Flooring Products

Material Handling & Subfloor Preparation

Please refer to the TOLI-NA website www.toli-na.com for the most current guidance about product application charts, material handling, subfloor preparation and testing, product installation and maintenance recommendations. **Failure to follow these instructions may result in installation related problems.**

Material Handling and Storage

- Immediately remove shrink wrap and check for proper quantity and color and any visible damage.
- Note damage on bill of lading when signing for delivery. Visible damage not reported on bill of lading to trucking company is your responsibility.
- Report discrepancies immediately (before installation) to TOLI-NA Sales Support at (910) 999-TOLI (8654).
- Handle materials with care to prevent damage. DO NOT DOUBLE STACK PALLETS.
- Store all flooring products and accessories in a dry interior area maintained between 50ºF-85ºF (10ºC-29ºC). Avoid temperature extremes.
- Store cartons of tile or plank flooring flat and squarely on top of one another. Do not lie on edge.
- Store resilient sheet flooring rolls standing up, with capped end down. This prevents distortion and compression. DO NOT LEAVE ROLLS ON SHIPPING PALLETS.

Job Site Conditions and Testing

- The building envelope must be enclosed (walls, roofing, windows, doorway, etc., installed) with operational HVAC for a minimum of 1 week and preferably 2-3 weeks. This is critical to remove excess moisture from the subfloor and to stabilize the interior environment.
- All substrates to receive resilient flooring shall be permanently dry, clean, smooth, and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or latience, mold, mildew, and other foreign materials that might prevent adhesive bond (ASTM F710).
- The surface must be smooth and flat to 3/16” in 10 ft (3.9 mm in 3 m) and 1/32” in 1 ft (1 mm in 300 cm). Bring high spots level and fill low spots. Fill and smooth surface cracks, grooves, depressions, stationary control joints or other non-moving joints, and other irregularities or roughness. Use high quality Portland cement based patching and leveling compounds with a minimum 3,000 psi cured compressive strength. The underlayment shall be moisture, mold, mildew and alkali resistant. Do not use plaster or Gypsum patch for repairing flooring substrates.
- Allow other finishing trades, especially the overhead trades, to complete their work before beginning the installation. During spackling, painting or pipe cutting, cover the substrate to prevent contamination. Spackling, paint, paint thinner or machine oil can cause bond failure or product discoloration.
- Close working spaces to traffic for 12 hours before installation and as specified after installation. This will minimize the chance of damaging the new floor.
- Provide good lighting for proper subfloor preparation and installation.
- Sand the surface after patching and smoothing the substrate. Vacuum the surface and the perimeter to pick up all dust and debris from prep work. In addition, damp mop to remove all dust.
- Once the underlayment is thoroughly dry, smooth and clean, proceed with the flooring installation.

Acclimation

- Acclimate flooring, adhesive and substrate in the area to be installed to a stable condition between 65°F-85°F (18°C-29°C) and 20%-65% RH for a minimum of 48 hours before, during and after installation. Afterwards, maintain a minimum temperature of 50°F (10°C) for the life of the floor.

Substrate Preparation

Wood Substrates

- Wood floors should be double layer construction, minimum one-inch total thickness, with at least 18 inches of well-ventilated air space beneath.
- Insulate all crawl spaces and protect with a vapor retarder (6 mil poly covering). Effective moisture control in basements and crawlspaces is essential for achieving a successful long term installation.
- Do not install over 'sleeper' floors or plywood floors that have been installed directly over a concrete slab.
- The top layer of a wood substrate must be uderlayment grade for resilient flooring and be completely free of knots or other voids in its surface.
- Unacceptable surfaces include, but are not limited to, Luan, plywood with knots, underlayments made of pine or other soft woods, particle board, hardboard underlayment, hardwood flooring, textured or cushioned flooring, or other uneven or unstable substrates.
- Wood subfloors and underlayment panels shall have the moisture content tested using a suitable wood pin meter. Readings between the wood subfloor and underlayment panels should be within 2% and have a maximum moisture content of 14% or less.
- Cover unacceptable surfaces using a 1/4" or thicker underlayment panel such as MULTI-PLY® or TECHPLY® that is designed for the intended use.
- All underlayment panels shall be prepared and installed in accordance with the manufacturer's current instructions and ASTM F1482 'Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring'. Follow the written instructions for proper underlayment panel spacing, nailing schedule and seam treatment.
- After installing the underlayment panels, sand any uneven panel edges and where any patching was done to provide a smooth substrate. Vacuum the surface and the perimeter to pick up all dust and debris from any prep work. In addition, damp mop to remove all dust.
- Once the underlayment is thoroughly dry, smooth and clean, proceed with the flooring installation.

Concrete Substrates

- Concrete Slab Construction: New and existing concrete slabs must meet the applicable requirements of the current ACI 302.1 'Guide for Concrete Floor and Slab Construction', ACI 302.2 'Guide for Concrete Slabs that Receive Moisture Sensitive Flooring Materials' and ASTM F710 'Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring'.
- The appendix of ASTM F710 contains guidelines regarding concrete slab construction, and specific information regarding lightweight concrete, water-cement ratio, curing procedures, alkalinity, moisture retarders, flatness and levelness, and additional reference documents.

CAUTION: Determining suitability and product warranty coverage for all substrate preparation materials is the responsibility of that product's manufacturer.

- To ensure a successful installation, concrete substrates must be structurally sound to receive resilient flooring material and must meet these minimum requirements:
  - A minimum compressive strength of 3,000 psi
  - A concrete mix water/cement RATIO of 0.5 or less
  - A minimum density of 115 lb. /cubic foot
  - A maximum slump of 4 inches
  - Concrete floors to receive resilient flooring shall be free of sealers, coatings, finishes, dirt, curing compounds and other substances which may affect the adhesion of resilient flooring to the concrete. (ACI 302.1) Non-chemical methods for removal, such as abrasive cleaning or bead blasting may be used on existing slabs and shall take place 48 hours before testing.
  - Concrete on or below grade must have a low perm vapor retarder installed directly beneath the slab.
  - Lightweight concrete (less than 115 lb./ cubic foot) may not be a suitable substrate for TOLI floors.

ASTM F710 states: Lightweight concrete, less than 115 lb./cubic foot, may have such low strength that it is unsuitable for covering with resilient flooring unless 1 inch of standard weight concrete (generally 140 lb./cubic foot) is used as a topping. In addition, floors containing lightweight aggregate or excess water, and those that are allowed to dry from only one side, such as concrete on metal deck construction, may need a much longer drying time.

WARNING: Exceptionally porous, soft, or dusty concrete surfaces may have such low strength that they are not suitable for installation of resilient floor coverings. It may be necessary to mechanically remove the top layer of concrete in such cases. Such surfaces may need to be primed and covered with a latex patching or underlayment compound. Consult with a manufacturer of patching or underlayment compounds or someone with expertise in concrete problems. Expansion, isolation or other moving joints in concrete shall not be filled with patching compound or covered with resilient flooring. Use an expansion joint covering system. Refer to one of the following expansion joint cover manufacturers for additional assistance:

Manufacturer	Website Address	Telephone	Manufacturer	Website Address	Telephone
Balco USA	www.balcousa.com	800-767-0082	**InPro Corp**	www.inprocorp.com	800-437-2698
C-S Group	www.c-sgroup.com	570-546-5941	**Nystrom**	www.nystrom.com	800-547-2635

Radiant heated floors: All TOLI flooring products may be installed over radiant heated subfloors as long as the maximum surface temperature does not exceed 85º F (29 º C) under any condition of use.

Concrete Moisture and pH Testing

Refer to the TOLI Accessories Reference Table, the Adhesive Label or Installation Guide for appropriate Concrete Moisture and pH limits. TOLI recognizes ASTM F2170 'Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes' as the proper method to determine if a concrete slab has an acceptable moisture content. The ASTM F2170 RH test method allows the owner, General Contractor and Flooring Contractor to determine the in-situ Relative Humidity level and monitor the rate of drying that the concrete is experiencing at the specified depth in the slab. The specified depth correlates to the equilibrium moisture content of the slab after the finish floor covering is installed. After the probe sleeves are installed, they can be continuously used, even allowing remote monitoring of the slab's drying. Conduct all moisture testing in accordance with ASTM F2170, paying close attention to these procedures:

- Maintain stable environmental conditions between 65°F-85°F (18°C - 29°C) and 50% +/- 10% RH for a minimum of 48 hours before and during testing (ASTM F710).
- Perform three tests for the first 1000 ft^2 (100 m^2) and at least one additional test for each additional 1000 ft^2 (100 m^2).
- Select test locations to provide information about moisture distribution across the entire concrete floor slab especially areas of potential high moisture. For slabs on-grade and below grade, include a test location within 1 m (3 ft) of each exterior wall.
- Determine the appropriate depth for probe holes:

Drying Conditions	Drill-to Depth from Top of Slab
Slab drying from top only	40%
Slab drying from top and bottom	20%

TOLI recognizes the in-situ Relative Humidity results from Wagner, Delmhorst or Lignomat testing equipment.

pH Testing – Concrete floors shall be tested for alkalinity prior to the installation of resilient flooring. To test for pH at the surface of a concrete slab, use wide range pH paper, its associated pH chart, and distilled or deionized water.

Test results need to be documented by the person conducting the testing and submitted to the general contractor/ architect/building owner at the time of testing. This is important, as moisture and/or excess pH conditions that occur after the floor covering installation are not the responsibility of the installer nor TOLI.

Other Substrates

- Epoxy terrazzo, rubber, cork, and asphalt tiles are **not** acceptable substrates. To successfully install TOLI products, remove existing flooring or cover with an approved underlayment.
- Cement terrazzo and properly cleaned metal may be suitable for TOLI products. Check with the patching/leveling compound manufacturer for guidelines on preparing these substrates.
- Thick pour gypsum underlayments may be suitable for TOLI products if the gypsum underlayment product and its installation meet the requirements of ASTM F2419 'Standard Practice for Installation of Thick Pour Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient flooring'.

Installing Over Existing Resilient Floor Coverings

- To assure a smooth, flat, indentation-resistant floor, CBC TOLI products should be installed directly over a clean, properly prepared concrete substrate. However, in some cases it may be preferable to leave the existing resilient floor covering in place and go directly over the top (single layer of VCT only) with the new floor.
- The performance and indentation resistance of the finished floor is directly dependent on the condition, performance and continued bond of the existing resilient flooring. Any irregularities in the existing flooring (such as bumps, depressions or tile joints) will show through, or telegraph, to the new floor. This is especially true for resilient sheet flooring installations. It may be preferable to remove existing floors that are not sufficiently smooth.

Guidelines for Installation Over Existing Resilient Floor Covering

TOLI products can be successfully installed over most clean, dry, securely bonded, properly prepared, non-cushioned single-layer resilient flooring. Do not install over more than one layer. Do not install over an existing resilient floor where the finished floor (especially a resilient sheet floor) will be subjected to heavy rolling loads or static loads such as hospital beds, heavy furniture or fixtures.

- TOLI products need to be installed over a smooth substrate. Smooth the existing floor using a Portland-based patching or underlayment compound (embossing leveler) to fill in any depressions or imperfections in the existing floor. Use high quality Portland cement based patching and leveling compounds with a minimum 3,000 psi cured compressive strength. The underlayment shall be moisture, mold, mildew and alkali resistant. Do not use plaster or Gypsum patch for repairing flooring substrates.
- Obtain patching or underlayment compound manufacturer's written warranty and recommendations to be sure that the compound is recommended for the intended application (some products are not recommended for commercial use or as an embossing leveler).
- Follow the instructions for proper mixing, especially the correct ratio of powder to liquid and the proper drying time.
- Unless the instructions state otherwise, let dry completely, not just 'dry to touch'. Do not force dry with heat guns or fans.
- After compound is dry, sand and/or scrape smooth all uneven spots or trowel ridges.
- Sweep or vacuum the surface to pick up all dust and debris from sanding or scraping. In addition, damp mop to remove all dust.
- Once the underlayment is thoroughly dry, smooth and clean, proceed with the installation of the flooring.
- All acrylic adhesives will take longer to set up when spread over an existing floor.

Removal of Existing Resilient Floor Coverings

If you decide to remove an existing floor, please be aware that many existing floors and/or adhesives may contain asbestos fibers. Asbestos cannot be easily identified except by laboratory testing. Improper removal of asbestos containing materials (including, but not limited to, vinyl asbestos tile, asphalt tile, felt backed sheet goods, asphalt 'cutback' adhesives and other flooring materials) can create asbestos dust, a known health hazard.

WARNING! Do not sand, dry sweep, dry scrape, drill, saw, bead blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic 'cutback' adhesive, or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. Recommended Work Practices for Removal of Resilient Floor Coverings are a defined set of instructions addressed to the task of removing all resilient floor-covering structures.

NOTE: Various federal, state and local government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains, or is presumed to contain asbestos, you must review and comply with all applicable regulations.

Installing Over Adhesive Residue

- Do not install resilient flooring directly over residual adhesive or paint.
- Do not 'skim coat' directly over thick old adhesive without at minimum scraping off old trowel notch ridges.
- Where existing solvent based or asphalt (black) adhesive, carpet, VCT or other adhesive is present, scrape or mechanically remove the excess adhesive residue from the floor so that all that remains is a thin transparent layer (less than 5%).
- Cover adhesive residue with proper cutback and adhesive encapsulator. Follow manufacturer's recommendations. Performing a bond test is mandatory before general application.

CAUTION: The use of asbestos encapsulants or bridging materials over asphaltic adhesive is not recommended, as those products may affect the bonding properties of the new adhesive.

- Adhesive Removers - There are commercial adhesive removal products containing solvents that are effective in removing cutback or emulsion adhesives and comply with OSHA requirements. These products may be used for adhesive removal, however they may leave a solvent residue within the subfloor that can adversely affect the new adhesive or floor covering. Thus, TOLI warranties will not cover instances where subfloor conditions damage their products or affect the installation.
- Concrete substrates contaminated by adhesive removal products must be properly cleaned to remove all residue or sealed to encapsulate the contamination.

WARNING: Should chemical or bio-based adhesive removers be used, any associated damage including, but not limited to adhesive failure, indentation, bubbling, delaminating, etc. is the responsibility of the company specifying the adhesive remover.

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