

This document is intended to cover substrate preparation requirements and installation instructions for all resilient stair tread concepts including Rubber, Vinyl, Riser, and Stringer formats. If there are any questions or concerns, please reach out to [solutions@rhctechnical.com](mailto:solutions@rhctechnical.com).

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## 1. APPROVED ADHESIVES

Recommended Adhesive Coverage Rates, Moisture and Traffic Limits after Installation*							
Adhesive	Porous	Non-Porous	RH% Limit	MVER Limit	Light	Heavy	Maintenance
AW-510	160 sq. ft.	225 sq. ft.	90%	6 lbs.	24 Hours	48 Hours	72 Hours
EN-610	25 – 50 lin. ft. / cartridge		90%	6 lbs.	8 Hours**	24 Hours	48 Hours
TP-620	164 lin. ft. / roll		90%	6 lbs.	Immediate	Immediate	Immediate
C-631	20 – 40 lin. ft. / pail		85%	6 lbs.	Immediate	Immediate	72 Hours
U-705	160 sq. ft.	235 sq. ft.	100%	12 lbs.	8 Hours	24 Hours	48 Hours
EW-710	135 sq. ft.	150 sq. ft.	90%	6 lbs.	12 Hours	24 Hours	48 Hours
*coverages are per gallon unless noted otherwise							
*rates are approximate and subject to level of porosity as well as ambient conditions, actual values may vary							
**when used with TP-620, can be walked on immediately							

**Excelsior AW-510 Adhesive** is an acrylic wet-set adhesive used for the permanent installation of dimensionally stable Solid Vinyl Tile, LVT, LVP, approved Rubber, Resilient Quartz flooring, and stair tread products over porous and non-porous substrates in indoor applications; it is a low odor, non-flammable, solvent-free and ready to use product

**Excelsior EN-610 Epoxy Nose Filler** is a two-component wet-set epoxy caulking compound designed for use as nose filler for indoor installations of resilient stair treads and stair nosings as well as an adhesive for stair nosings and accessories. It is specifically formulated to prevent movement, flexing, indentation, separation and premature wear or damage to stair treads and nosing by providing support on substrates that are worn; it is a low odor, non-flammable and solvent-free product

**Excelsior TP-620 Tape Adhesive** is a pressure sensitive tape adhesive designed for use with indoor installations of resilient stair treads, risers, stringers and cove fillet sticks which allows for immediate access after installation; it is a low odor, non-flammable, solvent-free and ready to use product

**Excelsior C-631 Water Based Contact Adhesive** is a highly aggressive contact adhesive used for the permanent installation of vinyl and rubber resilient flooring, stair treads, wall base, flash coving and accessories in horizontal or vertical installations over porous and non-porous substrates in indoor applications; it is a low odor, non-flammable and solvent-free product

**Excelsior U-705 Urethane Adhesive** is a single component wet-set urethane adhesive used for the permanent installation of all resilient and athletic flooring products over porous and non-porous substrates. When cured it is water resistant and has high sheer strength and is the perfect choice for areas with topical moisture, heavy traffic and rolling loads both indoors and outdoors including areas with sunlight and not climate controlled; it is a low odor, non-flammable, solvent-free and ready to use product

**Excelsior EW-710 Epoxy Adhesive** is a two component urethane enhanced wet-set epoxy adhesive used for the permanent installation of all resilient and athletic flooring products over porous and non-porous substrates. When cured it is water resistant and has high sheer strength and is the perfect choice for areas with topical moisture,

heavy traffic and rolling loads both indoors and outdoors including areas with sunlight and not climate controlled; it is a low odor, non-flammable and solvent-free product

## **2. PRE-INSTALLATION**

Prior to acceptance of this document refer to the website, [www.roppe.com](http://www.roppe.com) to confirm that you have the most current revision of this document. Consult all associated product literature concerning adhesives, installation, maintenance and complete warranty information prior to installation of product.

### **2.1 STORAGE & SERVICE ENVIRONMENT**

Deliver all materials to the installation location in its original packaging with labels intact. Do not stack pallets to avoid damage. Remove any plastic and strapping from packaging after delivery. Do not flex, bend or stand stair treads on end. Inspect all material for proper type, color and matching lot numbers if appropriate. Ensure that all adhesives intended for installation are approved for use with accessory materials if appropriate. Ensure material is adequately stored at temperatures between 65° F (19° C) and 85° F (30° C) prior to installation.

***This product is designed, manufactured and tested to perform at constant temperatures, not fluctuating more than +/- 10° from normal selected service temperatures from the allowable 65° F (19° C) - 85° F (30° C) range. This product is designed for service on substrate temperatures ranging from 65° F (19° C) - 85° F (30° C). This product is designed for service within ambient relative humidity between 40% and 60%.***

Select appropriate adhesives for the intended service environment, such as wet-set acrylics or urethanes for areas that will have temperature variations or excessive windows and/or sunlight exposure from walls or ceilings such as sunrooms, window walls, skylights, etc.

***Pressure sensitive adhesives are soft setting adhesives and do not prevent effects or issues that temperature changes and direct sunlight creates in vinyl products due to thermodynamics.***

DO NOT use markers (sharpies, pens, construction crayons, etc.), tapes or paints (construction or other) on the treads 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 or rubber with the chemical manufacturer. Do not use cleaners containing pine oil, phenolic sanitizer, or enzyme cleaners that will be left on the surface of the treads. We assume no liability for damage to our treads 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.

If there are concerns regarding this information or the service temperature, substrate temperature or installation environment will not meet these requirements, please contact Technical Services for recommendations prior to installation at [solutions@rhctechical.com](mailto:solutions@rhctechical.com).

## **3. JOB SITE CONDITIONS**

Before starting the job and performing any preparations, testing and/or installation we recommend the following conditions be met to ensure a successful installation.

Facility must be fully enclosed, sealed and weather tight. Building HVAC must be up and running in permanent operation prior to installation (if temporary systems or systems other than the permanent HVAC systems are utilized it must be capable of maintaining the same as the intended service conditions). Allow all trades to complete work prior to installation whenever possible; if not possible be aware of issues that can be created by other trades during the installation process. These include but are not limited to adhesive displacement from ladders, rolling carts and job boxes.

Installation areas must have adequate lighting to allow for proper inspection of the treads and substrates prior to installation. In areas that are exposed to intense or direct sunlight, the product must be protected during the acclimation, installation, and adhesive curing periods, by covering the light source.

Installation areas must be properly moisture tested to ensure the substrate is properly dry to receive treads products. Review additional information below and of course, if conditions are not in agreement with the requirements notify the General Contractor and Technical Services if needed. By covering a substrate, underlayment or existing surface, you have indicated acceptance of substrate and installation environment.

### 3.1 ACCLIMATION

Installation area and all materials must be maintained at desired service temperatures for a period of 48 hours prior to installation, during the installation and for the service life of the installation afterwards. If the material must be installed outside of the above acclimation and service temperature ranges contact Technical Services for more detailed installation recommendations. Do not proceed with installation until all conditions have been met.

***This product is designed, manufactured and tested to perform at constant temperatures, not fluctuating more than +/- 10° from normal selected service temperatures from the allowable 65° F (19° C) - 85° F (30° C) range. This product is designed for service on substrate temperatures ranging from 65° F (19° C) - 85° F (30° C). This product is designed for service within ambient relative humidity between 40% and 60%.***

### 3.2 SUBSTRATE PREPARATION

***The information that follows is focused for the stairs, risers and stringers only. All landings shall be prepared in accordance to the recommendations for substrate preparation of the product being installed.***

All substrates must be prepared according to the following information or ASTM F710 or ASTM F1482 at a minimum, as well as applicable ACI and RFCI guidelines. Substrates must be clean, smooth, permanently dry, flat, and structurally sound. Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.

It is recommended that all substrates have a floor flatness of FF32 and/or a flatness tolerance of 1/8" in 6' or 3/16" in 10'. Substrates that do not meet this requirement shall have a cementitious patch or self-leveling underlayment installed to flatten the installation area.

All substrates must have any and all existing adhesives, materials, contaminants or bond-breakers mechanically removed via scraping, sanding, grinding or buffing with a 25 grit DiamaBrush Prep Plus tool prior to adhesive installation. In extreme situations, shot-blasting may be required. Mechanical preparation must expose at least 90% of the original substrate. Following cleaning and removal, all substrates must be vacuumed with a HEPA approved vacuum and flat vacuum attachment to remove all surface dust. Sweeping without vacuuming will not be acceptable. The two most common mechanical abatement methods are shot blasting or hydro blasting. We also recommend all abatement be performed by a licensed and trained professional, familiar with local, state and federal laws.

***In regards to substrate preparation when mechanical sanding, grinding, shot blasting and vacuuming always follow the Resilient Floor Covering Institute's (RFCI) "Recommended Work Practice for Removal of Existing Floor Covering and Adhesives", and all applicable local, state, federal and OSHA requirements in regards to Asbestos and Silica containment regulations.***

***Do not use solvent/citrus based or other chemical adhesive removers prior to installation.***

**3.2.1 CONCRETE SUBSTRATES & CONCRETE FILLED METAL PANS**

All concrete substrates must be constructed as recommended by the American Concrete Institute’s ACI 302.2 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials and prepared in accordance with ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. When treads is being installed directly over concrete, concrete surfaces that have an ICRI Concrete Surface Profile (CSP) over 4 shall be smoothed with a self-leveling underlayment or a patch to prevent imperfections from telegraphing through treads materials.

All metal pans filled with concrete, the concrete must be well bonded and secure without movement. It must be flush and level with rolled metal leading edge of the step. When laying a square or straight edge from back to the front of the step, if the concrete is higher than the leading edge the concrete will need to be ground level and flush. If the concrete is lower, then a compatible cementitious patch must be used to level out and make flush. Make sure that spot welds do not get in the way of the treads along the sides. Be sure that concrete is smooth and flat along the sides of the steps where it meets the stringer.

**3.2.1.1 CONCRETE SUBSTRATE MOISTURE TESTING**

Moisture testing is an essential part of determining the suitability of a concrete substrate to receive a resilient stair covering. Moisture testing should be performed on any concrete substrate that shows signs of an issue or where there are concerns present. Typically moisture testing is not performed on Stair Tread installations. If testing is performed verify results according to the selected adhesive for application for compatibility.

**3.2.1.1.1 WATER ABSORPTION (POROSITY)**

All concrete substrates must be tested per ASTM F3191 to confirm porosity, this is utilized to determine the method of adhesive application or how the adhesive will act upon the concrete.

Use a pipette or equivalent to conduct three tests by placing a .05 mL (1/4” wide) droplet of clean, potable water onto the surface. If the substrate absorbs water within 60 seconds, the substrate is considered porous. Conduct 3 tests for the first 2000 sq. ft. and one for each additional 3000 sq. ft., at least one per room. All other substrates that do not meet this requirement are considered non-porous. Ensure that all non-porous substrates are not contaminated with any aforementioned contaminants.

**3.2.1.1.2 DEW POINT (SURFACE TEMPARTURE AT WHICH CONDENSATION OCCURS)**

Dew point is the temperature at which the humidity in the air begins to condensate on a surface. As it relates to indoor moisture condensation, the Dew Point is an important factor for ensuring adequate and proper conditions exist during substrate testing, substrate preparation, and installation of treads products.

Within the installation parameters regarding air temperature of 65° F - 85° F and relative humidity of 40% - 60%, the substrate temperature shall be at least 5° F above the Dew Point. Adhesives shall not be spread and treads shall not be installed any time the concrete surface temperature is within 5° F of dew point. See the chart below to determine Dew Point Temperature to compare to current slab temperature.

Dew Point Reference Chart								
		Ambient Air Temperature In Degrees Fahrenheit						
		60° F	65° F	70° F	75° F	80° F	85° F	90° F
Relative Humidity Percentage	70%	50° F	55° F	60° F	64° F	68° F	74° F	78° F
	65%	47° F	53° F	57° F	62° F	66° F	72° F	76° F
	60%	45° F	50° F	55° F	60° F	64° F	69° F	73° F
	55%	43° F	48° F	53° F	58° F	61° F	67° F	70° F
	50%	40° F	45° F	50° F	55° F	59° F	64° F	67° F
	45%	37° F	42° F	47° F	52° F	56° F	61° F	64° F
	40%	35° F	40° F	43° F	49° F	52° F	58° F	61° F
	35%	31° F	36° F	40° F	45° F	48° F	54° F	57° F
	30%	28° F	32° F	36° F	41° F	44° F	50° F	52° F

To determine the dew point; read the room air temperature, read the room relative humidity and the concrete surface temperature. Locate the intersection of the air temperature and relative humidity readings and determine the dew point. If the concrete surface temperature is within 5° of each other, installation shall not occur.

### 3.2.2 CHEMICALLY ABATED CONCRETE SUBSTRATES

In situations where existing flooring adhesive was removed chemically, since there are known concerns with this process, one of the following conditions now exist.

(1) Once the chemical is present in the substrate it cannot recognize the difference between the old adhesive and the new adhesive, (2) it is considered a penetrant and there is no way to know how deep into the substrate it could have penetrated into the substrate due to porosity, (3) there is no way to tell (in a short term test) if the substrate has been neutralized or rinsed (abatement chemical removed) well enough to accept new adhesive.

However, if a chemical abatement has already been performed, we recommend the Mapei process to prepare the substrate to receive a finish flooring product. The Mapei process is to scour the substrate using the Planiprep SA according to Mapei instructions, then top with the Planiprep ET according to Mapei instructions. Once the process is completed, the substrate would need to be treated as non-porous for the selection of installation adhesives and methods.

### 3.2.3 WOOD SUBSTRATES

Wood substrates shall be rigid and free of any movement and without depressions, joints, cracks, gouges, and voids. It shall be structurally sound and smooth enough to prevent telegraphing through the tread product. It shall be free of any substance that may stain such as marking inks, paints, solvents, adhesives, asphalt, dye, etc. and be of uniform density, porosity and thickness.

#### 3.2.3.1 WOOD SUBSTRATES MOISTURE TESTING

Moisture testing is an essential part of determining the suitability of a wood substrate to receive a resilient stair covering. Moisture testing should be performed on any substrate that shows signs of an issue or where there are concerns present. Typically moisture testing is not performed on Stair Tread installations.

If testing, wood substrates must not exceed 8% moisture content.

***We require the use of Wagner Meters Wood Moisture Meters for testing.***

### 3.2.4 GYPSUM BASED SUBSTRATES

Gypsum-based substrates must have a minimum compressive strength of 3500 PSI. Substrate must be structurally sound and firmly bonded to the subfloor below.

Any cracked or fractured areas must be removed and repaired with a compatible patch or repair product for gypsum based substrates. Follow those products installation instructions for installation over a gypsum substrate.

Most if not all gypsum substrates require the application of a sealer on the surface to prevent dusting and promote adhesion to the substrate. New or existing gypsum substrates may require additional primer just prior to finished floor being installed. These products are available from many suppliers as standard latex primers and do not interfere with the installation of our products. Follow all manufacturers' recommendations regarding preparation for resilient treads installation.

### 3.2.5 RESINOUS SUBSTRATES

When installing directly over a resinous products, such as a urethane moisture barrier or an epoxy coating, ensure the coating is dry to the touch and has cured for the prescribed length of time. Substrate must be clean, dry, sound,

smooth, and free of contaminates. Resinous substrates are considered **non-porous** (non-absorptive) so ensure selected adhesives can be used over non-porous substrates and follow all installation instructions and flash times for non-porous substrates.

### 3.2.6 METAL SUBSTRATES

Metal substrates must be thoroughly sanded/ground and cleaned of any residue, oil, rust and/or oxidation. Substrate must be smooth, flat and sound prior to installation. When installing in areas that may be subject to topical water or moisture and/or high humidity, an anti-corrosive coating must be applied to protect metal substrate. Contact a local paint or coating supplier for coating recommendations. Install treads within 12 hours after sanding/grinding to prevent re-oxidation. Any deflection in the metal floor can cause a bond failure between the adhesive and the metal substrate. Be sure to follow installation procedures and trowel sizes for non-porous substrates. Installing directly over Checker plate or Diamond plate is not recommended.

### 3.2.7 CRACKS, JOINTS & VOIDS

All cracks, joints and voids, as well as the areas surrounding them, must be clean and free of dust, dirt, debris and contaminants. All minor cracks and voids 3/64" or less may be repaired with a suitable cementitious patch. Due to the dynamic nature of concrete slabs, manufacturer cannot warranty installations to cover expansion joints, cracks or other voids such as control cuts, saw joints, moving cracks, and/or voids. Do not install treads directly over any expansion joints as all expansion joints shall be honored and have a suitable expansion joint covering system installed to allow expansion joint to move as it was designed. In areas where random cracks are 3/64" or greater it is hard to tell if the slab will continue to move or has finished moving. Consult a structural engineer if there are any questions or concerns with a crack or joint, especially those that may affect structural integrity such as expansion joints or excessive random cracking in areas that are not designed to move.

### 3.2.8 RADIANT HEATING SUBSTRATES

Although it is rare in stair treads, when installing flooring products approved for radiant heated substrates over a substrate that contains a radiant heating system, ensure the radiant heat is turned off 48 hours prior to installation and remains off during the entire installation. The radiant heat may be turned on 48 hours after installation and the normal operating temperature shall be increased gradually over the course of 24 hours. Ensure the temperature of the radiant heating system does not exceed 85° F (29.5° C) and avoid making abrupt changes in radiant heating temperature.

### 3.2.9 EXISTING FLOORING SUBSTRATES

We highly recommend that Stair Tread products be installed directly to the permanent substrate such as properly prepared concrete or wood to ensure maximum performance of the product. However, there are situations where decisions are made to install over existing product. If that is the case, please follow the guidelines below for the best chance of success.

Existing resilient flooring products must be completely removed from the original substrate prior to installation.

Existing hardwood flooring requires suitable underlayment grade plywood be installed over the substrate.

Stair Treads may be installed over existing stone tread substrates, such as terrazzo, porcelain or ceramic tile. Ensure existing flooring is a single layer of material and that all materials are clean, dry, sound, solid, well adhered and free of site-applied finishes, waxes and/or contaminants. Any and all loose products must be removed and repaired or replaced. All grout lines and irregularities must be filled and troweled flush with a suitable primer and cementitious patch to prevent telegraphing of the existing floor. All existing treads substrates that are outside of flatness tolerances that cannot be repaired with a suitable patching compound shall be leveled with a suitable cementitious self-leveling underlayment to achieve a smooth, flat substrate.

All existing treads substrates must have any and all site-applied finishes and/or waxes completely removed prior to treads installation in order to ensure a proper adhesive bond. For mechanical removal, use a low-speed buffer and 40-60 grit sandpaper. Properly prepared substrates shall not have any remaining gloss or sheen. For chemical removal, ensure chemical treatments will not disrupt adhesion of the existing treads to the substrate. Be sure to rinse the existing treads adequately with clean, potable water to remove any and all chemicals from the surface of material.

Do not install products until any moisture on, between or below existing treads has completely dried. Ensure all dust, dirt and debris are removed prior to treads installation.

### 3.2.10 LOOSE LAY MOISTURE OR SOUND CONTROL PRODUCTS

It is not recommended to install over Loose Lay moisture or sound control products, please contact Technical Services ([solutions@rhctechincal.com](mailto:solutions@rhctechincal.com)) with the product information you are installing over for further directions.

## 4. INSTALLATION

Ensure substrate is suitably prepared prior to installation, as manufacturer is not responsible for substrates that have not been properly prepared and tested for moisture. Ensure adhesive is approved for use with tread material and the proper trowel type and size is used, as manufacturer is not responsible for any and all adhesion issues related to improper adhesive selection or usage. Select appropriate adhesives, such as wet-set acrylics or urethanes, for areas that will have excessive window/sunlight exposure from walls or ceilings such as sunrooms, window walls, skylights, etc. In these type areas a wet-set adhesive that sets hard should be used.

Prior to installation, inspect all treads before installing or during installation to verify that there are no visible defects, damages or excessive shading variations. If there are concerns regarding shade or color variation, do not install material and consult a sales representative and manufacturer's technical staff.

***If the profile of the step does not match the profile of the nose of the stair tread and the step cannot be made to conform to the profile of the nose of the stair tread, continuing the installation is not recommended and will not be covered by the product warranty.***

### 4.1 STANDARD RUBBER & VINYL STAIR TREAD COMPOUNDS

Standard Rubber & Vinyl Stair Treads, Noses, and Riser products are not designed to be used in areas that are exposed to Animal Fats, Vegetable Oils, and/or Petroleum Oils or Lubricants. There must be a special compound installed to perform and withstand these conditions.

#### 4.1.1 PERFORMANCE COMPOUND - OIL & GREASE RESISTANT

Only the U-705 & EW-710 Adhesives are approved for the installation of the Performance Compound - Oil & Grease Resistant Rubber Treads. It is also important to review the substrate for the installation of these products to ensure there is no contamination from previous exposure to Oil & Grease. Existing contamination will create an issue with the bonding of the adhesives and ability for the adhesive to remain bonded to the substrate.

***Product is not intended to be installed in a commercial kitchen or areas with exposure to vegetable and/or animal fats.***

The installation methods are the same as the standard rubber & vinyl stair tread compounds.

#### 4.1.2 KEVLAR RUBBER STAIR TREADS

Kevlar Rubber Stair Treads are not designed to be used in areas that are exposed to Animal Fats, Vegetable Oils, and/or Petroleum Oils or Lubricants. They are also not designed to be exposed to skates or spikes even though they contain Kevlar.



The installation methods are the same as the standard rubber compounds with the exception of the need for a fresh blade more often.

## 4.2 BUTTING TREADS & PATTERN ALIGNMENT

Wider stairwells and stairwells that require pattern alignment will require additional planning and dry fitting prior to installation. We manufacture our treads according to the requirements of ASTM F2169 which states treads shall be length stated as a minimum and can be longer to be trimmed to fit. It is our goal to package treads 1/2" - 3/4" longer than stated to allow for trimming to fit. Our treads are intended to be trimmed on each end of the length and the depth of the tread. We recommend ordering treads the next size up to achieve these layouts and installations on certain patterned treads.

Determining where the tread will be seamed is up to the designer or end user but typically is in the center or under a hand rail to minimize visibility. It is recommended for patterned to treads to seam between the patterns if possible and prepare that seam prior to fitting to step for finished length. It may be necessary once the seam is prepared to place the treads top down on a protected surface and sand the back to remove any gauge differential.

## 4.3 EN-610 EPOXY NOSE FILLER

The predominant step being used in construction today is the metal formed frame with a pan filled with concrete, having a nose radius of 1/2" maximum as spelled out in the ADA guidelines. When installing Rubber Stair Treads on these substrates, either new construction or remodel, they do not require the use of the EN-610 Epoxy Nose Filler. Fitting the tread properly to the step and creating a tight fit to the substrate will ensure proper installation and performance of the Stair Tread.

For installations that occur on other substrates (worn metal, wood, existing approved treads types), the EN-610 Nose Filler may be required to ensure proper fit to the substrate. These substrates need to be verified for uneven wear and corrected appropriately using the best means available. One of these means is the EN-610 Epoxy Nose Filler. It is our recommendation to check for gaps between the radius in the nose of the tread and the substrate. If a gap greater than 1/4" is present, it is required to use the EN-610 Epoxy Nose Filler. If a gap of 1/2" or greater is present, the substrate should be prepared using other methods.

Of course, with any Stair Tread installation it is acceptable to utilize the EN-610 Epoxy Nose Filler.

***When installing Vinyl Stair Treads, the EN-610 Epoxy Nose Filler is required for all installations.***

## 4.4 DENATURED ALCOHOL

Denatured alcohol or similar product should be used to remove the 'mold-release' from the back side of the treads prior to installation to ensure a proper bond. In some extreme instances it may be necessary to sand the back side of the tread to achieve maximum bond prior to wiping with denatured alcohol.

Sometimes denatured alcohol is sold as camping stove fuel or methylated spirits in areas where "denatured alcohol" is not available.

## 4.5 ADHESIVE BOND TEST

Perform an adhesive bond test using an actual stair tread and selected adhesive being used prior to installation to determine adequacy.

## 4.6 STRINGERS INSTALLATION

Not all applications will require the use of stringers. If stringers are being installed they must be installed prior to the installation of the Treads, Nosings or Risers. Select the appropriate adhesive for the substrate in which the

stringers are being installed. Typically stringers in new construction are metal and should be treated as **non-porous** (non-absorptive) when selecting adhesives. It is acceptable to install stringers with the TP-620 Adhesive.

Utilize a template when fitting stringers for installation. Scribing felt or similar materials are normally used for this. Use a suitable releasable material to hold the template in place while creating the template. When in place, use the appropriate tools to transfer the step profile onto the template.

Transfer the template to the stringer material and carefully cut the material. Check the fit and make any final adjustments prior to applying the selected adhesive.

Roll material with a hand roller or equivalent within 30 minutes of installation to ensure that material has not shifted and that adhesive has not been squeezed out of joints or compressed onto surface.

## 4.7 STAIR NOSSES & LANDING TRIM INSTALLATION

Prior to installing or fitting Stair Nosings any Stringer material that will be utilized must be installed to ensure the proper installation. Stair nosings which have an undercut, underlap or flange must be installed prior to the installation of any adjoining flooring and/or riser material.

Fit stair nosing to step and scribe material for trimming, carefully trim material along marked line. Confirm that stair nosing fits tightly on step, ensuring material is not over-compressed.

***Clean the underside of the stair nosing with a clean white rag or towel and denatured alcohol or equivalent solvent. Continuously change the rag or towel to prevent transferring mold-release after build up in the cleaning rag or towel. Failure to do so may result in bond issues due to mold-release chemical contamination.***

In areas which may be exposed to excessive moisture, heavy foot traffic or as a platform edge, lightly sand the back of the stair nosing to improve adhesion. After sanding, clean the underside of the stair nosing with a clean white rag or towel and denatured alcohol.

***All stair nosings must have the EN-610 installed in the stair nose.***

Apply a 1/4" - 1/2" bead of the EN-610 to the interior nose of the stair nosing. Failure to do so may result in premature wear and damage which could compromise egress safety. Apply EN-610 to both bonding surfaces of the stair nosing and spread using a 1/8" saw-tooth spreader. Be sure to achieve 90% adhesive coverage on both surfaces of the nosing. Install nosing onto step and roll material with a hand roller or equivalent. Visually inspect installation to ensure that material has not shifted and that adhesive has not been squeezed out of joints or compressed onto surface.

***...after installing noses with abrasive, smooth or ribbed rubber inserts, the inserts must be trimmed 1/16" from the ends on both sides of the nosing.***

Avoid walking, kneeling or working on material until adhesive has cured for light foot traffic. To prevent movement and help hold material in place until adhesive is cured the use of a multi-purpose releasable painters tape is recommended.

## 4.8 STAIR TREADS & RISERS INSTALLATION

Wider stairwells and stairwells that require pattern alignment will require additional planning and dry fitting prior to installation. We manufacture our treads according to the requirements of ASTM F2169 which states treads shall be length stated as a minimum and can be longer to be trimmed to fit. It is our goal to package treads 1/2" - 3/4" longer than stated to allow for trimming to fit. Our treads are intended to be trimmed on each end of the length and the depth of the tread. We recommend ordering treads the next size up to achieve these layouts and installations on certain patterned treads.

Select the appropriate adhesive for the substrate in which the treads and risers are being installed. ***It is possible for Concrete Filled Metal Pan stairs to require different adhesives or different application methods of the same adhesive for installation.***

## 4.8.1 HANDLING EXTENDED WIDTH STAIRWELLS

Wider stairwells that require butting two treads together will require additional planning and dry fitting prior to installation. We recommend ordering treads the next size up to achieve these layouts and installations. Treads with VI or Abrasive strips may require mixing and matching to achieve the desired installation result.

Stair treads have an acceptable level of thickness variation from tread to tread. For this reason, stair treads that are intended to be butted together may need to be sanded, undercut, or shimmed in order match the thickness of adjacent treads. Treads should be trimmed so that the center of the pattern or profile is at the seam.

Once butting seams are cut and patterns are aligned the use of the Excelsior U-705 Urethane adhesive should be used at the seams to help adjust for slight height variations and to hold the seam tight.

## 4.8.2 HANDLING TOP STEPS & MID-LANDINGS

When installing a full size tread on the top step or landing and it will be butted up to flooring materials on the upper floor or landing, always check the thickness of the two materials. Due to the way treads are manufactured the gauge of the material can vary depending on where they are cut to butt up to the tiles.

Patching, shimming or sanding of the treads may be required to match the two materials in thickness for a flush installation. This is especially true on open landings where the tile will have to wrap around the side of the tread.

## 4.8.3 THREE SIDE SCRIBE METHOD FOR STAIR TREADS

When final cutting treads we recommend utilizing an undercut to provide for the appearance of a tight fit as well as leaving room for expansion. There should be no more than a 1/16" gap between the tread and the stringer after installation.

Determine the center of the stairwell and mark a center line on the riser portion of each step. Determine the center of each stair tread and mark a center line on the back edge of the tread for alignment during trimming and installation.

Align the stair tread to the right side of the step and set divider to the distance between the center mark on the step riser and the center mark on the stair tread. While applying firm pressure to the stringer material with divider, mark the stair tread with the divider to determine scribe line. If using a One-Piece Tread & Riser, scribe the riser portion of the tread as well. Use a suitable knife to trim stair tread along scribe mark and create a slight undercut to ease final installation.

Once the right side of the tread is scribed and trimmed, reposition the stair tread to align to the left side of the step. Reset the divider to the distance between the center mark on the step riser and the center mark on the stair tread. Use divider to scribe stair treads as before and trim stair tread along scribe mark, creating a slight undercut. Ensure that stair tread fits step snugly against stringers without over-compressing tread material.

To aid in scribing and trimming the back edge of stair treads, a spacer (such as a carpenters level, 1" x 2" wood or equivalent) is required to set the depth of the tread. Prior to cutting the back edge of the stair tread, measure the depth of the step and the thickness of the spacer. Rough cut stair treads to be at least 1/4" deeper than the step but no deeper than the width of the spacer.

Once the back edge has been rough cut, align stair tread to the back of the step riser above. Insert the spacer between the leading edge of the stair tread and the step nose, ensuring that the spacer and stair tread fit snugly against the step. Set the divider to the exact width of the spacer and scribe the back edge of the stair tread to the

step riser. Trim the back edge stair tread along scribe mark, creating a slight undercut to ease installation. Ensure that all sides of the stair tread fit snugly to step while avoiding over-compressing material.

Once the initial step has been scribed and trimmed, the riser should be scribed and trimmed to accommodate imperfections in the step stringers using the Two Side Scribe Method.

#### 4.8.4 SCRIBING RISERS

Prior to trimming risers, ensure that the stair tread below has been trimmed and fits snugly on the step beneath the riser. Use the previous center mark used when trimming the adjoining stair treads as the center of the stairwell, ensuring that center mark is visible while trimming risers. Repeat the process above to scribe both ends of the riser to the stairwell.

#### 4.8.5 INSTALLING ONE-PIECE STAIR TREAD/RISERS

When installing One-Piece Stair Tread/Riser products, it is highly recommended to use of a cove/fillet stick in the angle where the step and riser meet. This piece should be installed prior to properly fitting the one piece stair tread/riser. We recommend using the 1" TP-620 Tread Tape to install the cove stick.

We also highly recommend the use of the TP-620 Tread Tape Adhesive to install the One-Piece Stair Tread/Riser products to help with the installation process. Not only does it allow for immediate access of the stair well, it aides in placing and keeping the nose portion in place while not having to wait on adhesive to cure.

#### 4.8.6 HANDLING THE STAIR TREAD NOSE & RISER INTERSECTION

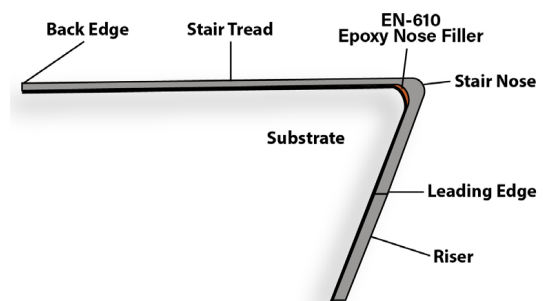
The seam between the leading edge (nose) of the stair tread and the riser should be treated using one of the following methods.

##### 4.8.6.1 BUTTING or SCRIBED SEAM METHOD

When butting stair tread and riser seams using the Scribed Seam Method, ensure that the stair tread above and below the riser, as well as the riser itself, have been trimmed and fit the step snugly.

Ensure the stair tread below the riser is in place prior to scribing the riser to ensure a tight fit to the leading edge of the stair tread above.

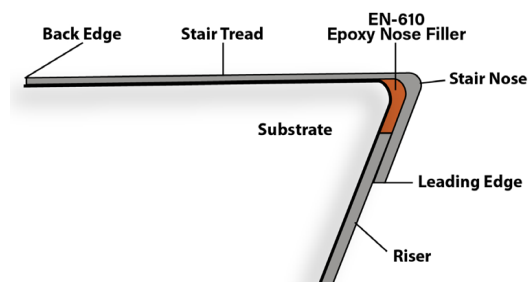
Overlap the stair tread above the riser with the riser while ensuring that riser toe is not over-compressed. Using the leading edge of the stair tread as a guide, a divider or a marking tool is needed to scribe the riser. Use a suitable knife to trim riser along the scribe mark.



##### 4.8.6.2 OVERLAPPING SEAM METHOD

When overlapping stair tread and riser seams, ensure that the stair tread and riser have been trimmed and fit the step snugly.

Risers do not normally require trimming on the top edge prior to installation when overlapping seams. However, if the top edge of the riser extends up to or over the height of the step, trim riser to 1/4" - 1/2" from the top of the step to allow space for the EN-610 Epoxy Nose Filler Adhesive if needed.



## 4.8.7 HANDLING ABRASIVE, SMOOTH & RIBBED INSERTS

Stair Treads including abrasive, smooth or ribbed inserts should be treated with extra caution. Folding or carrying longer treads with inserts over the shoulder will cause the inserts to stretch and possibly buckle after installation.

Also, when cutting treads tight to the stringer they will expand slightly due to thermodynamics and the laws of physics. When this occurs with the treads, the strip will buckle in the channel. Therefore after installing treads with abrasive, smooth or ribbed rubber inserts, the inserts must be trimmed 1/16" from the ends on both sides of the tread.

## 4.8.8 FINISHING THE INSTALLATION

When using the Excelsior TP-620 Pressure Sensitive Tape Adhesive or the C-631 Contact Adhesive, be sure to clean dusty and/or cementitious substrates with a vacuum, sponge, or damp mop prior to installation to remove dust, dirt and debris.

***Clean the underside of the stair tread with a clean white rag or towel and denatured alcohol or equivalent solvent. Continuously change the rag or towel to prevent transferring mold-release after build up in the cleaning rag or towel. Failure to do so may result in bond issues due to mold-release chemical contamination.***

Apply adhesive according to instructions for specific product in use. Be sure to follow instructions based on substrate absorbency (porous or non-porous).

When installing adhesive on steps, be sure to leave a 1/2" - 3/4" space on either side of step nose to accommodate the Excelsior EN-610 Epoxy Nose Filler Adhesive, if needed, to avoid adhesive cross-contamination.

***All noses (leading edges) must be adhered to the either the riser (if overlapped) or riser substrate (if butted or scribed) when installing stair treads, using either the TP-620 Tread Tape or C-631 Contact Adhesive. This applies to all steps including square edge and ADA steps with an angle.***

Roll material with a hand roller or equivalent within 30 minutes of installation to ensure that material has not shifted and that adhesive has not been squeezed out of joints or compressed onto surface.

***...after installing treads with abrasive, smooth or ribbed rubber inserts, the inserts must be trimmed 1/16" from the ends on both sides of the tread.***

## 5. STAIR TREAD PROTECTION AFTER INSTALLATION

Protect newly installed stair treads and risers with construction grade paper or protective boards, such as Ram Board, ThermoPLY, Masonite or other materials to prevent damage by other trades. Do not slide or drag pallets or heavy equipment. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, it is a good idea to protect stair treads and risers from scuffing or tearing using temporary floor protection.

Ensure all wheels/castors that may come in contact with stair treads are clean and free of any and all dirt and debris. Routinely clean castors to ensure that dirt or debris has not built up or become embedded in castors. Replace castors at regular intervals, especially if they become damaged or heavily soiled. Place walk-off mats at outside entrances. Ensure mats are manufactured with non-staining backs to prevent discoloration.