley angles and edges



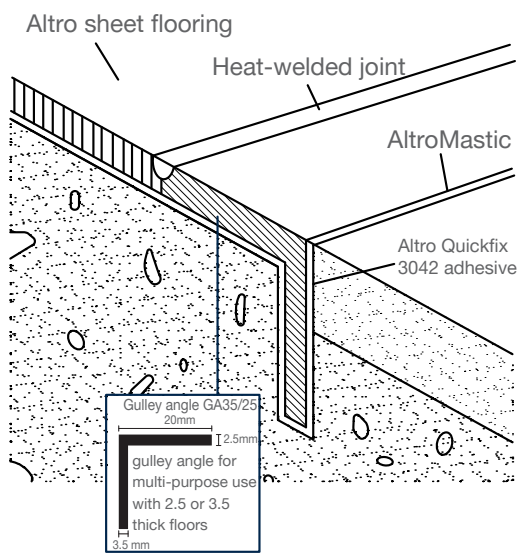
Altro gulley angle - GA35/25



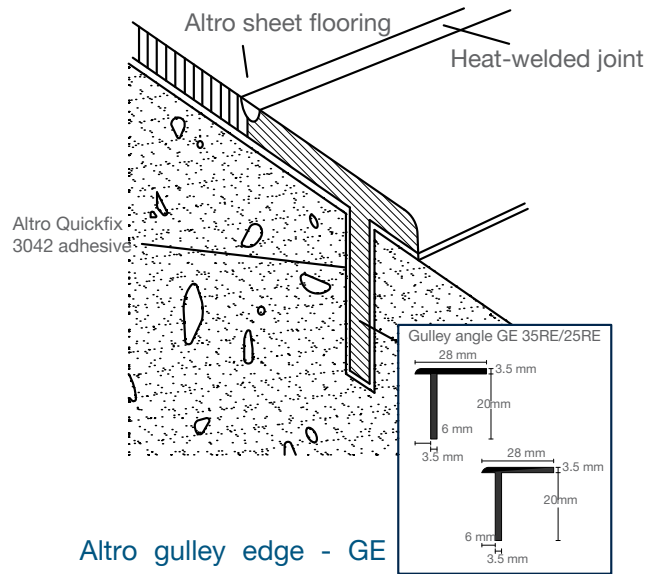
Altro gulley edge - GE 35RE



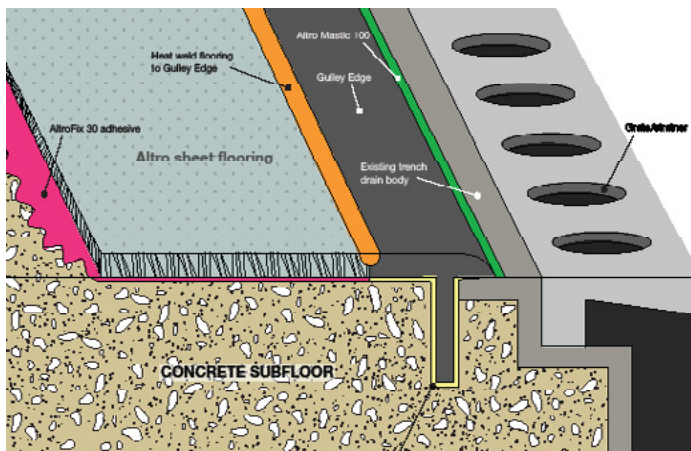
Altro gulley edge - GE 25RE



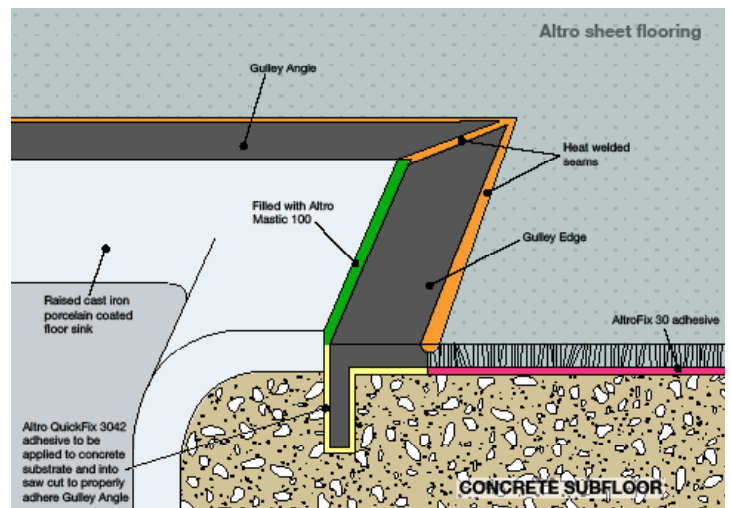
Altro gulley angle - GA35/25



Altro gulley edge - GE 25RE
Altro gulley edge - GE 35RE



Altro QuickFix 3042 adhesive to be applied to concrete substrate and into saw cut to properly adhere Gulley Edge



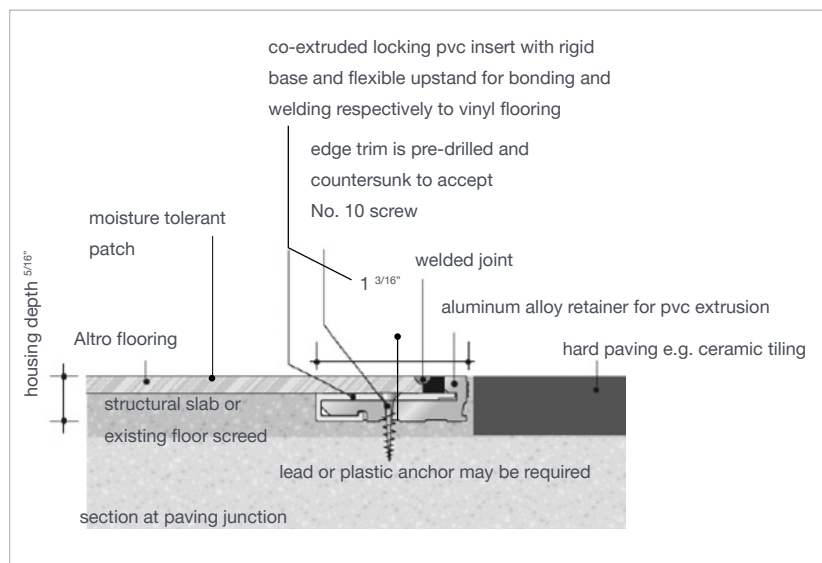
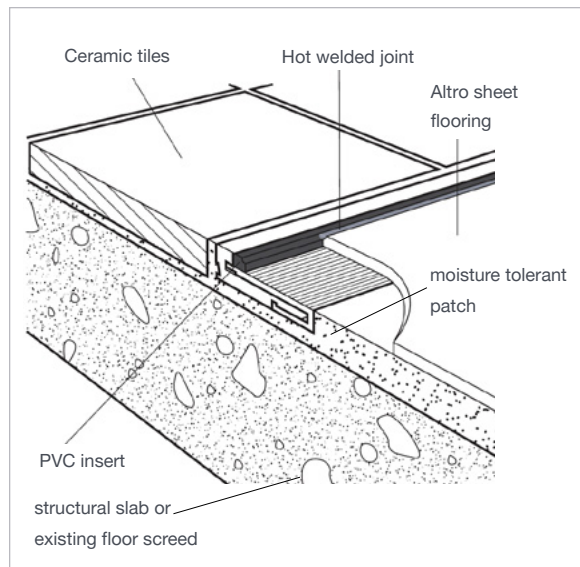
Notes

3.3 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, and the back is then patched/ramped down from the height of the Visedge down to a zero edge using a moisture-tolerant cementitious patch. The Altro flooring is then 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.



Visedge VR vinyl securing strip diagram



Chapter 4

Adhesives, tapes and sealant

Topics

- 4.1 Adhesive recommendations 20
- 4.2 Polyurethane adhesives 22
- 4.3 Epoxy adhesives 22
- 4.5 Acrylic adhesives 22
- 4.6 Contact tapes 22
- 4.7 Static conductive adhesives 22
- 4.8 Important adhesive terms 22
- 4.9 AltroMastic™ 100 24

Notes

4.1 Adhesive recommendations

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	AltroFix 30/31 (excessively heavy rolling loads and/or excessively wet areas) EcoFix 20E (dry areas) EcoFix 35 spray (dry areas)	AltroFix 30/31 (excessively heavy rolling loads and/or excessively wet areas) EcoFix 20E (dry areas) EcoFix 35 spray (dry areas)
Smooth sheet flooring	EcoFix 20E (Heavy Rolling Loads Contact Altro Technical Services) EcoFix 35 spray (dry areas)	EcoFix 20E (Heavy Rolling Loads Contact Altro Technical Services) EcoFix 35 spray (dry areas)
Altro XpressLay	Altro Looselay tape	Altro Looselay tape
Altro Cantata	W165 Tape Adhesion Promoter	W165 Tape Adhesion Promoter
Altro Walkway 20 SD	AltroFix SD70 Conductive Acrylic	AltroFix SD70 Conductive Acrylic
Tiles	EcoFix 25E Ecofix 65 Spray	EcoFix 25E Ecofix 65 Spray
Gulley angle/edges	QuickFix 3042	QuickFix 3042

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:

- Adhesive coverage is only an approximation based on experience, manufacturers recommendations, and subfloor porosity, Altro does not warrant nor guarantee actual adhesive coverages.
- 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 than a two-part polyurethane adhesive.
- Altro QuickFix 3042 adhesive is the recommended adhesive choice for gulley edge/angle, alternatively AltroFix 30/31 adhesives can be used.
- Adhesive bond tests must be conducted with the flooring and adhesive specified to determine the compatibility of the adhesive with the prepared subfloor.
- All of our flooring adhesives now have a higher resistance to RH and are warranted up to 90% RH with the exception of Ecofix 65 Spray and Ecofix 35 Spray which are warranted up to 95% RH. Our adhesive-free flooring is warranted up to 97%RH
- For covered areas of flooring, Altro Contact tape is used to adhere coving for both porous and non-porous applications.
- Adhesive bond tests must be conducted with the flooring and adhesive specified to determine the compatibility of the adhesive with the prepared subfloor.

4.2 Polyurethane adhesives

AltroFix 30 and AltroFix 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, also known as reactive 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.

4.3 Epoxy adhesives

Altro QuickFix 3042

Fast-reacting, two-part epoxy caulk adhesive for simple, precise installation of gully edges and angles. In addition to these functions, Altro QuickFix 3042 works particularly well as a small area repair adhesive in kitchen and wet area applications.

4.4 Spray adhesives

EcoFix 65 Spray

Used for adhering tile and/or plank products in commercial and residential applications.

EcoFix 35 Spray

Used for adhering resilient sheet vinyl products in commercial and residential applications.

NOTE: Spray adhesives are not freeze-thaw stable.

4.5 Acrylic adhesives

EcoFix 20E and EcoFix 25E

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

4.6 Contact tapes

Vinyl cap strips, cove stick, and integral cove may be adhered using a quality contact tape.

4.7 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.

4.8 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 substrate is porous and a fluid adhesive is used, the adhesive may be absorbed by the substrate, 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 will 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 labor sometimes costs more than a new trowel. Renotching a trowel or spreader is inconsistent. This will result in an incorrect amount of adhesive being applied and could lead to failure.

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. 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 glue down method is being used to apply an adhesive in emulsion or solution, the installer must verify the absorbency of the substrate and the material to ensure that the water is able to evaporate out or be absorbed after installation. If not, blistering or bubbling 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 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, etc. 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: One part of a two-part adhesive that, when combined, reacts and hardens. Our Altrofix 30 and 31 are two-part polyurethane adhesives consisting of a resin (part A) and a catalyst (part B).

Water absorption: Acrylic adhesives - (EcoFix 20E/25E)

Setting stages: There are several stages of setting. See diagram below.

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

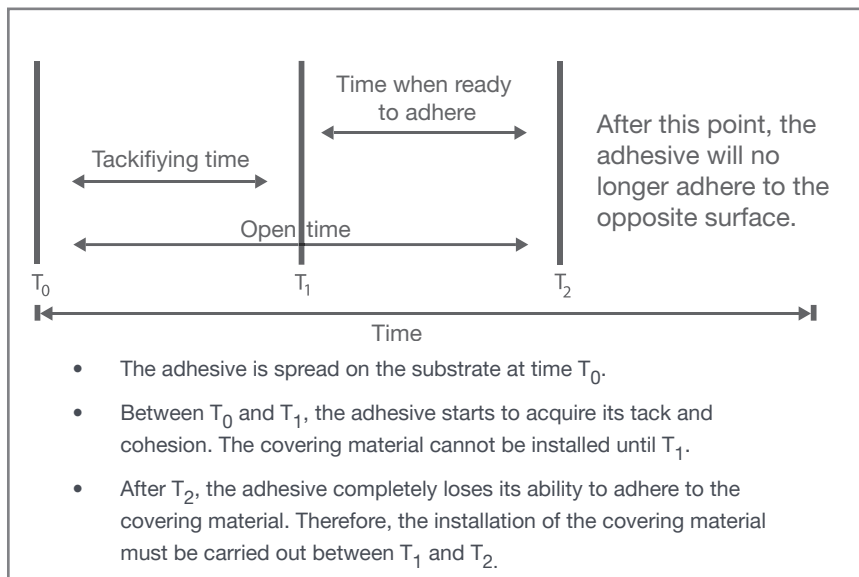
Complete: When the adhesive has acquired 90% or 100% of its maximum properties, including its maximum pull strength. At this stage, the heat can be turned back on without risk of the material lifting and in the case of wet areas, the floor covering can be thoroughly washed with water if required.

Substrate permeability: When selecting an adhesive, the absorbency 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 or bubbling. Another solution is to use a reactive adhesive (two-part polyurethane, AltroFix 30/31), which does not require evaporation to set.



Chapter 5

Installation procedures

Topics

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5.2 Preparation 26

5.3 Sheet floor seaming 26

5.4 Adhesive application 26

5.5 Flash coving 27

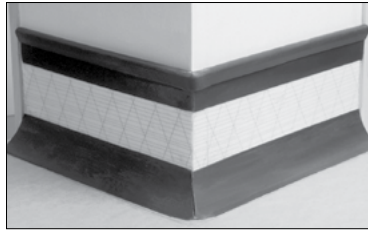
5.6 Forming corners 27

5.7 Seam grooving 30

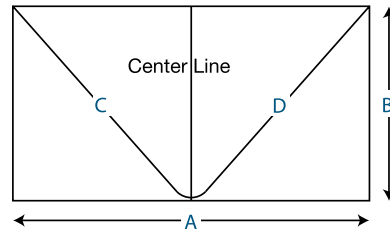
Forming an external corner using a butterfly piece – recommended

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

Notes



1. Install cap strip and cove stick using approved contact 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.



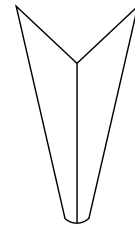
2. To cut a butterfly piece:

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

$A = \text{height of the cove} \times 2$

$B = \text{distance from the top of the cap strip to half way down the radius of the cove stick.}$

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

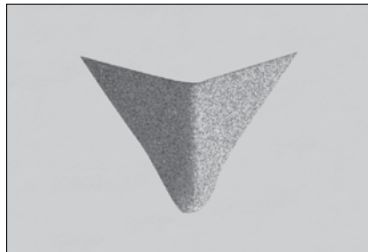


3. Folding a butterfly piece:

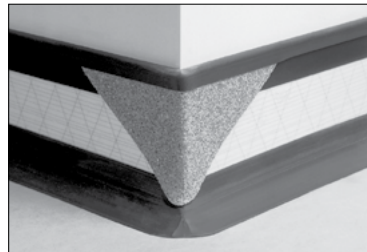
(i) Warm the back of the butterfly fill piece along the center line.

(ii) Fold the fill piece flat, back to back and along the center line.

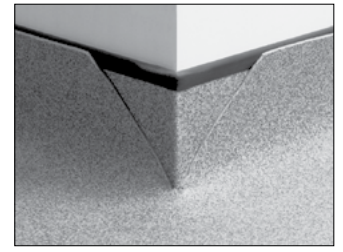
(iii) When cool, open to 90°.



4. Finished butterfly piece.



5. Place contact tape on the back of the corner. Fit the fill piece up under the lip of the cap strip and press into place.



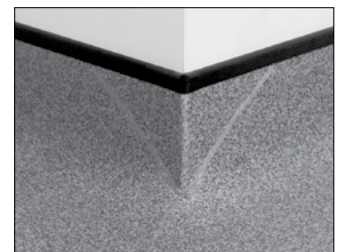
6. Once the butterfly corner fill is in place, the adhesive may be spread and the field material laid into position. The relief cuts must be made so the field material overlaps both edges and the bottom point of the butterfly corner fill.



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



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

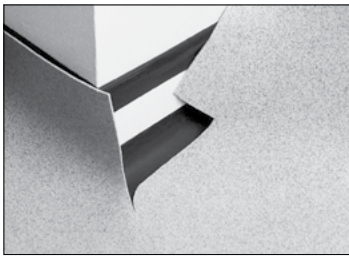


9. Groove and heat weld to complete the section.

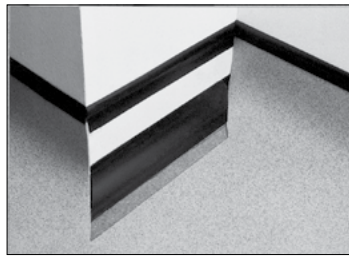
Forming an external corner using a side fill piece (boot)

Note: A butterfly piece, or v-plug is the preferred external corner treatment method and is recommended for safety floor installations where traffic is expected to impact outside corners, however in certain situations a boot corner may be made.

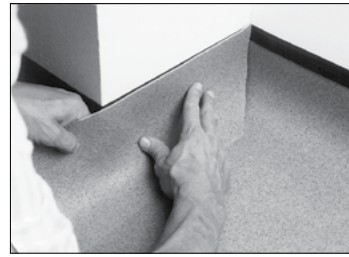
- When adhesive has set, all corners are to be heat welded.
- External corners may be made using a boot and/or a butterfly piece fitted net without any gaps.
- Internal corners are to be cut to fit net without any gaps.



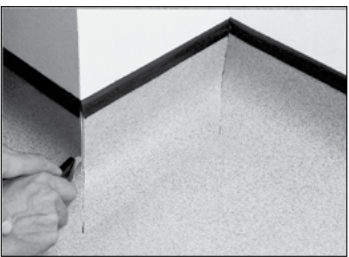
1. Roughly cut the floor covering oversized to meet the required section.



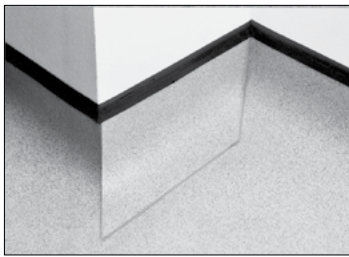
2. Cut in the back and front corner, then cut out the section to accommodate the filler piece.



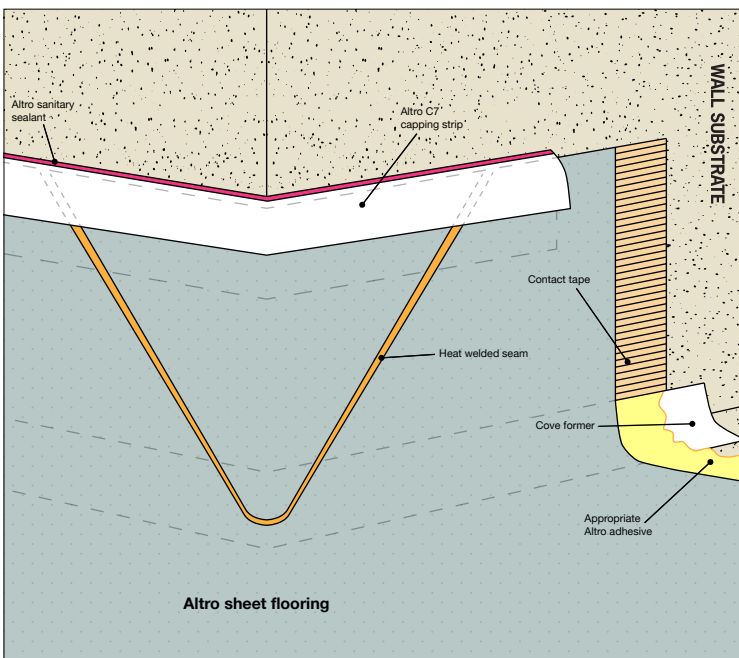
3. Take a separate piece of floor covering and fit to the back of the internal corner.



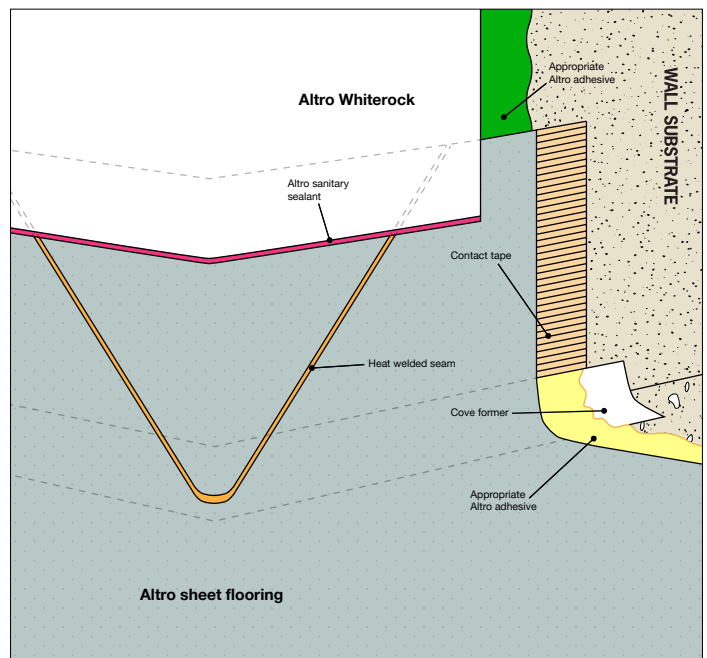
4. Cut in the front of the external corner.



5. Heat weld to complete the section. See Heat welding on page 31 for more info about heat welding.



Butterfly corner(external v-plug) with C7 cap strip



Butterfly corner(external v-plug) overlap transition

5.7 Seam grooving

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

Refer to grooving depth chart for recommended depth of groove. The 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.

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

Set the grooving machine to make a channel. 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.



Grooving depth based on flooring		
Non-PUR	Altro Stronghold 30 - 3.0mm	75%
	Altro Atlas 40 - 4.0mm	75%
	Altro Classic 25 - 2.5mm	75%
PUR treated	Altro Aquarius - 2.0mm	90%
	Altro Reliance 25 - 2.5mm	90%
	Altro Walkway 20 - 2.0mm	90%
	Altro Tungsten - 2.0mm	90%
	Altro XpressLay - 2.2mm	70%
	Altro Cantata - 2.0mm	70%
	Altro Symphonia	30-40%
	Altro Orchestra	30-40%
	Altro Operetta	30-40%
	Altro Serenade	30-40%
	Altro Wood	30-40%
	Altro Wood Comfort	30-40%
	Altro Wood Acoustic	30-40%
Altro Zodiac Smooth	30-40%	

Chapter 6

Heat welding

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- 6.3 Welding corners 32
- 6.4 Welding an internal corner 32
- 6.5 Welding a butterfly external corner 33
- 6.6 Welding a boot external corner 33
- 6.7 Optional non-warrantied chemical seam sealing 34

6.1 Welding seams

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

This wait period is not required for our adhesive free products.

Preparation

- Ensure the heat welding nozzle is free of debris by cleaning the inside of the barrel with a wire brush before each weld.
- Make certain the heat welding gun is between 482°F (250°C) and 662°F (350°C). Test on scrap pieces of material to ensure complete melting and fusing of the heat-weld rod and floor material and to ensure that a smooth and uniform heat-weld can be achieved without burning (the final speed of heat-welding and temperature setting will need to be determined through practice). Ensure the 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 weldrod feeding through the nozzle at the 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.

6.2 Trimming seams

Horizontal areas

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

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

Corners and vertical covered areas

Use X-ACTO blades to trim cooled weldrod in corners and covered 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 weldrod. For questions please contact Technical Services.

6.3 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 covered 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 when heat-welding corners and certain other hard to access areas of heat-welding.

6.4 Welding an internal corner



1. All internal corners must be grooved before heat welding.



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

Notes

6.7 Optional non-warrantied chemical seam sealing

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. This installation technique is not to be used in wet environment installations or with the following products: Altro Stronghold 30, Altro Atlas 40, Altro Aquarius, and Altro Marine 20. Please 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. **Chemical/cold weld is not manufactured or supplied by Altro.*
- 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.
- Chemical cold weld cannot be cleaned or removed from the flooring, utmost caution must be used in applying a clean, neat, and uniform bead of the chemical.

Chapter 7

Drains and cleanouts

Topics

- 7.1 Existing rectangular or square drains and floor sinks 36
- 7.2 Using gulley angle and gulley edge with safety flooring 36
- 7.3 Visedge VR 37
- 7.4 New round drains, cleanouts, trenches and floor sinks 39
- 7.5 Modifying an existing drain or cleanout 42

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

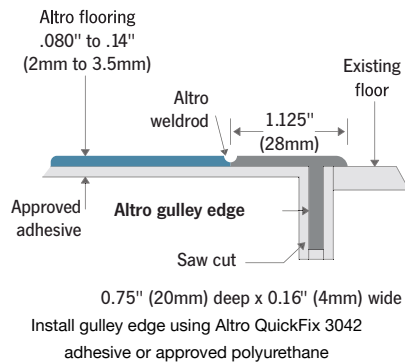
7.1 Existing rectangular or square drains and floor sinks

Altro gulley edge/angle or Visedge may be used. See 3.2 Gulley angles and edges on page 14, 3.3 Visedge VR vinyl securing strip on page 16 and 3.4 Visedge DS vinyl securing strip on page 17.

7.2 Using gulley angle and gulley edge with safety flooring

Cutting the concrete

Saw cutting and gulley edge and angle are not to be used in wood subfloors.



- Using a small hand held electric grinder, tuck point grinder, circular saw or other appropriate 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. In some instances using two blades side by side on the angle grinder to achieve the required width of the saw cut may be necessary to do this in one pass. The use of a wet sponge held beside the blade guard along with the use of a HEPA vacuum system must be used. *Follow all applicable local, state, and federal regulations and laws pertaining to saw cutting, grinding, and patching work of concrete; all work is to comply with OSHA 3902 Respirable Crystalline Silica Standard.
- 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.
- If the area to be saw cut is at floor drains or trenches, the cut must be directly up against the drain or trench.

- 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.
- 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

- Using masking tape, outline the outside of perimeters of where the Gulley edge/angle will be installed, this will aid with the cleanup of excess adhesive after installing the gulley edge.
- Apply Altro QuickFix 3042 on the floor and in the saw cut.
- Place the gulley angle/edge into the saw cut making certain that the strip is completely embedded into the adhesive.
- 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 Isopropyl 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.
- It may also be necessary to weight down the gulley edge until the adhesive has a chance to set-up. This will ensure that the strip is fully seated and without voids.
- Always allow the gulley edge to set up in the adhesive prior to cutting and fitting the Altro safety flooring to the newly installed strip. The flooring material should be scribe fit to ensure a neat net fit seam for heat welding.

Welding process

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

Notes

7.3 Visedge VR

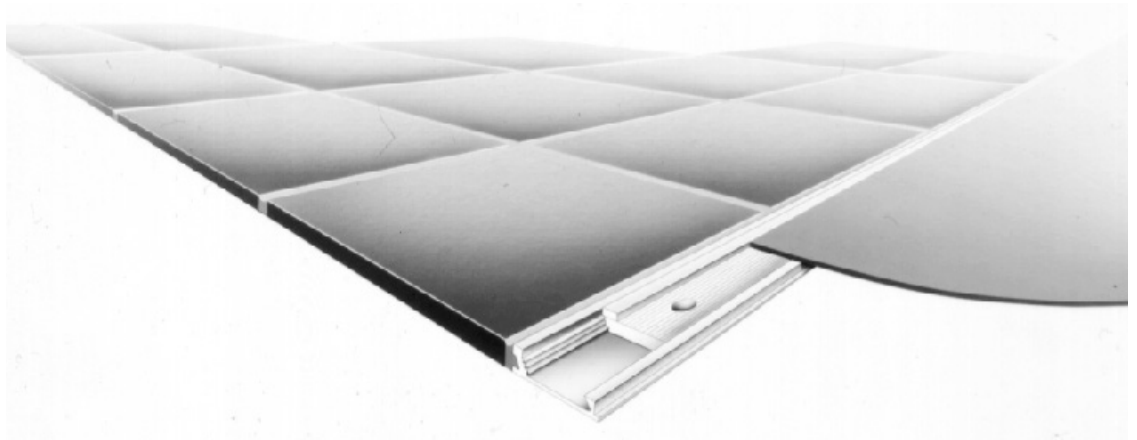
A water resistant joint between Altro high performance floor covering and other surfaces, such as ceramic tiles, is achieved by using the Visedge VR vinyl edge securing strip, or gully edge strip.

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

Installation

Visedge needs to be countersunk, or leveling 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 Altro QuickFix 3042 under the edge to keep water from traveling back under the flooring.

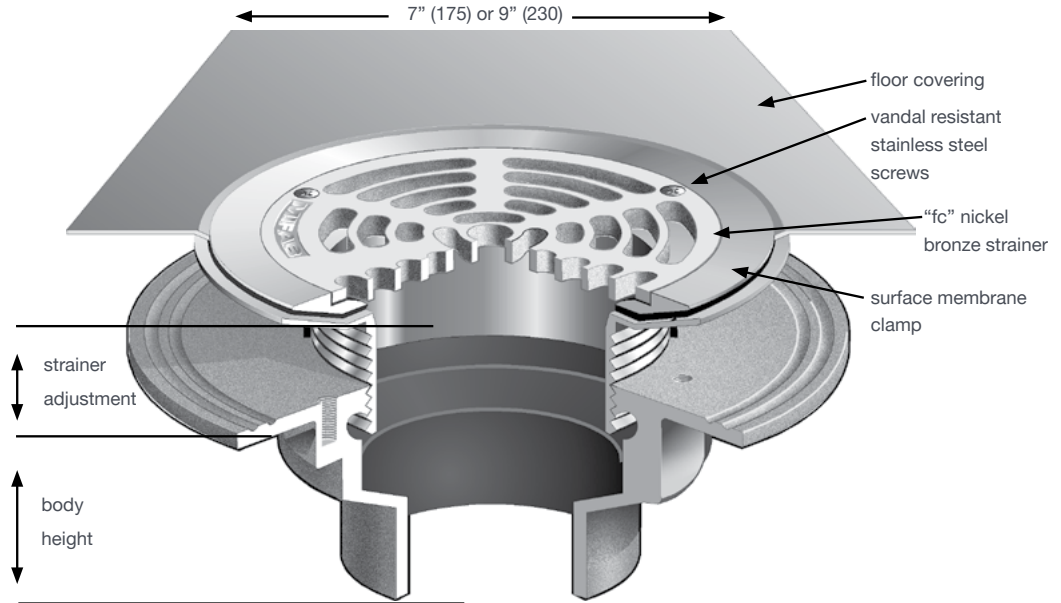
For more information on the Visedge, see System accessories on page 13.



Notes

MIFAB - F1100 - FC

Floor drain with surface membrane clamp



Sample of an approved Surface Clamping Membrane Style Drain



Pictured: Josam 30900-9AD



Pictured: Watts CO-200-RFC7

Recommended round drains

Commonly used in kitchens, showers, bathrooms, hydrotherapy, and other areas where there is a slope and pitch to the drain so as to allow water to not puddle and instead run to and down the drain. These fixtures must be of a surface membrane clamping type so as to prevent water penetration.

- [Josam 30900-9AD](#)
- [Josam 30000-AD](#)
- [Josam 30200-AD](#)
- [Intersan 303070XN](#)
- [Mifab F1100-C-FC](#)
- [Wade 1100-FC](#)
- [Jay R. Smith 2050/2051](#)
- [Zurn Z400H](#)
- [Zurn Z415H](#)
- [Blücher BFD-510](#)
- [Blücher BFD-530](#)
- [Blücher BSR-700](#)
- [Blücher BSR-800](#)
- [Watts FD-100-FC](#)
- [Watts FD-200-FC](#)
- [Watts](#)

Recommended round cleanouts

Round Cleanouts are found where cleanout access of the plumbing drainage system is required, these fixtures also need to be of a surface membrane clamping type.

- [Mifab C1100-RFC](#)
- [Wade 8000-FC](#)
- [Watts CO-200-RFC7](#)
- [Josam 55000-CFC](#)
- [Blücher BCO-220](#)

Notes

7.5 Modifying an existing drain or cleanout

- Remove the drain strainer or cleanout cover plate.
- With a quality moisture tolerant and resistant 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. Follow all applicable local, state, and federal regulations and laws pertaining to saw cutting, grinding, and patching work of concrete; all work is to comply with OSHA 3902 Respirable Crystalline Silica Standard.

- Using a small hand held electric grinder and/or bench grinder to slightly remove the square shoulder on the inside edge of the drain body to create a smoother edge into the drain 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 Altro QuickFix 3042 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.)

Diagram A

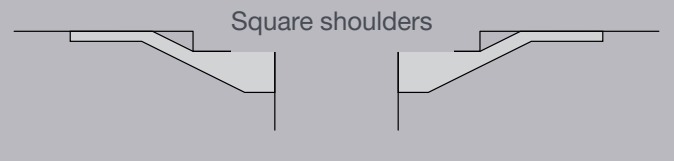


Diagram B

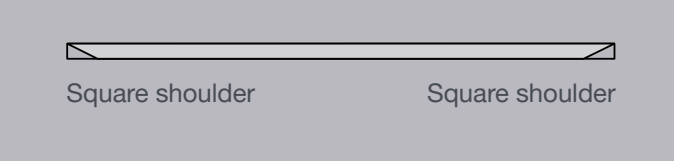
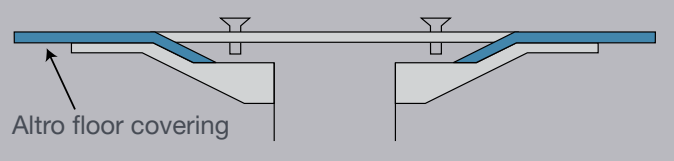


Diagram C



Chapter 8

Additional details and maintenance

Topics

8.1 Altro Walkway 20SD installation 45

8.2 Altro Everlay installation 46

8.3 Freezers and coolers 48

8.4 Repairs 49

8.6 Recommended maintenance products 51

8.1 Altro Walkway 20SD installation

Altro 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.

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.
- When using our Altrofix SD70 Adhesive our recommended trowel size is a 1/16" square notched trowel and covers approximately 110 - 130 square feet per gallon.
- 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 lb (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.

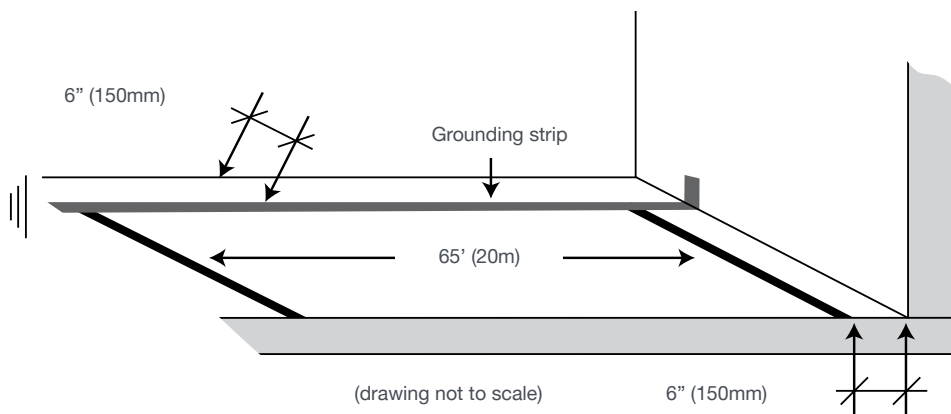
Wood or subfloors other than concrete

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 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.



8.2 Altro Everlay installation

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 certain 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.

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: 0.05" (1.2mm)

Average length of roll: 164' (50m)

Roll width: 6'7" (2m)

Weight per roll: 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.

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.

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.
- Allow material to acclimatize for 24-72 hours.
- 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.
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 coved up the wall, install as illustrated in Figure 1 using appropriate Altro cap strip. Install cove stick to the wall substrate. See 5.5 Flash coving on page 27.
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.

Notes

8.3 Freezers and coolers

Altro 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 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 flooring in freezers/coolers, the freezer/cooler must be completely defrosted. Follow normal temperature recommendations and flash coving procedures.
- It is recommended to adhere directly to the substrates. See 2.3 Substrates on page 10.
- 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. Cut materials slightly over the required size. If flash coving, do not run Altro Everlay up walls. This will interfere with adhesion to walls.

- In this separate heated area, glue the Altro floor to the Altro 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 Altro 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. Our top choice for cold areas is Altro Stronghold 30. Consult your Altro distributor for additional recommendations.

Notes

8.5 Maintenance for Altro sheet vinyl

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 products or their equivalent in the correct dilution. Do not mix two different cleaning products 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, phenolic sanitizer, or enzyme cleaners. All chemicals must be thoroughly rinsed from the flooring and no residues are to be left on the surface of the flooring.

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 installed floors - All newly installed Altro flooring should be covered and protected from all other trades with a suitable non-staining protective covering, such as Masonite™ or Ram Board®.

Dirt control - 80% of the dirt in a building is carried in on shoes. A suitable dirt excluder and clean zone 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.

Altro Marine 20 - Normally used in shower and pool surrounds, a deck brush or scrubber brush is recommended over pads and mops. A specialty cleaner, such as CLR™, may be required occasionally to remove hardened lime deposits.

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

- Asphalt and bitumen materials
- Cardboard/Hardboard (wet)
- Fire treatment and maintenance materials used on carpets could transfer to vinyl flooring and cause staining
- Permanent markers and ink
- Spray paint
- 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 in non-approved and non-tested or non-recommended cleaners may cause staining or other damage, always consult with the cleaning chemical manufacturer and supplier for all assurances of suitability.

Initial maintenance

1. For glue down floors do not begin any maintenance procedure for at least 72 hours after installation. For our Adhesive Free Loose Lay Floors one of the many benefits is that they can be heat-welded, cleaned and maintained immediately after installation as there are no adhesives requiring drying and setting time.
2. Sweep or vacuum floor surface to remove all loose dust and debris.
3. Apply diluted* AltroClean 44™ to the floor. Allow to sit for five minutes to allow the cleaner to attack the surface soil.
4. Scrub floor with an automatic scrubber (3 in 1 machine) or a standard low speed swing machine (150rpm to 350rpm) fitted with an Altro Unipad™.
5. If using a standard low-speed swing machine, remove wash water with a wet vac.
6. Ensure the floor is thoroughly rinsed with fresh, clean water. No cleaning residue should remain on the floor.
7. Allow surface to dry before use.

* For AltroClean 44 the dilution rates depend on the condition of the floor. For moderate soiling use a 1:40 dilution ratio. For heavy soiling use 1:10.

Routine machine maintenance

8. Sweep and/or vacuum floor surface to remove all loose dust and debris.
9. Apply diluted* AltroClean 44™ to the floor. Allow to sit for five minutes to allow the cleaner to attack the surface soil. DO NOT flood the floor unless the flooring system was designed for holding water and was installed per Altro's Detailing guide for wet environments. Always allow the adhesive to dry and cure before flooding any floor.
10. Scrub floor with an automatic scrubber (3 in 1

Altro sheet flooring installation guide

