ArmstrongFlooring®

# COMMERCIAL TILE INSTALLATION INSTRUCTIONS

***Excelon® SDT™ Static Dissipative Tile***

## INSTALLATION:

Armstrong Flooring S-202 Static Dissipative Tile (SDT) Adhesive,
**Use Only S-392 Static Dissipative Tile Polish on SDT.**

## SUBSTRATES:

Concrete; Approved Suspended Wood; Steel, Stainless Steel, Aluminum; Ceramic Tile, Terrazzo, Marble; Polymeric Poured (Seamless Floors) – when properly prepared with a Portland cement based patch.

**NOTE:** SDT can only be installed over porous substrates. Substrates with existing adhesive residue, and non-porous substrates including metal, require additional preparation. See Job Conditions/Preparation section below.

**⚠ CAUTION**

The S-202 Adhesive contains a small amount of quaternary ammonium compound. For some people, this material may irritate both skin and eyes. Avoid direct contact with the adhesive if at all possible. The adhesive is water based. Wash hands thoroughly with soap and water after handling either the tile or the adhesive.

## ACCEPTABLE SUBFLOORS & UNDERLAYMENTS:

### Wood

Flooring can be installed on suspended wood, OSB, or a treated plywood subfloor with a 1/4" underlayment and a minimum of 18" of well-ventilated air space below. Armstrong Flooring does not recommend installing resilient flooring on wood subfloors applied directly over concrete or on sleeper-construction subfloors over, on, or below grade concrete. Subfloors must meet local and national building codes. Trade associations, such as the APA - The Engineered Wood Association, offer structural guidelines for meeting various code requirements. Refer to ASTM F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to receive Resilient Flooring for additional information.

Wood strip, board, or plank subfloors must meet structural requirements. If the top layer is tongue-and- groove and the strip wood is 3" or less in face width, cover with 1/4" or thicker underlayment panels. All other layers should be covered with 1/2" or thicker underlayment panels.

Subject to the board manufacturer's recommendations and warranties, the following underlayments may be used with Armstrong Flooring:

- Plywood rated as suitable underlayment for resilient floor coverings
- Poplar or Birch Plywood with a fully sanded face and exterior glue
- Luan Plywood, Type 1 (Exterior)
- Fiber Reinforced Gypsum Underlayment, Fiber Cement Board & Cementitious Backerboard rated as suitable underlayment for resilient floor coverings

AHF Products does not recommend OSB or Treated Plywood (unless covered with a 1/4" of APA plywood underlayment), Particleboard or Hardboard.

### Underlayments for resilient floors must:

- be structurally sound
- be designed for resilient flooring underlayment purposes
- be a minimum of 1/4" thick
- have panels smooth enough so that texture or graining will not show through
- resist dents and punctures from concentrated loads
- be free of any substance that may stain vinyl such as edge patching compounds, marking inks, paints, solvents, adhesives, asphalt, dye, etc.
- be installed in strict accordance with the board manufacturer's recommendations

For approved underlayments, Armstrong Flooring suggests the panels be lightly butted and not filled or flashed, unless the manufacturer specifically recommends filling the joints. Differences in the thickness of wood panels should be corrected by sanding. Allow the panels to condition to the job site per manufacturer's recommendations.

### Concrete

New and existing concrete subfloors must meet the requirements of the current edition of ASTM F710, "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring". Regardless of the type of concrete or other cement-like material used as a base for resilient flooring, in the event of underlayment failure, the responsibility for warranties and/or performance guarantees rests with the concrete or cement- like material manufacturer and not with the manufacturer of resilient flooring.

### Below-Grade & On-Grade Concrete Floors

1. The 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 3000 psi, and following the recommendations of ACI Standard 302.1R for Class 2 or Class 4 floors and the Portland Cement Association's recommendations for slabs on ground.
2. The concrete slab must be dry, clean, smooth, structurally sound, and free of foreign materials that might prevent adhesive bond as described in the current edition of ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
3. The concrete slab must be protected from ground moisture with an effective and intact vapor retarder that conforms to the requirements of the current edition of ASTM E1745, "Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs."
4. The concrete slab must be placed directly on the vapor retarder.
5. The concrete must be wet cured with a moisture-retaining curing cover. Do not use spray-on curing compounds because these reduce the drying rate of concrete and can interfere with the adhesive bond.
6. Before installing the finished flooring, moisture, alkali and bond testing must be conducted.
7. Moisture testing must be performed in accordance with the current edition of ASTM F2170 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes" (preferred method) or in accordance with the current edition of ASTM F1869, "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride." See the section on Moisture Testing for more details.
8. Unless otherwise indicated in the adhesive specifications, the surface of the concrete must have a pH of 9 or less when tested according to the method described in the current edition of ASTM F710.
9. Bond testing must be performed to determine compatibility of the adhesives to the concrete slab.
10. After the concrete has cured and is dry, clean construction joints, saw cuts, score marks and cracks, and fill with an underlayment. Use high quality Portland Cement, calcium aluminates, or gypsum-based products. The floor fill, topping or underlayment must also have a minimum compressive strength of 3500 psi. When using these products, be sure to follow the manufacturer's recommendations regarding application, drying time, and moisture testing. S-463 Level Strong and S-466 Patch Strong meet or exceed this requirement as underlayments.

11. Repaired areas must be finished flush with the surface of the concrete and allowed to fully dry before the installation of the floor covering.

12. Actual expansion joints or other moving joints with elastomeric fillers are designed to absorb movement in concrete slabs. Cementitious underlayments, patches and resilient flooring installed across expansion joints often crack or buckle when the slabs move. Armstrong Flooring does not recommend flooring products be installed across expansion or isolation joints. Expansion joint covers are available for use with various floor coverings and should be specified by the architect.

NOTE: Any area isolated from the primary grounding point or points by expansion joints, utility troughs or other obstacles need to be independently grounded.

13. Dusty concrete slabs may be primed with one coat of latex floor primer. Sweep or vacuum the concrete and apply the primer with the recommended applicator.

14. After sweeping/vacuuming, apply the adhesive using a smooth-edge trowel.

15. A rough concrete floor can be ground smooth with a commercial diamond or carbide-equipped grinding machine. If the concrete subfloor is extremely rough or uneven, it may be too great a job to smooth this way. In this case, apply a cementitious underlayment such as S-463 or S-466. A smooth, flat, uniform surface is necessary as a good base for resilient flooring.

### Above-Grade Concrete Floors

Above-grade concrete is usually protected from most sources of moisture except the moisture initially in the mix and water vapor in the atmosphere. As with concrete placed on and below grade, above-grade concrete must be kept damp during the curing process to permit hydration to occur. Concrete poured on a metal deck is often produced with lightweight aggregate that can retain excess water longer than normal-weight aggregate. Because drying is only possible from the top surface, such construction usually takes additional drying time. Floors on metal decks or above-grade structural concrete floors must be dried and must meet the same requirements as described in the section above for slabs on and below grade. Follow steps 7-15 above.

### Polymeric Poured Floors, Metal, Ceramic Tile, Quarry Tile, Terrazzo & Marble

Must be properly prepared with a minimum of a 1/4" of Portland cement to create a porous substrate.

## JOB CONDITIONS/PREPARATION

- Resilient flooring should only be installed in temperature-controlled environments. It is necessary to maintain a constant temperature before, during and after the installation. Therefore, the permanent or temporary HVAC system must be in operation before the installation of resilient flooring. Portable heaters are not recommended, as they may not heat the room and subfloor sufficiently. Kerosene heaters should never be used.
- Substrates must be dry, clean, smooth and free from paint, varnish, existing adhesive residue, wax, concrete curing agents, sealers and hardeners.
- In renovation or remodel work, remove any existing adhesive residue so that 80% of the overall area of the original substrate is exposed. Subfloor must be porous when installing SDT.
- SDT is not recommended over existing resilient floors. The surface of ceramic, terrazzo, marble, polymeric poured (seamless) floor or metal would need to be roughened and then a portland cement type underlayment applied at least 1/4" (6.4 mm) thick.
- Do not install SDT in areas subject to excessive surface water or frequent spills.
- Allow all flooring materials and adhesives to condition to the room temperature for a minimum of 48 hours before starting the installation.
- The area to receive the resilient flooring should be maintained at a minimum of 65° F (18° C) and a maximum of 85° F (38° C) for 48 hours before, during and for 48 hours after completion. Ambient relative humidity should be maintained between 35-55% before, during and after the installation is complete.
- Inconsistent environmental conditions can affect overall ESD performance.
- During the service life of the floor, the temperature should never rise above 100° F (38° C) nor fall below 55° F (13° C). The performance of the flooring material and adhesives can be adversely affected outside this temperature range. Ambient relative humidity should be maintained between 35-55% before, during and after the installation is complete.
- For concrete substrates, conduct moisture testing per ASTM F 2170 Standard test method for Determining Relative Humidity in Concrete Floor Slabs using in-situ probes. Concrete subfloors should not exceed 90% relative humidity when installing SDT. Bond tests must also be conducted for compatibility with the substrate.
- Radiant-heated substrates must not exceed a maximum surface temperature of 85° F (29° C).
- Concrete floors should be tested for alkalinity. The allowable readings for the installation of Armstrong Flooring should not exceed 12 on the pH scale.

| Adhesive | % Internal Relative Humidity (RH) | MVER: lbs. per 1000 ft²/ 24 Hours | pH | Open Time |
|---|---|---|---|---|
| S-202 | 90% | 3 | 12 | Until dry to touch: 60 minutes or more depending on site conditions |

| Working Time | Trowel | Traffic Post-Installation |
|---|---|---|
| 6 Hours | Fine Notch (1/32 in. deep, 1-16 in. wide, 5/64 in. apart), U-Notch | Light foot traffic: 24 Hours<br>Heavy traffic & rolling loads: 72 Hours |

NOTE: Adhesive should be dry-to-touch before installing tile. The amount of open time will vary according to job conditions, temperature, humidity, air flow and type of substrate.

**Important!**
Copper (Allow 110) grounding strips supplied with adhesive. A see-through, self-adhering envelope is taped to the top of the lid of the pail.

4 gallon pails contain 2 each copper grounding strips, 2 in. wide x 12 ft. long. The thickness is .003 in.

1 gallon pails will contain 1 copper strip 2 in. wide x 6 ft. long with a thickness of .003 in.

## FITTING

- Before installing the material, plan the layout so tile joints fall at least 6" (15.24 cm) away from subfloor/underlayment joints. Do not install over expansion joints.
- Avoid having border pieces less than 6" (15.24 cm) wide.

## PROCEDURE

When using tile from two or more cartons, check to be sure all pattern and lot numbers are the same to ensure proper color match. On larger installations, open several cartons and mix them as they are installed to help blend any slight shade differences from one carton to the next.

1. Line off the entire area to be installed.

2. Apply the S-202 Adhesive over the area, being careful not to cover the chalk lines. Allow the adhesive to set until dry-to-touch (approximately 60 minutes, depending on atmospheric conditions). To test, press your thumb lightly on the surface of the adhesive in several places. If the surface feels slightly tacky as your thumb is drawn away and does not stick to your thumb, the adhesive is ready for the installation.

3. Cut copper strips (0.003" thick), which are supplied with the S-202 Adhesive, into 2' strips. Generally, 1 grounding strip (2' length) is recommended for every 1000 sq. ft. of SDT installed over on-grade concrete. For suspended subfloors, one grounding strip is recommended for every 500 sq. ft. of tile. Additional strips may be requested by the end-user. The installer should receive some guidance from the general contractor or end-user as to the desired location of the copper strips to make subsequent grounding more convenient.
4. Install the tile along the chalk lines, laying the field area first and then fitting in the border tile.
5. In the copper grounding strip locations, place 18" (45.7 cm) of the copper grounding strip over the dry-to-touch S-202 Adhesive on the subfloor. The remaining 6" (15.24 cm) of the strip should continue up the wall. Apply additional S-202 Adhesive over the 18" (45.7 cm) section of the copper grounding strip on the floor. Allow this adhesive to dry-to-touch and install the tile over the strip.
6. Roll in both directions within the adhesive's 6-hour working time using a 100-lb. roller. Clean adhesive residue from the surface of the flooring using a clean, white cloth dampened with mineral spirits or denatured alcohol.
7. Flooring should not be exposed to rolling load traffic for at least 72 hours after installation to allow setting and drying of the adhesive.
8. Refer to the SDT Commercial Static Control Maintenance system for proper maintenance procedures of SDT. Armstrong Flooring S-392 is the only polish that should be applied to SDT.

## GROUNDING OF EXCELON SDT

**STOP: If electrical certification of an installation is required, this should be performed after initial maintenance procedures.**

It is NOT the responsibility of the flooring contractor to actually ground the strips. Grounding is normally done by an electrician. It is important to note that it is the responsibility of the end-user and/or electrician to make certain that the grounding method employed meets applicable code requirements. The ground connection may be made to either an earth ground or an electrical ground. Two methods of grounding normally used are as follows:

1. Ground to steel support columns: Drill and tap holes in steel column. Fasten copper strip using a machine screw.
2. Connect to ground bus: Solder a wire (#12 or #14) to the copper strip and connect this wire to a ground bus in accordance with applicable building or electrical codes. Once the connection is made, the copper strip and wire may be hidden or covered as desired.

**WARNING: FOR EXISTING IN-PLACE RESILIENT FLOOR COVERING AND ASPHALTIC ADHESIVES. DO NOT SAND, DRY SWEEP, DRY SCRAPE, DRILL, SAW, BEADBLAST OR MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVE OR OTHER ADHESIVE.**

These existing in-place 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 existing in-place 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 and may govern removal and disposal of material.

Visit rfci.com to see the current edition of the Resilient Floor Covering Institute (RFCI) publication Recommended Work Practices for Removal of Resilient Floor Coverings for instructions on removing all resilient floor covering structures or contact your retailer. AHF Products floor coverings and adhesives do NOT contain asbestos.

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