

Roppe Tuflex® Recycled Rubber Tile



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Installation

6.1 General Preparation and Conditioning

First read Tuflex's flooring literature concerning the product description, product limitations, product installation, adhesive information, product maintenance, and warranty before installing the flooring. Inspect all material for proper type and color. For Ice Skating Rink Installations, Tuflex Titan is recommended in all entrances and exits to and from the ice rink itself, concession stands, pivot areas and penalty boxes. Conduct the proper moisture emission, relative humidity and pH testing on the substrate. Proceed with the installation only when the conditions are proper and correct. A bond test using either ROP635 One-Part Solvent-Free Moisture-Cured Adhesive (recommended for interior & exterior installations) or ROP535U Universal Two-Part Urethane Enhanced Epoxy Adhesive (recommended for indoor installations only) throughout the installation area approximately 50 feet apart should be performed at least one week prior to the scheduled installation to assure the surface is suitable. After 72 hours, there should be an unusual amount of force to lift the flooring from the substrate with adhesive bonding to the tile and the substrate. All materials are to be delivered to the installation location in its original packaging with labels intact. Store products in a dry area protected from the weather on a smooth, flat, dry surface with temperatures maintained between 65°F (19°C) and 85°F (30°C). Remove all plastic wrapping and strapping from the pallets in the installation area at least 48 hours prior to installation. For proper acclimatization, remove the flooring from the packaging and stack tiles evenly no more than 18" high. The installation area, substrate, tile, feature strips and adhesive are to be maintained between 65°F (19°C) and 85°F (30°C) for at least 48 hours before installation, during installation and maintain room temperatures between 65°F (19°C) and 85°F (30°C) thereafter. For exterior installations, the substrate, tile and adhesive are to be maintained between 65°F (19°C) and 85°F (30°C) for at least 72 hours before installation and during installation. After 72 hours, the adhesive has fully cured which will accommodate exterior temperature changes. Caution: Exposure to rain within 72 hours after installation may slow the adhesive set up time, and may adversely affect the adhesive, resulting in an installation failure. Therefore, use extreme caution when installing outdoors. Flooring should be loose laid in the room or area prior to spreading of adhesive to determine the proper layout to assure the best overall appearance and to minimize small border cuts. Close the area to traffic during installation. Install flooring and accessories after other finishing operations, including painting, have been completed. If the back of the flooring becomes soiled prior to installation, clean with a soft cloth dampened with a mild soap and water solution, rinse, let dry. Flooring may be installed over radiant heated floors, provided the surface temperature is maintained between 65°F (19°C) and 85°F (30°C). If radiant-heated floors have cooled after installation, a gradual increase in temperature is required to prevent adhesive bond from being adversely affected. *Warning:* Follow all local, state, and federal standards and practices for the proper removal and disposal of flooring, adhesives, or other materials. Proper ventilation and cross-ventilation is required during installation. Follow all local, state, federal, and manufacturer's safety standards for the use of all products and equipment.



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6.2 Subfloor/Substrate Inspection and Preparation

6.2.1 All subfloors/substrates must be inspected prior to installation. All substrates must be clean, smooth, permanently dry, flat, and structurally sound. The substrate must be free of moisture, dust, sealers, paint, primers, curing compounds, parting agents, residual adhesives, adhesive removers, hardeners, resinous compounds, solvents, wax, oil, grease, asphalt, gypsum compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, any other extraneous coatings, films, materials and all other foreign matter which might interfere/restrict proper adhesive bonding. DO NOT use sweeping compounds, solvents, adhesive removers, or acid etching to clean the substrate. DO NOT install flooring over gypsum-based or plaster based leveling or patching compounds. DO NOT install new floor covering over old floor covering, as the old floor covering may not be adequately bonded, hide possible structural defects, or cause plasticizer migration into the new flooring. In renovation or remodel work, remove all existing *adhesive residue so that 100% of the overall area of the original subfloor/substrate is exposed. Follow The Resilient Floor Covering Institute's (RFCI) "Recommended Work Practice for Removal of Existing Floor Covering and Adhesive, and all applicable industry, local, state, and federal standards. Care must be taken to analyze the conditions and correct any problems prior to installation. Follow the manufacturer's recommendations for any patching or underlayment materials, excluding gypsum based or plaster based levelers or patching compounds.* Some previous manufactured asphaltic "cutback" contained asbestos. For removal instructions, refer to the Resilient Floor Covering Institute's publication "Recommended Work Practices for Removal of Resilient Floor Covering".

6.2.2 Concrete substrates on all Grade Levels must be tested in accordance with ASTM F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride or ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using *in situ* Probes to quantitatively determine the amount of moisture vapor emission at least one week prior to the installation. **Caution:** ASTM F 1869 or ASTM F 2170 tests cannot predict long-term moisture conditions of concrete slabs. Moisture testing only indicates moisture conditions at the time the tests are performed. Before conducting ASTM F 1869 or ASTM F 2170 test, the installation area must be maintained between for 65°F (19°C) and 85°F (30°C) or at least 48 hours prior to testing, during testing and thereafter. In addition, the concrete's temperature range must also be identical to that of the installation area. Conduct three test for the first 1,000 sq. ft. and one additional test for each 1,000 sq. ft. or fraction thereof per grade level. The Vapor Emission Rate shall not exceed 5.0 lbs and Relative Humidity Test shall not exceed 75% when using ROP635 Solvent-Free Moisture-Cured Polyurethane Adhesive or ROP535U "Universal" Urethane Enhanced Epoxy Two-Part Adhesive. If the substrate does not meet the above noted requirements, the flooring shall not be installed until the problem has been corrected. DO NOT install flooring if there is hydrostatic pressure. Every concrete floor slab on-grade or below grade to receive resilient flooring shall have a permanent, effective moisture vapor retarder installed below the slab. A pH test must be performed to test for excessive alkalinity using a pH pencil or litmus paper and deionized water. A scaly, sandy, or powdery surface is an indication of some form of contaminant, usually excessive alkalis or an alkali-silica residue. A pH reading higher than 8 is an indication of a potential problem and the concrete must be neutralized by rinsing with clear water. Apply clear



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water with a mop and allow to dry. Re-rinse with clear water, allow to dry and retest to ensure pH level is within acceptable range of 5 to 8 on the pH scale. Continue to neutralize until the pH level is acceptable. The testing of concrete for alkalinity indicates the degree of alkalinity only at the time the test is conducted, and cannot be used to predict long-term conditions. Moisture and alkali salts in the concrete can cause the following problems after installation: adhesive deterioration, bumps, ridges, bubbles, discoloration, mold, mildew, bacteria growth, efflorescence, tile shifting, tile releasing, tile peaking, or sheet seam curling. DO NOT install over burnished (slick troweled) concrete to avoid adhesive and underlayment patch or self-leveling bonding problems due to the non-porosity of the concrete finish. Corrective measures such as bead blasting (shot blasting) or scarifying must be performed prior to installation. The concrete slab must be of good quality, standard density concrete with low water/cement ratios consistent with placing and finishing requirements, having a maximum slump of 4", a minimum compressive strength of 3500 psi, and following the recommendations of ACI Standard 302.1R-96 for class 2 or call 4 floors and the Portland Cement Association's recommendations for slabs on ground. Joints such as expansion joints, contraction joints, isolation joints, saw cuts, control joints, grooves or other moving joints shall not be filled with patching compound or covered with resilient flooring. Expansion joint covers designed for use with resilient flooring should be used. Any non-moving surface cracks, depressions, and other irregularities shall be filled and smoothed with a high quality grade Portland cement-based, water resistant, non-shrinking, non-staining, mildew resistant, alkali resistant underlayment having a minimum compressive strength of 3500 psi after 28 days. Some underlayments may fail under excessive weight; an epoxy caulking compound may be required for certain repairs. Mechanically cleaning the substrate by shot-blasting, scarifying, or sanding shall be performed to achieve a flat, smooth, clean surface to prevent irregularities, roughness, or other defects from telegraphing through the new resilient flooring. The surface of the concrete shall be flat to within the equivalent of 3/16" in 10 feet, as described in ACI 117R. The surface shall be cleaned of all loose material by scraping, brushing, vacuuming, or other methods, or a combination thereof, immediately before commencing installation of resilient flooring. Follow the proper safety practices during the preparation and installation. Follow the recommendations of the American Concrete Institute (ACI 302.1R, *Guide for Concrete Floor and Slab Construction*; ACI 360.R, *Design of Slabs on Grade*; ACI 223, *Standard Practice for the Use of Shrinkage-Compensating Concrete*); The American Society for Testing and Materials (ASTM F 710, *Standard Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring*), and the American National Standards Institute (ANSI A157.1, *Recommended Practice for Concrete Floor and Slab Construction*) for the preparation of concrete to receive resilient flooring. Refer to 6.2.1.

6.2.3 Wood subfloors to be used as subfloors/substrates are to follow the procedures recommended in 6.2.1 and 6.2.2. Wood subfloors should be of double layer construction with a minimum thickness of 1". Crawl spaces underneath wood subfloors shall be in compliance with local building code ventilation practices and have clearance of at least 18" of cross-ventilated space between the ground level and joists. Wood joists should be spaced on no more than 16" centers. Place a moisture retarder; having a maximum rating of 1.0 perm, on the top of the ground under the wood subfloor overlapped at least 8". APA, The Engineered Wood Association, Underlayment Grade plywood, minimum 3/8" thick, with a fully sanded face is to be



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used. Use APA approved exterior grade plywood if finished floors are subjected to moisture. OSB, lauan, maranti, solid-core mahogany, waferboard, particleboard, chipboard, flakeboard, tempered hardboard, glass mesh mortar units or cementitious tile backer boards, sheathing-grade plywood, preservative-treated plywood, or fire-retardant treated plywood are not recommended as some manufacturers may use resins or other adhesives in the manufacturing of the product that may cause discoloration or staining of the flooring. Wood subfloor movement, flexing or instability will cause the flooring installed to release, buckle or become distorted. Do not proceed with the installation until corrective measures have been made. The warranties, performance, installation, and use are the responsibility of the manufacturer and/or contractor. DO NOT use plastic or resin filler to patch cracks. DO NOT use cement or rosin coated nails or staples or solvent-based construction adhesive to adhere the plywood. Installation on a sleeper, a wood subfloor system constructed over the top of concrete, is not recommended. Installation directly over Sturd-I-Floor panels is not recommended. All wood subfloors, single construction plywood floors, single and/or double tongue-and-groove strip floors, and wood plank floors must be prepared to receive resilient flooring in accordance with federal and industry standards. Follow the recommendations of the APA, The Engineered Wood Association, *Design/Construction Guide, Residential and Commercial*, and ASTM F 1482, *Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring*, for the installation and proper construction of the panels to receive resilient flooring. It is the contractor's responsibility to determine if the subfloor is acceptable to receive the flooring.

6.2.4 Cementitious Terrazzo and ceramic floors to be used as subfloors/substrates are to follow the procedures recommended for concrete in 6.2.1 & 6.2.2. Ceramic tile must be solidly adhered and all loose tiles must be removed and repaired or replaced. Ensure all glazed, sealed, smooth, and/or shiny surfaces are properly sanded and cleaned. Fill all grout lines and other irregularities with a manufacturer's recommended Portland cement-based underlayment with a minimum compressive strength of 3500 psi. The subfloor must be structurally sound. Inspect and ensure there is an adequate bond of the old flooring to the original substrate. Do not install over epoxy based terrazzo. Cementitious terrazzo must first be sanded to remove all finishes, and then cleaned. Conduct a bond test with adhesive to ensure a successful bond can be achieved before installing. Roppe **will not** warranty the product if there is a bond failure caused by problems relating to the old flooring.

6.2.5 Metal floors to be used as subfloors/substrates must be thoroughly cleaned of any residue, oil, paint, primer, sealer, rust, and oxidation and properly sanded/grinded to provide a smooth, level, clean substrate to receive flooring. The flooring must be installed within 12 hours after sanding/grinding to prevent the metal from re-oxidizing. The metal subfloor shall be structurally sound. Deflection of the metal can cause a bond failure between the adhesive and the metal substrate. It is the contractor's responsibility to decide the feasibility of the application, and Roppe Corporation will not be held liable for failures caused by flexing or deterioration of metal substrates. On an extremely smooth, non-porous, metal substrate, a longer "tack up" may be required in order to prevent the adhesive from oozing between the seams. Refer to 6.2.1. Caution: The installation of flooring material will not prevent deterioration of metal substrates



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from occurring.

6.2.5 Metal floors to be used as subfloors/substrates must be thoroughly cleaned of any residue, oil, paint, primer, sealer, rust, and oxidation and properly sanded/grinded to provide a smooth, level, clean substrate to receive flooring. The flooring must be installed within 12 hours after sanding/grinding to prevent the metal from re-oxidizing. The metal subfloor shall be structurally sound. Deflection of the metal can cause a bond failure between the adhesive and the metal substrate. It is the contractor's responsibility to decide the feasibility of the application, and Roppe Corporation will not be held liable for failures caused by flexing or deterioration of metal substrates. On an extremely smooth, non-porous, metal substrate, a longer "tack up" may be required in order to prevent the adhesive from oozing between the seams. Refer to 6.2.1.

Caution: The installation of flooring material will not prevent deterioration of metal substrates from occurring.

6.2.6 Highway Grade Asphalt: The installation of Tuflex is recommended over highway grade asphalt only using ROP635 Moisture-Cured Polyurethane Adhesive only. The surface must be firm and level and free of grease, oil or other contaminants. The trowel size used to apply adhesive must be increased in size and depth in order to fill irregularities inherent with this type of porous substrate. Flooring Installer is responsible for determining correct trowel size to ensure a successful installation. In addition, at least a 90% transfer of adhesive to the tile's backing must be achieved. Any future separation, heaving etc. is the responsibility of the owner. Refer to 6.2.1.

6.2.7 Ice Skating Arenas (Off Ice Areas): When installing over approved substrates around the outside perimeter of ice skating rinks, ROP535U Two-Part Urethane Enhance Epoxy Adhesive must be used within six-feet around the perimeter. After installation has been completed around the perimeter, installer has option of either continuing with ROP535U or using ROP635. However, do not spread one adhesive over the other resulting in an adhesive failure. The substrates temperature range must be above 40°F (5° C) prior to applying ROP535U. Refer to 6.2.1.

6.3 Adhesive Application

6.3.1 Tuflex ROP635 Solvent-Free Moisture-Cured Polyurethane Adhesive

ROP635 Solvent-Free Moisture-Cured Polyurethane Adhesive is a premium one-part adhesive designed for high performance installations of Tuflex Square Edge Tile for interior installations over concrete, approved wood substrates, metal and other non-porous substrates, on grade, below grade, or above grade. For exterior installations, ROP635 is recommended over concrete and highway grade asphalt only. **Caution:** Exposure to moisture/cleaning within 24 hours after installation for interior installations may slow the set up time, and may adversely affect the adhesive resulting in an installation failure. Exterior Installations: Exposure to rain within 72 hours after installation may slow the adhesive set up time, and may adversely affect the adhesive, resulting in an installation failure. Therefore, use extreme caution when installing outdoors. ROP635 has excellent plasticizer migration resistance and superior bond strength. Trowel size and spread rates will vary depending on porosity of the substrate and subfloor. For



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smooth or non-porous substrates (i.e.: metal, terrazzo & ceramic tile), a 1/16" x 1/16" x 1/16" square notch trowel is required and the approximate coverage is 90-100 square feet per gallon. ROP635 must be allowed to "tack-up" approximately 15 minutes and the flooring must be rolled within 20 minutes after applying adhesive and continuously rolled until the adhesive has dried completely. However, DO NOT allow the adhesive to dry or "skin-over" or extend the "tack-up" time causing very little or no adhesive transfer to the backing of the flooring resulting in an installation failure. For installations over porous or rough substrates, a 3/32" x 3/32" x 3/32" "U" notch trowel is required (approx. coverage: 75-80 sq/ft per gallon) and the adhesive allowed to "tack-up" approximately 15 minutes before installing flooring. The flooring must be rolled within 20 minutes after applying adhesive and continuously rolled until the adhesive has dried completely. Coverage will vary according to the type of surface, surface texture, spreading angle, and adhesive temperature). Caution: Do not use ROP635 within six-feet around the perimeter of ice skating rinks. For installations within six-feet of ice skating rinks (off-ice areas), ROP535U Two-Part Urethane Enhanced Epoxy Adhesive must be used. The subfloor temperature range when using ROP535U must be no less than 40°F (5°C). ROP635 is a moisture cured polyurethane adhesive, therefore, the open time will vary depending on ambient temperature, substrate temperature and relative humidity. Typical working time is approximately 3 hours at 75°F (24°C) and 50% relative humidity. At elevated relative humidity levels, the working time can be shortened. **Caution:** If too much adhesive is applied, oozing at seams, air-bubbles, adhesive displacement, and telegraphing may occur along with adhesive displacement when the floor is rolled or exposed to rolling loads and lateral shear stress resulting in loose and unsightly areas. Therefore, test trowel size and flooring prior to installation to avoid the above noted potential problems. Adhesive is available in two gallon and five gallon pails. Shelf life is six-months @ 70°F (21°C) in an unopened container. Although the urethane components are non-freezing, the adhesive must be allowed to stabilize to ambient temperature before applying. Any adhesive on the surface of the tile/flooring or surrounding area must be removed immediately with a clean cloth dampened with mineral spirits. DO NOT allow the adhesive to cure on the surface of the flooring, tools etc. A bond failure will occur if the adhesive is not properly applied. Label information is in English and Spanish. Read all of the product and safety information concerning the adhesive and any other chemicals or cleaning agents prior to installation.

Roppe 635 One-Part Solvent-Free Moisture-Cured Calculated VOC's according to California Rule #1168: 44 calculated grams per liter of coating.

6.3.2 Roppe 535U "Universal" Urethane Enhanced Epoxy Two-Part Adhesive

Roppe 535U "Universal" Urethane Enhanced Epoxy is a solvent-free, two-component adhesive for high performance interior installations of Tuflex Rubber Tile. ROP535U "Universal" is recommended for interior installations over properly prepared and recommended concrete, plywood, metal and other non-porous substrates, on grade, below grade, or above grade. ROP535U "Universal" Adhesive must be used at least six-feet around the perimeter of ice skating rinks (off-ice areas), and the subfloor's temperature range when using ROP535U must be no less than 40°F (5°C). The spread coverage over porous or rough substrates using the



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required 1/16" x 1/16" x 1/16" square notch trowel is approximately 100-125 square feet (Part A & B Mixed) per US gallon. Over non-porous or smooth substrates, the spread coverage using the required 1/32" x 1/16" x 1/32" "U" notch trowel is approximately 125-185 square feet (Part A & B Mixed) per US gallon. Coverage will vary according to the type of surface, surface texture, spreading angle, and adhesive temperature). Caution: If too much adhesive is applied, oozing at seams, air-bubbles, adhesive displacement, and telegraphing may occur when the floor is rolled or exposed to rolling loads resulting in loose and unsightly areas. Therefore, test trowel size and flooring prior to installation to avoid the above noted potential problems. Adhesive is available in 1-gallon units. Shelf life is one year @ 70° F (21° C) in an unopened container. Approximate Working Time: After properly mixed and immediately poured onto substrate: 30 - 40 minutes (depending on substrate temperature & trowel size). Although the epoxy components are non-freezing, the adhesive must be allowed to stabilize to ambient temperature before mixing. Any adhesive on the surface of the tiles or surrounding area must be removed immediately with a clean cloth dampened with warm soapy water or denatured alcohol. DO NOT allow the adhesive to cure on the surface of the flooring. A bond failure will occur if the epoxy is not properly mixed. Label information is in English and Spanish. Read all of the product and safety information concerning the adhesive and any other chemicals or cleaning agents prior to installation.

Roppe 535U "Universal" Solvent Free Urethane Enhanced Epoxy Flooring Adhesive Calculated VOC's according to California Rule #1168: Roppe 535U Part A: 1.3 grams per liter of coating. Roppe 535U Part B: 2.4 grams per liter of coating. ROP535U Part A & Part B Mixed Calculated VOC's: 1.21 grams per liter of coating.

6.4 Adhesive Application and Product Installation

6.4.1 Tuflex Flooring Square Edge Tile installation using Roppe 635 Solvent-Free Moisture-Cured Polyurethane Adhesive:

Read product limitations/precautions and installation literature before proceeding. Follow safety precautions on the adhesive label and Material Safety Data Sheet. If more than one box is being installed, ensure each have the same run number. Prior to applying adhesive, the installer must dry-lay the entire installation in order to examine the flooring and confirm product type and material conditions are satisfactory to all parties prior to adhesion. Inspect flooring from all pallets received. Mixing and turning tiles is required, which will result in a blended pattern appearance. Pattern ratios are stringently controlled but color uniformity is not guaranteed. Shading and other cosmetic variations are part of the unique character of the patented Tuflex vulcanization process. No cosmetic claims will be honored following adhering the flooring. Variations are inherent in all flooring products so blend, rotate, plan cuts and install variations with consideration for the overall design, use and traffic pattern of the facility. If the back of the flooring becomes soiled prior to installation, clean with a soft cloth dampened and denatured alcohol and allow to completely dry before installing. Carefully select the ideal layout to avoid seams in high traffic areas, while achieving an equal balanced in the room, and all side cuts should be equal in dimension. All tile seams must be approximately 6" away from any seams in the underlayment or substrate. The room must be precisely measured in order to square-off the



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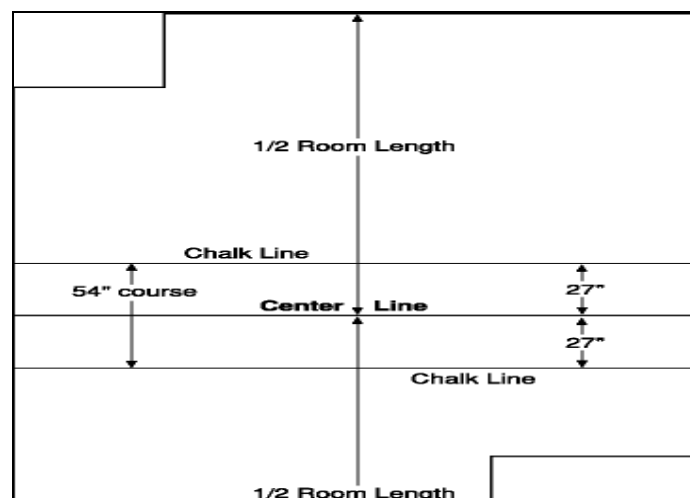
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area, to determine the center point. First establish the room's center and snap chalk lines across the width of the room 27" on each side of the center. These lines establish the 54" first course of two tile rows from which to proceed (see diagram below). Then pour the contents of the adhesive container onto the substrate and spread evenly, DO NOT puddle adhesive, using the required 1/16" x 1/16" x 1/16" square notch trowel for installations over smooth or non-porous substrates (approx. coverage: 90-100 sq/ft per gallon). For installations over rough or porous substrates, a 3/32" x 3/32" x 3/32" "U" notch trowel is required (approx. coverage: 75-80 sq/ft per gallon). Spreading large areas of adhesive in excess of 150 square feet could possibly allow the adhesive to cure or setup before the flooring is installed which would result in a bond failure. ROP635 must be allowed to "tack-up" approximately 15 minutes and the flooring must be rolled within 20 minutes after adhesive is applied and continuously rolled until the adhesive has dried completely. Use a hand roller in areas that cannot be reached with the larger roller. Tuflex Square Edge Tile must be fully adhered with ROP635 Adhesive. DO NOT allow the adhesive to dry or "skin-over" causing very little or no adhesive transfer to the backing of the flooring resulting in an installation failure. **Caution:** Open time and curing characteristics will vary upon the type of substrate, substrate temperature, ambient temperature, relative humidity, and proper conditioning of the adhesive. Allowing the adhesive to remain open too long will result in a bond failure. Install the first row of tiles starting at the rooms center line and install toward each wall. If necessary, under-cut tiles (see diagram below) being installed against each wall. Make wall cuts 1/8" larger than the space to be occupied and undercut the tile for a tight fit. Borders and other specialty cut tiles/flooring must be undercut or scribed to fit snugly, not tightly, against the wall, threshold, transition strip, fixtures, or other obstacles. Forcing incorrectly sized flooring into smaller areas will cause buckling of the flooring. DO NOT wait until all the main aisle flooring has been installed to begin laying the borders. Lay the border tiles/flooring within the adhesive open time. While installing, ensure proper tile alignment and proper adhesive (90%) transfer to the products backing. Fit tile tightly together. Alignment is to be checked continuously throughout the installation and corrected if needed. Border/Side cuts should not be less than 6" wide to ensure proper adhesive bonding.



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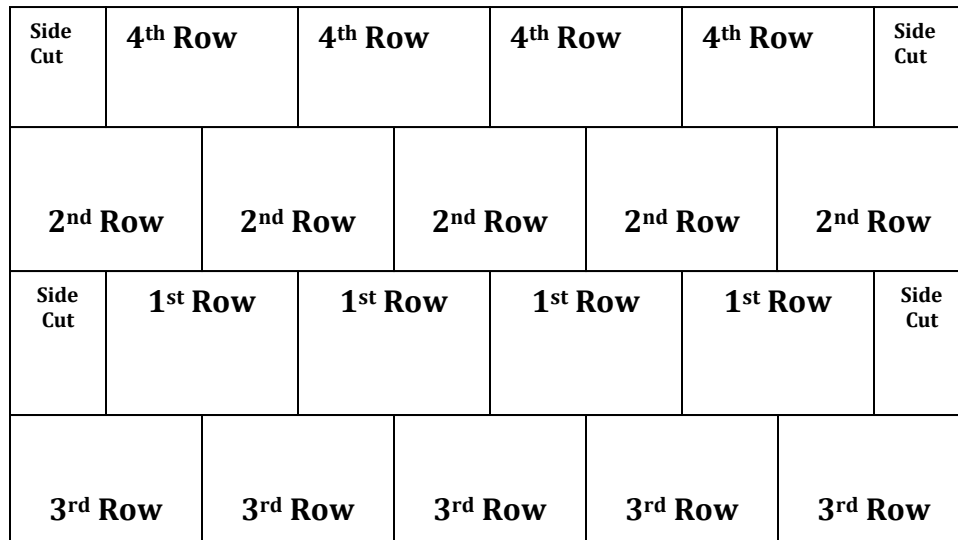


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The second row of tile must be installed in a “brick wall” (see diagram below) pattern. Stagger rows that tile corners DO NOT meet any one point on the first row installed. The third row of tile should be installed on the opposite side of the starting row. Be alternating sides from the starting row, maximum time is allowed for the adhesive to harden before being subjected to installer traffic. During the installation of the second, third and subsequent rows, it will be necessary to work on the newly installed tiles. Therefore take extreme caution not to move or shift the tiles and make sure all tile joints have been properly taped together (see taping instructions below) to prevent movement. If tiles have shifted/moved, re-adjust before adhesive has started its drying process. Tiles can not be re-adjusted once adhesive has dried. Allow enough material for doorways, closets and alcoves etc. Allow an extra 3” for trimming or more if necessary for walls that are not square. **Caution:** All seams must be fitted tightly together and held immediately with Painter’s Tape for a minimum of 24 after the installation has been completed while the adhesive cures. Banked Turns, such as indoor running tracks, must be weighted with sandbags with ample weight to conform the tiles to the subfloor configuration immediately after rolling. Notice: The primary cause of seam gapping and thickness discrepancy is a failure to properly tape the seams, roll the floor and restrict traffic until the adhesive has fully cured. Apply Painter’s Tape immediately after installing each row of tile, and check to ensure tile is fitted tightly together. DO NOT wait until the installation has been completed or additional rows of tile have been installed before applying the recommend tape. DO NOT use duck tape or other tapes with tacky residues that will be either difficult or impossible to remove.

Square Tile “Brick Wall” Design



- Diagrams are not to scale.



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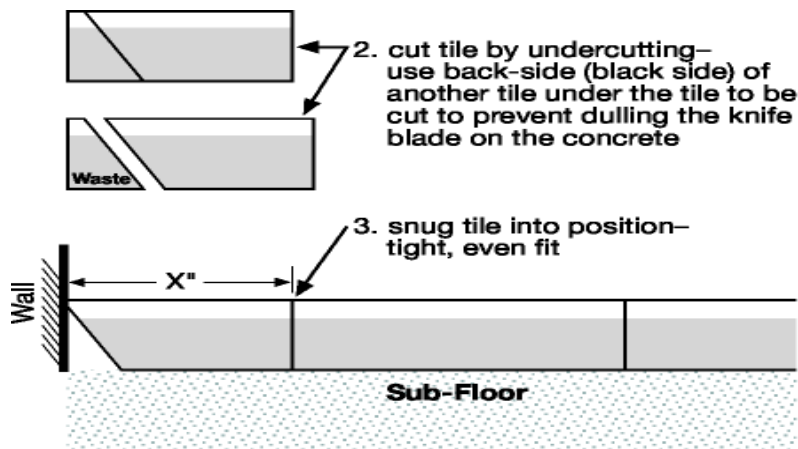
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Side Cuts



Caution: When laying the flooring, use a kneeling board, or for best results, work off the flooring whenever possible to avoid shifting of the flooring and to also not track adhesive onto the surface of the flooring. If the adhesive is bleeding or oozing at the seams, either too much adhesive has been applied, or the adhesive is too “wet”. Immediately remove excessive wet adhesive with a soft, clean cloth dampened with mineral spirits. Always install the flooring gently into the adhesive to avoid trapping air and preventing bubbles beneath the flooring. **Caution:** If the adhesive is allowed to dry on the face of the flooring, tools etc, it can not be removed. Periodically, lift the flooring to check for proper adhesive transfer. There should be at least a 90% coverage of adhesive on the back of the flooring. Observe the adhesive to assure that the adhesive has not surpassed the open time and has not begun to cure. After the required tape has been applied to each tile’s seam, roll and cross roll each section of flooring laid with a 100-pound (45 kgs) 3-section roller within 20 minutes after the adhesive has been applied and continue rolling until adhesive has dried. The rolling time may need to be adjusted to climatic conditions. Use a hand roller in areas that cannot be reached with the larger roller. Conduct a visual inspection during the rolling process to assure there has been no shifting of the flooring and that there is no adhesive on the surface of the flooring. DO NOT wait until the entire installation is completed before rolling as the adhesive may have surpassed the open time and be completely cured. There is to be no foot traffic on the floor or cleaning for at least 24 hours and no rolling loads for 72 hours.

6.4.2. Tuflex Flooring Square Edge Tile installation using ROP535U Universal Urethane Enhanced Epoxy Adhesive: Follow installation instructions, material inspection, cautions and warnings etc. noted in Section 6.4.1. ROP535U Mixing and Application Instructions: Remove the lids and add all of Part B into Part A. Mix the combined parts by hand with the furnished paddle using a rotary motion while at the same time lifting from the bottom. DO NOT mix partial units of this adhesive! ROP535U Adhesive is packaged in two separate containers marked Part A (polyurethane epoxy resin) and Part B (polyamide resin, hardener). Mix adhesive by hand or use



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a slow speed less than 300 RPM maximum, drill with an attached mixing paddle. Mix 3-5 minutes. After mixing, the adhesive must be one consistent solid color. Caution: Higher mixing speeds and/or longer mixing time will reduce the open time/working time and can cause premature curing of the adhesive. Adhesive will not cure if not properly mixed. DO NOT allow the mixed epoxy adhesive to remain in the container. Immediately after mixing, pour the contents onto the porous substrate and immediately spread the adhesive evenly over smooth substrates or non-porous substrate using a 1/32" x 1/16" x 1/32" flat "U" notch trowel. For installation over rough or porous substrates, apply adhesive with a 1/16" x 1/16" x 1/16" square notch trowel. Install tile and Roll and cross roll each section of tile laid with a 100-pound 3-section roller within 15 minutes after the tile section has been installed. Cross-roll a second time about 30 minutes after the initial rolling. Use a hand roller in areas that cannot be reached with the larger roller. If necessary, roll and cross roll again. Periodically, lift the flooring material to check for proper adhesive transfer. There should be at least 90% coverage of adhesive on the back of the flooring material.

For installations within six-feet of ice skating rinks, ROP535U Two-Part Urethane Enhanced Epoxy Adhesive must be used. The subfloor temperature range when using ROP535U must be no less than 40°F (5°C).

6.4.3 Ice Rink Expansion Joints Installation: The ice rink slab holding the refrigeration coils is invariably isolated from adjoining slabs with a 3" wide expansion void that must be allowed to absorb the expansion/contraction occurring when the ice is off/on. This void can not be filled with adhesive! Arrange full 27" squares of Tuflex so that they are centered over and span the void. Apply adhesive to the area 12" from each edge of the void and install while the ice is turned "off" (i.e.: warm slab). The contraction of the slab that occurs when the ice is "on" will be absorbed. Thin sheet metal, 3" wide should be loosely installed beneath the Tuflex square and directly over the void. If the expansion void is other than the customary 3" width, center the Tuflex square over the void, then apply adhesive on the subfloor up to, but not including, the void itself. During contraction of the slab, the Tuflex will stretch, developing small openings between the square spanning the void. An alternative method is to install Tuflex normally and then cut through the tiles directly over the void. When the slab contracts, the Tuflex will ride the slab and an opening will appear equal to the amount of contraction. There is to be no foot traffic on the floor or cleaning for at least 24 hours and no rolling loads for 72 hours. **Caution:** The flooring, including Feature Strips (if applicable) must be properly cleaned using Tuflex TC-1, & then sealed (see maintenance instructions below) using Tuflex TA-2 Finish before the flooring is released for normal use. **Caution:** All seams must be fitted tightly together and held immediately with Painter's Tape for a minimum of 24 after the installation has been completed while the adhesive cures. Banked Turns, such as indoor running tracks, must be weighted with sandbags with ample weight to conform the tiles to the subfloor configuration immediately after rolling. Notice: The primary cause of seam gapping and thickness discrepancy is a failure to properly tape the seams, roll the floor and restrict traffic until the adhesive has fully cured. Apply Painter's Tape immediately after installing each row of tile, and check to ensure tile is fitted tightly together. DO NOT wait until the installation has been completed or additional rows of tile have been installed before applying the recommend tape. DO NOT use duck tape or other tapes with tacky residues that will be either difficult or impossible to remove.



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6.4.4 Feature Strip Installations: Follow installation instructions, material inspection, cautions and warnings etc. noted in Section 6.4.1. Feature Strips are to be installed, use same installation instructions noted above regarding trowel size, taping and rolling. Feature strips are available in 3/8" gauge, 3", 6" & 9" widths and 27" lengths. The installation lay-out will need to be adjusted to accommodate the width of the feature strip being installed. Feature strips are to be installed around the perimeter of each tile. Depending on the layout of the job, first install tile, then feature strip. Then install the next tile and feature strip and continue thru-out the installation. **Caution:** All seams must be fitted tightly together and held immediately with Painter's Tape for a minimum of 24 after the installation has been completed while the adhesive cures. Banked Turns, such as indoor running tracks, must be weighted with sandbags with ample weight to conform the tiles to the subfloor configuration immediately after rolling. Notice: The primary cause of seam gapping and thickness discrepancy is a failure to properly tape the seams, roll the floor and restrict traffic until the adhesive has fully cured. Apply Painter's Tape immediately after installing each row of tile, and check to ensure tile is fitted tightly together. DO NOT wait until the installation has been completed or additional rows of tile have been installed before applying the recommend tape. DO NOT use duck tape or other tapes with tacky residues that will be either difficult or impossible to remove. Protect flooring against mars, marks, indentations and other damage.

6.4.5 Tuflex Interlocking Tile Installation (Wall to Wall Installation): Read product limitations/precautions and installation literature before proceeding. Tuflex Interlocking Tile can be installed both interior and exterior, however all tile installed exterior must be completely adhered with ROP635 over either concrete or highway grade asphalt. If more than one box is being installed, ensure each have the same run number. Prior to installation, the installer must dry-lay the entire installation in order to examine the flooring and confirm product type and material conditions are satisfactory to all parties prior to installing. Inspect flooring from all pallets received. Mixing and turning tiles is required, which will result in a blended pattern appearance. Pattern ratios are stringently controlled but color uniformity is not guaranteed. Shading and other cosmetic variations are part of the unique character of the patented Tuflex vulcanization process. No cosmetic claims will be honored following adhering the flooring. Variations are inherent in all flooring products so blend, rotate, plan cuts and install variations with consideration for the overall design, use and traffic pattern of the facility. Before installing the tile, carefully select the ideal layout to avoid seams in high traffic areas, while achieving an equal balanced in the room, and all side cuts should be equal in dimension. All tile seams must be approximately 6" away from any seams in the underlayment or substrate. It is extremely important the tile is balanced in the room to enhance the appearance of the installation, and all bordering tile should be equal in dimension verifying the layout is correct. The room must be precisely measured in order to square-off the area to determine the center point. First, measure area where tile is to be installed to determine the best starting position in the room. Then use a chalk line to mark two lines that intersect these positions at right angles, creating four (4) quadrants. Start the installation at the center point of the room where the two (length & width) lines intersect, installing from left to right. Fill-in tile along right wall, if necessary, using a straight edge and razor knife. The tile should be under-cut to the wall (see diagram above) however DO NOT force tile into place to prevent buckling. Alignment is to be checked continuously



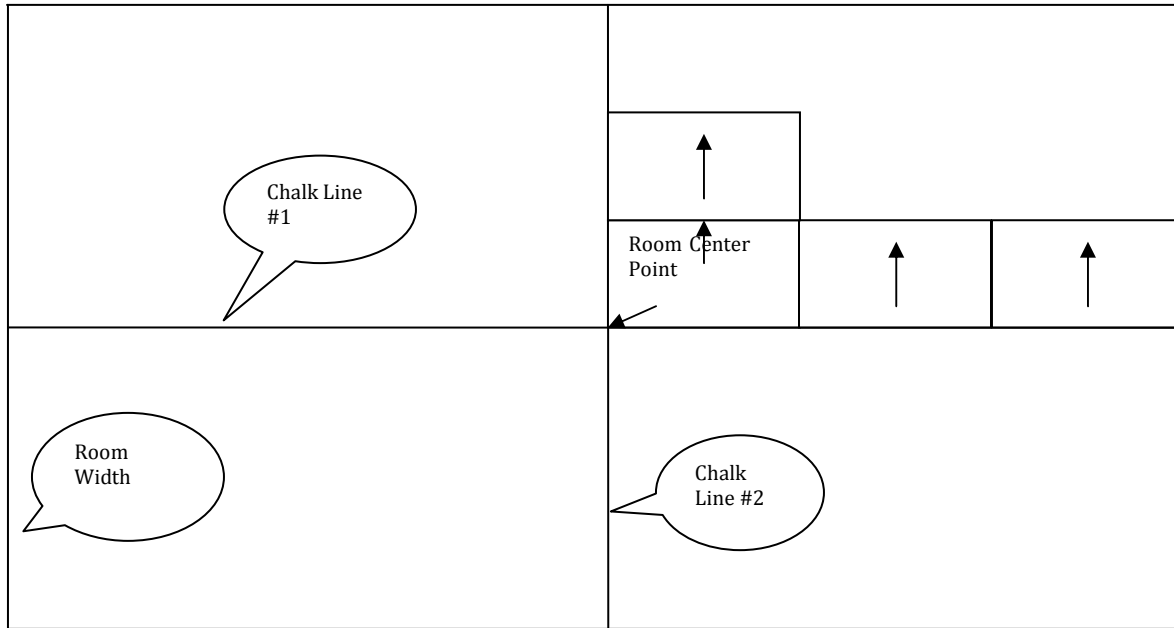
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throughout the installation and corrected if needed. To finish off doorways, use a straight edge and razor knife and remove the interlocking tabs.



6.4.6 Interlocking Tile – Mat Lay-Out Installation: For a Mat Lay-Out installation, install interlocking tiles to the length and width desired. In order to achieve a finished look, the interlocking tile tabs around the perimeter/side of the area installed can be removed by using a straight edge and razor knife.

