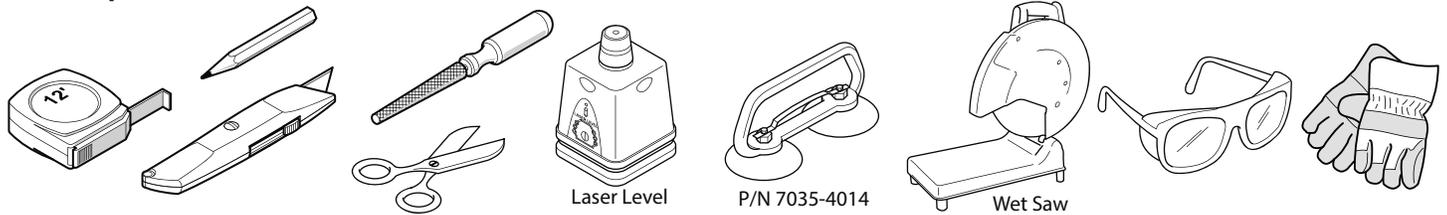


HAWORTH PORCELAIN FLOORING SYSTEM

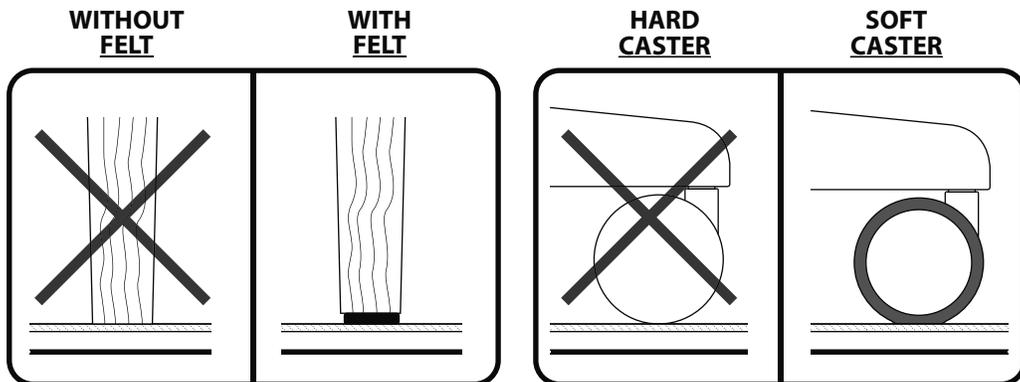
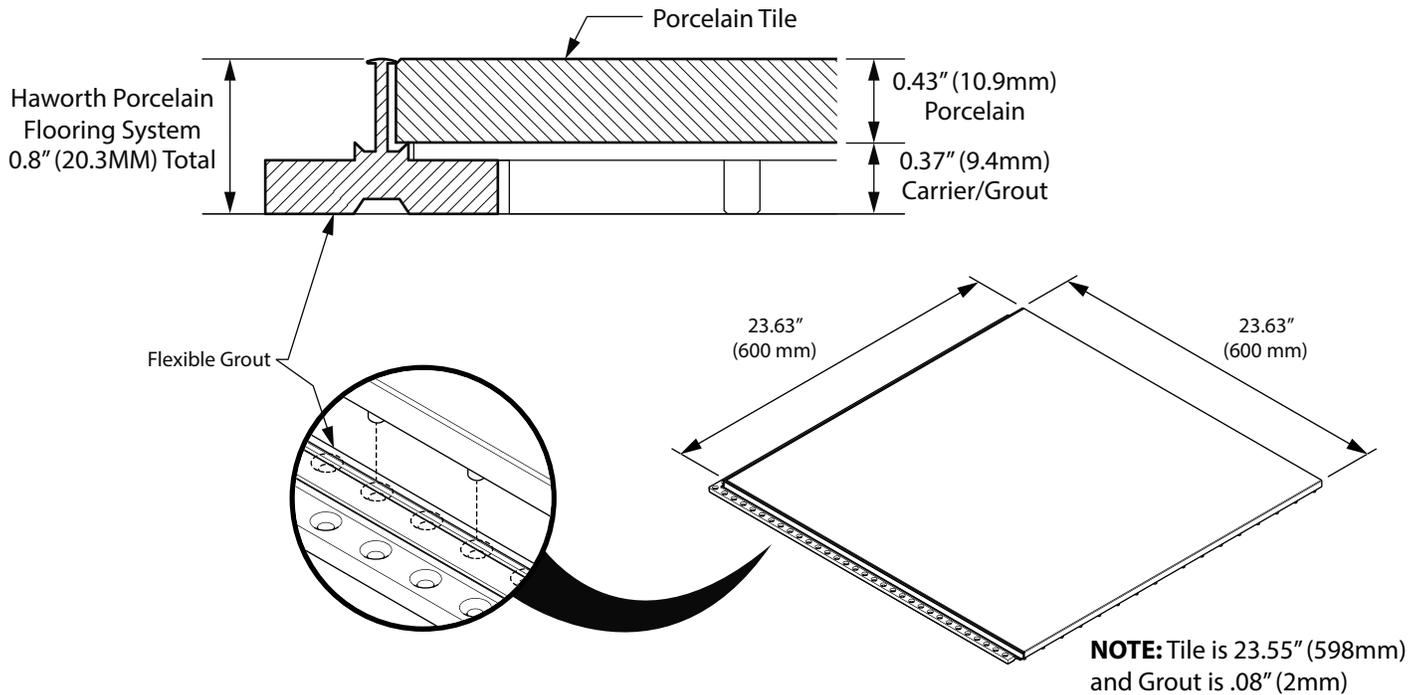
Haworth Porcelain Flooring System

Installation Instructions

Tools Required



The Haworth Porcelain Flooring System by Versaflex is a modular dry lay tile system with snap-together flexible grout which facilitates adhesive free sustainable floor installations. It is important to follow the instructions below to ensure the quality of the product and installation.



IMPORTANT: Use soft wheels and non-marking rubber or felt glides on hard floors to prevent scratches and light spots from abrasion.

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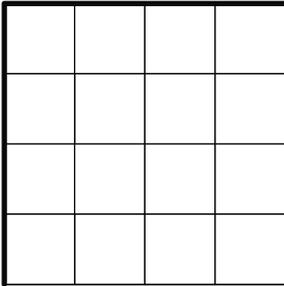
Rev: XA

1

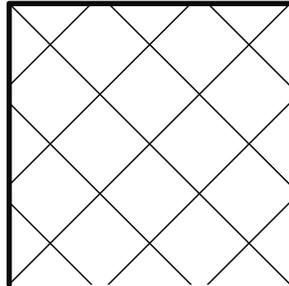
1) Determine the design and layout of the floor.

- Determine the methods for wall trimming and floor covering transitions.
- Note some tile colors have directionality in the pattern. Identify which direction the tiles should be installed.
- If using caulk: Color Rite Incorporated 10.3 oz. Cartridge makes a product flooring contractors have used with success to coordinate with the gray grout (CS-mix-144 Satin or equivalent).
- Plan skirting, transition strips, trims or perimeter sealers can be installed as per the architect and clients's specification.
- Undercutting around cabinets/walls makes for an easier installation.

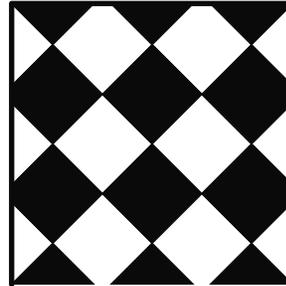
HORIZONTAL



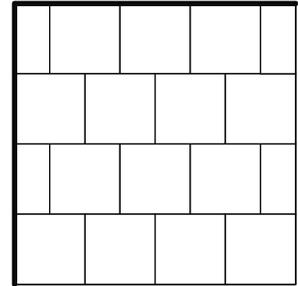
DIAGONAL



PATTERN



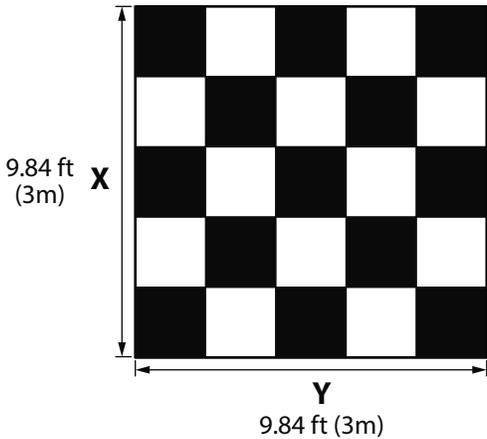
OFFSET



Calculation of Number of Tiles to Order

2) Order an extra 10% in addition to the order quantity for cutting allowance and attic stock.

- Cutting allowance will vary depending on layout (diagonal, pattern and bordered installations require a higher cutting allowance).



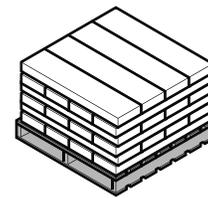
X x Y = SQUARE FOOTAGE

EXAMPLE:

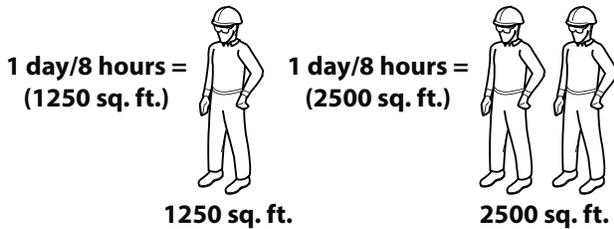
$$9.84 \text{ ft} \times 9.84 \text{ ft} = 96.04 \text{ sq. ft.} / 3.875 = 25 \text{ tiles (1 tile = approximately 3.875 sq. ft.)}$$

CUTTING ALLOWANCE:

$$\text{SQUARE FOOTAGE} + 10\% \text{ for cutting and attic stock} = 96.04 \text{ sq. ft.} + 10\% = 9.604 \text{ sq. ft.}$$



3) Average Installation Rate for "Haworth Porcelain Flooring System"



4) Material delivery - Do not stack all material in one location. Pallet weight = 2300 + lbs.

PRE-INSTALLATION

2

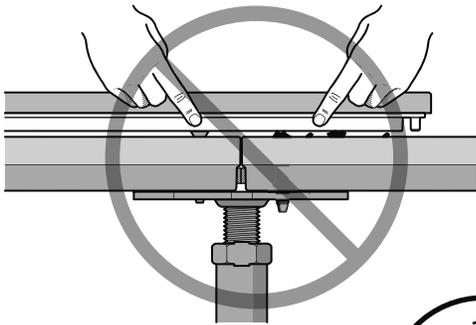
- 1) Prior to and during installation, a secure and dry storage space closed to the weather must be made available for the Haworth Porcelain Flooring System. Once material is received at the job sites, all materials must be acclimatized to the atmospheric conditions that will prevail after installation and during use. Materials should be unpacked and allowed to acclimatize in an area of no less than 60°F (16°C) for a minimum period of 24 hours before installation.
- 2) Material should be stored on a flat surface.
- 3) The Haworth Porcelain Flooring System should be installed only under the following conditions:
 - The site is covered and enclosed
 - The temperature is recommended to be no less than 60°F (16°C)
 - The site is not subject to any wet or humid conditions
 - Work on the walls and ceilings has been completed

- 4) A flat installation is critical to a successful Haworth Porcelain Flooring System. The surface must be completely clean and level before the installation of the Haworth Porcelain Flooring System.
- 5) It is recommended to install the Haworth Porcelain Flooring System at the end of the construction phase, after all the heavy work is completed.
- 6) Note some tiles are directional. Validate which direction the tiles should be installed prior to beginning the install.
- 7) Humidity:
The Haworth Porcelain Flooring System can be installed with a relative humidity reading of 90% or less where tiles are left out.

HAWORTH PORCELAIN FLOORING SYSTEM ON TECRETE

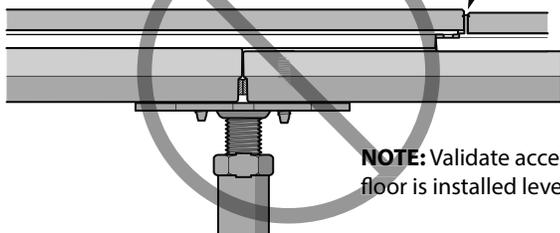
(INCORRECT)

TIGHTEN SCREWS CLEAR DEBRIS



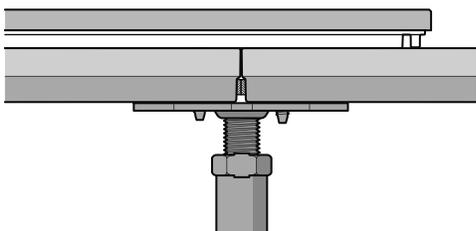
(INCORRECT)

HEIGHT



NOTE: Validate access floor is installed level.

(CORRECT)



HAWORTH PORCELAIN FLOORING SYSTEM ON SUBFLOOR

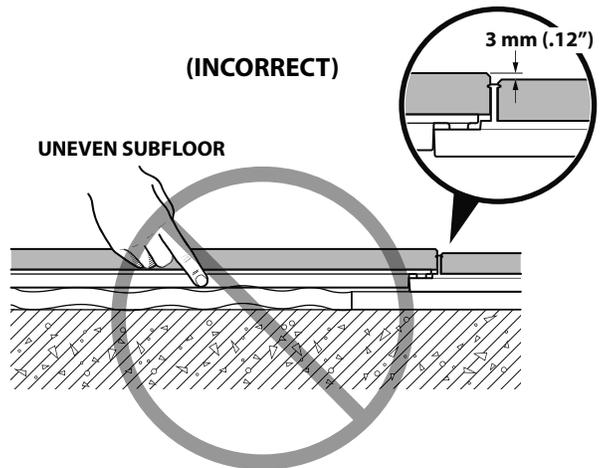
▲ IMPORTANT



Verify that the subfloor is level to within 1/8" (3mm) in 10 feet (3m) and 1/16" in 1' in accordance with the industry standards and methods as outlined in the Tile Commercial of North America Handbook (TCNA) for Ceramic Tile installations, Section F113-16 for thin bed installation of tile. A secondary subfloor preparation step may be required to meet this specification. For example; grinding the subfloor or using a self-leveling underlayment.

(INCORRECT)

UNEVEN SUBFLOOR



(CORRECT)



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GENERAL CUTTING

3

- 1) The Haworth Porcelain Flooring System, tile and carrier, must be cut together using a wet saw or angle grinder (See recommendation below). The saw must have a cut depth of more than 0.80" (20.3mm) to be able to cut the total module including the grid. The ceramic should be cut with the ceramic facing upwards when placed on the wet saw bed.
- 2) A hand held angle grinder can be used for intricate corners or design cuts. The system carrier must be left attached.
- 3) Grout at the base of the wall can be cut with a utility knife or scissors.
- 4) Recommended cutting tools (or equivalent):
 - 36" MK Diamond with 10" blade MK-221-4
 - Montolit Brooklyn Diamond Blade Wet Saw / CPS180 Blades; or
 - Rubi DW 200N wet saw / Marcris CK850 diamond blades
- 3) Before cutting, be sure the pattern in the tile is facing the proper direction.

PERIMETER AND OBSTACLES

- 1) Care should be taken when installing smaller cuts as they are more fragile than uncut full size modules. Avoid small pie cuts whenever possible.
- 2) Curved cutting can be carried out using an angle grinder working from the face through to the grid.
- 3) Cut the grout at the base of the wall with scissors or utility knife (Figure 1).
- 4) Keep extra cut grout pieces for perimeter usage.

NOTE: Additional Perimeter Grouts/Connectors should be taken from the tiles that are to be cut to size. Grout pieces need to be laid at the start of the installation.

Factory Applied Grout/Connectors

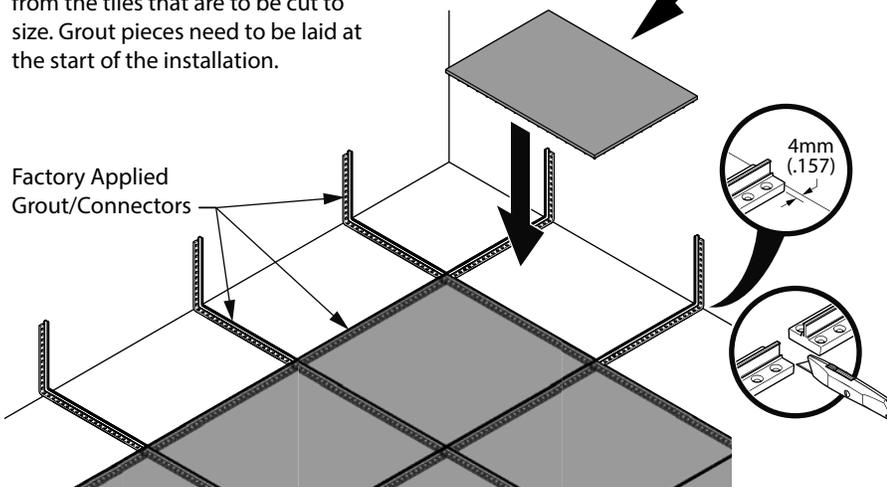
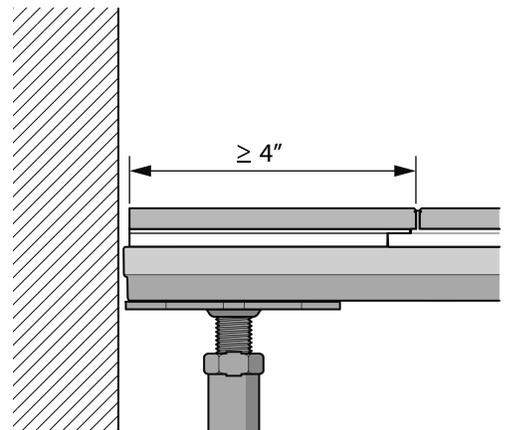


Figure 1

Recommend:

Saw 36" MK Diamond with 10" blade MK-221-4. Smaller saws add time.

NOTE: Recommended 4" or larger.



INTERIOR CUTTING

- 1) Planning interior cutouts should be done based on floor layout.
- 2) If installed on TecCrete, TecCrete cuts must be done in the field to match cutouts made in the porcelain tile.
- 3) Additional pedestals may be required under TecCrete panel depending on cutout location. Contact Haworth Engineering for recommendations on pedestal placement.
- 4) Interior cuts, such as power boxes and diffusers, should be cut using an angle grinder.
- 5) Drilling such as grommets, can be carried out using Montolit drill bits up to a diameter of 4.72" (120mm).
- 6) Use a round file to smooth rough edges of the tile.
- 7) For visible cut edges, rub it against a sheet of 80-grit aluminum oxide sandpaper to round and smooth the edge.

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STARTING POINTS

4

- 1) At the starting point it is recommended that the perimeter cuts are approximately 4" (101.6mm) or larger.
- 2) Starting at the corner (Figure 2) shows a typical starting layout in the corner of a room situated along the longest wall.
- 3) The corner starting point may not be desirable due to design requirements to have the module lines match the column lines, the ceiling grid lines, or if the room has a run of 50 panels or more. Long runs (50 panels or more) should be minimized by locating the start point in the middle of the room (Figure 2). This will halve the growth or shrinkage that may result in the installation if it were started in the corner. A middle start point also allows two installation crews to work away from each other and continue the installation in a progressive manner.
- 4) Before starting the 3,4,5 installation of full tile lay in perimeter grout taken from the tiles that are to be cut to size. This will ensure grout/connectors are in place and ready to receive the cut perimeter modules. Cut tile and carrier can be added during or after the main field has been completed (see Figure 1). These grouts/connectors can be trimmed to the wall and covered by optional base molding.
- 5) Establish square lines along the longest room dimension, stretch the chalk line through the start point and anchor at an equal distance from the wall or column at the other end of the room and snap a chalk line on the floor (Figure 3).
 - Square the dry lines by using the 3-4-5 measuring technique as shown in (Figure 3). Measure out 15 on the chalk line from the start point and make a mark on the subfloor. Next, measure out 20 from the start point along another line at a right angle to the first chalk line, and strike an arc on the floor with a pencil. Then measure 25 from the 15 mark on the chalk line and make an arc with a pencil to intersect the first arc. The intersection of the arcs determines the point that the second chalk line must pass through. Anchor the chalk line through the arc intersection and the start point, and then snap a second line. The chalk lines are now square and establish the edges of the first row of full panels in each direction. Double check the dimensions for squareness and the layout against other features of the building to be sure the square lines are running consistently with the building. Make the 3-4-5 dimensions as long as possible to increase the accuracy of the square. Any multiple of 3-4-5 will work as well (such as 15-20-25 as shown in Figure 3).
 - It is impossible to fix an out-of-square condition after installing a large section of floor.
- 6) Always check and ensure that the grout is facing the same directions on each tile, accurately following the datum lines (Figure 5). It is also important to verify the pattern in the tile is going the direction the architect intended.
- 7) Frequent visual checks should be made to ensure that the tile surfaces do not protrude. Check that no modules rock under foot. Both of these conditions are indicative of the subfloor not being totally level and need to be addressed before the installation can continue. Constant visual and physical checks should be made to ensure the squareness of the installation.

STARTING POINTS (OPTIONS)

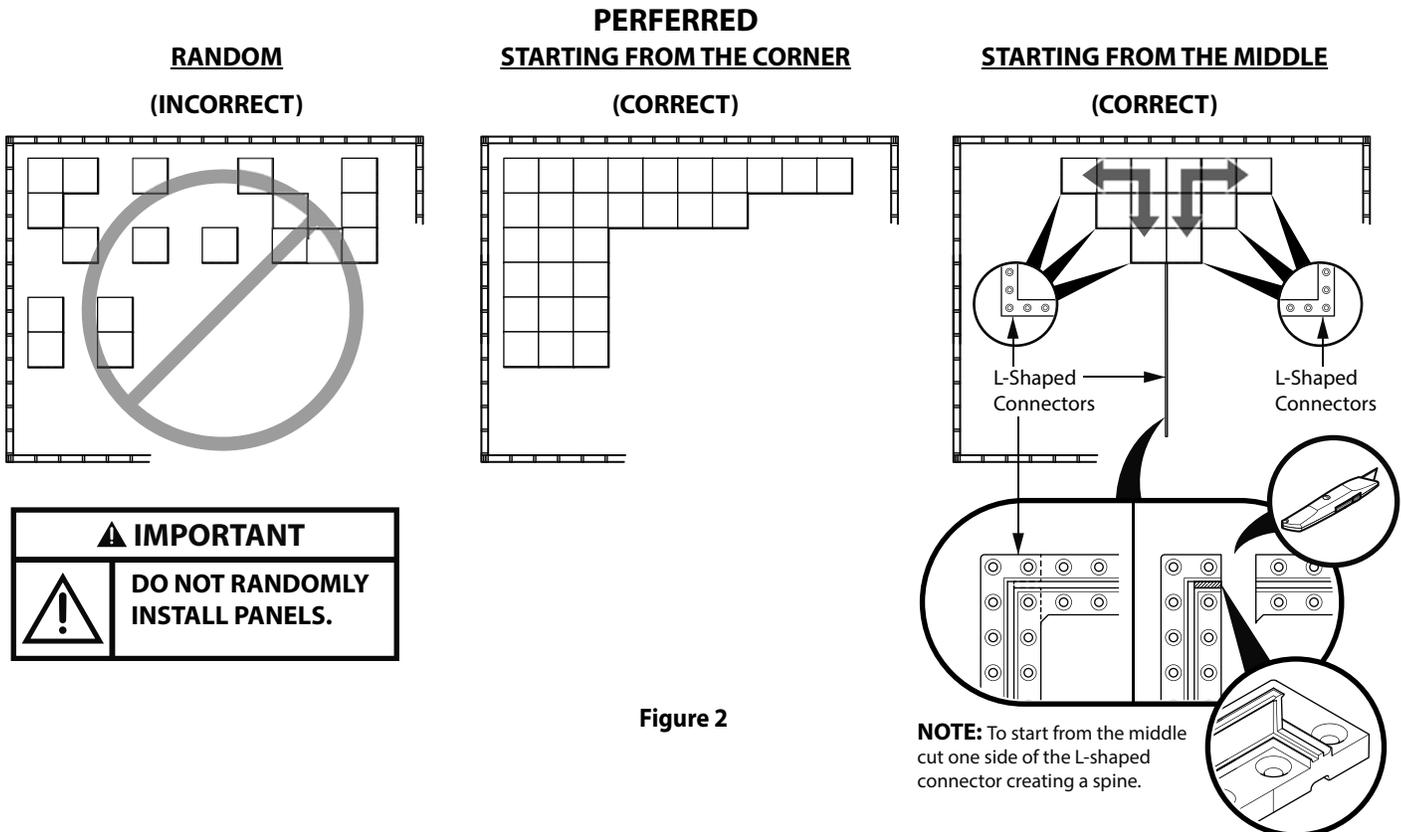


Figure 2

NOTE: To start from the middle cut one side of the L-shaped connector creating a spine.

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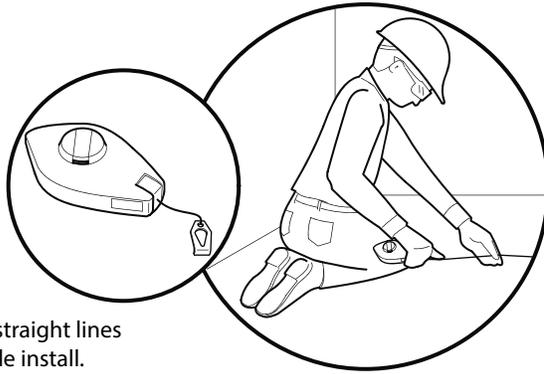
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STARTING POINTS MEASURING



NOTE: Verify straight lines throughout tile install.

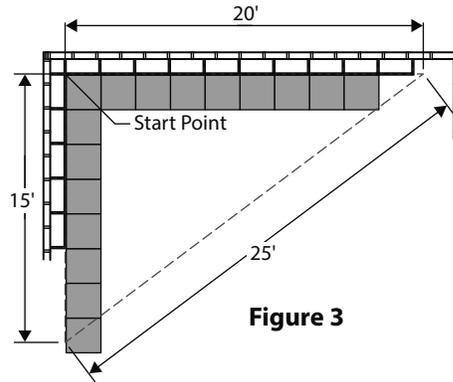


Figure 3

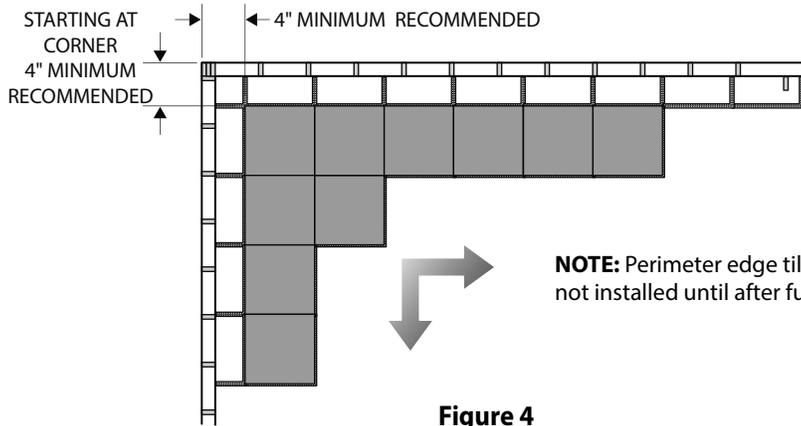


Figure 4

NOTE: Perimeter edge tiles are not installed until after full tiles.

NOTE: L-Shaped attached connectors always have to face the same direction: towards the next tile to be installed.

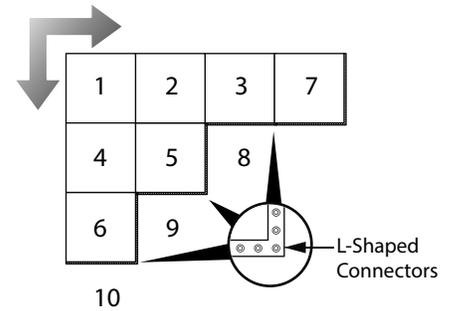


Figure 5

INSTALLATION INSTRUCTIONS

5

- 1) The Haworth Porcelain Flooring System is not designed to be one for one lined up with TecCrete.
- 2) Ensure that the two factory applied "grout" edges (shown in Figure 6) are positioned facing into the main field of installation.
- 3) Modules are then aligned so that the corresponding grid pegs marry up with the holes in the grout of the neighboring tile (see Figure 7 & 8). Firm but gentle pressure can be used to connect the two tiles.
- 4) Changes in direction of install may be needed. To change direction cut one side of the grout-L to fully encapsulate the tile (Figure 9).
- 5) Interior cuts, such as power boxes and diffusers should be cut by a professional installer using a water jet saw or angle grinder.
- 6) Curved cutting can be carried out using an angle grinder working from the face through to the grid.
- 7) Drilling such as grommets, can be carried out using Montolit drill bits up to a diameter of 4.72" (120mm).
- 8) Recommended cutting tools (or equivalent):
 - 36" MK Diamond with 10" blade MK-221-4
 - Montolit Brooklyn Diamond Blade Wet Saw / CPS180 Blades; or
 - Rubi DW 200N wet saw / Marcris CK850 diamond blades.
- 9) If tiles are rocking the problem must be corrected. If the grout joint has disappeared under an adjacent tile (Figure 8A), the tile must be lifted and the grout should be adjusted to its proper position.
- 10) Finish the cut tiles at the perimeter around columns with caulk, skirting board or a combinations.

NOTE: L-Shaped attached connectors always have to face the same direction: towards the next tile to be installed.

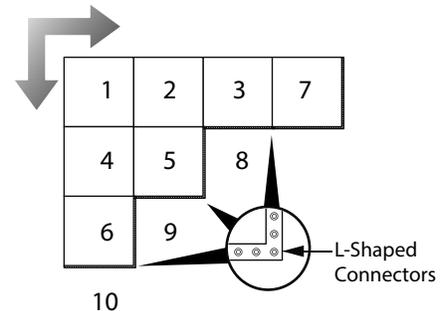


Figure 6

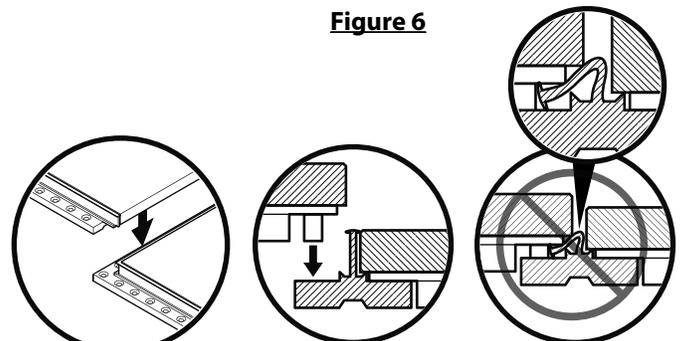


Figure 7

Figure 8

Figure 8A

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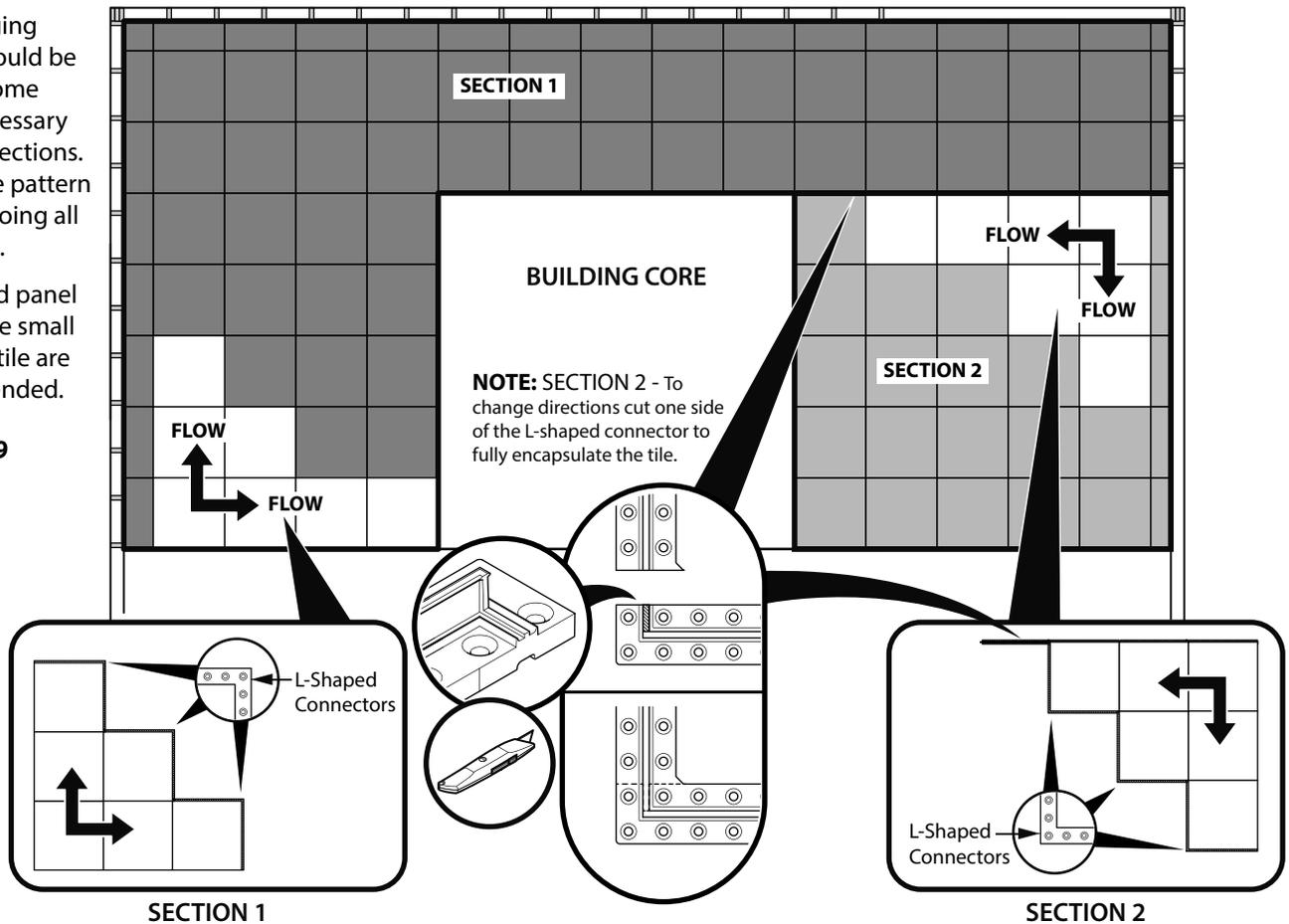
Rev: A

CHANGING DIRECTIONS

NOTE: Changing directions should be avoided. In some cases it is necessary to change directions. Be certain the pattern in the tile is going all one direction.

NOTE: Angled panel cuts that leave small slivers of the tile are not recommended.

Figure 9



POST INSTALLATION

6

- 1) Immediately following installation of the Haworth Porcelain Flooring System, the floor should be swept, dust mopped or vacuumed immediately.
- 2) The Haworth Porcelain Flooring System requires immediate protection after installation (e.g. ram board) and should also be protected from rolling loads or static loads brought onto the system during the construction work/fit-out stage.
- 3) Care should also be taken post installation when moving furniture or other heavy items. After installation, $\frac{3}{4}$ " plywood is required (plywood sheeting not less than 12mm thick) when using lifts. Note lifts should be approved by Haworth Product Engineering.

ACCESS TO SUBFLOOR

7

- 1) It is strongly recommended that panels be removed and replaced by the Haworth flooring contractor to maintain the best floor performance.
- 2) When lifting and replacing the Haworth Porcelain Flooring System use a rubber suction cup lifter such as a raised access floor panel lifter (Figure 10).
- 3) Apply gentle lifting force to each corner of the system and gradually ease the joining pegs from the holes in the grout. Once the tile has been released, remove carefully supporting the weight from underneath and not relying solely on the suction cup lifter.
- 4) To refit the system, align the grid pegs with the grout holes and lower into place. Push with gentle force. Make sure the grout joints are not caught under an adjacent tile (Figure 8A).
- 5) To access the subfloor multiple porcelain floor tiles may need to be removed (Figure 10).

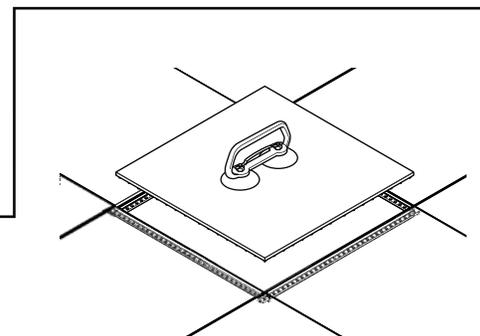


Figure 10

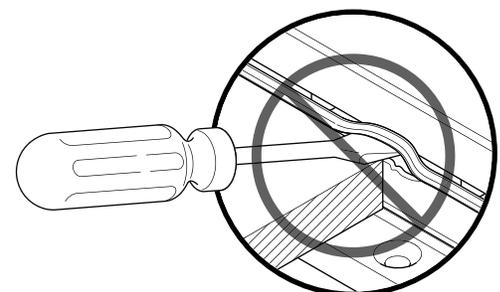


Figure 10A

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Initial Maintenance

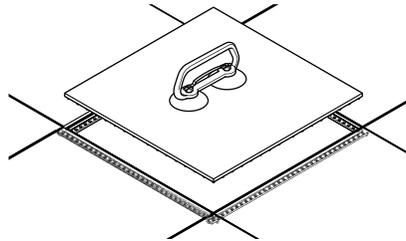
- Floor should be swept, dust mopped or vacuumed immediately following installation of the Haworth Porcelain Flooring System.
- Before turning the space over to the customer do the initial cleaning using a damp mop and warm water containing a very dilute ph neutral detergent solution such as Stone Tech All Purpose Daily Cleaner for Stone and Tile. It is vital that floor cleaning detergents does not contain animal fats, oils, wax or polymers as a base. Before you begin cleaning always do a chemical compatibility test on an area before proceeding with cleaning the full floor.

Ongoing Maintenance

- Correct maintenance of the Haworth Porcelain Flooring System will preserve and extend its useful life while maintaining a satisfactory level of appearance and comfort.
- Walk off mats at entrances are an integral part of any maintenance program as they are designed to capture inbound soil at threshold points. This soil can be removed by vacuuming so that it does not spread to other areas.
- A good vacuuming/sweeping program is essential for the long term appearance of this product. In addition to removing soil, vacuum cleaning/sweeping enhances the appearance of the product.
- Loose dust and dirt should be removed by use of a suction only vacuum cleaner or by use of a medium bristled broom or brush. Frequency of cleaning is determined by visual inspection but ideally should be carried out daily.

Deep Cleaning

- The area should be vacuumed or swept as detailed above before any deep cleaning process for large areas or areas with ingrained dirt, machine cleaning equipment or the use of a bonnet or spin cleaning system can be used. Water only cleaning or a minimal amount of detergent should be used.
- Too much soap used in cleaning will result in surface build-up causing change in tile appearance.
- Before you begin cleaning always do a chemical compatibility test on an area before proceeding with cleaning the full floor.
- Deep Cleaning with floor cleaning scrubber is not recommended for daily use. Do not leave extra standing water on the floor after cleaning. Use an extra vacuum pass to remove excess water. It is recommended to lift a tile to ensure the sub floor is dry in between cleanings. One floor cleaning scrubber that has been used with success is the Noble Speedscrub.



Quick Fix Tips

• Spot Cleaning

- o Immediate action should be taken with spots and spills; this will reduce the probability of permanent staining. Daily removal of spots will help maintain an acceptable level of appearance. Localized stains caused by accidental spillage may occur.
- o Mop as much of the spill as possible, using a damp cloth or microfiber, and work from the outer edge towards the center of the spill to prevent spreading.
- o If the spill is semi-solid or has hardened, gently scrape it with a plastic putty knife to remove the excess particles.
- o Do not rub or agitate too vigorously and take care not to let liquids lie within the grout area.
- o Do not use detergents or spot cleaners unless absolutely essential. A damp cloth will be sufficient to remove most stains. If a stubborn stain persists, use a very dilute neutral detergent solution such as Stone Tech All Purpose Daily Cleaner for Stone and Tile applied directly to the cloth to help remove it.
- o The use of a non-scratch plastic scouring pad and mild neutral detergent can be used for stubborn stains that have been left for a period of time. Always do a test on an area before proceeding fully.
- o To remove chewing gum, a chewing gum remover product or similar can be used. Lightly spray onto the affected area allowing the product to freeze the gum. Use a plastic putty knife to gently scrape it off. Care should be taken not to damage the surface by using excess force or a sharp object. Any frozen particles should be removed as soon as possible either by gentle brushing or vacuum cleaning. Always do a test on an area before proceeding fully.

• Grout Discoloration

- o If the grout becomes discolored or soiled at any time, the grout lines can be cleaned using a soft and non-abrasive cloth. Using a damp cloth, draw along the grout lines thus removing any build-up of soiling. Mild detergent can be used but is not generally recommended.

• Access To Subfloor

- o Damaged tiles can be easily replaced by removing the complete tile and carrier, leaving the grout and replacing it with a new tile and carrier.
- o It is strongly recommended that panels be removed and replaced by the Haworth flooring contractor to maintain the best floor performance to make sure panels are replaced in the same orientation to maintain a level floor and replace all screws in the floor.
- o When lifting and replacing the Haworth Porcelain Flooring System use a rubber suction lifter such as a raised access floor panel lifter.
- o Apply gentle lifting force to each corner of the system and gradually ease the joining pegs from the holes in the grout. Once the tile has been released, remove carefully supporting the weight from underneath and not relying solely on the suction lifter.
- o To refit the system, align the grid pegs with the grout holes and lower into place. Push with gentle force.
- o To access the subfloor below the TecCrete multiple porcelain floor tiles may need to be removed.

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