

# ESD CONTROL VINYL TILE INSTALLATION AND MAINTENANCE INSTRUCTIONS



AND



## NOTICE TO INSTALLER

**THIS BROCHURE CONTAINS IMPORTANT INSTALLATION AND MAINTENANCE, AS WELL AS CAUTIONS AND WARNINGS. PLEASE MAKE CERTAIN THESE INSTRUCTIONS ARE PLACED IN THE HANDS OF THE FLOOR OWNER. OUR WARRANTY WILL BECOME EFFECTIVE ONLY IF THESE INSTRUCTIONS ARE FOLLOWED IN EVERY RESPECT. VPI'S EXCLUSIVE WARRANTY LIMITS VPI'S LIABILITY TO REPAIR, REPLACEMENT, OR CREDIT, AT VPI'S OPTION, ON VPI FLOOR PRODUCTS FOR WHICH A CLAIM HAS BEEN MADE ACCORDING TO VPI'S CLAIM PROCEDURE. CLAIMS FOR SURFACE DEFECTS OR VARIATIONS IN COLOR OR PATTERN MUST BE MADE TO VPI PRIOR TO INSTALLATIONS OF THE MATERIAL. FOR A COMPLETE STATEMENT OF VPI'S EXCLUSIVE WARRANTY, CONTACT: VPI, CUSTOMER SERVICE, P.O. BOX 451, SHEBOYGAN, WI 53082-0451.**

## PREPARATION OF SUBFLOOR

### CONCRETE, TERRAZZO, CERAMIC

Subfloors must be structurally sound, dry, clean, and free of dirt, dust, wax, grease, paint, polish, oil, curing compounds, sealers, and all other materials that would interfere with good bonding action. Floor surface must be smooth and flat with a maximum variation of 1/8" in 10 feet. All cracks, depressions, and other imperfections must be repaired with a high quality, cementitious underlayment. Gypsum-based underlayment products should not be used. Any uncorrected subfloor irregularities may telegraph through the VPI flooring and be visible on the surface of the finished installation.

VPI recommends that new concrete slabs on or below grade be poured over a permanent moisture barrier such as six mil polyethylene film. Any concrete in contact with earth or with less than 18" of cross-ventilated air space under it is considered to be on grade.

New concrete must be properly cured. A drying time of three months is generally required after slab is poured and protected from the weather. Lightweight aggregate concrete floors, floors with steel or plastic pan construction, and floors poured over a permanent moisture barrier usually require an extended drying time. If lightweight aggregate concrete weighs less than 90 pounds per cubic foot, a topping of regular concrete at least one inch thick is required. To expedite drying time, adequate heat and ventilation should be provided.

VPI's warranty does not cover failure due to moisture emission from subfloor. Concrete subfloors should be tested for the presence of excessive moisture or alkali. Moisture test results must not exceed 5 pounds per 1,000 square feet at 24 hours. The pH should not exceed 11. Contractors can obtain moisture test units from VPI.

If concrete surface is exceptionally smooth, it should be acid etched with a 15% solution of muriatic acid/water before installing flooring. Neutralize concrete after etching by rinsing with clear water to which a few ounces of ammonia have been added.

Terrazzo floors may have a sealer or film on the surface. This must be removed before proceeding with the installation.

Ceramic tile must be solidly adhered. Any loose tile must be removed. Clean existing ceramic tile using muriatic acid/water as directed above. After floor has dried, apply a thin rich coat of Portland cement underlayment with a liquid latex binder to achieve a smooth surface.

Tile may be installed on radiant-heated floors, provided surface temperature does not exceed 90° F.

### WOOD FLOORS

Tile may be installed over existing sound, suspended plywood floors of double construction. Do not install directly over wood strip or plant subfloors. Prepare such floors as follows:

1. Subfloor must be solid, well-nailed at joints and free from spring. Missing or unsound boards must be replaced.
2. Install 1/4" underlayment grade or exterior grade plywood or 1/4" underlayment grade hardboard. If floor boards are badly warped, use thicker plywood.
3. Fill all holes, cracks, and seams with wood putty or equivalent filler. Sand all patched areas and uneven joints. Any irregularities allowed to remain may telegraph through the tile and be visible on the surface of the new installation.

### RESILIENT FLOORING

**Do not install tile over any resilient floor covering on or below grade. Remove old floor covering and sand off all adhesive.**

**Whenever possible, remove old floor covering and sand off all old adhesives. If specific job conditions necessitate installation of tile over resilient floor covering, use the following procedures:**

1. Floor covering must be sound and adhered tightly to the floor. Remove any loose or broken areas and replace them either with sound material or with a Portland cement underlayment with a liquid latex binder, which should also be used to level any floor irregularities and to fill in any open seams.
2. Thoroughly sand surface with a very rough sandpaper, using an edge sander next to walls and in spots that the regular sander may have skipped. Completely remove all old sealers and waxes to ensure a proper bond.
3. Thoroughly sweep, vacuum, or damp mop floor to remove all dust and grit. Any texture or embossing in the original installation may telegraph through the VPI tile and be visible on the surface of the new installation.

### WARNING:

Various government agencies have regulations governing the handling, removal, and disposal of asbestos containing materials. If you intend to sand, remove, or dispose of an existing resilient floor covering, backing, lining felt, or adhesive you should be aware that these products may contain asbestos fibers. Sanding, removal, and disposal of asbestos containing material can place fine particles of asbestos in the air. It has been determined that the inhalation of free airborne asbestos fibers may be injurious to your health. Fines may be assessed against persons violating these regulations.

**NOTE:** VPI resilient floor coverings and adhesives have never contained asbestos.

### METAL DECKS

Metal decking must be smooth, dry, clean, and free from dust, paint, asphalt, old adhesives, grease, oil, rust, and other extraneous material. Level all surface irregularities with a Portland cement/liquid latex underlayment. Lightly sand the surface for better adhesion.

### WORK BENCHES

Tile can be applied to either wood or metal work bench surfaces. The bench surface must be smooth, dry, clean, and free from paint, oil, grease, and other extraneous material. Metal surfaces should be lightly sanded for better adhesion.

Benches should be insulated from static control flooring surface by the use of electrically insulating pads to prevent the creation of undesired alternate ground paths. In addition, a resistor of whatever magnitude desired can be inserted in the circuit from the work surface to ground.

Install tile in general accordance with instructions under INSTALLATION OF TILE. Prepare only as much #150 Conductive Epoxy Adhesive as can be used in 1 hour, mixing equal parts of A and B in a clean, separate container (See instructions on can label). Use a hand roller instead of 150 lb. floor roller.

### OTHER TYPES OF INSTALLATION

For recommended procedures on other types of installations not covered in these instructions, contact VPI, Customer Service, Floor Products Division, P.O. Box 451, Sheboygan, Wisconsin 53082-0451.

# INSTALLATION OF TILE

## TROWEL SELECTION

- Type 1 - 1/16"x1/16" Square Notch with 1/16" Flats
- Type 2 - 1/16" Half Circular Notch with 1/32" Flats

## TILE SIZE/SUBFLOOR

- 12"x12"x1/8" Wood, Concrete, Terazzo 2
- 12"x12"x1/8" Ceramic, Metal, On or below grade 2
- Seamless 24"x24"x1/8" 1
- Seamless 36"x36"x1/8" 1

## TROWEL TYPE

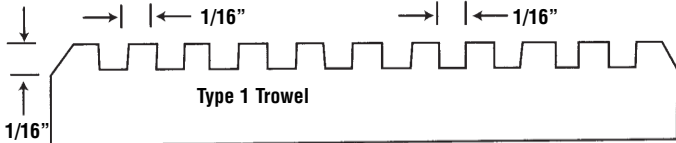
- 2
- 2
- 1
- 1

## Roller

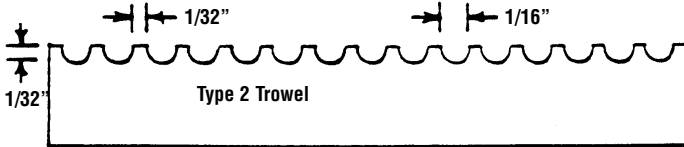
- Sectional 150 Pound

It is essential that the specified trowel and roller be used. If the trowel notches are too large, too much adhesive will be used. This will result in excessive adhesive seepage at the seams and also will cause the tile to float and shift. Clean-up after installation is then very difficult. In addition, the seams will be at different heights making them very noticeable and dirt catchers as well. If you delay rolling the tile because of excessive seepage, adhesive will not be adequately transferred to the back of the tile causing both conductivity and adhesion failure. If the notches are too small, too little adhesive will be spread resulting in conductivity and/or adhesive failure. As your trowel is used, the notches become smaller resulting in less adhesive being spread. Worn trowels should be re-notched or discarded.

The proper weight roller is equally as important as the correct size trowel. The floor is rolled to flatten the adhesive ridges left by the notches in the trowel and to transfer a uniform amount of adhesive to the back of the tile. After rolling the floor, it is advisable to pull up tile from several locations to check if there is proper transfer of adhesive to the back of the tile and that the ridges are being flattened. Ideally, you should barely be able to identify trowel marks, and the entire back surface of the tile should be uniformly covered with adhesive. If this is not the case, you are either using the wrong size trowel or roller, or you are not rolling the floor soon enough.



1/16" x 1/16" Triangular with 1/16" Flats



1/16" Half Circular with 1/32" Flats

Note: Notches not drawn to scale.

Contact VPI for more information on proper trowel selection.

## CONVENTIONAL INSTALLATION

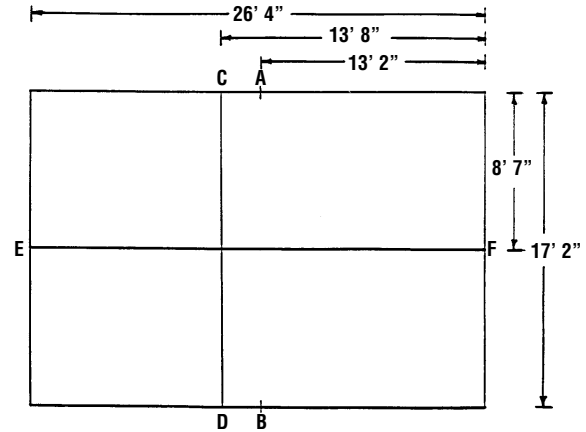
Install VPI 12" x 12" Static Control Flooring in accordance with the following procedures:

- IMPORTANT!** VPI # 150 Conductive Epoxy Adhesive is an integral component of the VPI ESD Control system. Use of any other adhesive will void VPI's Exclusive Warranty. VPI # 150 adhesive coverage is approximately 165 sq. ft. per unit. Consult instructions for proper subfloor preparation **before** mixing adhesive. If installation is to be flash coved, follow special instructions under FLASH COVING.
- All adhesive, floor tile, and subfloor (slab) should be conditioned to a minimum of 65°F and maintained at least 24 hours before and 48 hours after installation. Tack and cure times will be longer at lower temperatures, and will shorten at higher temperatures. Ensure that the installation is well lit to allow effective examination of tile and installation. If you have not worked with epoxy adhesives before, you will find that unlike other flooring adhesive, epoxies do not have nor do they develop a tackiness as they set up. This makes it extremely important to roll the floor as recommended to avoid raised edges.
- Each production run of tile is assigned a lot number which appears on the carton label. **CHECK LOT NUMBERS BEFORE INSTALLING TILE.** Whenever possible, install material from the same lot number in a given room or area. When this is not possible, it is advisable to isolate different lot numbers to separate areas.

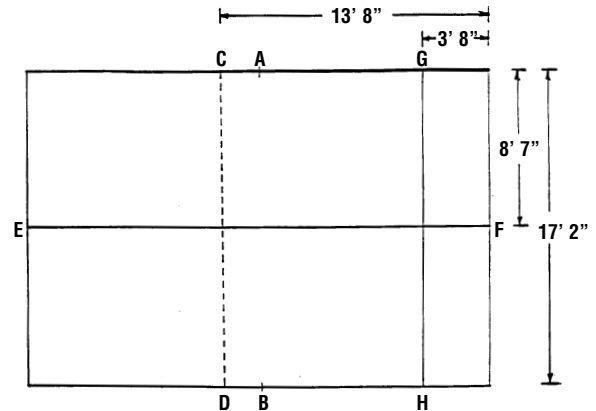
- Because few rooms are perfect rectangles and the tile must be laid within a perfect rectangle, it is necessary to strike chalk lines at right angles to each other against which the tile can be laid.

Locate and mark the center point (Point A) of one wall of the room. The measurement from the wall to this center point will be in feet and inches. If the inch portion of this dimension is less than 6, the center mark should be moved 6 inches in either direction (Point C). This will assure that the trim pieces at the walls will be no less than half a tile. Now measure the center point of the opposite wall and mark this point (Point B). If the original center point was moved 6 inches, move Point B correspondingly. Now strike a chalk line from Point C to Point D.

Use this same technique to find the center point of the two remaining sides of the room, remembering to move the center points 6 inches if necessary. Strike the bisecting chalk line E-F. (See illustration below)

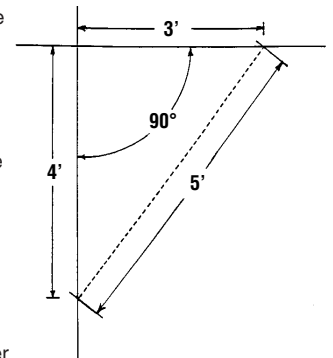


- Next determine if the center point of the bisecting lines is a convenient place to start installing the tile. If for some reason you must start closer to one of the walls, either or both lines can be moved closer to the wall as long as they are moved in increments of 12 inches. This will again ensure trim pieces of no less than half a tile. (See illustration below. Line C-D moved to form line G-H).



- Now check to make sure the bisecting lines are at exactly 90°. This is most easily done using the 3, 4, 5 triangle method, or a multiple of it, as described in the next paragraph.

Starting from the center point where the lines meet, measure 4 feet toward one of the end walls and mark the line at exactly the 4 foot point. Starting again from the center point, measure 3 feet toward one of the side walls and mark the line at exactly the 3 foot point. If the angle is exactly 90°, the distance from the 4 foot mark to the 3 foot mark will be exactly 5 feet. If it is not, move one of the lines until the dimensions are exactly 3, 4, 5 feet. The angle will then be exactly 90°. In large areas use a multiple of this method (multiply each dimension by the same number to cover a larger area) for greater accuracy. (See illustration at right).



7. Generally, tile is laid in 3 foot sections. Snap an additional line every 36 inches away from and parallel to the bisecting lines (See #4 to #6). These additional lines are used as a guide to show how wide a spread of adhesive to make.
8. Use a can opener to cut out the top rims of both cans. Use the mixing paddle provided or a mixing paddle on an electric drill to carefully stir Part A and Part B separately until homogenous. Pour part B into part A. Be sure to remove as much of part B as possible by scraping sides and bottom of container with appropriate paddle provided. **NOTE:** Adhesive should not be poured onto the floor until parts A and B have been completely mixed together. Any unmixed portion applied to the subfloor will not cure properly and both adhesion and conductivity will be affected.

Mix the combined parts A and B using a slow speed drill (200 RPM) and mixing paddle. Mix for a minimum of 3-4 minutes. DO NOT mix at higher speed. This could cause adhesive to start the curing process and shorten the open time. **NOTE:** Extended mixing (10 minutes or more) may adversely affect adhesive conductivity. Be sure to mix the entire contents of the can.

If mixing by hand, use a rotary motion while at the same time lifting from the bottom. Periodically scrape sides and bottom of can to insure complete mixing of both parts. Mix a minimum of 5 minutes.

**CAUTION: ADHESIVE WILL NOT CURE THOROUGHLY IF NOT PROPERLY MIXED.**

9. After complete mixing, **IMMEDIATELY** pour all adhesive on subfloor and spread as soon as possible. Use a 1/16" x 1/16" triangular notched trowel with 1/16" flats or a 1/16" half circular trowel with 1/32" flats. DO NOT allow mixed adhesive to remain in the container. See TROWEL SELECTION AND TILE SIZE/SUBFLOOR sections for proper trowel use.
10. Spread adhesive, in 3 foot wide sections, as close to but not over your chalk line. If you occasionally cross the line with your trowel when spreading adhesive, do not be concerned. Any adhesive over the edge of the line must be scraped up before the next row of tile is installed to avoid high edges.

With floor temperature at 65°F, adhesive may remain on the floor up to one hour from start of spreading before installing flooring. This will allow adhesive to tack up and provide some resistance to tiles slipping and adhesive oozing through joints during installation. **NOTE:** Adhesive will appear glossy when first spread and will dull as it sets up. Lower temperatures result in longer open times. Depending on temperature, humidity, and subfloor porosity, you may have up to two hours from when adhesive is poured until tacking occurs. **Caution - DO NOT allow the adhesive to "skin-over" before installing tile.**

A good solid transfer of adhesive to tile is absolutely necessary to obtain proper conductivity.

11. The open time of the adhesive varies greatly depending on the humidity and the temperature of both the ambient air and subfloor. Generally the open time is approximately one hour. With lower temperatures and, or high humidity the open time can be greatly extended. With high temperatures and low humidity the open time can be reduced. After spreading the adhesive, if the tile is installed immediately it might have a tendency to slide. It is best to wait until the adhesive becomes tacky to the touch prior to placing the tile. **Be careful not to spread more adhesive than tile can be installed into and rolled prior to the adhesive setting.** A good solid transfer of adhesive to tile is absolutely necessary to obtain proper conductivity. **Note:** Adhesive will appear glossy when first spread and will dull as it sets up. Do not allow adhesive to set up before laying tile.
12. **WORK FROM OFF THE TILE WHENEVER POSSIBLE.** When laying individual tile, do not slide tile in to place. The correct procedure is to place a corner of the tile in place next to the adjoining tile, carefully guide it into proper position, and set it in place. When necessary to work on the tile, avoid shifting by using a kneeling board and by cutting tile to butt tightly at all wall junctions.
13. A grounding connection is achieved by imbedding the provided copper strip directly in the adhesive and extending about 12" beyond the tile perimeter at a position nearest the desired ground point. (See GROUNDING)

14. **IMPORTANT! ANY ADHESIVE AT SEAMS OR ON FINISHED SURFACE OF TILE MUST BE REMOVED WHILE ADHESIVE IS STILL WET.** Clean fresh, uncured adhesive from the tile surface with Isopropanol (IPA), denatured alcohol, or a mild abrasive cleaner such as Soft Scrub®. Do not use a dry cloth first - this smears the adhesive into the tile. A good combination is alcohol followed by Soft Scrub®. Do not use cleaners containing amines. Rinse well with water.

15. **IMPORTANT! ANY ADHESIVE AT SEAMS OR ON FINISHED SURFACE OF TILE MUST BE REMOVED WHILE ADHESIVE IS STILL WET,** using a cloth dampened with water or alcohol. Clean tools promptly with water or alcohol. (CAUTION: Alcohol is flammable. Follow cautions on container label.)

16. Avoid exposure of tile to excessive heat, such as direct sunlight, until adhesive has completely set.

17. Avoid traffic over finished floor for at least 48 hours after installation.

#### SEAMLESS INSTALLATION

Conductile and Statmate are available in 36" x 36" sections, square edge or pre-grooved, for seamless installations. For proper trowel size selection see Trowel Selection and Tile Size/Subfloor sections. The 36" x 36" sections are installed in essentially the same manner as described under CONVENTIONAL INSTALLATION using VPI #150 Conductive Epoxy Adhesive and specified trowel. Special procedures are required as follows:

#### SQUARE EDGE SECTIONS

1. Remove tile from carton and store flat in stacks (not to exceed 6" in height) at a temperature of at least 70° F. for 48 hours prior to installation. This allows tile to adjust to room temperature. Tile will then lay flat and conform to the contour of the subfloor when installed.
2. Lay out field so that the last section ends at least 6" from the wall to allow space for use of router and hot air welding tool around the room perimeter.
3. Install the field, making sure to install copper grounding strip at the designated ground connections (See GROUNDING). Make sure that the tile is rolled and cross rolled with a 150 lb. sectional roller. Allow the adhesive to set up overnight.
4. Dry cut all cove pieces to fit as described under FLASH COVING, and install them. Roll thoroughly with a hand roller.
5. Using a scrap piece of tile, set the router so that the blade cuts a groove to a depth of approximately one half of the thickness of the tile. Rout all field seams in one direction only, being careful to keep the groove centered on the seam as closely as possible. Use chamfering plane to rout cove pieces where the router cannot be operated.
6. Preheat the hot air welding tool. Using the 4mm welding nozzle, weld the bead into the groove. Trial weld a few scrap pieces before starting on the floor so that adjustments in the heat setting may be made if desired. Beginners may find it easier to work with a lower heat. However, with experience, welding will be faster with a higher heat. A lower heat is recommended for correcting mistakes or welding in awkward places. A good weld is achieved when a small amount of melted bead overflows along the edges of the groove.
7. After the weld has cooled, shave off the excess bead with a spatula. If the bead is shaved before it has cooled, it will shrink below the surface of the flooring. Keep the spatula sharp by periodic honing with a fine stone.
8. After welding and trimming all seams in one direction, repeat the routing, welding, and trimming procedures on all seams running in the other direction.
9. While seamless installations are usually flash coved, top set cove base or other treatment may be used at the floor-wall junction. In these instances, use a chamfering plane to finish the groove close to the wall where the router cannot be operated.

#### PRE-GROOVED SECTIONS

When installing pre-grooved sections, follow the same general installation instructions as for square edge sections. Exceptions to these general instructions are as follows:

1. Take extra care to minimize adhesive seepage at the seams. Any adhesive allowed to remain in the grooves could prevent the vinyl bead and flooring from fusing together properly.

## INSTALLATION OF TILE, cont.

2. After the adhesive has set up overnight, use the chamfering plane to remove all excess adhesive that may have seeped into the grooves.
3. Weld and trim all seams in one direction only.
4. Use the chamfering plane to open each cross seam.
5. Weld and trim all remaining seams.

### FLASH COVING

Coving of tile up the wall eliminates accumulations of dirt and bacteria at the floor-wall junction. This procedure can be used with either CONVENTIONAL or SEAMLESS INSTALLATIONS. The following steps are recommended:

1. Install metal inside and outside corners. Then install a suitable cap strip (either metal or plastic) around the entire room. Exercise care so that the tops of the cap strip and metal corners are at the same level. Use either flat headed nails or contact bond adhesive to fasten corners and cap strips.
2. Place a cove strip at floor-wall junction to support tile at the bend. Radius of cove strip should be at least 3/4" and must have same radius as the metal corners.
3. When installing 12" x 12" tile, lay out field so that it ends approximately 6" from the wall. When 36" x 36" sections are used, field can be laid out so that the last section ends at any convenient distance in excess of 6" from the wall. The distance from the edge of the field to the cap strip must be less than the width of the cove pieces since variations in floor and wall levels always necessitate cutting the cove pieces so that a tight fit can be achieved.
4. Install field in accordance with procedures listed under either CONVENTIONAL or SEAMLESS INSTALLATION, and allow adhesive to set up overnight before installing cove pieces.
5. Dry cut cove pieces to fit. Remove pieces and apply adhesive to the exposed floor and wall. Install the pieces and roll thoroughly with a hand roller. Do as large an area as practical to avoid repeated mixing of adhesive batches.

### GROUNDING

Several acceptable methods are used to ground ESD control floors, depending of job conditions and/or personal preference. Two recommended procedures are described below:

1. Prior to installation of the static control flooring, the electrical contractor drops a wire (usually a #10 or #12 stranded) inside the wall from any convenient ground bus so that the wire emerges at the floor wall junction. A small hole is either cut into the drywall at this point or chipped out of the concrete floor.  
The copper grounding strip provided by VPI (2" x 24") is intertwined with the stranded copper wire. The connection of grounding strip and copper wire is pushed into the hole and conductive adhesive liberally applied so that the connection is completely buried in the adhesive and the hole is filled to the level of the floor or wall surface. The balance of the grounding strip is then laid flat in conductive adhesive on the floor and covered with additional adhesive. Tile is then installed over the grounding strip.
2. If there are exposed steel columns supporting the building, the ground connection may be made directly to the columns. The copper grounding strip is laid flat in the conductive adhesive on the floor allowing several inches to protrude at the junction next to the column. The grounding strip on the floor is covered with additional adhesive and Conductile or Statmate installed over it. A hole is drilled into the steel column an inch or two up from the floor. Tap the hole and secure the grounding strip using a simple machine screw and washer. Make sure all paint and foreign substances have been removed from the column to assure metal contact. Cover the connection with an electrical box.
3. VPI provides sufficient copper strip to allow one ground connection for every 2,000 to 2,500 square feet of installed tile. Copper strip grids under tile are unnecessary since the conductive adhesive acts as a conductive plane beneath the tile.

## CARE AND MAINTENANCE

### GENERAL

**NOTE:** VPI DOES NOT RECOMMEND THE USE OF ANY REGULAR APPLICATION OF WAX OR SYNTHETIC FLOOR FINISH ON CONDUCTILE OR STATMATE. THE USE OF ANY SUCH MATERIAL WILL BUILD AN INSULATING FILM ON THE FLOOR AND REDUCE ITS EFFECTIVENESS. OTHER CONDUCTIVE, STATIC DISSIPATIVE, AND ANTISTATIC FLOOR FINISHES MAY RAISE THE RESISTANCE OF CONDUCTILE AND STATMATE. THEREFORE, THE USE OF THESE PRODUCTS MAY ADVERSELY AFFECT THE PERFORMANCE OF CONDUCTILE AND STATMATE.

### INITIAL MAINTENANCE

Do not wash floor for at least 48 hours after installation to enable the adhesive to set thoroughly.

After the adhesive has set, sweep and/or dust mop to remove any loose dirt. Next, machine scrub entire floor. If the floor has been heavily soiled from construction, or if adhesive stains are on the tile surface, use VPI Floor Stripper for initial scrubbing. If the floor is not heavily soiled, the initial machine scrubbing can be done with VPI Neutral Cleaner. If stripping solution has been used, final rinse water should include 2 ounces of VPI Neutral Cleaner to neutralize the floor.

**CAUTION:** Vinyl flooring will become slippery when wet. Care must be taken when walking upon the wet floor. Appropriate "Warning" or "Caution" placards should be used if any traffic is possible while the floor is wet.

### TYPICAL MAINTENANCE SCHEDULE

1. Sweep and/or dust mop the entire floor.
2. Wet or damp mop soiled areas.
3. Spray buff scuffed and heel marked areas.

For resolution of maintenance problems not covered in these instructions, contact VPI, Customer Service, P.O. Box 451 Sheboygan, Wisconsin 53082-0451.



VPI, 3123 S. 9th Street, PO Box 451, Sheboygan, Wisconsin 53082-0451 U.S.A.

Phone: 920-458-4664 – Fax: 920-458-1368

Customer Service: 800-874-4240

Email: [marketing@vpiflooring.com](mailto:marketing@vpiflooring.com)

Website: [www.vpiflooring.com](http://www.vpiflooring.com)

11MK2015-R0402