Installation Guidelines GroundFloor

The following instructions should be reviewed prior to installation
This is only intended as a guide for customer's use with our recommended materials**.** Every effort has been made to provide accurate and reliable information. Suggestions or recommendations made by StaticStop in product literature concerning uses or applications of the goods are believed to be reliable, but StaticStop makes no warranty or guarantee of results to be obtained, since conditions of the use, application and installation by the buyer and others are beyond StaticStop's control and will vary at each site location. End user customers are advised to conduct their own tests for a particular application. We recommend using a licensed and experienced flooring installer to ensure satisfactory results**.**

In General
These installation instructions cover most installation procedures using StaticStop Groundplane Conductive Adhesive. If you experience a situation that isn't addressed in this guideline or that requires more detailed assistance please contact StaticStop, Inc. Customer Service at 877.737.4537.

Initial Inspection
Inspect the tiles to be sure they meet the order specification for color, style and quantity including "Attic Stock" requirements

Job Site Conditions & Product Conditioning
- The building's permanent HVAC system must be on and maintained consistently at a range of 65° to 85° F (20° to 29°C) for at least 5 days prior to installation and permanently thereafter.
- Flooring materials and adhesive must be maintained within at a range of 65° to 85° F (20° to 29°C) for a minimum of 48 hours before and after the installation
- Remove plastic stretch wrap after delivery to the job location. Do not stack pallets. Remove product from cartons and stack on a smooth dry surface no more than 20" high.
- Inspect all material for damage or defects prior to installation. StaticStop will not be responsible for any cost associated with replacement or repair as a result of damaged or defective tiles being installed which were identifiable prior to installation. ***If you encounter any condition or defects during installation which could jeopardize the installation or affect the installation procedure you should STOP the installation immediately and contact StaticStop's Customer Service Desk.***

Substrate Condition and Preparation
- All substrates must be smooth, permanently dry, flat and structurally sound.
- The substrate must be clean, free of contaminants like paint, oil, or wax, curing compounds, sealers or any other foreign material which may interfere with proper adhesion. The subfloor shall be free of defects like cracks, holes, and projections; patch any defects or irregularities with latex-fortified cementatious underlayment material. The subfloor must also be level to avoid misalignment of rows of tile during installation. If needed, level the floor with latex-fortified cementatious underlayment material. Remove any mastic or adhesive left from previous flooring or cover it with at least 1/8 inch of cementatious underlayment material. Do not use gypsum or plaster based floor levelers or patching compounds.
- If removing an existing floor, you must remove 100% of old adhesives, paints or other contaminants. Follow the Resilient Floor Covering Institute's (RCFI) Recommended Work Practice for Removal of Existing Floor Covering and Adhesive", and all applicable industry, local, state and federal standards.
- Do not use adhesive removers or solvents as residues can attack and break down the new adhesive and cause tile to release. Floor covering warranties do not cover instances where adhesive removers or solvents cause damage to the flooring or installation failure.
- Concrete floor slab on-grade or below grade must have a permanent, effective moisture vapor retarder installed below the slab.

Respirable Crystalline Silica and Asbestos Warning - Concrete substrate surfaces, underlayment material, and/or existing resilient flooring, backing, lining felt, paint, asphaltic cutback adhesives, or other adhesives may contain respirable asbestos fibers or respirable crystalline silica if disturbed.

Consult with OSHA §1926.1153 for latest federal regulatory requirements before sanding, grinding, scarifying, dry sweeping, dry scraping, drilling, sawing, bead-blasting, or mechanically chipping or pulverizing, or otherwise damaging any of these materials. Avoid creating dust when working with, repairing, preparing, or removing such materials. Use of dust collection equipment and appropriate personal protective equipment such as an approved respirator may be required to control worker exposure to respirable crystalline silica. 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, presume that it contains asbestos. Regulations may require that the material be tested to determine asbestos content. The Resilient Floor Covering Institute's (RFCI) Recommended Work Practices for Removal of Resilient Floor Coverings should be consulted for a defined set of instructions addressed to the task of removing all resilient floor covering structures**.**

Concrete Substrates
- New and existing concrete subfloors should meet the guidelines of the latest edition of ACI 302 and ASTM F 710, "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring", available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428, www.astm.org. The concrete subfloor design must also meet and /or exceed both the static and dynamic load requirements for the intended use of the space.

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- All concrete slabs must meet the requirements for *ACI lightweight, should have a compressive strength of 3,500 psi (24 MPa) or greater. *ACI 302.1R-96, Guide for Concrete Floor and Slab Construction, pp 5 and 22. (Concrete subfloors must have a minimum compressive strength of 3000 PSI.
- Moisture testing must be performed on new and existing concrete on, above or below grade, prior to installation. Perform moisture testing per ASTM F 1869, Standard Test Method for measuring Moisture Vapor Emission Rate (**MVER Testing**) of Concrete Subfloor Using Anhydrous Calcium Chloride or ASTM F2170 Standard Test Method for Determining Relative Humidity (**RH Testing**) in Concrete Floor Slabs using ***in Situ Probes***.
    - ASTM F 2170: Three tests should be conducted for areas up to 1000 sf. One additional test should be conducted for each additional 1000 sf. **Readings of moisture levels when measured by this method should not exceed 75%**
    - ASTM 1869: Three tests should be conducted for areas up to 1000 sf. One additional test should be conducted for each additional 1000 sf. **Moisture levels when measured by this method should not exceed five (5) pounds per twenty-four (24) hour period per one thousand (1000) square feet**
    - Observe and document compliance with all ASTM test method requirements concerning building conditions and test equipment when administering these tests
    - If moisture levels are found in excess of these levels the general contractor or business owner must be advised and a decision made if the installation is to begin. StaticStop will not be responsible of any moisture related installation failures if these guidelines are not strictly followed.
    - Note that either of these tests indicates moisture conditions only for the time and the conditions under which they are taken. DO NOT INSTALL TILES IF EITHER LIMIT IS EXCEEDED OR IF THERE ARE OTHER CONDITIONS THAT WOULD SUGGEST RISK OF HYDROSTATIC PRESSURE OR HIGH ALKILINITY.
    - 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, sealant or covered with resilient flooring. Use a properly designed joint cover.
    - 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.

Conductive Adhesive
Use StaticStop GroundPlane Conductive Flooring Adhesive for most installations of standard GroundFloor. For problematic installations and for areas with high point loads consult with StaticStop for alternative adhesives. Failure to use recommended adhesives will result in loss of warranty

Adhesive Bond Test
Install 2 tiles x 2 tiles in several locations, 50 feet apart, throughout the installation area following the installation procedures below. Allow these tiles to set for 48 hours. A significant amount of force should be required to remove the tiles. If tiles are easily removed this could indicate that a foreign material, such as a concrete sealer, is present on the substrate. Additional information regarding these tests can be obtained from the StaticStop Technical Service Department.

Tile Installation and Grounding
- Properly prepare and document subfloor conditions prior to the commencement of the installation.
- Each tile has an arrow on the backside. Each tile must be laid with the arrow pointing in the same direction. If the tiles are not laid in the same direction the reflection of light will cause an optical illusion, making the tiles appear to be different shades.
- Commencement of the installation indicates acceptance and full responsibility for the completed work.
- Check each tile for visual defect during installation.
- After properly preparing the application surface sweep/vacuum/mop the area thoroughly. Any pieces of debris that remain can "telegraph" through the newly installed tile and be seen as bumps in the finished surface
- GroundPlane Adhesive may be used on porous or non-porous subfloors. Determine whether the subfloor is porous on non-porous following the procedure set forth on the label instructions. Use the specified trowel size based on that determination:
    - Non-Porous Trowel Size: 1/16”x1/16”x1/16” v-notch
    - Porous Trowel Size: 1/16”x1/16”x1’16” square notch
- For porous applications, once trowelled the adhesive should be allowed to remain open (flash-off) for approximately 5-10 minutes before placement of the flooring material.
- Non-porous installations require that the adhesive be allowed to dry to the touch, so that there is little or no transfer of adhesive to the finger.
- Once the adhesive dries to the touch, it is ready to accept flooring material.
- Rolling should take place within 30 minutes after the flooring material has been placed into the adhesive. Roll in both directions utilizing a 100 pound three-section roller.
- From the time the adhesive is allowed to dry to the touch to the time it must be covered is approximately 45 minutes.
- If the adhesive is allowed to remain uncovered, after initially drying to touch, for periods longer than the recommended 45 minutes a loss in adhesion strength will result. Care must be taken by the installer not to spread more adhesive than can be worked appropriately within the 45 minute time frame
- **Do not allow adhesive to remain uncovered after the initial drying period as a loss of adhesion strength will occur. Do not spread more adhesive than can be worked within the 45 minute time frame.**
- Clean off excessive adhesive with water while it is still wet. Use mineral spirits to remove dry adhesive.
- Prevent all traffic on the floor for a minimum of 24 hours after installation. Restrict heavy traffic for a minimum of 72 hours after completion.
- Do not clean the floor for a minimum of 5 days after installation.

NOTE: Ambient conditions (temperature, humidity), subfloor surface condition and absorption rate (porosity), and applicator technique can all affect the proper application and function of the adhesive. The most important requirement is to achieve adequate adhesive transfer to the back of each tile after it has been laid into the adhesive and rolled, as per instructions on this sheet. *Throughout the installation, periodically lift an embedded tile and inspect the*

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backside to ensure that at least 80-90% has been covered with the adhesive. This level of coverage will result in the proper adhesive bond and proper electrical conductivity. If the coverage is less than 80-90%, adjust the installation procedure accordingly. Inadequate coverage on the back of the tile indicates that either: If there is not enough adhesive being applied to the substrate (due to incorrect trowel size or improper troweling technique), the adhesive had begun to set up before the tile was laid, or the newly laid tile was not rolled properly or soon enough. The correct trowel size is important. If the notches are smaller, too little adhesive will be spread, resulting in bond strength and conductivity below specification. If the notches are too large, excessive adhesive will be spread and may seep up between the seams, especially during rolling. Excessive adhesive can also cause the tiles to shift or "float." Throughout the installation, routinely check for any changes in the notch size due to wear; replace or re-notch worn trowels.

Installation Over Other Surfaces

Moisture Mitigation Systems
- Test the floor to determine porosity following the procedure set forth on the label instructions.
- Perform a bond test as described on the Groundplane label instructions
- The subfloor must meet all other conditions described for installation over cement substrates.
- Use the specified trowel size based on whether the floor is porous or non-porous. Depending on the porosity allow for proper adhesive open times as described on the Groundplane label.

VCT, ESD Tile, Vinyl Sheet
- Tile may be installed over existing VCT, vinyl tile or vinyl sheet only on above grade areas.
- May be installed over only a single layer of properly installed vinyl sheet.
- Inspect and ensure there is an adequate bond of the old flooring to the original substrate. Repair as necessary.
- StaticStop will not warrant the product if there is a bond failure caused by problems relating to the old flooring
- The subfloor must be structurally sound and meet all requirements and conditions for concrete substrates
- Remove any old finishes
- Perform a bond test as described on the Groundplane label instructions.
- Apply adhesive following instructions for non-porous surfaces.
- Note that embossing on the surface of the subfloor may telegraph and interfere with proper bonding.

Rubber
Do not install over rubber

Wood Floors
- Wood subfloors shall 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 practice and have a clearance of at least 18” of cross-ventilated space between the ground level and joists. Wood joists should be spaced on not more than 16” centers.
- Place a moisture retarder having a maximum rating of 1.0 perm on the top of 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 used
- Use APA approved exterior grade plywood if finished floors are subjected to moisture.
- Other wood products are not recommended as manufacturers may use adhesives or other additives that could cause staining or discoloration of the flooring.
- Installation on a sleeper system over concrete is not recommended
- Follow the recommendations of the APA, The Engineered Wood Association, Design/Construction Guide, Residential and Commercial, and ASTM 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.

Terrazzo and Ceramic Floors
- Follow preparation and testing procedures for cement subfloors
- Inspect and ensure there is an adequate bond of the old flooring to the original substrate. Repair as necessary.
- StaticStop will not warrant the product if there is a bond failure caused by problems relating to the old flooring
- Ensure all glazed, sealed, smooth and/or shiny surfaces are properly sanded and cleaned.
- Fill grout lines with Portland cement based underlayment with a minimum compressive strength of 3500 PSI.
- Apply adhesive following instructions for non-porous surfaces.

Metal Surfaces
- Clean metal floors with isopropyl alcohol to ensure no residues are present.
- The surface should be abraded using a low speed buffing machine equipped with a black pad.
- When installing over access panels, the area under the panel shall be well ventilated.
- The metal surface must be treated as non-porous.
- The adhesive must be allowed to dry to touch prior to installation of flooring. Follow instructions on Groundplane label for installation over non-porous surfaces.

Grounding
To ground the floor use 1” wide x 0.004” thick x 24” copper foil strips supplied by StaticStop. Ground strips should be installed over the adhesive and under the tiles. Identify the proper locations for the strips, typically along the base of walls or at columns where there is access to a grounding point (e.g., electrical outlet). Install one (1) ground strip for each 1000 square feet of floor area. Apply each strip using the adhesive side to stick about two-thirds of

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the strip to the floor surface and the remaining one-third vertically up the wall or column. Use longer grounding strips if needed. An electrician should mechanically connect the copper foil to a ground point. See Page 5 for illustrations.

Clean-up
Avoid using excessive amounts of adhesive. Adhesive can be removed with soap water while it is still wet. Use mineral spirits to remove adhesive after it has dried. **DO NOT APPLY SOLVENT DIRECTLY TO FLOORING MATERIAL**

Immediately Following Installation
- Prevent all traffic for a minimum of 24 hours after completion of installation. Prevent heavy traffic for a minimum of 72 hours
- Do not clean the floor for a minimum of 5 days after installation.

If your subfloor does not meet these installation requirements or if the cost of preparing the subfloor for conventional glue-down products is high, consider using StaticStop FreeStyle ESD Floor Tile. StaticStop FreeStyle ESD tiles are installed with minimal floor preparation and without adhesive.

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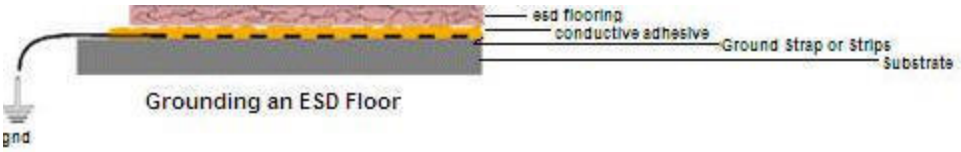
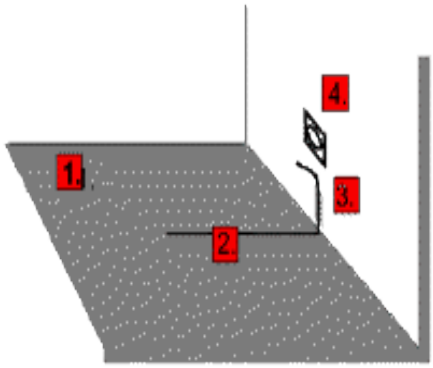
Grounding Glue Down ESD Flooring

Different options for grounding ESD flooring are illustrated below. For all options, a copper strip is placed into the wet adhesive. A second coat of esd conductive adhesive is typically applied over the strap prior to installing the floor tile on top.

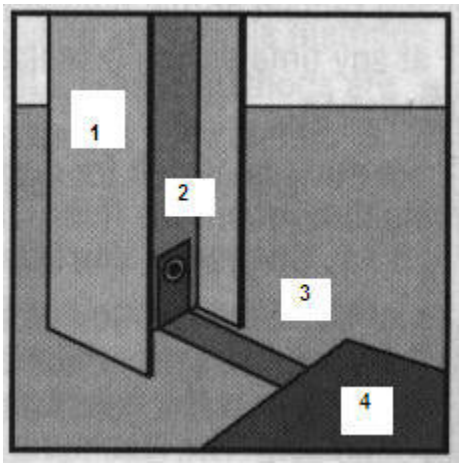
Make sure to roll vinyl securely in place over strip using 100# flooring roller.





In this sketch a (2) copper strip 1 to 3 feet long is placed in (1) conductive adhesive, prior to covering with esd flooring. Then the copper strip is used as a (3) "pig tail" going up the wall and (4) terminated at the electrical outlet, grounding bus or multi point.

Figure 1.



In this sketch a (1) steel column is used as an (2) attachment point for the (3) copper strip subsequently placed in (4) wet conductive adhesive prior to covering with esd flooring.

Figure 2.

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