TecCrete Access Flooring

Application Guide
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LEED®-NC 2.1

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TecCrete Product Overview
TecCrete

TecCrete Access Flooring offers a far more solid feel underfoot than conventional access flooring, due to its exclusive concrete-and-steel composite design. The system is available in two standard constructions:

- TecCrete1250 is an ideal solution for offices, schools, universities, libraries or museums – any environment that requires an extraordinarily durable and quiet variable-height access floor.
- TecCrete2000s variable-height access floor offers exceptional durability under heavy loads, such as in casinos.

Key Features & Benefits

- **Designed specifically for office use**: TecCrete isn't a “computer room” floor adapted for use in workspaces.
- **Solid under foot**: Flexes 50% less than a conventional raised floor when walked on.
- **Durable, weldless construction**: Unique steel-and-concrete composite structure eliminates welds that can break invisibly during use.
- **Stands up to heavy rolling loads**: Limits the potential for damage from rolling loads, especially those that occur during construction.
- **Solid, single-thickness structure**: TecCrete1250, at 1 1/8" (29mm) thick, and TecCrete2000s, at 1 1/2" (38mm) thick, both have solid concrete and steel construction from end to end.
- **“Library Quiet”**: TecCrete’s thickness and density more effectively attenuate sound.
- **Better thermal insulation**: After 15 minutes, a 1500°F fire under TecCrete1250 panel, or a 1600°F fire under TecCrete2000s panel, produces only 150°F at the center of the top side of the panel.
- **Flat underside**: Allows for easier and more economical installation and sealing of underfloor plenum dividers.
- **Made from real concrete**: Not cementitious slurry like conventional access flooring.
- **Beautiful enough to leave bare**: The exposed concrete surface offers an aesthetic option not available with other access flooring systems.
- **Works as a construction platform**: Handles the heavier rolling and impact loads that occur during construction and move-in without permanently denting and dishing.
- **Rock-solid reliability**: No reported failures after nearly two decades and tens of millions of square feet installed.

Additional Features

- For finished floor heights of 6" and above pedestals offer 2" (51mm) of total adjustment, ± 1" (25.4mm), to easily accommodate irregular subfloors.
- PedLock™ feature assures positive engagement between the pedestal head and TecCrete panel.
- Grounded panel offers built-in protection from unwanted static discharge.
- More than 50 integral steel sheer tabs provide structural bonding between concrete and steel.
- Completely non-combustible.
- All steel components are hot-dipped galvanized or galvanneal.
- Made in the USA.
Understructure Options

- Available with stringered understructure.
- TecSeal™ air seal strip. (Provides a plenum seal when TecCrete is used with a bare finish in an underfloor air application.)
- Standard pedestals with finished floor heights from 3” to 30” (76mm to 762mm) for TecCrete1250, and from 7” to 30” (178mm to 762mm) for TecCrete2000s. Other heights are available by special order.
- Seismic pedestals in a variety of heights and configurations.

Panel Options

- Factory-supplied cutouts for diffusers, grommets and electrical boxes.
- Available with a concentrated load rating of 1,250 lbs. (567 kg) for TecCrete1250, and 2,000 lbs. (907 kg) for TecCrete2000s.

Companion Products and Systems

- Haworth Power Web.
- Haworth Pre-Terminated Zone Voice and Data.
- Haworth furniture and wall systems.

Typical Configuration

- Bare TecCrete1250 panel corner-locked to pedestals.
- Bare TecCrete1250 panel corner-locked to pedestals and bolted-stringer understructure.
- Bare TecCrete2000s panel corner-locked to pedestals and bolted-stringer understructure.

TecCrete, TecSeal and Pedlock are trademarks of Haworth, Inc.
TecCrete Statement of Line

TecCrete Panels

Note: See price list for available cutout options.
TecCrete Understructure, Low Profile 3” (76mm) FFH

TecCrete Understructure, Low Profile 4” (102mm), and 5” (127mm) FFH

TecCrete1250 Understructure, Standard Profile 6” (152mm) minimum to 30” (762mm) maximum FFH

All TecCrete bases are available in Cornerlock Field Heads or Perimeter Heads shown above in standard and low profile versions.

Type 1

Type 2

Type 3

Type 4

Type 5

TecCrete1250 Seismic Understructure, 6” minimum to 30” maximum FFH

Note: For additional seismic base options, please see page 18.
Steel Stringer with Gasket – 2’ and 4’

Heights can be 8”, 12”, 18” and 24”

Steel Fascia Plates

TecSeal Air Seal

Steel Fascia Bottom Angle

Aluminum Fascia Top Angle

TecCrete Panel Ramp (components shown on next page)
Ramp Shoe

Ramp Threshold

Adhesives

Swivel-head Pedestal

Lifting Bar

Grommet – 4”, 5”

Grommet – 1 ¼” & 3”

Grommet – 4”, 5”
TecCrete Cornerlock Panels

Self-positioning corner locks

Light weight, high strength concrete

Full Panel

1 1/8” – 1250
1 1/4” – 2000s

Galvanized, hot dipped steel pan

Sheer tabs

Sheer tabs – embedding concrete with steel for added strength and durability

Cutaway Panel
General Information


Panel size (nominal): 24” x 24” (610mm x 610mm)

Panel thickness: TecCrete1250 – 1/4” (29mm) high bare finish
TecCrete2000s – 1/2” (38mm) high bare finish

Panel weight: TecCrete1250 – 11.2 lbs./ft² (55.68 kgs/m²) bare finish
TecCrete2000s – 13.2 lbs./ft² (6.0 kgs/m²) bare finish

Finished floor height: 3” to 30” (76mm x 762mm) – Other heights available

Panel finish: Standard bare concrete

Fire resistance: Non-combustible

Panel Options

- Factory supplied water jet cutouts for diffusers, grommets and electrical boxes.

Understructure Options

- Cornerlock pedestal, field, and perimeter understructure is available for low 3” (76mm), 4” (102mm), and 5” (127mm), and standard, 6” to 30” (152mm to 762mm) finished floor heights.
- Seismic options are also available.
- For non-standard pedestal options, please contact your Haworth representative.
- Stringers are available in 24” (610mm) and 48” (1219mm) lengths.
- TecCrete’s flat underside allows placement of pedestals anywhere under the panel, making support of partial panels at walls and columns easier and more secure.

Underfloor Air Applications

- TecSeal™ air seal strip provides a plenum seal when TecCrete is used with a bare finish in an underfloor air application.

Companion Products and Systems

- Haworth Power Web.
- Haworth Pre-Terminated Zone Voice and Data.
- Haworth furniture and wall systems.

TecCrete Panel Performance Ratings

<table>
<thead>
<tr>
<th>Access Floor Performance Ratings</th>
<th>Dynamic Load Rating</th>
<th>Static Load Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>TecCrete1250 Without Stringers</td>
<td>Rolling 10 Passes</td>
<td>Concentrated PSI</td>
</tr>
<tr>
<td></td>
<td>Rolling 10,000 Passes</td>
<td>Uniform PSF</td>
</tr>
<tr>
<td></td>
<td>1,200 lbs. &lt; .020</td>
<td>1,250 lbs. &lt; .10</td>
</tr>
<tr>
<td></td>
<td>(554 kg)</td>
<td>(567 kg)</td>
</tr>
<tr>
<td>TecCrete1250 With Bolted Stringers</td>
<td>900 lbs. &lt; .040 (363 kg)</td>
<td>1,600 lbs. &lt; .10 (726 kg)</td>
</tr>
<tr>
<td></td>
<td>1,300 lbs. &lt; .020 (590 kg)</td>
<td>392 PSF</td>
</tr>
<tr>
<td>TecCrete2000s Bolted Stringer</td>
<td>1,750 lbs. &lt; .040 (794 kg)</td>
<td>2,000 lbs. &lt; .10 (907 kg)</td>
</tr>
<tr>
<td></td>
<td>2,000 lbs. &lt; .020 (907 kg)</td>
<td>440 PSF</td>
</tr>
</tbody>
</table>

For detailed information on testing, please see page 64.

TecSeal is a trademark of Haworth, Inc.
TecCrete Low-Profile Pedestal Assembly

Low-profile pedestals are used to support TecCrete 1250 floor panels with 3” (76mm), 4” (102mm), or 5” (127mm) finished floor heights. Cornerlock pedestals are used where four panel corners meet in a floor layout. Perimeter heads support TecCrete panels that are used against a perimeter wall, or where two different types of floors meet.
Stability
When recommended pedestal adhesive is used on a clean, unsealed concrete slab, pedestal assemblies have an overturning moment of 1,000 inch-pounds (115.6 Nm).

Load Rating
Pedestal assemblies can support a 6,000lb. (2,722kg) axial load without permanent deformation.

Finished Floor Height – Low Profile Pedestal Assembly
Standard finished floor heights are 3” (76mm), 4” (102mm), and 5” (127mm).

Pedestal Adjustment
Pedestal assemblies provide adjustment of 1/2” (12.7mm) up, and 1/2” (12.7mm) down, 1” (25.4mm) total adjustment for leveling, with a minimum finished floor height of 3” (76mm).

Pedestal Base
Pedestal bases are 16 sq. in., and are made of hot-dipped galvanized steel. Pedestal tubes are made of 7/8” (21mm) round hot-dipped galvanized steel.

Pedestal Head
There are two standard TecCrete head options that can be used with standard cornerlock or seismic pedestal bases:
- Pedestal head for cornerlock field applications.
- Pedestal head for perimeter applications.

Pedestal heads are made of die-formed hot-dipped galvanized steel, attached to a threaded rod. The galvanized nut is 3/4” – 10 UNC in diameter.

Pedestal heads have tapped holes for engagement of cornerlock and stringer screws, the heads provide alignment guides and locating points for positioning and containing floor panels with or without use of screws.

Solid-steel studs are 3/4” (19mm) in diameter.

Stringers
Stringers may be connected for additional support of heavy loads.
Standard Cornerlock Understructure

Standard cornerlock pedestals are used to support floor panels for 6" to 30" (152mm to 762mm) finished floor heights. Standard cornerlock pedestals are used to support four panels by their corners. Perimeter heads support TecCrete panels that are used against a perimeter wall, or where two different types of floors meet.

Note

Standard pedestal bases are specified separately, for use with your choice of cornerlock field pedestal heads, or perimeter/transition pedestal heads.
Pedestal Base

Construction
Pedestal bases are made of hot-dipped galvanized steel.
Pedestal tubes are made of \( \frac{7}{8} \) (21mm) square hot-dipped galvanized steel.
Bases are at least 16” (406mm) square.

Stability and Load Rating
To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height – Low Profile Pedestal Assembly
Standard finished floor heights are 6" to 30" (152mm to 762mm). For other pedestal options, please contact your Haworth representative.

Pedestal Adjustment
Pedestal assemblies provide an adjustment range of ± 1" (25mm) when finished floor height is 6" (152mm) or more, adjustable at \( \frac{1}{64} \)” (0.4mm) increments.

Head Options (Specified Separately)
Perimeter pedestals are also available to support floor panels adjacent to columns and walls.

Stringers
Stringers may be connected for additional support of heavy loads.

Note: When stringers are used, pedestal bases must be specified 1” shorter for any floor height.
Pedestal Base Assemblies for Seismic Conditions

Type 1 Pedestal Base

Stability and Load Rating
• To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height
• Standard finished floor heights are 6” to 30” (152mm to 762mm).

Pedestal Base
• Pedestal bases have a 5” x 5” (127mm x 127mm), 3/16” (5mm) thick square base plate.
• Tubes are available from 3” to 27” (76mm to 686mm) in length.
• Bases and tubes are made of hot-dipped galvanized steel.
• Bases are fillet welded.

Pedestal Adjustment
• Pedestal assemblies provide an adjustment range of ± 1” (25mm) when finished floor height is 6” (152mm) or more, adjustable at 1/64” (0.4mm) increments.
• Minimum finished floor height is 6” (152mm) for TecCrete without stringers, or 7” (178mm) for TecCrete 2000s, or TecCrete1250 with stringers.

Pedestal Head (specified separately)
• Bases are for use with standard pedestal heads with 1/4” (19mm) diameter steel studs.
Type 2 Pedestal Base

Stability and Load Rating
• To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height
• Standard finished floor heights are 12” to 30” (305mm to 762mm).

Pedestal Base
• Pedestal bases have a 4”x 4” (102mm x 102mm), \( \frac{3}{16} \)” (3mm) thick square base plate.
• Pedestal tubes have a 1.163” (29.54mm) outside diameter, and are available from 9” to 27” (229mm to 686mm) in length.
• Bases and tubes are made of hot-dipped galvanized steel.
• Bases are fillet welded.

Pedestal Adjustment
• Pedestal assemblies provide an adjustment range of ± 1” (25mm) when finished floor height is 12” (305mm) or more, adjustable at \( \frac{1}{64} \)” (0.4mm) increments.
• Minimum finished floor height is 12” (305mm) for TecCrete without stringers, or 13” (330mm) for TecCrete 2000s, or TecCrete1250 with stringers.

Pedestal Head (specified separately)
• Bases are for use with standard pedestal heads with \( \frac{3}{4} \)” (19mm) diameter steel studs.

Type 3 Pedestal Base

Stability and Load Rating
• To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height
• Standard finished floor heights are 12” to 30” (305mm to 762mm).

Pedestal Base
• Pedestal bases have a 5”x 5” (127mm x 127mm), \( \frac{3}{16} \)” (5mm) thick square base plate.
• Pedestal tubes have a 1.163” (29.54mm) outside diameter, and are available from 9” to 27” (229mm to 686mm) inches in length.
• Bases and tubes are made of hot-dipped galvanized steel.
• Bases are fillet welded.

Pedestal Adjustment
• Pedestal assemblies provide an adjustment range of ± 1” (25mm) when finished floor height is 12” (305mm) or more, adjustable at \( \frac{1}{64} \)” (0.4mm) increments.
• Minimum finished floor height is 6” (152mm) for TecCrete without stringers, or 13” (330mm) for TecCrete 2000s, or TecCrete1250 with stringers.

Pedestal Head (specified separately)
• Bases are for use with standard pedestal heads with \( \frac{3}{4} \)” (19mm) diameter steel studs.
Type 4 Pedestal Base

Stability and Load Rating
• To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height
• Standard finished floor heights are 12" to 30" (305mm to 762mm).

Pedestal Base
• Pedestal bases have a 6” x 6” (152mm x 152mm), 1/4” (5mm) thick base plate.
• Pedestal tubes have a 1.500” (38.1mm) outside diameter, and are available from 9” to 27” (229mm to 712mm) in length.
• Bases and tubes are made of hot-dipped galvanized steel.
• Bases are fillet welded.

Pedestal Adjustment
• Pedestal assemblies provide an adjustment range of ± 1” (25mm) when finished floor height is 12” (305mm) or more, adjustable at 1/64” (0.4mm) increments.
• Minimum finished floor height is 12” (152.4mm) for TecCrete without stringers, or 13” (330mm) for TecCrete 2000s, or TecCrete1250 with stringers.

Pedestal Head (specified separately)
• Bases are for use with standard pedestal heads with 3/4” (19mm) diameter steel studs.

Type 5 Pedestal Base

Stability and Load Rating
• To obtain overturning moment and axial load test values please contact your Haworth representative.

Finished Floor Height
• Standard finished floor heights are 12” to 31” (305mm to 787mm).

Pedestal Base
• Pedestal bases have a 6” x 6” (152mm x 152mm), 1/4” (6mm) thick base plate.
• Tubes have a 1.500” outside diameter, and are available from 9” to 27” (229mm to 686mm) in length.
• Bases and tubes are made of hot-dipped galvanized steel.
• Bases are fillet welded.

Pedestal Adjustment
• Pedestal assemblies provide an adjustment range of ± 1” (25mm) when finished floor height is 12” (305mm) or more, adjustable at 1/64” (0.4mm) increments.
• Minimum finished floor height is 12” (305mm) for TecCrete without stringers, or 13” (330mm) for TecCrete 2000s, or TecCrete1250 with stringers.

Pedestal Head (specified separately)
• Bases are for use with standard pedestal heads with 3/4” (19mm) diameter steel studs.
Rigid Grid Understructure

Rigid-grid understructure is required for TecCrete2000s, and is optional for TecCrete1250.

Load Rating
Stringers can support a concentrated load of 300 lbs. (136 kgs) at a center of a 24" (610mm) span without exceeding a 0.010" (.25400mm) permanent set.

Grid Pattern Options
Stringer grid patterns are 2' x 2' (610mm x 610mm), 2' x 4' (610mm x 1219mm), or 4' x 4' (1219mm x 1219mm).

Floor Height
Pedestal bases must be specified 1" (32mm) shorter when using stringers to arrive at the correct finished floor height.
Applications

Understructure Applications

Field Pedestal Attachment

Field Pedestal Attachment Detail

Perimeter Wall Condition

Gasket is required for underfloor air applications (provided by others)

Note: Apply pedestal adhesive between perimeter head and cut panel.

Perimeter head

Field head

Note: Perimeter heads should be located as close to the edge of the panel as possible on 24" centers, maximum.

Note: All application details apply to low and standard height, except where noted.
Cornerlock with Expansion Joint and Expansion Joint Detail

**Expansion Joint Application and Detail**

Note: Apply pedestal adhesive between perimeter head and cut panel.

**Curb Application**

Transition plate (provided by others)

Note: Apply pedestal adhesive between perimeter head and cut panel.

**Fascia Application**

Fascia top angle

Note: Apply pedestal adhesive between perimeter head and cut panel.

Fascia plate

Note: Fasteners supplied by others

Fascia bottom angle
Wall Surface Partition and Doorway Applications

**TecCrete with Penetrating Wall**

- Rubber gasket attached to curb to seal joint
- Adhesive
- Large diameter washer and nut tighten to under side of raised floor panel

**Surface Wall Partition Detail**

- Bolt (provided by others)
- Drywall partition (provided by others)
- Steel floor track (provided by others)

Note: Apply pedestal adhesive between perimeter head and cut panel.

Alternative attachment method: If walls are secured at ceiling level, or stabilized by attached perpendicular walls, then powder actuated pins (with a .3" diameter head and a .143" diameter \(\frac{3}{4}\)" long shank), spaced at 16-inch intervals, can be used to fasten floor track to the surface of the TecCrete panel.
Access Floor Interface at Glass Wall

Note: Apply pedestal adhesive on top of flat pedestal head and cut panel.
Access Floor Interface at Glass Doorway

Non-Stringer Application

- Poured concrete curb for door mounting
- Door pivot embedded in concrete (provided by others)
- Perimeter pedestal support
- Glass doors (provided by others)

Stringer Application

- Poured concrete curb for door mounting
- Door pivot embedded in concrete (provided by others)
- Perimeter pedestal support
- Glass doors (provided by others)
Angled Wall Applications

Perimeter Condition at Angled Wall with Stringer

Perimeter heads placed as close to the edge as possible on 24” centers max.

Field heads

Perimeter Condition at Angled Wall without Stringer

Perimeter heads placed as close to the edge as possible on 24” centers max.

Field heads
TecCrete with Specialty Floor Finish Applications

Applications

TecCrete with Specialty Floor Finish Applications – Finish Transitions

Trim Strip

Tile

Thin-set mortar

Underlayment

Bare Panel
Ceramic Tile/Carpet with Trim Strip Transition

Transition trim (provided by others)

Transition Made Using Adjustable Head

Surface material (provided by others)
Floor Area Transitions

Transition Between Access Floor Levels

Aluminum top angle

Fastener (provided by others)

Fascia plate (cut to size)

Fastener (provided by others)

Steel bottom angle

Note: Apply pedestal adhesive between perimeter head and cut panel.

Full panel

Perimeter head

Perimeter head

Aluminum top angle

Fastener (provided by others)

Fascia plate (cut to size)

Perimeter head

Fastener (provided by others)

Bottom angle

Note: Apply pedestal adhesive between perimeter head and cut panel.

Field head
Step Detail at Recessed Slab

Pre-fabricated stairs (provided by others)

Transition from Elevators/On-slab Doorways

Elevator door

Access panel fastened to pedestals with screws and adhesive

Subfloor

Extra pedestal support located center of panel for high traffic area

Panel cut to size

Note: Apply pedestal adhesive between perimeter head and cut panel.
Transition from Core Area to Access Floor

- Fascia
- Step
- Elevators
- Ramp
- On-slab core area
- Access floor system
- Guardrail
Applications

Understructure

With Stringer

Add plenum rated sealing material

Two piece steel or aluminum plenum divider (provided by others)

Fasteners (provided by others)

Note: plenum divider may be located anywhere under the panel due to flat underside of panel.

Add plenum rated sealing material

Without Stringer

Add plenum rated sealing material

plenum divider (provided by others)

Fasteners (provided by others)

Note: plenum divider may be located anywhere under the panel due to flat underside of panel.

Add plenum rated sealing material
Plenum and Air Highway Applications

TecCrete with PlenumDivider/Plenum Divider Detail

- Panel
- Galvanized steel plenum divider (provided by others)
- Subfloor
- TecCrete air seal required only for bare applications
- Seal with Plenum rated caulk sealant or tape as required.
- Seal with Plenum rated caulk sealant or tape as required.
Air Highway – Interior

Air seal should be used in a bare panel installation. No air seal is required if the panel will be covered with another material.

Add plenum rated sealing material top and bottom.

Galvanized steel plenum divider (provided by others)

Subfloor

HVAC duct

No air seal is required when ducting is used.

Panel

Subfloor
Bridging Obstructions on Subfloors

- Support (provided by others)
- Obstruction

- Support (provided by others)
- Tall Obstruction

- Trench Bridging (provided by others)
- Bridge Open Trench
Ramp Details

Ramp Threshold

Swivel-head pedestal

Ramp Shoe 72"

Ramp Shoe 1:12 (4 degree) slope
Mounting Equipment to TecCrete Access Floors

Mounting Equipment to Access Floors

Mounting Equipment to Subfloors

Hex head nut, washer, lock washer

Access floor panel

Threaded rod/turnbuckle

Hex head nut, washer, lock washer

Spring nut

Unistrut mounted to subfloor per manufacturer’s instructions
Supplemental Support for Heavy Equipment

Heavy load is any load that exceeds the concentrated load rating of the panel.

Extra perimeter pedestal required to support heavy loads.
Fire and Safety Applications

Handrail Assemblies

Fire Barrier at Door Threshold
Air Duct Through a Firewall

- Fire damper
- Air duct
- Fire sealant
- Pedestals

Thru-Slab Sprinkler Detail

- Main water loop for sprinkler system
- Access floor system
- Fire stop material
- Main water loop for sprinkler system
Bathroom Applications

Access hole through panel for piping

Toilet

Anchor toilet to structural stand

Ceramic tile

Underlayment and thin set mortar

Structural steel stand bolted to slab
Electrical Applications

Electrical Box in Floor

Electrical Continuity

Contact Point

Note: Contact point on underside of panel makes contact with pedestal head to create a ground path.
Controlling Air Leakage

TecCrete Access Flooring is often used to create an underfloor cavity for air distribution. When TecCrete is applied in this way, care must be taken to prevent unintentional air leakage from the underfloor cavity into the occupied space.

Unintentional air leakage occurs when pressurized air from an HVAC system enters the environment from sources other than the air diffusers. These sources can include gaps at access floor perimeters, columns, wall and slab openings, and around conduits, pipes and other obstructions. Although a properly installed access floor will minimize the possibility of unintentional air leakage, it is important to keep air control in mind during all phases of building construction and access floor installation. When each trade does its part to maintain the overall condition of subfloors, access floors, building cavities, and air passage points, the end result will be a well-sealed environment with minimal air leakage.

Air Tightness Specification

TecCrete access floor panels show exceptional air control properties. TecCrete specifications are twice as high as those of typical die-cut floor panels.

<table>
<thead>
<tr>
<th>Air Distribution System Static Pressure</th>
<th>0.05&quot;</th>
<th>0.10&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>TecCrete floor panel with bare surface</td>
<td>No greater than 0.50 CFM / sq. ft.</td>
<td>No greater than 0.60 CFM / sq. ft.</td>
</tr>
<tr>
<td>TecCrete floor panel with carpeted surface</td>
<td>No greater than 0.10 CFM / sq. ft.</td>
<td>No greater than 0.10 CFM / sq. ft.</td>
</tr>
</tbody>
</table>

**Note** Leak rates do not include leakage at floor perimeters.

TecCrete Air Tightness Performance

TecCrete panels, with and without installed carpet tiles, have shown exceptional air leakage control in laboratory tests.

<table>
<thead>
<tr>
<th>Air Distribution System Static Pressure</th>
<th>0.05&quot;</th>
<th>0.10&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>TecCrete Panel Bare Floor with Air Seal Leak Rates</td>
<td>0.36 CFM / sq. ft.</td>
<td>0.44 CFM / sq. ft.</td>
</tr>
<tr>
<td>TecCrete Panel with Solid-Backed Carpet Tiles – Leak Rates</td>
<td>0.04 CFM / lin. ft.</td>
<td>0.04 CFM / lin. ft.</td>
</tr>
</tbody>
</table>

**Note** The leak rates do not include leakage at floor perimeters; the carpet tiles overlapped the panel seams in the tests.
Controlling Air Leakage During Construction and Access Floor Installation

There are many ways to effectively prevent unintentional air leakage in a TecCrete access floor installation. Your general contractor should make sure that every slab-to-ceiling wall fits tightly and is correctly sealed at the slab-line before access flooring is installed. Irregular wall surfaces may require gaskets, caulking, or tape to properly seal access floor-to-wall connections.

Building contractors must completely seal cavity seams where walls rest on subfloors, and where access flooring connects with slab-to-ceiling walls, columns and other obstructions.

It is also important that all utility access points – such as openings for air ducts, conduits, cables, and pipes – be carefully sealed. All openings in building elements for plumbing, electricity and voice/data cabling must be sealed by the trades that do those installations and should be inspected before access floors are installed. If additional openings are cut for utilities after the access floor is installed, those should be inspected for seal quality before carpet tiles are installed.

Your carpet installer also plays an important role in ensuring proper air sealing by fitting carpets snugly against walls and other vertical surfaces, and by consistently overlapping floor panel joints with carpet tiles. Extending carpet tiles all the way to the wall, carefully fitting perimeter panels, and tightly installing wall bases, all help to seal access floor perimeters.
At Perimeters:

A Seals at flat perimeter walls and surfaces:
- All walls passing through the access floor must extend completely to the slab and be sealed at the slab line. Floor panels should fit to within $\frac{1}{16}$" of perimeter walls, columns, and other vertical surfaces.
- If carpet tiles are used, they must also be cut to fit tightly against perimeter walls and surfaces as an additional layer of airseal protection.
- Wall bases should be installed tightly against carpet and access floor to cover joints.

B Seals at non-flat perimeter walls or other surfaces:
- Floor panels should fit to within $\frac{1}{16}$" of perimeter walls.
- If the wall does not have a completely flat surface because it is shaped, textured, or slightly irregular, foam strips or rubber tape can be mounted flush with the floor surface to fill in gaps.
- The use of caulk or sealant to fill joints between floor panels and vertical surfaces is also an option. Using caulk or sealant instead of carpet adhesives will allow for easier removal of access floor panels later.
- If carpet tiles are used, they must also be cut to fit tightly against perimeter walls and surfaces as an additional layer of airseal protection.
- Wall bases should be installed tightly against carpet and access floor to cover joints.

C Seals at fascia or exposed edges:
- Fascia plates should be cut to align with the tops of floor panels.
- If there are any gaps between floor panel top edges and fascia, duct tape, or metal tape can be used to cover the joints before carpet installation.
- If carpet tiles are used, they must also be cut to fit all the way over fascia. Fascia and carpet tiles should be covered by angle trim pieces for airseal protection.
**Seals at curb interfaces:**
- When access floor coverings extend all the way to the curb, cut the floor panels to within $\frac{1}{16}$" of perimeter.
- Attach sealing foam or rubber tape to the curb if a gap exceeds $\frac{1}{16}$" before floor panels are installed.
- Install carpet tiles by overlapping from access floor to curb.
- When access floor coverings do not extend all the way to the curb, cut the floor panels to within $\frac{1}{16}$" of perimeter.
- Attach sealing foam or rubber tape to the curb if a gap exceeds $\frac{1}{16}$" before floor panels are installed.
- Install carpet tiles by overlapping from access floor to curb.
- Seal the joint with a transition strip or threshold at top.

**Seals at utility access points**

**Seals at cable cutouts:**
- Cut foam to fit snugly into openings and support ledges.
- Install manufacturer’s trim for cable cutouts.

**Seals at plenum dividers:**
- Cut openings into the plenum divider that are sized for the dimensions of the ducts, pipes, conduit, and cable bundles that need to pass through.
- If there are any gaps, duct tape, or metal tape can be used to fill them before access floor installation.
- All gaps in building architecture should be sealed and inspected before the access floor is installed.

**Seals at pipe openings through access flooring:**
- Cut openings into the access floor sized specifically for the diameters of the pipes that need to pass through.
- Seals at subfloor pipe openings.
- Seal gaps around pipes with caulk or sealant with firestop system materials before installing the access floor.

**Seals at fire barriers**

**Seals at firewall utility access points:**
- Wherever there is a gap between ducts, pipes, conduits or cable bundles, and the openings cut into firewalls to accommodate utility access, fill the gaps with approved firestop system materials.
- All gaps in building architecture should be sealed and inspected before the access floor is installed.

**Seals at firewalls at the access floor:**
- Floor panels should fit to within $\frac{1}{16}$" of perimeter walls, columns, and other vertical surfaces.
- If carpet tiles are used, they must also be cut to fit tightly against perimeter walls and surfaces as an additional layer of airseal protection.
- Wall bases should be installed tightly against carpet and access floor to cover joints.

**Seals at access floors at fire barrier below door threshold:**
- Floor panels should be cut to fit to within $\frac{1}{16}$" of the fire barrier.
- Joints can be sealed by installing a threshold plate with a gasket attached to the bottom.
- Another option for sealing joints is to attach a gasket to the vertical surface of the fire barrier and floor panels.
- A third option is to install floor panels and use a fire-rated caulk or sealant to fill any gaps between the panels and the fire barrier.
- If carpet tiles are used, they must also be cut to fit tightly against perimeter walls and surfaces as an additional layer of airseal protection.

**Seals at firewalls at the sub floor:**
- Seal the firewall along the slab-line with fire-rated caulk or sealant that has rating equal to that of the wall assembly before installing access flooring.

**Note** Please refer to the TecCrete installation instructions for more detailed information.
Reconfiguring should be fast. Growing should be easy. 
With Haworth Power Web, it is.

Power Web Planning

Office areas are typically broken into zones that can be serviced by one set of 3 or 4 circuits. The size of the zone is dependent on the user’s needs. Planning can be performed at two levels depending on the level of information available and pricing accuracy desired. For budgetary planning, your Haworth dealer can use the Power Web Budget Calculator Tool. With a few simple questions this tool can quickly estimate the price of the Power Web components needed for a specific application. For more detailed plans, Autocad symbols exist for the Power Web components. These symbols carry product intelligence that facilitates pricing and electronic ordering from Haworth.

Planning out the Power Web application requires three activities:

• First you gather information about the specific job site (user’s needs, building power location, which type of access device, implications of local codes).
• The next step is to determine the size of a typical zone and subdivide the floor plan into zones.
• The last planning step is to specify the components required and include installation information (such as circuit assignments). By documenting the planning steps with the Autocad symbols, drawings are created for inspection approvals, installation guidance, electronic pricing and ordering.

Your organization will change many times, and so will your layout. Haworth starts with the idea that flexibility is a key part of overall system performance, and moves beyond conventional wiring to provide an electrical infrastructure that will work for you today and tomorrow.

How do we do that? By running everything under raised floors, and using plug and play technology with an easy-to-install zone distribution method that conveniently delivers power wherever you need it. This ensures that your system will be flexible enough to keep up with every move you make.

Our quick-connect systems power you up fast

Haworth’s Power Web modular power system for raised floors is designed to install quickly, which helps keep construction on schedule and within budget. It also offers the kind of long-term flexibility that minimizes downtime, and lowers your costs of operation and renovation.

Haworth offers two power-distribution systems specifically for use in Haworth’s TecCrete® and Nexus™ access flooring:

• The 3 circuit separate neutral system provides individual branch circuits for power quality and multiple power source flexibility not available in 4 circuit applications.
• The 4 circuit shared neutral system helps to maximize the number of circuits while staying within the common $\frac{1}{4}$" trade conduits.
Power is typically routed from the electrical closet via metal-clad cable to a zone distribution box, and then distributed within a smaller zone of the building with modular power distribution components. Modular wiring within a zone maximizes flexibility where most day-to-day reconfigurations occur.

This modular power system consists of five main power distribution elements:

- Zone Distribution Box
- Extender Cables
- Circuit Distributor
- Service Modules
- Haworth Plug-and-Play Furniture Base Feeds

The system can also be expanded in the future if power needs increase, and floor receptacles can be moved as office locations change within the zone. These adaptable systems can also accommodate the electrical needs of office furniture from all major North American office furniture manufacturers. The Power Web system is UL Listed, CSA Certified, and complies with NEC Article 604.

For more information on electrical planning, please see “Electrical Basics” on pages 20-22 of Haworth’s Power Web Specification Guide.
Haworth offers Power Web, a modular power system for access floor applications which helps ensure quick installation, future flexibility, reduced construction schedules, increased tenant satisfaction and lower operating and renovation costs.

### 3 and 4 Circuit Power

- **2 Whip Zone Distribution Box**
- **4 Whip Zone Distribution Box**
- **Extender Cable 5', 10', 15' or 20' long**
- **Circuit Distributor 4 circuits**
- **Circuit Distributor 3 circuits**
- **2.5” Flush Service Module with whip**
- **4” Flush Service Module with whip**
- **5” Flush Service Module with whip**
- **Single Cell Service Module with whip**
- **Dual Cell Service Module with whip**
- **Junction Box with whip**
Electrical Overview

Hardware

2 Whip Zone Distribution Box
4 Whip Zone Distribution Box
2.5" Flush Service Module
4" Flush Service Module
5" Flush Service Module
Single Cell Service Module
Dual Cell Service Module
Junction Box

Accessories

Abandonment Plate
Data Plates – Decora DE 301 and Standard Duplex ST302 shown
Single Cell Service Module Hood
Flush Service Module Door and Trim Ring

14" Whip – 4-circuit
14" Whip – 3-circuit
3" Grommet
For details on Power Web components, please see pages 7-12 of Haworth's Power Web Specification Guide.
**Typical Application**

Using Power Web with LifeSPACE® allows for maximum flexibility in reconfiguration of office space:

- To move a LifeSPACE® panel a short distance, simply move the panel to any new location within the extender-cable length.
- When reconfiguration requires a new layout, simply disconnect the extender cable from the LifeSPACE® panel and Zone Distribution Box, move the LifeSPACE® panel to the new location, and reconnect the extender cable to the LifeSPACE® panel and zone distribution box.

**Note**
All ground fault circuit interrupter (GFI) outlets must be hard wired. If using LifeSPACE® electrical panels, the installation drawings for the wall panels and Power Web must be coordinated.

**Link** For more information, please see “Application Guidelines” on pages 23-26 of Haworth’s Power Web Specification Guide.
Pre-Terminated Zone Voice and Cabling
Pre-Terminated Zone Statement of Line

Haworth offers Pre-Terminated Zone Voice and Data for access floor applications which help to ensure quick installation, future flexibility, reduced construction schedules, increased tenant satisfaction and lower operating and renovation costs.

Haworth’s product solutions for voice and data include many familiar components in the following five categories:


   ![Rack](image1.png) ![Universal mounting bracket](image2.png) ![48-Port patch panel](image3.png)

2. Standard Horizontal Cabling – Communication Cabling and Consolidation Points

   Communication cabling (Cat 5e or Cat 6) that is routed through the ceiling or floor to a consolidation point (UMS Patch Panels, Ultim8, etc.). It is available in non plenum and plenum rated jacket.

3. Pre-Terminated Zone Consolidation Points

   Available products include 12-port zone consolidation box, UMS patch panels, 24- and 48-port patch panels, and external consolidation point housings. In addition, a plenum box is available for air handling applications. Each type of consolidation point device acts as a modular connection point for outlet taps.

   ![External consolidation point](image4.png) ![12-Port zone consolidation box](image5.png) ![Plenum box with UMS patch panels](image6.png)
4. Outlet Taps
Outlet taps include an outlet jack on one end (RJ45) and a modular plug on the other. Plenum-rated versions are available. In addition, the outlet tap can be unterminated.

![Outlet tap with jack](image1)
![Outlet tap unterminated](image2)

5. Faceplates and Patch Cords
Modular furniture and single-gang faceplates are available, along with TrueNet patch cords in 4’, 7’, 10’, and 15’ lengths.

![Patch cord](image3)
![3-Port modular faceplate](image4)
![4-Port flush modular faceplate](image5)
![4-Port angled faceplate](image6)
![6-Port flush mount faceplate](image7)

Link For additional information, please refer to Haworth’s Voice and Data Price List.
TecCrete® Contributions Toward Meeting LEED®-NC 2.1

TecCrete Access Flooring can play an important role in projects that are seeking certification under the LEED for New Construction rating system.

Key considerations include:

**Air Quality.** The materials in TecCrete products do not adversely impact indoor air quality. Also, the concrete top surface of TecCrete can be sealed with low-or-no VOC sealers.

**Design for Environment (DFE).** TecCrete is a very durable product that is 100% re-useable. Designing product that maximizes the years of useful life is one of many strategies related to Design for Environment (DFE).

**Recycled Content.** TecCrete product contains recycled content materials. Steel pedestals are 25-30% recycled content and steel pans are 80% recycled content.

Because LEED is a holistic building rating system and sustainable design guideline, there is no such thing as a LEED-certified product; there are only ways of using and applying products to meet LEED criteria. In some cases, TecCrete product contributes directly to individual LEED points, but in other cases can only help contribute to the overall intent of the point. There are relatively few instances where selection of any one product from any manufacturer will lead directly to acquisition of a point(s) under LEED.

The information provided below discusses direct impacts as well as application tips and strategies to maximize the contribution of TecCrete products toward their project’s LEED certification.

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*For TecCrete product that is part of the existing building

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**Note** LEED®-NC rating system is continually updated, please refer to www.usgbc.org for the most current versions.

Energy and Atmosphere

EA Prerequisite 2 – Minimum Energy Performance

 Intent
• Establish the minimum level of energy efficiency for the base building and systems.

 Requirement
• Design the building to comply with ASHRAE/IESNA Standard 90.1 – 1999 (without amendments) or the local energy code, whichever is more stringent.

 How TecCrete helps meet this requirement
• TecCrete Access Flooring enables underfloor air distribution, which has been shown to reduce the energy costs required for cooling interior spaces by 5%-30%, thus helping to reduce the overall design energy cost of the building.

 Optimize Energy Performance – Credit 1 (1-10 pts)

 Intent
• Achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impacts associated with excessive energy use.

 Requirement
• Reduce design energy cost compared to the energy cost budget for energy systems regulated by ASHRAE/IESNA standard 90.1 1999 (without amendments), as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11 of the standard (points assigned based on percentages as outlined in LEED Green Building Rating System, version 2.1 Energy and Atmosphere credit 1).

 How TecCrete helps meet this requirement
• TecCrete Access Flooring enables underfloor air distribution, which has been shown to reduce the energy costs required for cooling interior spaces by 5% – 30%, thus helping to reduce the overall design energy cost of the building.

Note
Materials and Resources

Building Reuse (1-2 pts) – Credit 1.1, 1.2 Maintain 75% (100%) of Existing Walls, Floors and Roof

Intent

- Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Requirement

- Maintain at least 75% (1 point) or 100% (2 points) of existing building structure and shell (exterior skin and framing, excluding window assemblies and non-structural roofing material).

How TecCrete helps meet this requirement

- Contribution to this credit for the initial LEED-NC 2.1 is dependent on TecCrete being part of the prior structure. However, adding TecCrete and modular power and data systems will create value for buildings that pursue LEED for future major updates.
- Raised floors are typically left intact, with all changes to walls occurring between the raised floor and the ceiling.
- TecCrete is 100% re-useable. It is designed for easy disassembly and movement from one space to another. The ability to reuse building materials significantly reduces budgets for new spaces, with an equivalent decrease in resource demands.
- Underfloor air distribution systems are inherently reusable. Tiles with diffusers need only be relocated, and not discarded and replaced in order to accommodate changes in mechanical loads. In addition, underfloor air distribution reduces the need for ductwork (up to 80% less ductwork than conventional HVAC), so changes to the cooling system do not generate additional waste.
- Flooring finishes used with Haworth raised floors, such as carpet, are also modular tile systems, which can be removed and re-laid in new configurations and locations.
- Though not recognized yet by LEED for the initial installation, raised floors minimize life cycle costs and address future material conservation and reuse. This will create value for buildings which pursue LEED for future major updates.

Building Reuse: Maintain 100% of Shell/Structure and 50% of Non-Shell/Non-Structure – Credit 1.3 (1pt)

Intent

- Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to manufacturing and transport.

Requirement

- Maintain 100% of existing building structure and shell (exterior skin and framing, excluding window assemblies and non-structural roofing material) AND at least 50% of non-shell areas (interior walls, doors, floor coverings and ceiling systems).

How TecCrete helps meet this requirement

- Contribution to this credit for the initial LEED-NC 2.1 is dependent on TecCrete being part of the prior structure. However, adding TecCrete and modular power and data systems will create value for buildings that pursue LEED for future major updates.
- Raised floors are typically left intact, with all changes to walls occurring between the raised floor and the ceiling.
- TecCrete is 100% re-useable. It is designed for easy disassembly and movement from one space to another. The ability to reuse building materials significantly reduces budgets for new spaces, with an equivalent decrease in resource demands.

• Underfloor air distribution systems are inherently reusable. Tiles with diffusers need only be relocated, and not discarded and replaced in order to accommodate changes in mechanical loads. In addition, underfloor air distribution reduces the need for ductwork (up to 80% less ductwork than conventional HVAC), so changes to the cooling system do not generate additional waste.
• Flooring finishes used with TecCrete raised floors, such as carpet, are also modular tile systems, which can be removed and re-laid in new configurations and locations.
• Though not recognized yet by LEED for the initial installation, raised floors minimize life cycle costs and address future material conservation and reuse. This will create value for buildings which pursue LEED for future major updates.

Construction Waste Management – Divert 50% – Credit 2.1 or Divert 75% – Credit 2.2 from Landfill (1-2pts)

**Intent**
• Divert construction, demolition, and land clearing debris from landfill disposal. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

**Requirement**
• Develop and implement a waste management plan, quantifying material diversion goals. Recycle and/or salvage at least 50% (75%) of construction, demolition and land clearing waste.

**How TecCrete helps meet this requirement**
• TecCrete does not directly impact this point. However, waste reduction through intelligent design can decrease the amount of construction waste generated in installation and prevent additional waste generation during changes to the space or when moving to a new space.
• Modular power and data systems used with access flooring allow the installation of technology infrastructure with near zero waste. This eliminates conduit, electrical wiring, and data wiring waste.
• Raised floor systems generate very little construction waste, with only a few tiles that need to be trimmed to size or need to have penetrations installed on-site that generate scrap. Even this waste can be minimized with careful planning.
• TecCrete is also 100% reusable, eliminating waste on future reconfigurations.

Resource Reuse – Credit 3.1 – 5%, 3.2 – 10% (1-2 pts)

**Intent**
• Reuse building materials and products in order to reduce demand for virgin materials and reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

**Requirement**
• Use salvaged, refurbished, or reused materials, products and furnishings for at least 5% or 10% of building materials (1-2 pts).

**How TecCrete helps meet this requirement**
• Contribution to this credit for the initial LEED-NC 2.1 is dependent on these products being part of the prior structure. However, adding TecCrete and modular power and data systems will create value for buildings which pursue LEED for future major updates.
• TecCrete is 100% re-useable. It is designed for easy disassembly and movement from one space to another.
• The ability to reuse building materials significantly reduces budgets for new spaces, with an equivalent decrease in resource demands.
• Underfloor air distribution systems are inherently reusable. Tiles with diffusers need only be relocated, and not discarded and replaced in order to accommodate changes in mechanical loads. In addition, underfloor air distribution reduces the need for ductwork (up to 80% less ductwork than conventional HVAC), so changes to the cooling system do not generate additional waste.

• Modular power and data systems used with access flooring are also 100% re-useable. It is designed for easy disassembly and movement from one space to another. This replaces conduit, electrical wiring, and data wiring that is not recoverable or re-useable.

Credit 4.1 and 4.2 Recycled Content – 5% or 10% (1-2 pts)

Intent
• Increase demand for building products that incorporate recycled content material, therefore reducing impacts resulting from extraction and processing of new virgin materials.

Requirement
• Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 5% – 1 pt. (or 10% – 2pts.) of the total value of the materials in the project.

How TecCrete helps meet this requirement
• TecCrete has recycled content values as listed:
  - 16.7% Total Recycled Content % by weight
  - 12.5% Post-Consumer Content % by weight
  - 4.2% Post-Industrial Content % by weight
  - 14.6% LEED RC (PC+1/2PI) % by value

Credit 5.1, Regional Materials – 20% manufactured regionally (1 pt)

Intent
• Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the regional economy and reducing the environmental impacts resulting from transportation.

Requirement
• Use a minimum of 20% of building materials and products that are manufactured regionally within a radius of 500 miles.

How TecCrete helps meet this requirement
• TecCrete products are produced in Kentwood, Michigan. TecCrete is manufactured within a 500-mile radius of approximately 50% of the population of the United States. Contribution to this credit depends on the location of the project.

Indoor Environmental Quality

Prerequisite 1 Minimum IAQ Performance

Intent

• Establish minimum indoor air quality (IAQ) performance to prevent the development of indoor air quality problems in buildings, thus contributing to the comfort and well-being of the occupants.

Requirement

• Meet the minimum requirements of voluntary consensus standard ASHRAE 62-1999, Ventilation for Acceptable Indoor Air Quality and approved Addenda (see ASHRAE 62-2001, Appendix H, for a complete compilation of Addenda) using the Ventilation Rate Procedure.

How TecCrete helps meet this requirement

• Underfloor air distribution systems (UFAD) are inherently likely to meet or exceed the requirements of ASHRAE 62-2001 because their much higher ventilation effectiveness makes delivery of high quality air into the occupied zone easier.
• Underfloor air distribution also operates at much lower air velocities, which reduces the risk of airborne contaminants.
• TecCrete raised floor product can accommodate UFAD systems and help meet this prerequisite.

Ventilation Effectiveness – Credit 2 (1 pt)

Intent

• Provide for the effective delivery and mixing of fresh air to support the safety, comfort and well-being of building occupants.

Requirement

• For mechanically ventilated buildings, design ventilation systems that result in an air change effectiveness greater than or equal to 0.9 as determined by ASHRAE 129-1997.

How TecCrete helps meet this requirement

• Underfloor air distribution is a preferred strategy to meet the requirements of this credit. Raised floor systems combined with underfloor air distribution and user controlled swirl diffusers typically have air change effectiveness of 0.9 or greater. This is significantly easier to achieve with underfloor air systems than it is with overhead air distribution (air change effectiveness typically <0.7) because air is discharged directly into and all mixing of air occurs within the occupied zone.
• TecCrete raised floor product can accommodate UFAD systems and help meet this credit.

Construction IAQ Management Plan – Credit 3.1 – During Construction (1 pt)

Intent

• Prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

Requirement

• Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building.

How TecCrete helps meet this requirement

• Underfloor air distribution systems (UFAD) installed along with access floor solutions eliminate 80% of the overhead ductwork and produce much less construction waste and dust than conventional overhead HVAC systems.
• TecCrete access floor product can accommodate UFAD systems and help meet this credit.

Note

Controllability of Systems, Credit 6.2 – Non-Perimeter Spaces (1 pts)

Intent
• Provide a high level of thermal, ventilation and lighting system control by individual occupants or specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.

Requirement
• Provide controls for each individual for airflow, temperature and lighting for at least 50% of the occupants in non-perimeter, regularly occupied areas.

How TecCrete helps you meet this requirement
• Underfloor air distribution systems (UFAD) using swirl diffusers provide every occupant and/or group within a building the ability to control the airflow and temperature within their space.
• TecCrete raised floor product can accommodate UFAD systems and swirl diffusers to help meet this credit.

Thermal Comfort – Credit 7.1 – Compliance with ASHRAE 55-1992 (1 pt)

Intent
• Provide a thermally comfortable environment that supports the productivity and well-being of building occupants.

Requirement

How TecCrete helps you meet this requirement
• Buildings with access floors that utilize underfloor air distribution (UFAD) have an inherent advantage in meeting and exceeding ASHRAE Standard 55-1992, Addenda 1995. Discharge temperatures are much closer to normal ambient temperatures, minimizing the presence of hot and cold spots in the environment.
• Systems operate at lower pressures and lower air velocities than overhead systems, eliminating drafts and excess heating/cooling for occupants who sit immediately adjacent to HVAC diffusers.
• TecCrete access floor product can accommodate UFAD systems to meet this credit.

Daylight and Views – Daylight 75% and Views 90% of Spaces – Credit 8.1, 8.2 (1-2 pts)

Intent
• Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Requirements
• Credit 8.1 – Achieve a minimum Daylight Factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical visual tasks.
• Credit 8.2 – Achieve direct line of sight to vision glazing for building occupants from 90% of all regularly occupied spaces. (2 pts)

How TecCrete helps you meet this requirement
• TecCrete Access Flooring used in conjunction with under floor air distribution can reduce the amount of overhead ductwork (up to 80% reduction in ductwork over conventional HVAC) and increase the overall height of the wall space available for exterior glazing.

Performance Ratings

Haworth Access Floors are designed to meet or exceed the rolling, concentrated and ultimate concentrated load ratings established by the Ceiling and Interior Systems Construction Association (CISCA).

TecCrete 1250 Panel Performance Ratings

Rolling Load

- 1,200 lbs. applied through a 3" (76mm) dia. x 1 1/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .020" (.5mm) top surface permanent set.
- 800 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set.

Impact Load Rating

150 lb. load dropped from 36" (914mm) onto a one inch square indenter.

Concentrated Load Rating

1,250 lb. load on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (3mm), and a permanent set not to exceed .010" (3mm).

Uniform Load Rating

400 lb. per square foot with a maximum top surface deflection not to exceed .040" (10mm), and a permanent set not to exceed .010" (3mm).

Ultimate Load

1800 lb. per square inch minimum at weakest point.

Rolling, concentrated and ultimate concentrated load tests performed according to “Recommended Test Procedures for Access Flooring” as established by the Ceiling and Interior Systems Construction Association (CISCA).

TecCrete 2000s Panel Performance Ratings

Rolling Load

- 2000 lbs. applied through a 3" (76mm) dia. x 1 1/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .020" (.5mm) top surface permanent set with edge supported stringers.
- 1750 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set with edge support stringers.

Impact Load

A 150 lb. load dropped from 36" (914mm) onto a one-inch square indenter shall not cause a system failure with edge support stringers.

Concentrated Load Rating

Allows for maximum of 0.10" deflection and 0.010" permanent set.

Uniform Load

500 lbs. per square foot with a maximum top surface deflection not to exceed .040" (10mm), and a permanent set not to exceed .010" (3mm) with edge support stringers.

Ultimate Load

3000 lb. per square inch minimum at weakest point with edge support stringers.

Rolling, concentrated and ultimate concentrated load tests performed according to “Recommended Test Procedures for Access Flooring” as established by the Ceiling and Interior Systems Construction Association (CISCA).
TecCrete Access Flooring 1250

Three Part Guide Specification
PART 1 - GENERAL

1.01 Description

A. The access floor system shall consist of interchangeable panels, understructure, and all labor, material, equipment, and installation as called for in the specifications and/or shown on the Architect’s Drawings.

B. Related Work Specified Elsewhere:

1. Concrete work and concrete floor sealer is specified in Section 03 30 00.
   a) Concrete sealer and pedestal adhesive must be chemically compatible with each other.
2. Carpet and carpet tile work as specified in Section 09 00 00 (09680 MasterFormat 95)
3. Mechanical air distribution as specified in Section 23 30 00 (15800 MasterFormat 95)
4. Electrical connections and grounding as specified in Section 26 05 00 (16100 MasterFormat 95).

1.02 Environmental Conditions for Storage and Installation

A. The General Contractor must provide a dry accessible area to receive and unload material with a free path to elevators, hoists, and/or the area receiving the access floor.

B. Prior to and during installation, a secure and dry storage space closed to the weather must be made available for the access floor materials, with recommended environment at 40°F to 90°F and approximately 35% to 70% relative humidity, 24 hours a day during and after installation.

C. The subfloor surface must be free of moisture, dust, dirt and other debris. Once installed, the access floor must be maintained in the same manner.

1.03 Design Performance and Certification of Product

A. Provide access flooring system consisting of moveable assemblies composed of modular floor panels supported on pedestals with stringers forming accessible under floor cavities to accommodate electrical, mechanical, and HVAC services and complying with performance requirements specified. Raised Floor panels must be interchangeable with each other except where cut for special conditions.

B. Where applicable load testing shall be performed according to “Recommended Test Procedures for Access Flooring” as established by the Ceiling and Interior Systems Construction Association (CISCA). These procedures shall be used as a guideline when presenting load performance product information.

C. Product test shall be witnessed and certified by an accredited independent engineering and testing laboratory based in the USA with a minimum of five (5) years experience testing access floor components in accordance with CISCA test methods.

1.04 Country of Origin

A. Access floor materials shall comply with the provisions outlined in FAR Subpart 25.2–Buy American Act–Construction Materials.
1.05 Submittals

A. Samples: Submit a sample of the floor panel and each understructure component.

B. Shop Drawings:

1. Submit drawings showing raised floor panel layout including starting point of installation.

2. Include details of components panels, and pedestals. If required show edge details of ramps, steps, handrails, and anchoring of pedestal bases to subfloor.

C. Certificates:

1. Submit independent testing organization certificates indicating compliance with specified design criteria when tested and reported according to CISCA “Recommended Test Procedures for Access Floors.”

2. Submit seismic calculations if required in accordance with local and state building codes as specified. Calculations shall be performed using current seismic program and submitted to a local structural engineering licensed in the state where the project is located. The structural engineer shall sign and seal these calculations confirming that these calculations meet all local and state codes for seismic pedestal assemblies. A signed copy of these calculations must be given to the architect and local building department as required.

1.06 Quality Assurance

A. Installer: A company with minimum of five years experience in the installation of access floor systems of comparable size and complexity.

B. Tolerances:

1. Manufacturing tolerance:
   a) Nominal panel size ± 0.015” (0.4mm) or less.
   b) Panel flatness ± 0.020” (.5mm) or less.
   c) Panel squareness ± 0.015” (0.4mm) or less.
   d) Panel interchangeability – all panels, except those modified to meet special conditions, shall be interchangeable.

2. Installation Tolerance:
   a) Finished installation shall be level within ± 0.060” (2mm) in 10 feet (3m) and ± 0.100” (3mm) for the entire floor.

1.07 Project Conditions

A. The General Contractor and/or Owner shall provide a clean, level, dry subfloor, temperature controlled, and protected from the weather.

B. Access flooring storage and installation areas shall be maintained at a temperature between 40° F and 90° F, and between 35% to 70% relative humidity for 24 hours a day before, during and after installation.

C. Overhead construction work must be completed before installing access floor to avoid damage to panels and finishes.
PART 2 - PRODUCTS

2.01 Materials

A. Manufacturer: The access flooring system shall be as manufactured by Haworth Inc. located in Grand Rapids, Michigan.

1. Substitutions will be considered, providing design criteria is met or exceeded.

B. Floor Panels: TecCrete 1250 Panels shall be integrated steel pan construction with exposed top surface of lightweight concrete fill. Floor Panels are bare corner-lock.

1. Panels shall be nominal 24" (610mm) square x 11/8" (29mm) deep, manufactured with hot-dip galvanized steel pan having shear tabs that integrally bond to the lightweight, high-strength concrete fill. Panel corners shall be manufactured to receive the pedestal head positioning dome and containing a corner-lock grounding insert. Each panel shall accept a flush-fit metal fastener which securely fastens each panel corner to the pedestal head.

2. Panel Finish: Floor panel surface shall be factory standard bare concrete for field installed carpet tile. Panels shall have a maximum electrical resistance of 10 ohms or less from the top edge of the panel, less surface covering, to the understructure.

3. Concentrated Load: 1,250 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (3mm), and a permanent set not to exceed .010" (3mm).

4. Uniform Load: 400 lbs. per square foot with a maximum top surface deflection not to exceed .040" (10mm), and a permanent set not to exceed .010" (3mm).

5. Ultimate Load: 1800 lb. per square inch minimum at weakest point.

6. Rolling Load: Panels shall withstand a rolling load of 1,200 lbs. applied through a 3" (76mm) dia. x 11/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .020" (.5mm) top surface permanent set with edge supported stringers. Panels shall withstand a rolling load of 800 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set.

7. Impact Load: A 150 lb. load dropped from 36" (914mm) onto a one inch square indenter shall not cause a system failure.

8. Heat Transmission: Bottom surface temperature exposure to 1,600° F for 15 minutes shall not increase the top surface temperature more than 150° F above the ambient temperature.

9. ASTM E-84: Class 1: Flame spread of 5 or less and smoke developed of 10 or less per NFPA.

C. Air Supply Panels:

a) Provide and/or install passive floor diffusers and factory cut-outs as indicated on drawings.
b) Factory cut-outs shall be (centered) (quadrant) as shown. Panels with cutouts that are located in traffic areas as shown on the drawings shall have extra pedestal assemblies under the panel to support the cutout.
c) For under floor air applications, provide air strip gaskets for exposed concrete panels, or high pressure air highways, as indicated.
D. Understructure:

1. Pedestal assemblies shall be of hot-dip galvanized steel.

2. The base shall be a minimum of 16 square inches and shall be stamped and/or embossed on its underside and shall be adhered to the sub floor with an adhesive recommended by the access flooring manufacturer.

3. Where mechanical anchors are required for seismic zones, provide same as required by project specific seismic calculations.

4. The threaded stud will be $\frac{3}{4}$" (19mm) diameter steel.

5. The head assembly shall be designed so that the panels will be held in place with corner-lock fasteners.

6. Pedestal assembly shall provide an adjustment range of +/- 1" (25mm) when finished floor height is 6" (152mm) or more, adjustable at $\frac{1}{64}$" (0.4mm) increments.

7. The assembly shall provide a mechanical means to lock the floor in a level plane and adjustments shall be capable of being made without special tools.

8. For corner-lock system, the head of the all-steel assembly shall be designed to accept a metal fastener to mechanically lock the panels in place.

9. Pedestal assembly shall support not less than 6,000 lb. axial load and shall resist an average 1,000 inch-pound overturning moment when bonded to a clean concrete slab.

E. Accessories:

1. Furnish ramps, steps, lateral bracing, fascia, handrails, cutouts, and miscellaneous items where indicated.
PART 3 - EXECUTION

3.01 Inspection

A. Examine the subfloor which is to receive access flooring for dryness, cleanliness, unevenness, or any irregularities that will affect the quality of the access flooring.

1. Verify that material storage and installation areas are at recommended temperature and relative humidity before, during, and after installation.

2. Verify that substrate is level to within \(\frac{1}{8}\)" (3mm) in 10’ (3m).

3. Do not commence installation of access flooring until subfloor is clean and dry, temperature controlled, and protected from the weather.

3.02 Installation

A. Pedestal locations shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal locations.

B. Installer is to coordinate with other trades to maintain the integrity of the installed access flooring. All traffic on access floor shall be controlled by the installer only. No traffic other than the access floor installation crew shall be permitted on any floor area for 48 hours to allow the pedestal adhesive to set. Access floor panels shall not be removed by other trades for 72 hours after their installation.

C. Floor system and accessories shall be installed by an authorized factory trained installation company with a minimum of five (5) years experience.

D. No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.

E. Installer shall keep the subfloor broom clean as installation progresses.

F. Install floor diffusers if required as indicated on Mechanical Plans.

G. Finished installation shall be level within +/- 0.060" (2mm) in 10’ (3m) and +/- 0.100" (3mm) for the entire floor area.

H. Replace damaged materials prior to the application of field applied surfaces.

3.03 Field Quality Control

A. Take random panel from shipment received at construction site and test panel for compliance with stated load criteria if directed by Architect/Owner.

3.04 Acceptance

A. General Contractor or Owner shall accept completed access floor in whole or in part, prior to allowing other trades to perform work which affects the installed access floor.

B. General Contractor shall suitably protect the accepted access floor and accessories from damage, contamination, or overloading.
TecCrete Access Flooring 2000s

Three Part Guide Specification
PART 1 - GENERAL

1.01 Description

A. The access floor system shall consist of interchangeable panels, understructure, and all labor, material, equipment, and installation as called for in the specifications and/or shown on the Architect’s Drawings.

B. Related Work Specified Elsewhere:

1. Concrete work and concrete floor sealer is specified in Section 03 30 00.
   a) Concrete sealer and pedestal adhesive must be chemically compatible with each other.

2. Carpet and carpet tile work as specified in Section 09 00 00 (09680 MasterFormat 95).

3. Mechanical air distribution as specified in Section 23 30 00 (15800 MasterFormat 95).

4. Electrical connections and grounding as specified in Section 26 05 00 (16100 Master Format 95).

1.02 Environmental Conditions for Storage and Installation

A. The General Contractor must provide a dry accessible area to receive and unload material with a free path to elevators, hoists, and/or the area receiving the access floor.

B. Prior to and during installation, a secure and dry storage space closed to the weather must be made available for the access floor materials, with recommended environment at 40° F to 90° F and approximately 35% to 70% relative humidity, 24 hours a day during and after installation.

C. The subfloor surface must be free of moisture, dust, dirt and other debris. Once installed, the access floor must be maintained in the same manner.

1.03 Design Performance and Certification of Product

A. Provide access flooring system consisting of moveable assemblies composed of modular floor panels supported on pedestals with stringers forming accessible under floor cavities to accommodate electrical, mechanical, and HVAC services and complying with performance requirements specified. Raised Floor panels must be interchangeable with each other except where cut for special conditions.

B. Where applicable load testing shall be performed according to “Recommended Test Procedures for Access Flooring” as established by the Ceiling and Interior Systems Construction Association (CISCA). These procedures shall be used as a guideline when presenting load performance product information.

C. Product test shall be witnessed and certified by an accredited independent engineering and testing laboratory based in the U.S.A. with a minimum of five (5) years experience testing access floor components in accordance with CISCA test methods.

1.04 Country of Origin

A. Access floor materials shall comply with the provisions outlined in FAR Subpart 25.2–Buy American Act–Construction Materials.
1.05 Submittals

A. Samples: Submit a sample of the floor panel and each understructure component.

B. Shop Drawings:

1. Submit drawings showing raised floor panel layout including starting point of installation.
2. Include details of components panels, and pedestals. If required show edge details of ramps, steps, handrails, and anchoring of pedestal bases to subfloor.

C. Certificates:

1. Submit independent testing organization certificates indicating compliance with specified design criteria when tested and reported according to CISCA “Recommended Test Procedures for Access Floors.”
2. Submit seismic calculations if required in accordance with local and state building codes as specified. Calculations shall be performed using current seismic program and submitted to a local structural engineering licensed in the state where the project is located. The structural engineer shall sign and seal these calculations confirming that these calculations meet all local and state codes for seismic pedestal assemblies. A signed copy of these calculations must be given to the architect and local building department as required.

1.06 Quality Assurance

A. Installer: A company with minimum of five years experience in the installation of access floor systems of comparable size and complexity.

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   c) Panel squareness ± 0.015” (0.4mm) or less.
   d) Panel interchangeability — all panels, except those modified to meet special conditions, shall be interchangeable.

2. Installation Tolerance:
   a) Finished installation shall be level within ± 0.060” (2mm) in 10 feet (3m) and ± 0.100” (3mm) for the entire floor.

1.07 Project Conditions

A. The General Contractor and/or Owner shall provide a clean, level, dry subfloor, temperature controlled, and protected from the weather.

B. Access flooring storage and installation areas shall be maintained at a temperature between 40° F and 90° F, and between 35% to 70% relative humidity for 24 hours a day before, during and after installation.

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1. Panels shall be nominal 24" (610mm) square x 1½" (38mm) deep, manufactured with hot-dip galvanized steel pan having shear tabs that integrally bond to the lightweight, high-strength concrete fill. Panel corners shall be manufactured to receive the pedestal head positioning dome and containing a corner-lock grounding insert. Each panel shall accept a flush-fit metal fastener which securely fastens each panel corner to the pedestal head.

2. Panel Finish: Floor panel surface shall be factory standard bare concrete for field installed carpet tile. Panels shall have a maximum electrical resistance of 10 ohms or less from the top edge of the panel, less surface covering, to the understructure.

3. Concentrated Load: 2000 lb. on one square inch at any location with a top surface deflection not to exceed .10" (3mm), and a permanent set not to exceed .015" (4mm) with edge support stringers.

4. Uniform Load: 500 lbs. per square foot with a maximum top surface deflection not to exceed .040" (10mm), and a permanent set not to exceed .010" (3mm) with edge support stringers.

5. Ultimate Load: 3000 lb. per square inch minimum at weakest point with edge support stringers.

6. Rolling Load: Panels shall withstand a rolling load of 2000 lbs. applied through a 3" (76mm) dia. x 1½" (46mm) wide caster for 10 cycles over the same path with a maximum of .020" (.5mm) top surface permanent set with edge supported stringers. Panels shall withstand a rolling load of 1750 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set with edge support stringers.

7. Impact Load: A 150 lb. load dropped from 36" (914mm) onto a one inch square indenter shall not cause a system failure with edge support stringers.

8. Heat Transmission: Bottom surface temperature exposure to 1,600° F for 15 minutes shall not increase the top surface temperature more than 150° F above the ambient temperature.

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c) For under floor air applications, provide air strip gaskets for exposed concrete panels, or high pressure air highways, as indicated.
D. Understructure:

1. Pedestal assemblies shall be of hot-dip galvanized steel.

2. The base shall be a minimum of 16 square inches and shall be stamped and/or embossed on its underside and shall be adhered to the sub floor with an adhesive recommended by the access flooring manufacturer.

3. Where mechanical anchors are required for seismic zones, provide same as required by project specific seismic calculations.

4. The threaded stud will be \( \frac{3}{8} \) (19mm) diameter steel.

5. The head assembly shall be designed so that the panels will be held in place with corner-lock fasteners.

6. Pedestal assembly shall provide an adjustment range of +/- 1" (25mm) when finished floor height is 6" (152mm) or more, adjustable at \( \frac{1}{64} \) (0.4mm) increments.

7. The assembly shall provide a mechanical means to lock the floor in a level plane and adjustments shall be capable of being made without special tools.

8. Edge support stringers shall be capable of supporting 300 lbs. without deflection more than 0.10" (3mm) with a permanent set not to exceed .010" (3mm).

9. Pedestal assembly shall support not less than 6,000 lb. axial load and shall resist an average 1,000 inch-pound overturning moment when bonded to a clean concrete slab.

E. Accessories:

1. Furnish ramps, steps, lateral bracing, fascia, handrails, cutouts and miscellaneous items where indicated.
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2. Verify that substrate is level to within \( \frac{1}{8} \)" (3mm) in 10 feet (3m).

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D. No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.

E. Installer shall keep the subfloor broom clean as installation progresses.

F. Install floor diffusers if required as indicated on Mechanical Plans.

G. Finished installation shall be level within +/- 0.060" (2mm) in 10 feet (3m) and +/- 0.100" (3mm) for the entire floor area.

H. Replace damaged materials prior to the application of field applied surfaces.

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A. Take random panel from shipment received at construction site and test panel for compliance with stated load criteria if directed by Architect/Owner.

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