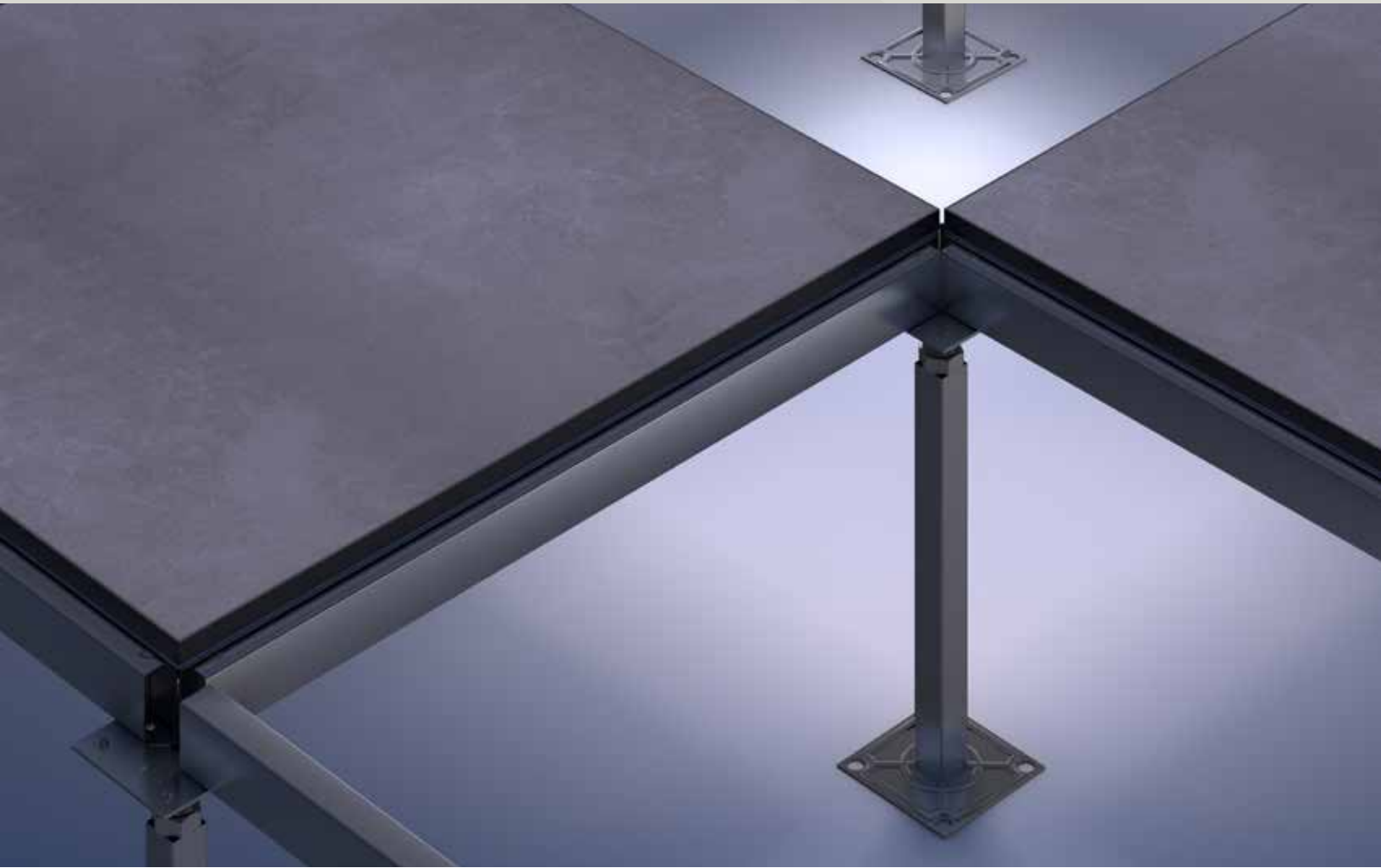


Porcelain Finish Panel

Access Floor Installation Manual



Tate[®]





Table of Contents

Preparation	5
Verification of Drawings	7
Starting Point & Control Lines	7
Spread, Level, & Securing Pedestals	7
Installing Stringers	11
Installing Panels	14
Perimeter Pedestals	14
Perimeter Panels & Cutting Methods	15
Perimeter Panel Support	18
Floor Protection	19
Cleaning the Floor	20

Porcelain Finish Installation Guide



Preparation

The installation of an access floor requires a thorough understanding and control of the building space receiving the access floor. Attendance at the pre-construction meeting is a must. Be sure your requirements are known and understood by the General Contractor and/or the Owner. This includes the following:

1. Drawings showing size and configuration of the access floor area.
2. Identification of material movement paths within the building. Plan your material paths from the trucks to the access floor area. Arrange for any special equipment needed. The customer must provide a dry, accessible area to receive and unload the material. There should be a free path from an elevator and/or hoists to the area receiving the access floor material.
3. Agreement on means of access to the area: elevator, stairs, street level, loading dock, etc.
4. Storage Conditions: Prior to start of installation, a dry, secure storage space must be made available for the access floor materials. It should be closed to the weather and should be adjacent to the area where the floor will be installed.
5. Power available during installation (110 volt 20 amp supply, minimum requirement).
6. Work schedule of the other trades: All overhead work should be completed before the access floor is installed. The access floor must be protected immediately as the panels are installed. This can be done by covering the access floor with plastic and sheets of ½" thick plywood.
7. Installation Conditions: The installation area must be closed to the weather with the environment at 50°F to 90°F and 20%-80% relative humidity, 24 hours a day during and after installation. Tate recommends that the floor be installed as close to the normal operating environment as possible. Access floor materials must be stored in this environment at least 24 hours before the installation begins.
8. Identification of type and location of all equipment and services that will be on stands (for example: air handlers, power distribution units). Determine whether equipment will be installed before or after the access floor.
9. Upon the start of installation, the installation area should be free of other trades and their material and must have adequate lighting and power.
10. The subfloor surface must be free of moisture, dirt, grease, oil and other debris. Make certain the sealer is compatible with the pedestal adhesive. Test apply several pedestals as early as possible to be sure required bond can be achieved.
11. The condition of the subfloor should be checked before the start of installation to see if it is spalled, broken, or dug out. The General Contractor should float a skim coat of cement over areas that have these conditions. If these conditions are not corrected you may not be able to correctly adhere and level the pedestals.
12. Subfloors other than concrete: Be careful of wood subfloors, vibration isolation pads, or concrete floors with existing floor coverings. If you cannot avoid putting the access floor over one of these subfloors, you should conduct overturning moment tests to ensure that the pedestals adhered to them will meet the overturning moment specification.
13. Verify that the work conforms to the contract drawings and that the starting point is agreed upon prior to commencing work.

Porcelain Finish Installation Guide



Installation

The installation of the access floor begins with the field area. There are certain steps that should be followed which are listed below in sequential order.

Step 1 – Verify Field Dimensions vs. Drawings and Check Subfloor for Grade Variations

Check the room dimensions against approved drawings to ensure there are no inconsistencies.

Determine the exact finished floor height by locating the benchmark set by the General Contractor. This could be a doorsill, curb, or a reference point marked on some structure such as a column.

Utilizing an access floor-designed laser and targets, verify that the subfloor is within specifications. The laser will give a constant level line to use as a reference. Lasers with targets designed for access floor installation are a must.

If the planned access floor elevation must be changed in order to meet the bottom of the door buck or some other fixed structure, verify that the pedestals are of the necessary height to make this change.

NOTE: Pedestals have limited adjustment range and the minimum stud-to-tube engagements must be maintained.

Step 2 – Identify and Check the Starting Point

The architectural drawings should indicate the starting point for the access floor installation designated by the Architect, Engineer, or General Contractor. Ideally, the starting point would be located at a corner where two straight walls meet to minimize the amount of cut panels.

Permission to relocate the starting point will be needed if the following conditions exist:

- Interfering objects are on the subfloor that cannot be circumvented.
- The planned starting walls are crooked or not square.
- The planned starting point will require excessive cutting of perimeter panels.

Step 3 – Establish Control Lines from Starting Point

The control lines are used to check for out-of-square or “wavy” wall conditions, as well as act as a guide for ensuring perpendicularity. Once the starting point is established, use chalk to lay out two perpendicular control lines from the starting point (see Figure #1, control lines ‘A’ and ‘B’). These will be the control lines for installing the access floor. They may be laid out with a tape measure (using the Dimension Table in Figure #1 to verify perpendicularity) or with a laser that can shoot a right angle. For an exceptionally large floor, an electronic transit may be used to establish the control lines.

If the corner of the room is designated as the starting point, then the point should be located 24 inches or less from the two adjoining walls in the designated corner. With the lines drawn along the entire length of each wall, check at various points along each line to determine if the distance to the wall at any point is more than 24 inches. If this is the case, the entire control line should be moved closer to the wall so that no measurement between the control line and wall is greater than 24 inches or one full panel.

Step 4 – Spread Pedestals

Beginning 10 feet from the starting point, draw chalk lines perpendicular to each control line at 10 foot intervals. This will create a grid with lines 10 feet on center (see Figure #1). Each point of intersection in the grid will serve as a pedestal shot point (where exact pedestal elevations will be made with a laser or transit).

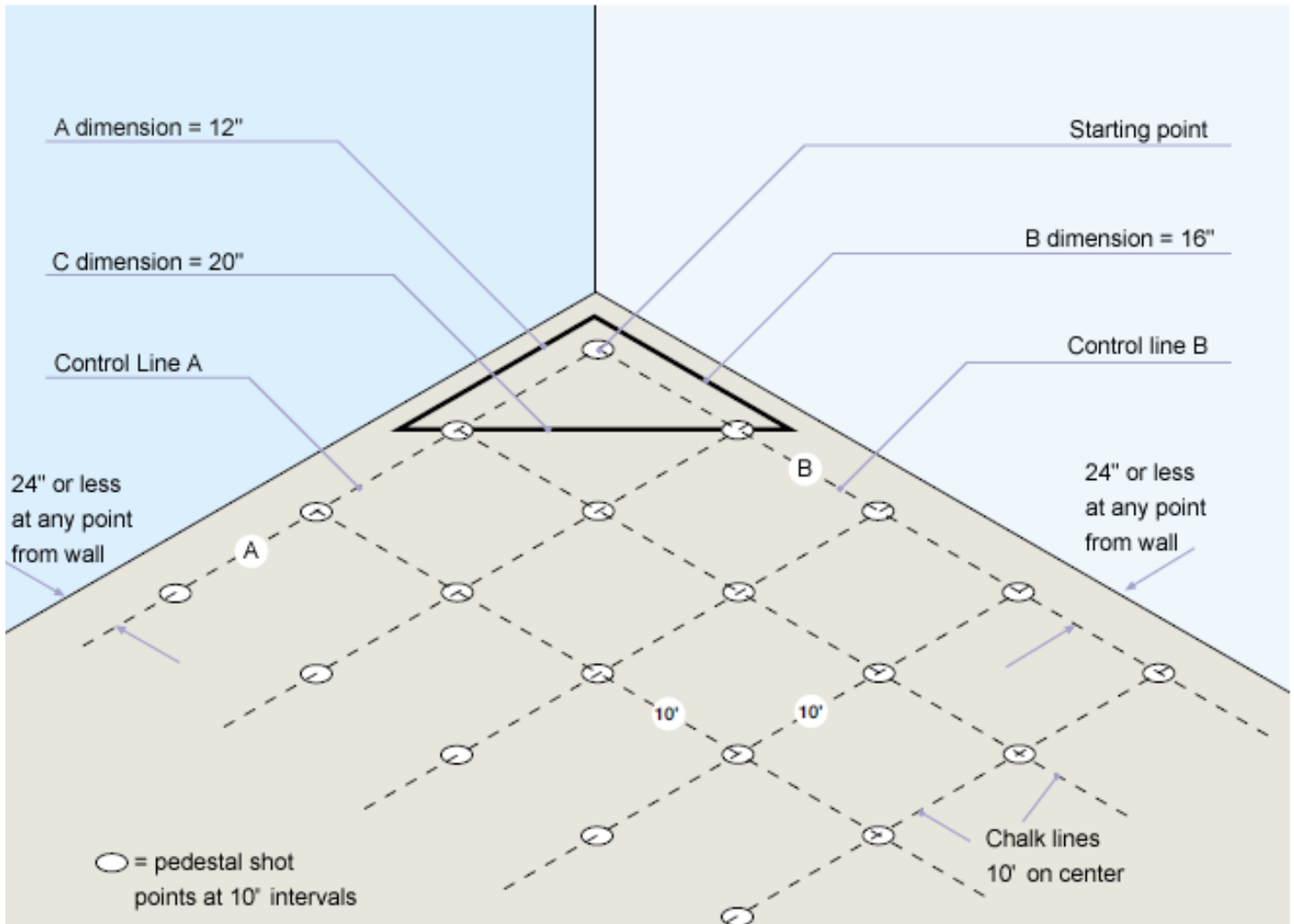
The pedestals placed at the shot points will be used to set the height adjustments for all other pedestals (with the aid of a 10-foot leveling bar). Once the lines are drawn, place all pedestals in their approximate locations. Only the shot point pedestals need to be exactly located at this point.

Porcelain Finish Installation Guide

As mentioned in Step 3 and 4, Figure 1 illustrates how an installer establishes control lines from the designated starting point. Maintaining a distance less than 24" from the wall, the control lines are used to check for wall squareness and serves as a guide for the pedestal shot points at a 10 foot on center interval.

Use the dimension table as a guide for verifying perpendicularity of the control lines.

Figure 1: Laying control lines



Dimension table: To verify perpendicularity when laying out control lines with a tape measure

A			B			C		
3'	6'	12'	4'	8'	16'	5'	10'	20'

Example: If the "A" dimension is 12' and the "B" dimension is 16', then the "C" dimension should be 20'

Step 5 – Level Pedestals in Proper Position

Using a laser, shoot in a pedestal assembly to the proper elevation at every chalk line intersection. Once the pedestals at the intersections are adjusted to the proper elevation, the 10-foot leveling bar will be used to position and set the height of the other pedestals (see Figure #2).

The leveling bar should meet the following requirements: extruded aluminum; nominal width and height dimensions of 1-½" x 3"; straight (without a bow in any direction); marked every 24". To set the height of the remaining pedestals: position the leveling bar so that it spans the pedestals that were adjusted according to the laser – then adjust the height of the four pedestals under the bar to meet the bottom of it (at 24" intervals).



Example of Laser Level

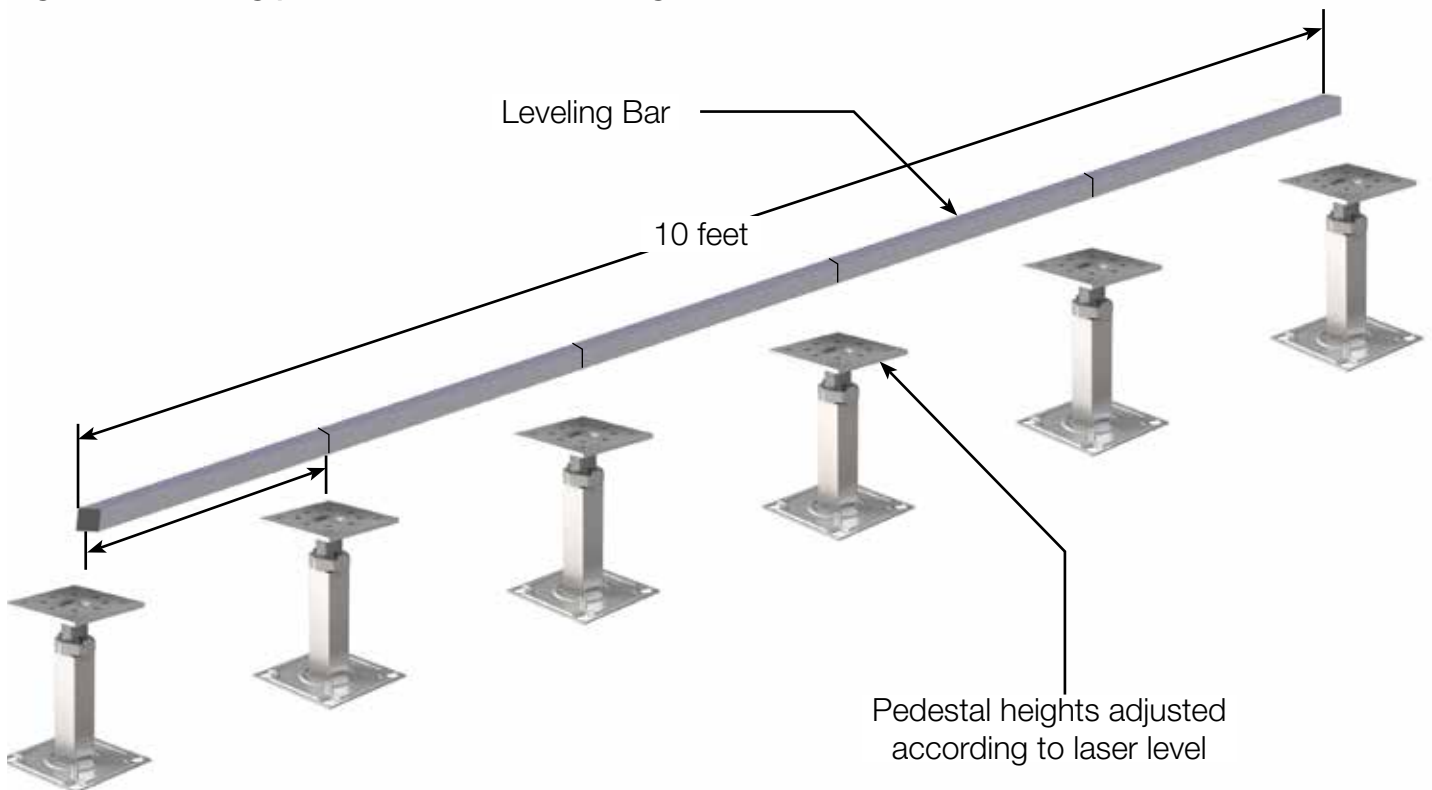
Care must be taken to ensure that all of the pedestal heads touch the bottom of the bar without raising it. Doing this correctly will create a level access floor with panels that do not ‘rock’ in the system.

Remember that the finished access floor must be level within 1/16" in 10 feet of length and 1/8" overall.

After there are two parallel rows (of six pedestals) 10 feet apart, turn the leveling bar 90 degrees to position pedestals between the two rows. Use the bar to position and set the pedestals in between the rows until you have an entire 10' by 10' section with pedestals on 2-foot centers.

Repeat this sequence for each 10' by 10' section.

Figure 2: Leveling pedestals with the leveling bar



Porcelain Finish Installation Guide

Step 6 – Attach Pedestals to the Subfloor with Adhesive

Glue each pedestal base that has been set in place and leveled. Using a spatula type device, tilt the base plate without changing its location and apply adhesive to the bottom of the base plate (see Figure #3). As you apply the adhesive, scrape the spatula against the base plate to remove all adhesive from the spatula. The adhesive should be oozing from under the base on at least three sides. This will give full adhesive coverage to the bottom of the base plate.

There is approximately 60 minutes of adjustment time before the AIM 382 adhesive begins to set and 25 minutes for Seal Bond 95. Pedestal adhesive must still be wet when installing stringers and panels; ensuring that the stringer grid is straight and square throughout the installation process.

Panels should be laid within 30 minutes after pedestal adhesive is applied. Do not install the pedestals and stringers too far ahead of the panels. The placement of the panels will determine the exact pedestal locations. It is best to maintain a 5x5 panel grid at a time, working along the longest wall first. (See 'L' Section)

When installing mechanical anchors, you should install the entire floor by first attaching the pedestals with adhesive. This gives the opportunity to make final adjustments to the position of the pedestals before they are permanently in place. After the panels have been installed and all pedestal adjustments have been made, every other row of panels need to be removed to access the pedestals for anchor installation.

Figure 3: Applying Adhesive

Adhesive spatula can be any tool that allows for the placement of the adhesive. A flat metal tool of 3" or so is typically used to apply the adhesive without disrupting the pedestal.

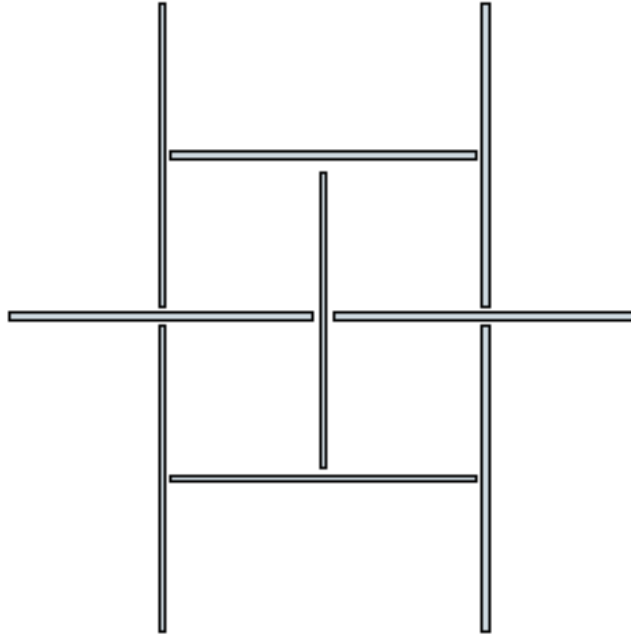


As mentioned above, the following steps of installation will need to be understood before proceeding. Pedestals, stringers, and panels all need to be in place within the adhesive cure time to ensure that adjustments can be made.

Step 7 – Installing Stringers

Attach stringers to the pedestal heads using a torque limiting screw gun. Set torque to 30-inch pounds. Do not over-tighten the stringer screws as this can cause the sides of the stringers to spread out at the bottom. Do not under-torque as this can leave the system loose and make installing the panels more difficult, and adversely affect the electrical continuity of the floor system. Stringers should be installed on a 4'x4' basket weave configuration within the working field area.

4'x4'



4x4ft Basket Weave Configuration



Example of stringer configuration

Porcelain Finish Installation Guide

Step 8 – Creating the ‘L’ Section

In order to create a square access floor, you will first need to create a section of access floor that is shaped like an ‘L’ (see Figure #5). The ‘L’ section will be used like a giant carpenter’s square for installing the rest of the panels in the room. Correctly installing this section is essential to the creation of a straight floor where panels do not rock and where panels are easily removed and replaced.

Creating the long leg of the ‘L’ section

Begin laying in panels at the starting point – lay five rows of panels along the longer wall, making sure that the pedestals nearest to the wall stay on the control lines. (The length of the leg is built up by laying five panel-wide segments – end-to-end – along the wall.) Once the leg is fully installed, you need to verify that it is straight by installing a dry line or by using a laser line on top of the access floor.

Creating the short leg of the ‘L’ section

After installing the long leg of the ‘L’, the chalk control line along the short wall needs to be kept intact until the short leg is installed. Remember that the ‘L’ section of the floor dictates the squareness of the rest of the floor. However, it is still possible (particularly in a long room) for a curve to develop in small increments in the grid. Therefore, a laser line or dry line should be kept stretched along the short wall until at least a five-panel-wide section of the floor is installed along its entire length (see Figure #5, Point B for exact location). Lay five rows of panels along the short wall, perpendicular to the long wall. Follow the previous step for laying panels and be sure to stay on the control lines. After laying the complete ‘L’ section, check (and recheck) to be sure it is square!

Install five rows of panels inside the ‘L’ along either leg (see Figure #5). The leg that you choose to build upon will often depend upon immediate availability of an area or absence of obstructions. You will continue to build upon the ‘L’ in sections that are five panels wide until it is filled in. While you are laying panels in the first section inside of the ‘L’, you should have someone spreading, leveling and preparing the adjacent section for panels.

How to Install a Dry Line

Near your starting point, tie a dry line to a pedestal at the wall and bring it to the floor surface between two panels (Figure #4 shows this between the second and third row). Wrap the line over a spacer and run it the entire length of the leg and attach it to the corresponding pedestal at the other end – in the same manner that it is attached at the point of origin (with a spacer at the top). The seam between the second and third rows of panels should be directly below the dry line. Repeat this step in the other direction when you have created the other leg of the ‘L’ section

Figure 4: Installing a Dry Line

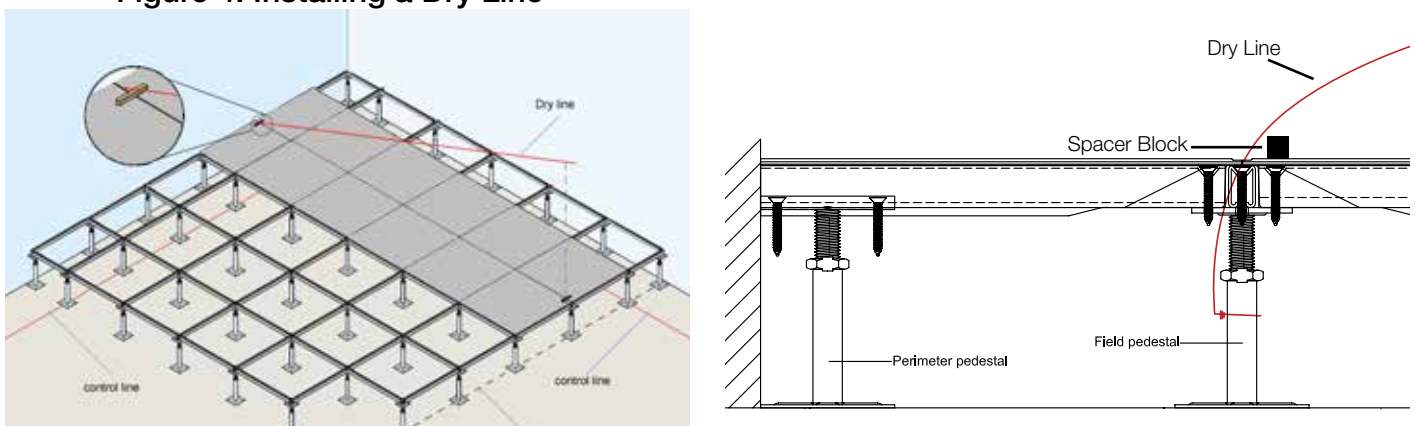
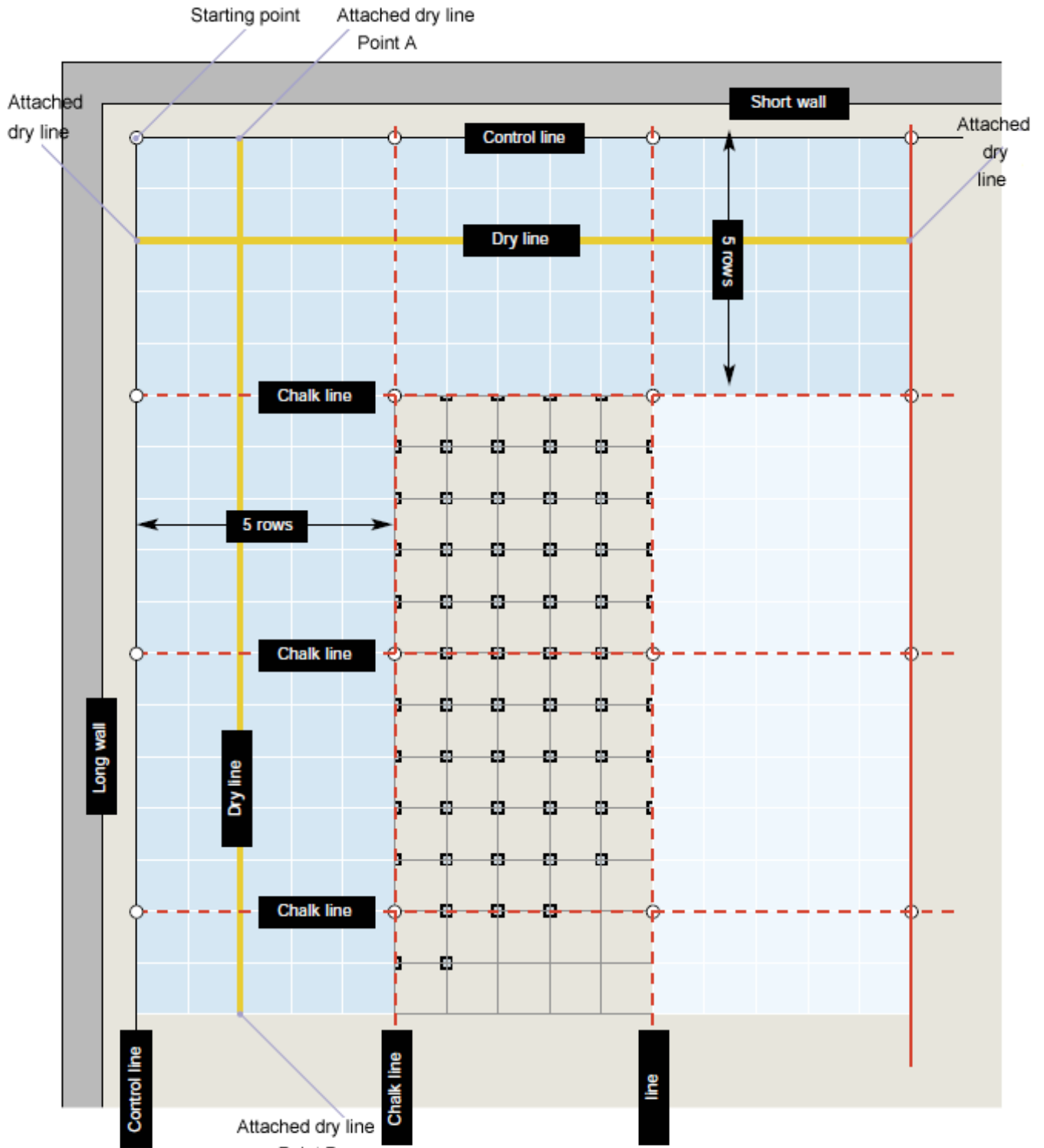


Figure 5: Creating the 'L' Section



○ - pedestal shot point

	Section 1 5 panels wide "L" shape
	Section 2 5 panels wide
	Section 3 5 panels wide

Note: This example shows the "L" section being constructed away from the walls. Grey area represents the "L" (upside down in the drawing).

Porcelain Finish Installation Guide

Step 9 – Installing Panels

The porcelain access floor panels are installed on Tate's bolted stringer system. To install the panel, carefully lower the panel into the grid - resting the lip of the panel on the top of the bolted stringer.

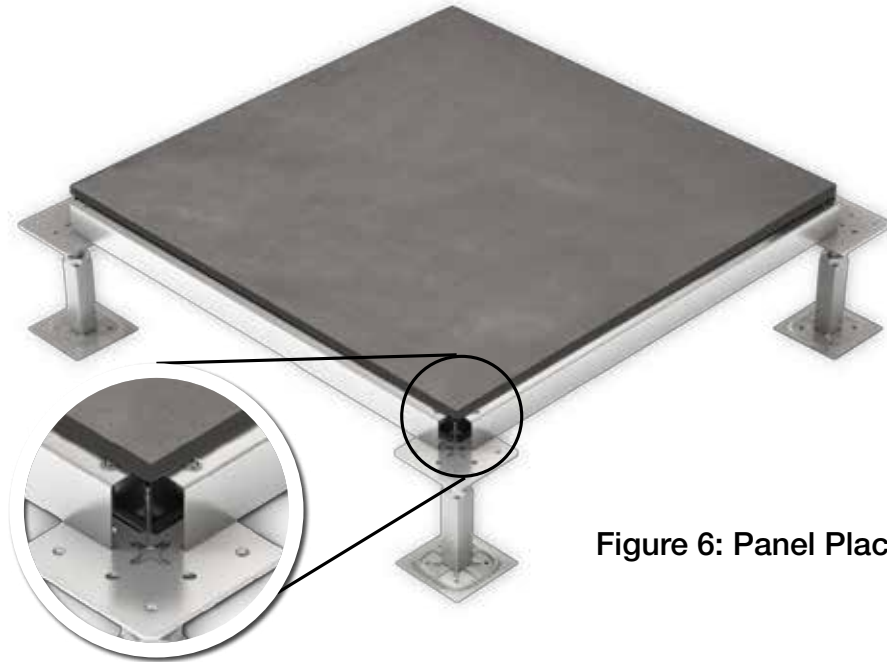


Figure 6: Panel Placement

Step 10 – Perimeter Pedestals

Once the main field of the access floor is in place and square, the perimeter sections need to be installed. Perimeter pedestals are then installed abutted to the wall. Two screws are installed through the pedestal head first to allow the stringer to slide into position.

Figure 7A: Perimeter Pedestal

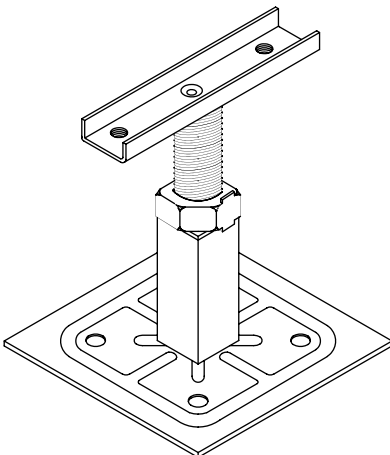


Figure 7B: Perimeter Pedestal Schematic

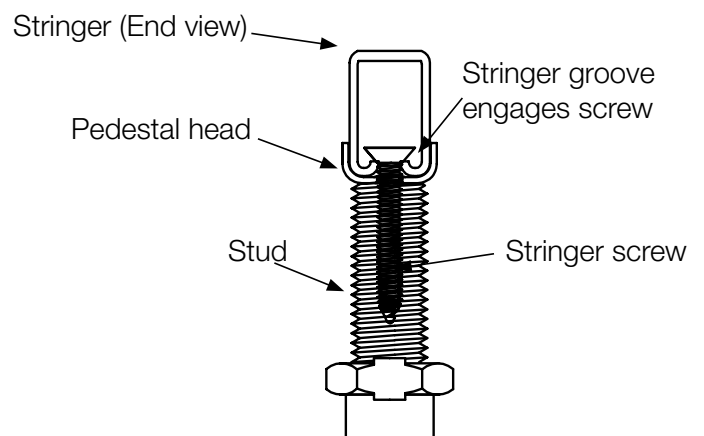


Figure 8A: Top View of Perimeter

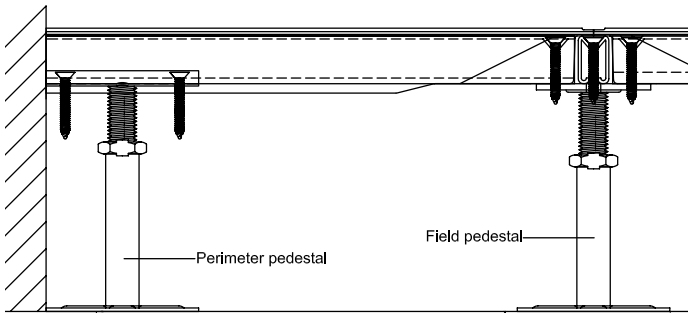
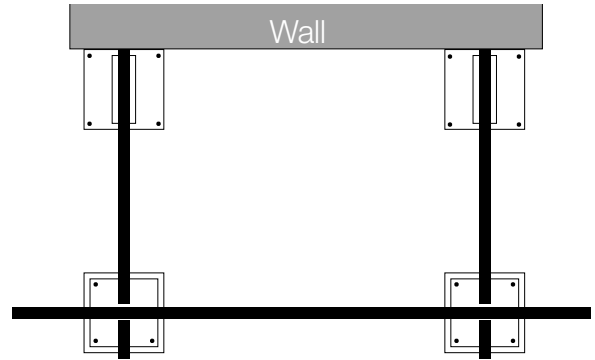


Figure 8B: Top View of Perimeter



As shown in Figure 8, the stringers perpendicular to the wall should extend all the way to the wall surface to provide support for perimeter panels.

Step 11 – Perimeter Panels

Due to most walls not being square, the porcelain panels around the perimeter may need to be measured and cut to size. Before cutting any panels, it is recommended to measure twice to ensure the measurements are coinciding with needs of the perimeter panel. When possible, use mock ups on complex cuts to ensure the panel cut is exact.

Cutting Safety

Cutting is demanding and requires close attention. Safety is paramount to a successful installation. All governing organizational safety standards must be followed and practiced at all times. Proper personal protection equipment should be worn during the cutting process. Tate recommends the following personal protection equipment to be utilized; however, this is not an all encompassing list for every situation.

Personal Protection Equipment

- Safety glasses
- Ear plugs / muffs
- Steel toe safety boots with aggressive slip resistant tread
- NIOSH approved face mask
- Snug, flexible safety gloves

Equipment Needs

- All cutting equipment guards and shields be in place
- Ground Fault Interrupter System

Cutting Methods for Understructure

Tate recommends using a band saw for cutting the understructure including both the pedestals and stringers. Band saws such as the Mobile Applications model MA-615 cutting band saw or a Rockwell Delta Model 28-300 have been proven successful using a steel cutting bi-metal blade.

Length will vary with saw models. The recommended band saw blades are similar to:

- Lennox Bi-Metal 14 TPI 1/2" x .025" or 1/2" x .035" (*Metal Cutting Only*)

Porcelain Finish Installation Guide

Cutting Methods for Panels

Whenever possible, cutouts should be ordered from the factory to ensure proper fit of electrical boxes, grilles, grommets or other access floor accessories. It will also save time and expense at the job site. Interior cuts not done in the factory will need to be waterjet cut. When field cuts can't be avoided such as perimeter cuts, the following guidelines should be followed.

Straight/ Gradual Curve Cuts:

Cutting the porcelain panels is a two-step process:

Step 1: Cut through the porcelain down to the access floor panel using a bridge saw such as the Combicut wet saw or a hand-held circular saw such as the Makita portable wet saw.

Step 2: Then cut through the panel using your standard band saw with bi-metal blade.

The whole procedure will take approximately 5 min.

Note: Care must be taken to cut completely through the porcelain without penetrating too much of the steel. Cutting into the steel will dull the wet saw blade while not cutting totally through the porcelain will severely damage the teeth of the bi-metal blade on the band saw.

Foot Note: For around columns a standard raised access floor bandsaw blade was used.

Outside corner (“L” shaped cuts):

Repeat step 1 & 2 as noted above. The procedure is the same as above right up to the intersection of the two cuts.

- a) Where the two cuts intersect in an “L” shape keep an approx. 1” clearance to ensure the round blade does not cut beyond the intersection and ruin the cut panel (this is generally done with a grinder).
- b) Use a Carbide Grit blade on the band saw to finish the last 1” on both sides to complete the cut (you need to run two band saws each with the appropriate blade, to avoid continuously changing blades).

Please note that the Carbide Grit blade will cut both the porcelain and the panel simultaneously (but is too slow to cut an entire panel, it's only good for short runs). These cuts can take up to double the time approx. 8 - 10 min.

Inside corner cuts:

Are the same as doing two straight cuts, but on one panel. Depending on the lengths of the two sides they can take anywhere from 5 – 10 min.

Interior cuts:

Tate recommends interior cuts be done on a water jet. Field cutting interior cuts is not recommended.

Equipment

Tools:

Porcelain Finish: The first pass was done with:

- Combicut wet saw with an 8” blade rotating at 3,260 RPM (straight cuts)
<http://www.tiletools.com/product/imer-combi-250va-rail-saw/>
- *The Makita portable wet saw is good for intricate cutting and small jobs
<https://www.makitatools.com/products/details/CC02R1>
- *Hilti 4.5” grinder rotating at 10,000 RPM (round, curved or L shaped cuts).
<https://www.hilti.com/cutting%2c-sawing-%26-grinding/cutting-%26-grinding/angle-grinder/r2328133>

** Both these tools are used by hand. The rate of speed varies, depending on the complexity of the cut. It can easily take 2-5 minutes just to cut through the Porcelain alone.*

Tate recommends band saws such as the Mobile Applications model MA-615 for cutting the ConCore Panel.

<http://www.mobileapplicationsltd.com/index.php?webpage=bandsaws>



MA-615 Band Saw



Combicut 250 VA Circular Saw



Makita Wet Saw



Hilti 4.5” Grinder

Porcelain Finish Installation Guide

Blades:

The recommended Combicut bridge saw blade is a porcelain blade made by Pearl.

http://pearlabrasive.com/Pages/ItemClass_Catalog.aspx?search_val=porcelain&search_type=Product&class=&advanced=0

The recommended Makita blade is the Model CC02 and is Diamond wheel diameter of 85mm (3-3/8").

<https://www.makitatools.com/products/details/724950-8D>

The recommended Hilti Grinder blade is the F Series Granite Turbo Blades / DTB-F- by A.Bottini

<https://abottini.com/collections/diamond-blades/products/f-series-granite-turbo-blades>

The recommended bandsaw blades are:

- Lennox Classic HSCO Bi-Metal M42 bandsaw M42 3/4"x.035" – 14 WS
- Lennox Master-Grit Carbide grit bandsaw blade 3/4"x.035" – Coarse gulleted
- Lennox Master-Grit Carbide grit bandsaw blade 1/2"x.025" – Medium continuous

<http://www.lennoxtools.com/pages/master-grit-carbide-band-saw-blades.aspx>

Inside Corner: The preferred blade was the medium continuous, when cutting inside corners (L shaped cuts).

Straight & Gradual Curve Cut: The bi-metal blades were used on all straight cuts.



Pearl Porcelain Blade



F Series Granite Turbo Blades



Makita 3-3/8" Diamond Blade

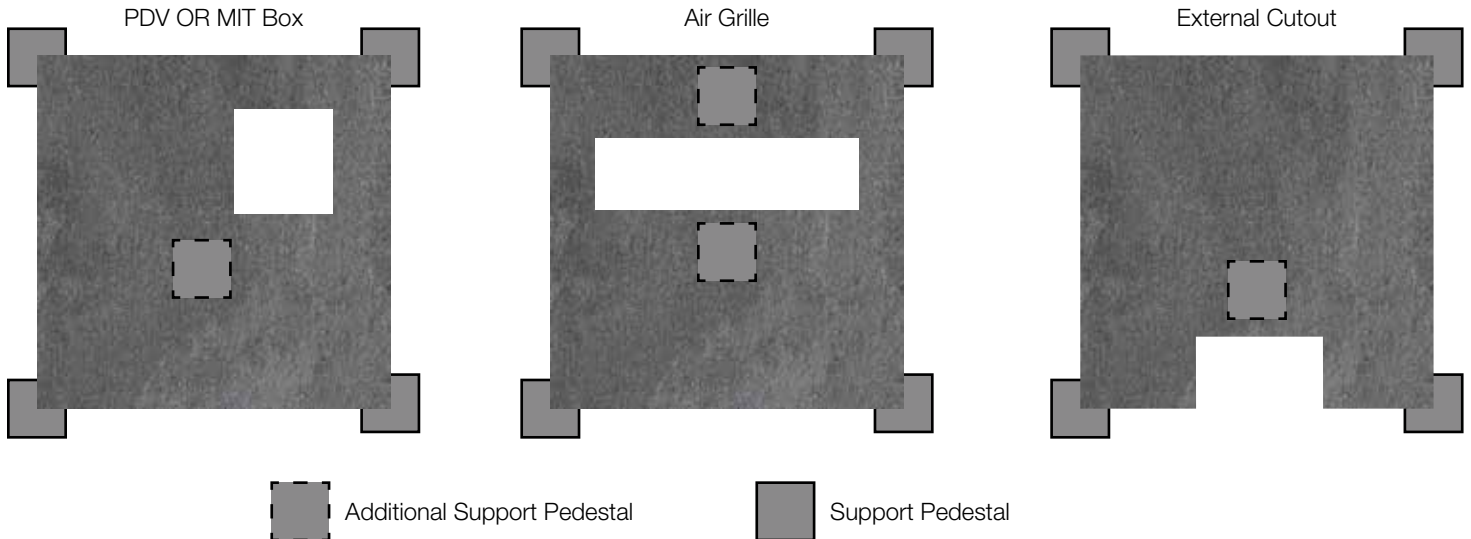


Lennox Master-Grit Carbide

Step 12 – Perimeter Panel Support

All panel cut outs (factory or field cut) must be reinforced with additional pedestals. Below are some examples of typical panel reinforcements. Tate recommends additional support for any opening that is greater than 3 inches.

Figure 9: Examples of Typical Panel with Additional Pedestal Support



Step 15 – Floor Protection

The porcelain surface of the finish and must be protected during the access floor installation. Other trades must be informed and instructed to protect the finish. Protection of the floor's finish should be discussed and planned upon during the pre-job meetings.

All overhead construction must be complete and a safe passage route for heavy rolling items will need to be considered prior to the access floor installation. During construction, a plastic sheet should be laid on the access floor surface. The plastic sheet should remain in place until the floors are ready to be cleaned. Over the plastic sheet, a minimum of 1/4" thick masonite should then be placed on the access floors for additional protection.

Example of Plastic Sheeting



Example of Masonite



Porcelain Finish Installation Guide

Step 16 – Cleaning the Floor

Initial care can be carried out with a damp microfiber mop or a scrubber drier. For either option, the first step is to sweep and vacuum any loose dust, dirt or debris from the floor. It is important not use excessive water or flood the floor.

Microfiber floor mop

Use a slightly damp mop with a high proportion of microfibers (at least 50%). For lightly textured floor tiles, use a deep-pile microfiber mop. If desired, add a small amount of mild detergent or vinegar to the water. Make sure that the cleaning product is suitable for unglazed floor tiles.

http://www.uline.com/BL_8823/Microfiber-Wet-Mops

Scrubber drier machines

Wash the floor with water and detergents suitable for ceramic surfaces. Add a small amount of mild detergent or vinegar to the water in the machine. The cleaning product should be low-lather so that it can be used in scrubber drier machines and suitable for use on unglazed floor tiles. For smooth tiles, use at most a red scrubbing disc. Minimal water should be used.

The surface of porcelain is basically non-absorbent and does not require the use of wax and/or similar products, which, conversely, should never be used. It should be pointed out that porcelain is resistant to any chemicals with the exception of hydrofluoric acid, a very aggressive agent for ceramic products that should never be used. Once cleaning is completed, isolate the cleaned floor until it has completely dried.

<http://www.clarkeus.com/products/autoscrubbers/vantage14.aspx>

Regular Maintenance

Regular vacuuming or wiping prevents the accumulation of dust and dirt. The floor will need to be cleaned regularly to remove more tenacious dirt. Prior to cleaning, first remove loose dirt by vacuuming or sweeping. Use a slightly damp mop with a high proportion of microfibers (at least 50%). For lightly textured floor tiles, use a deep-pile microfiber mop. If desired, add a small amount of mild detergent or vinegar to the water. Make sure that the cleaning product is suitable for unglazed floor tiles.







Corporate Headquarters:

7510 Montevideo Road,
Jessup, MD 20794
Tate Hotline: 1-800-231-7788
Tel: 410-799-4200 Fax: 410-799-4207

Production Facilities:

7510 Montevideo Road,
Jessup, MD 20794
52 Springvale Road,
Red Lion, PA 17356

Canadian Sales & Support Office:

880 Equestrian Court, Oakville,
ON L6L 6L7 Canada
Tate Hotline: 1-800-231-7788
Tel: 905-847-0138 Fax: 905-847-0141

Australian Sales & Support Office:

28 Biloela Street, Villawood NSW 2163
Tel: 02-9728-4111 Fax: 02-9728-3088

Asia Sales & Support Office:

19 Cecil Street
#05-03, The Quadrant
Singapore 049704
Tel: 65-6653-5358 Fax: 65-6468-6681

Central and South American Sales & Support:

Tel: 443-995-1808

European Sales & Support:

B16 Ballymount Corporate Park,
Ballymount Avenue,
Ballymount, Dublin 12, Ireland
Tel: 353-087-9820873

Middle East Sales & Support:

Jebel Ali-Lahbab Road (E 77 Road)
Dubai Investment Park
United Arab Emirates
Tel: 971-561998368

tateinc.com

A Kingspan Group Company



Tate components are proudly made in the U.S.A.