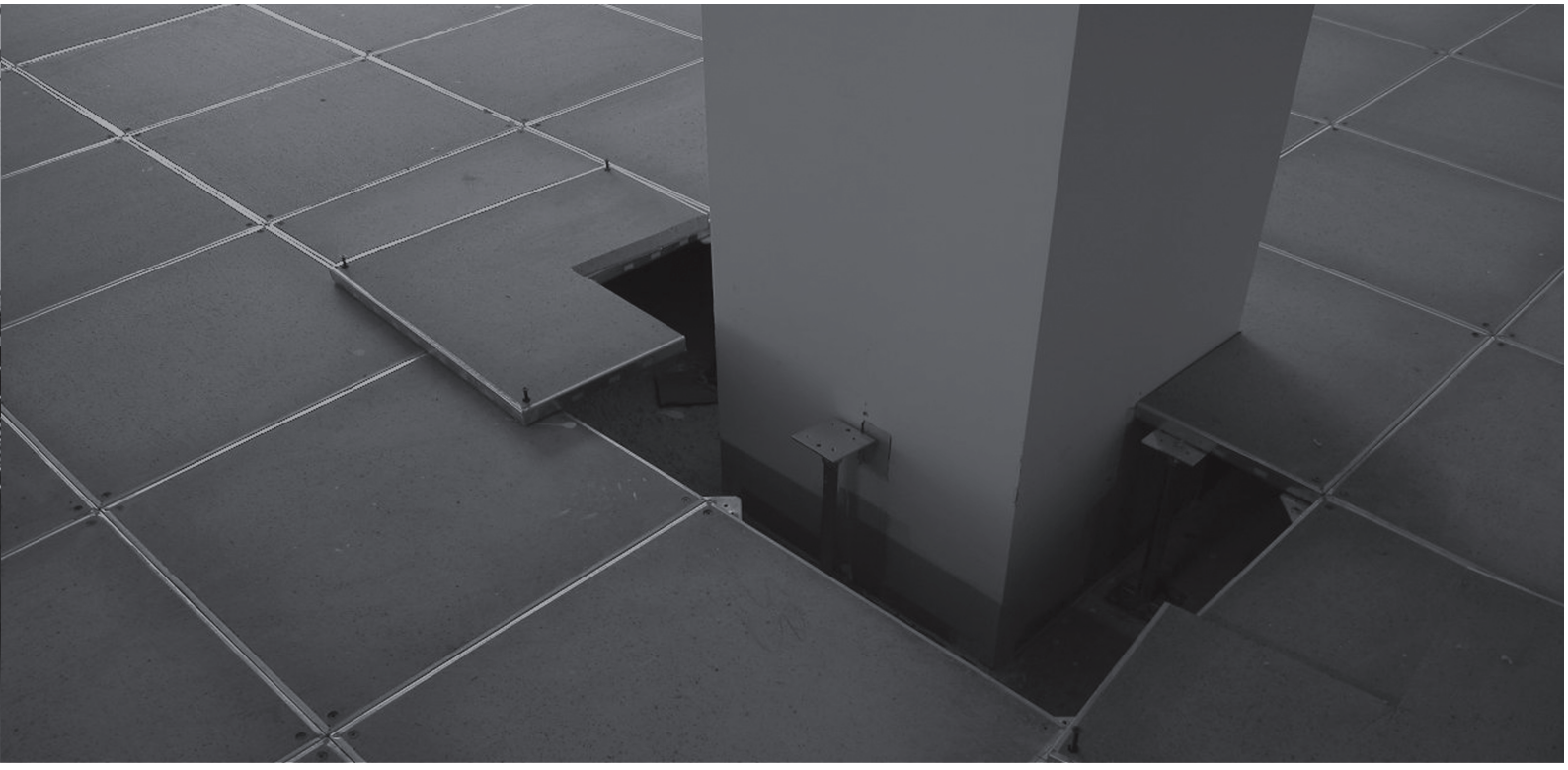
HAWORTH®

TecCrete®

Application Guide – June 2013



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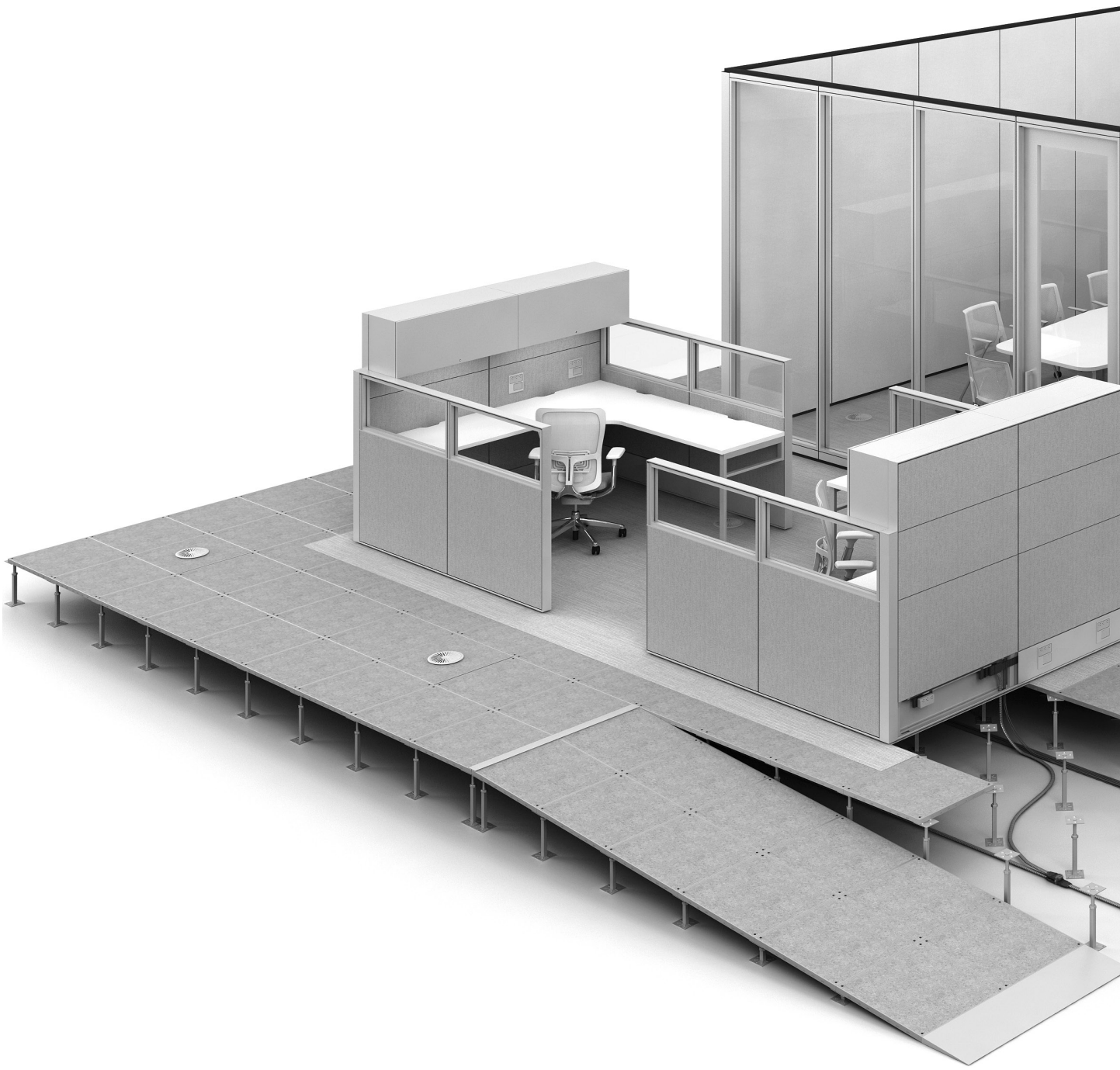
TecCrete Product Overview



Introduction

Featuring a proprietary concrete-and-steel composite structure and an exposed concrete surface that's beautiful enough to leave bare, Haworth's new TecCrete® builds on a 25-year legacy as the access floor that doesn't feel like one or look like one. It's the strongest and most durable access flooring system in its class. And it's the greenest, manufactured in a Zero Landfill Plant with 58% recycled content. In addition, tight panel gap tolerances and a flat underside make TecCrete ideal for underfloor air distribution. Available bare or with a range of factory-applied finishes, TecCrete is the solid, quiet choice for any environment, from offices to data centers.

Key Features and Benefits

- Designed for office and computer room: TecCrete contains a full range of access floor options.
- Solid underfoot: Flexes 50% less than a conventional raised floor when walked on.
- Durable, weldless construction: Unique steel-and-concrete composite structure eliminates welds that 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: TecCrete 1250/1500, at 1⅛" (29mm) thick, and TecCrete 1500SL/2000/2500, at 1½" (38mm) thick, both have solid concrete and steel construction from end to end.
- "Library Quiet": TecCrete's thickness and density more effectively attenuate sound.
- TecCrete features 58.4% recycled content.
- Flat underside: Allows for easier and more economical installations, sealing of underfloor plenum dividers and tight panel gap tolerances.
- 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 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 25 years and tens of millions of square feet installed.
- Made in America.

Standard Panel Options

- Strength ratings: Concentrated load of 1,250/1,500 (stringers optional) lbs. and 2,000/2,500 (on stringers) lbs.
- Cornerlock and non-cornerlock
- Integral air seal
- Standard grade, finished grade or covered
- Factory supplied cutouts for diffusers, grommets and electrical boxes

Panel Surface Options

- Bare for field applied staining and sealing (finished grade)
- Bare for use under carpeting (standard grade)
- Static dissipative high-pressure laminate with TecTrim
- Static dissipative vinyl with TecTrim
- Conductive vinyl with TecTrim
- Other surfaces available by special order

Companion Products and Systems

- Haworth Power Base AI
- Haworth Power Base AI Pre-Terminated Zone Voice and Data
- Haworth furniture and wall systems

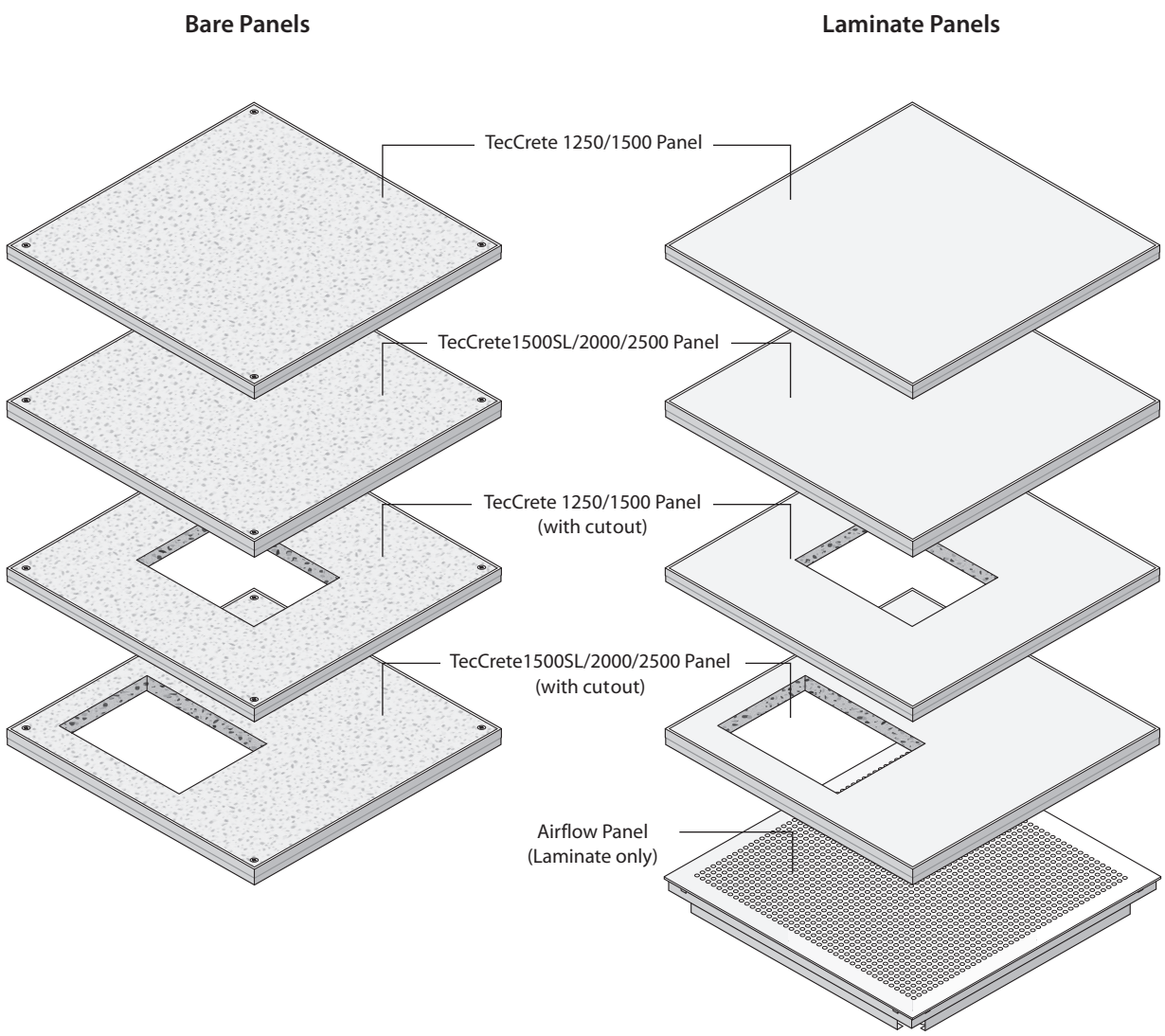
Typical Configuration

- Bare TecCrete 1250/1500 lb. panel corner-locked to pedestals
- Bare TecCrete 1250/1500 lb. or 2000/2500 lb. panel gravity held in a rigid-grid understructure
- Covered TecCrete 1250/1500 lb. or 2000/2500 lb. panel corner-locked with gravity-held rigid-grid understructure
- Covered TecCrete 1250/1500 lb. or 2000/2500 lb. panel non-corner-locked gravity-held rigid-grid understructure

Statement of Line: Panels

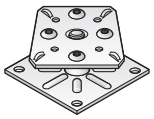
Panels

• Panels are available bare, with laminate covering, or vinyl covering.

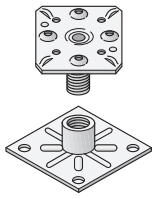


Note **See price list for available cutout options.**

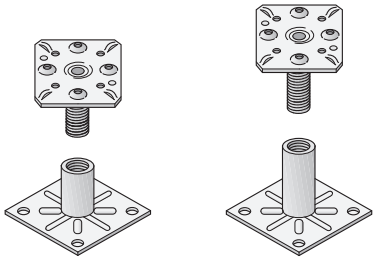
Statement of Line: Heads and Bases



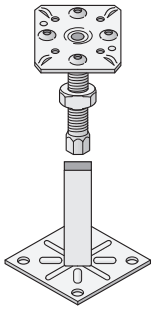
TecCrete Understructure,
Ultra Low Profile 2.5" (64mm) FFH



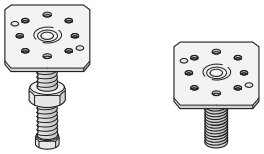
TecCrete Understructure,
Low Profile 3" (76mm) FFH



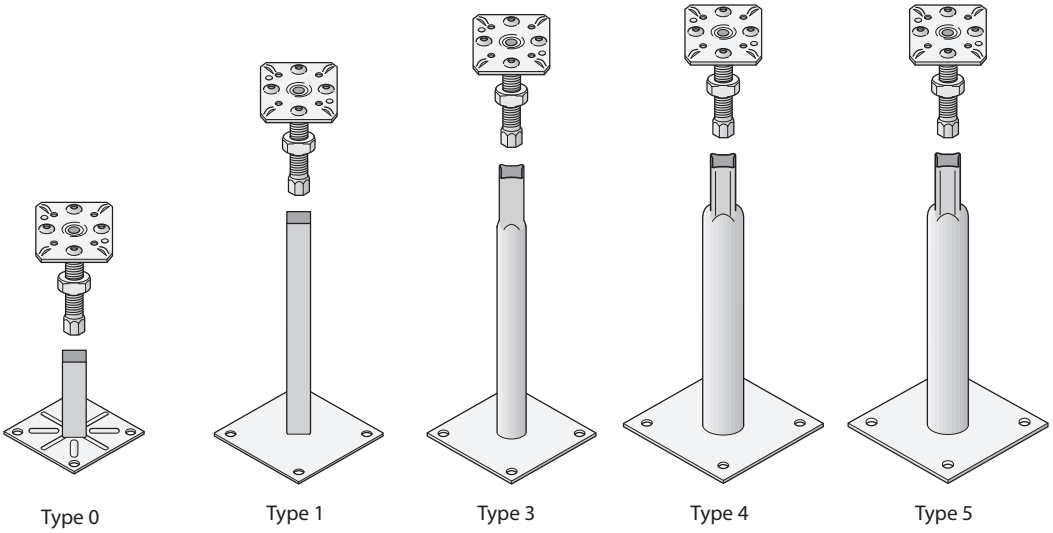
TecCrete Understructure,
Low Profile 4" (102mm), and 5" (127mm) FFH



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.

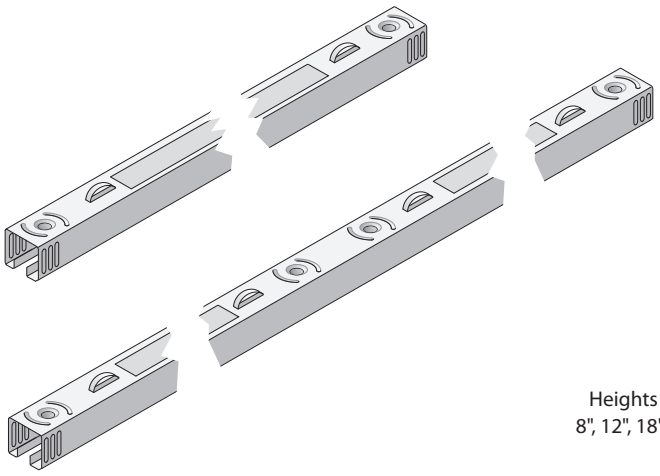


Type 0 | Type 1 | Type 3 | Type 4 | Type 5

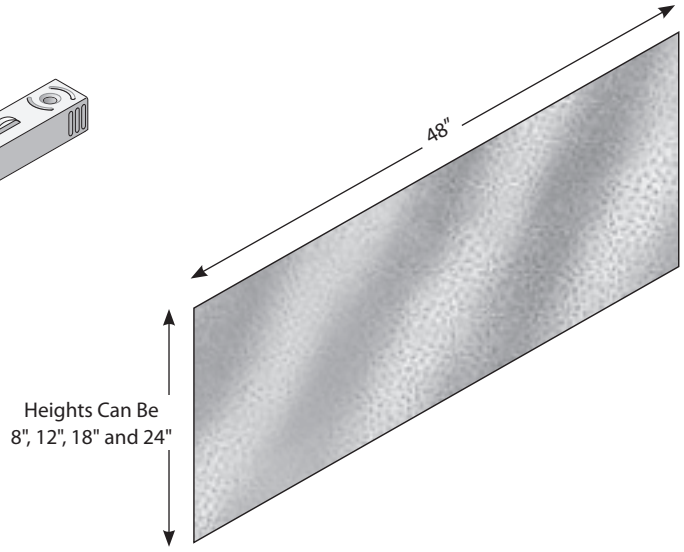
TecCrete1250 Seismic Understructure

Note **For additional seismic base options, please see page 20.**

Statement of Line: Accessories

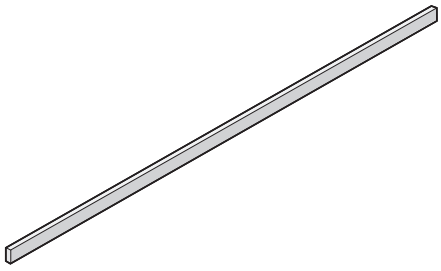


Steel Stringer with Gasket: 2' and 4'



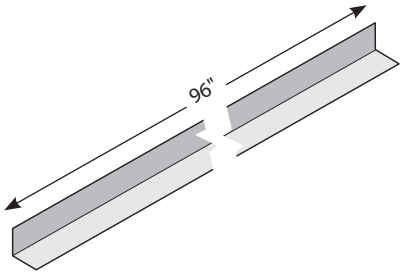
Steel Fascia Plates

Note **Heavy Duty Steel Stringer available.**

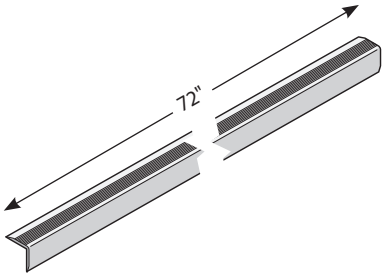


Air Seal

Note: Panel can be ordered with optional integral air seal.

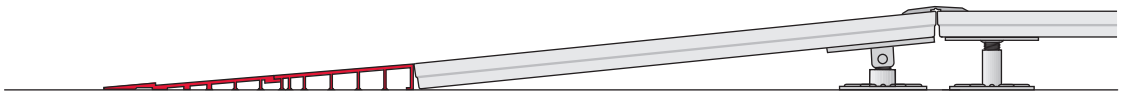


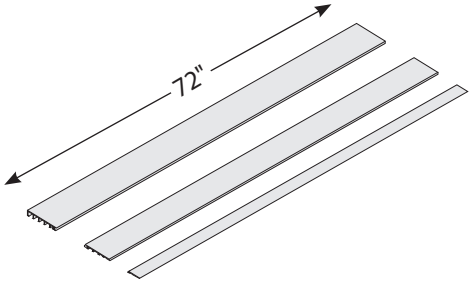
Steel Fascia Bottom Angle



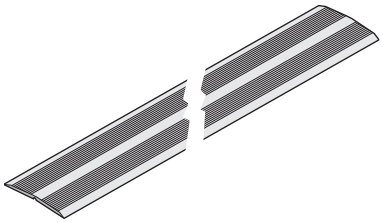
Aluminum Fascia Top Angle

TecCrete Panel Ramp and Components



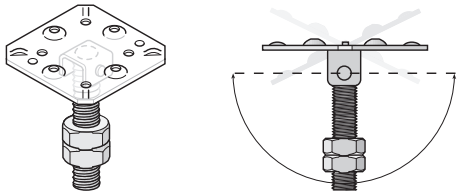


Ramp Shoe Components

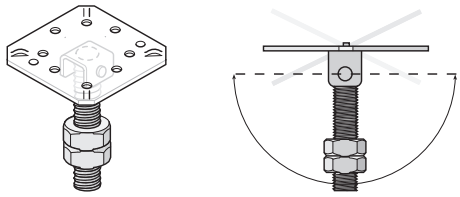


Ramp Threshold

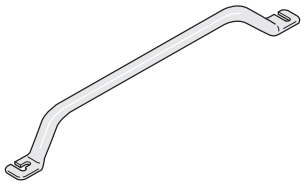
Statement of Line: Accessories



Swivel-Head Pedestal – Field

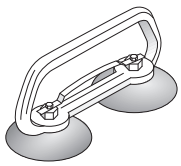


Swivel-Head Pedestal – Perimeter

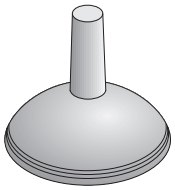


Lifting Bar

Small Single-Cup
Laminate Panel Lifter

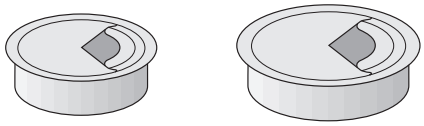


Double-Cup Laminate
Panel Lifter

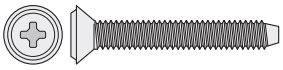


Large Single-Cup Laminate
Panel Lifter

Grommet: 1⅞" and 3"



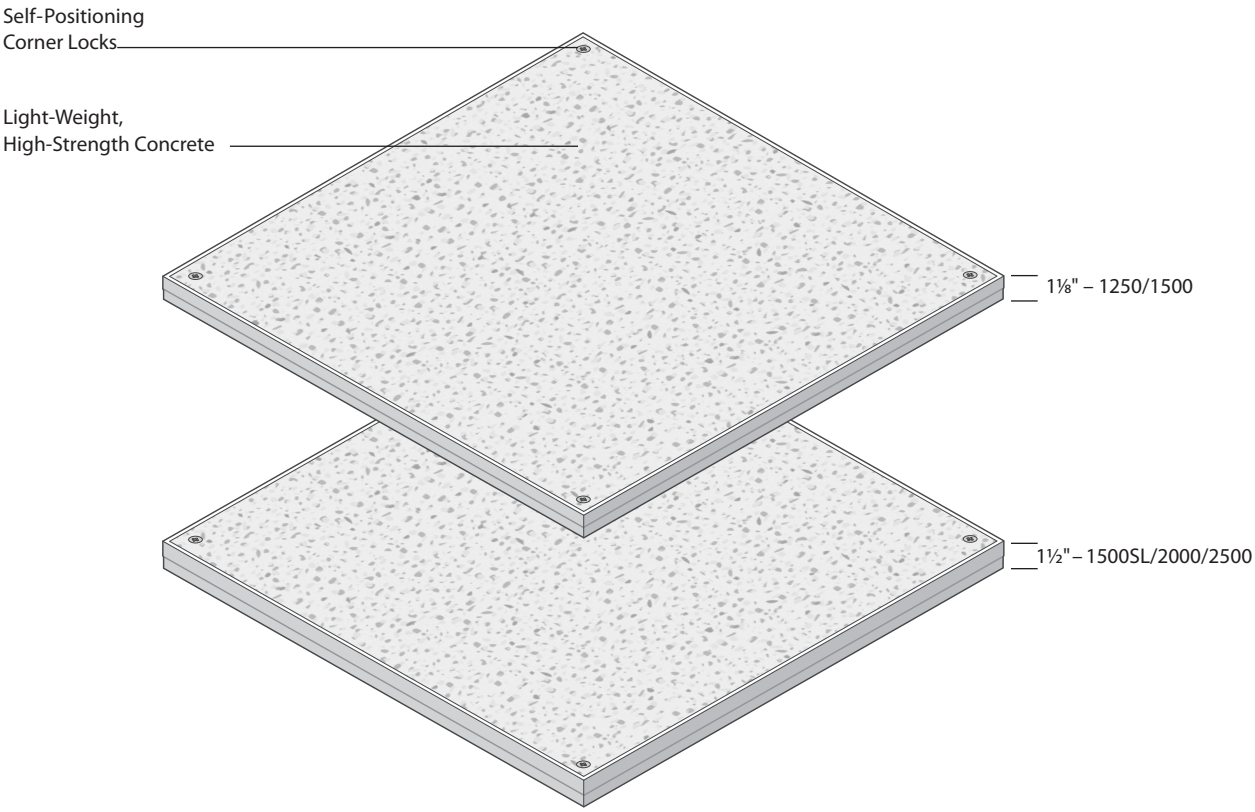
Grommet: 4" and 5"



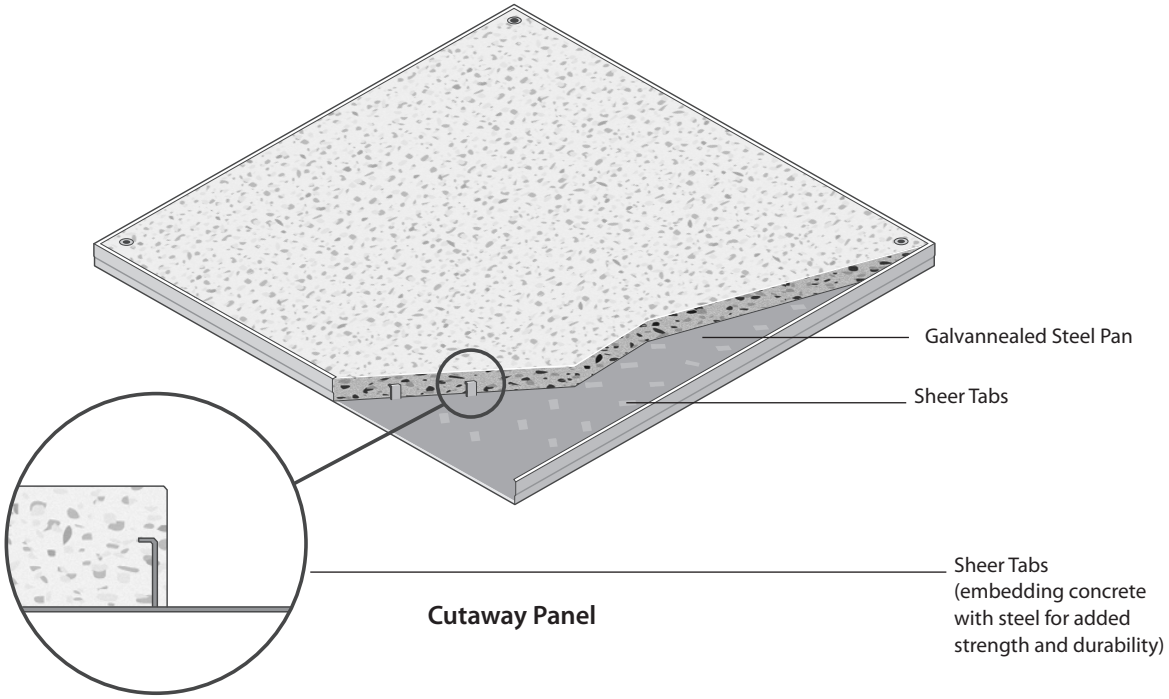
Grounding Screw

Standard or High-Strength Adhesive

Cornerlock: Bare Panels



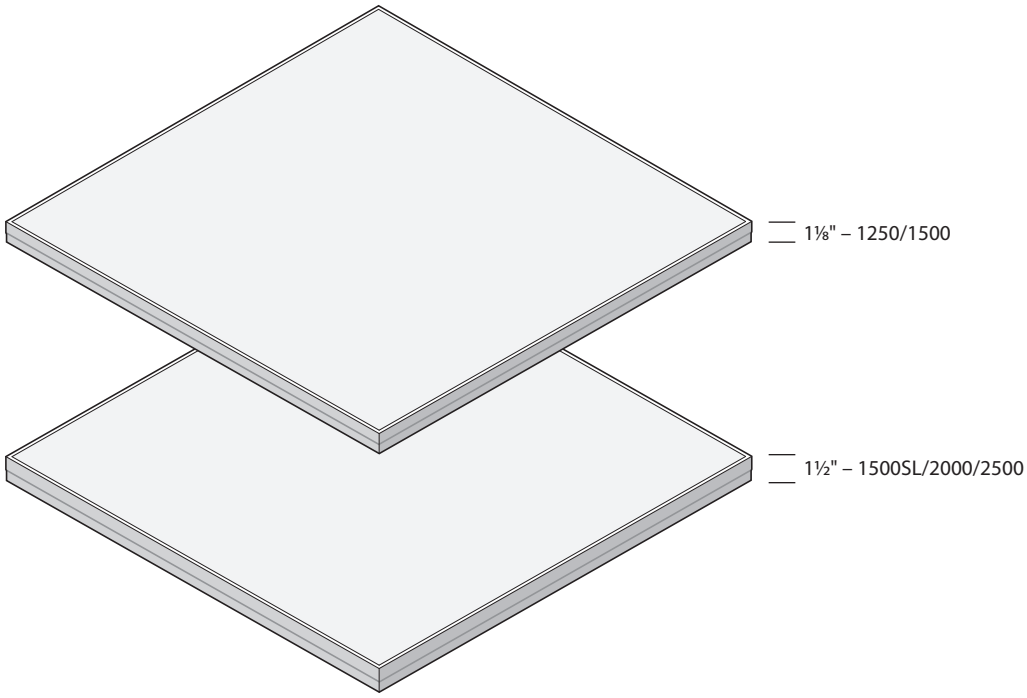
Full Panel



Cutaway Panel

Rigid Grid: Covered Panels and Cornerlock and Non-Cornerlock Panel Performance Ratings

Laminate or Vinyl with TecTrim



Full Panel

TecCrete Cornerlock and Non-Cornerlock Panel Performance Ratings

System Performance

Product			Static Load Rating			Dynamic Load Rating	
System	Panel	Understructure	Concentrated	Uniform	Ultimate	Rolling 10-Pass	Rolling 10,000-Pass
1,250	1 ⅛" Panel	Cornerlock	1,250 lbs	600 lbs	1,800 lbs	1,300 lbs	900 lbs
1,500	1 ⅛" Panel	Stringer	1,500 lbs	700 lbs	2,500 lbs	1,500 lbs	1,250 lbs
1,500SL	1 ½" Panel	Cornerlock	1,500 lbs	700 lbs	2,500 lbs	1,500 lbs	1,250 lbs
2,000	1 ½" Panel	Stringer	2,000 lbs	800 lbs	2,800 lbs	1,500 lbs	1,250 lbs
2,500	1 ½" Panel	HD Stringer	2,500 lbs	900 lbs	3,100 lbs	2,000 lbs	2,000 lbs

Note **For detailed information on testing and system performance ratings, please see TecCrete System Performance Ratings in the back of the book.**

Cornerlock and Non-Cornerlock Product Features

General Information

Construction: combustible.	• Lightweight high-strength concrete in a galvannealed steel pan. Non-
Panel Size (nominal):	• 24" x 24" (610mm x 610mm)
Panel Thickness:	• 1250/1500 – 1⅛" (29mm) high bare finish • 2000/2500 – 1½" (38mm) high bare finish
Panel Weight:	• 1250/1500 – 10.5 lbs./ft^2 (51.27 kgs/m^2) bare finish • 2000/2500 – 13.8 lbs./ft^2 (67.38 kgs/m^2) bare finish
System Weight:	• 1250/1500 – 11.2 lbs./ft^2 (54.68 kgs/m^2) bare with cornerlock • 1500SL - 14.04 lbs./ft^2 (kg) bare with cornerlock • 1250/1500 – 11.9 lbs./ft^2 (58.1 kgs/m^2) laminate, without cornerlock • 2000/2500 - 14.92 lbs./ft^2 (kg) bare, with or without cornerlock & rigid grid • 2000/2500 – 15.4 lbs./ft^2 (69.33 kgs/m^2) laminate, without cornerlock
Finished Floor Height:	• 3" to 64" (76mm x 1626mm) – Other heights available
Panel Finish:	• Bare for field applied staining and sealing (finished grade) • Bare for use under carpeting (standard grade) • Static dissipative high-pressure laminate with TecTrim • Static dissipative vinyl with TecTrim • Conductive vinyl with TecTrim • Other surfaces available by special order
Fire Resistance:	• Non-combustible

Panel Options

- Factory supplied water jet cutouts for diffusers, grommets and electrical boxes.
- Integral air seal.
- Factory-applied finishes.

Understructure Options

- Cornerlock pedestal, field, and perimeter understructure is available for low 3" (76mm), 4" (102mm), and 5" (127mm), and standard, 3" to 64" (76mm to 1626mm) finished floor heights.
- Seismic options are also available.
- For non-standard pedestal options, please contact your Haworth representative.
- Stringers are rated at 450 lbs. and 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.

Electrical Grounding

- A grounding screw can be used for stringered applications where the panel-to-pedestal resistance is required to be less than 10 ohms.

Underfloor Air Applications

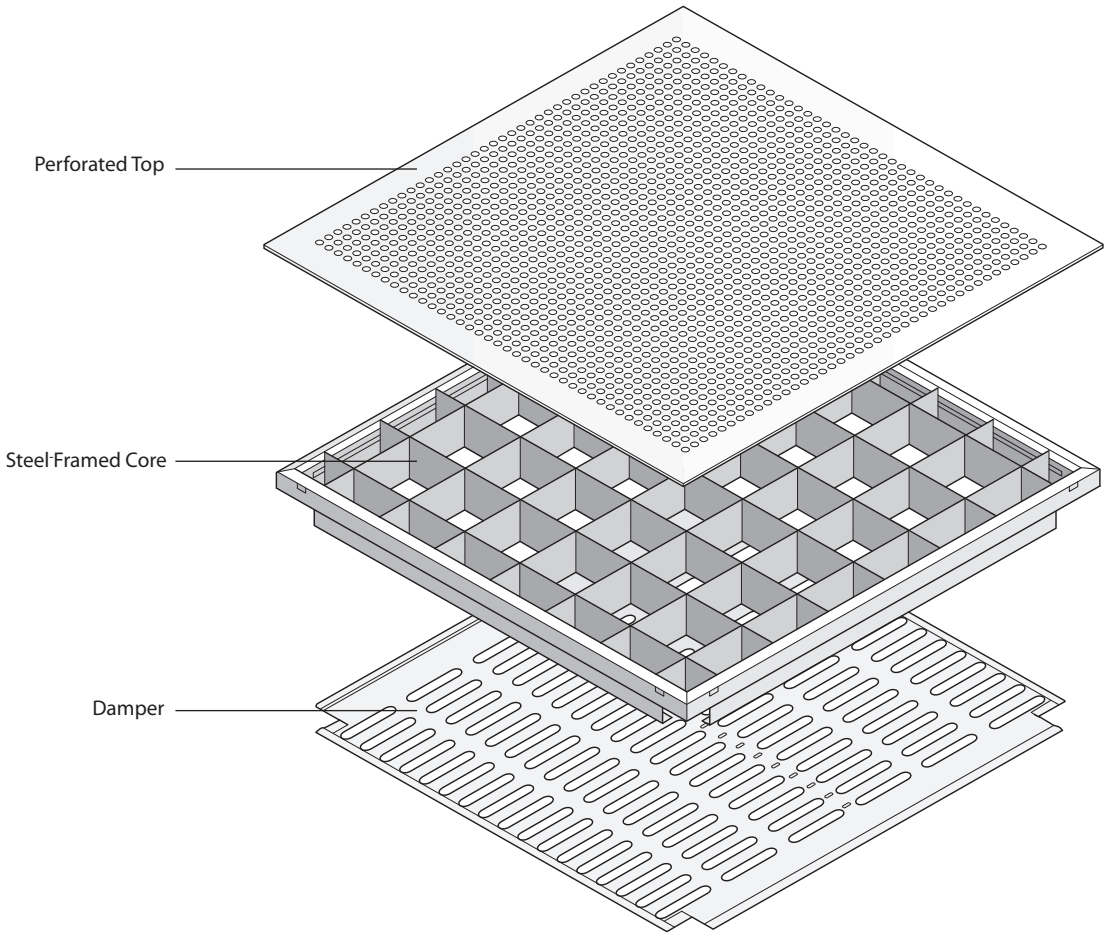
- Integral air seal strip can be specified for plenum applications not utilizing carpet tile or stringers to minimize cost and optimize underfloor air system performance.
- TecSeal™ air seal strip provides a plenum seal when TecCrete is used with a bare finish in an underfloor air application. TecSeal is a trademark of Haworth, Inc.

Companion Products and Systems

- Haworth Power Base AI Modular Power.
- Haworth Power Base AI Pre-Terminated Zone Voice and Data.
- Haworth furniture and wall systems.

25% Open Airflow Panels

The airflow panel is used to cool high-density computer equipment typically found in a server room, data center, or telecommunications center. The airflow panel is constructed from a welded grid frame and top sheet assembly perforated to create a 25% open area. At 0.1 inches water gauge pressure, it produces 19% more CFM than similar airflow panels.



25% Open Airflow Panel Product Features

General Information

Construction:	• Classic welded steel frame and top sheet
Panel Size (nominal):	• 24 x 24 (610mm x 610mm)
Panel Thickness:	• 1 ⅛" h panel for use with 1250 and 1500 systems • 1 ½" h panel for use with the 1500SL, 2000 or 2500 systems
Panel Weight*:	• 30.0 lbs. (4.54 kgs) with HPL and damper
System Weight:	• 8.0 lbs./ft^2 (4.54 kgs/m^2) with HPL and damper
Finished Floor Height:	• 6" to 64" (152mm x 1626mm) – Other heights available
Panel Finish:	• 1⁄16" or ⅛" Static Dissipative High Pressure Laminate with TecTrim™ • 1⁄16" or ⅛" Conductive High Pressure Laminate with TecTrim™ • Static dissipative vinyl with TecTrim™ • Conductive vinyl with TecTrim™ • Other surfaces available by special order
Fire Resistance:	• Non-combustible

Panel Options

- Damper

Understructure Options

- Understructure is available from 6" (152mm) to 64" (1626mm) finished floor heights.
- Seismic options are also available.
- For non-standard pedestal options, please contact your Haworth representative.
- Stringers are available in 2' (610mm) and 4' (1219mm) lengths.

Companion Products and Systems

- Haworth furniture, TecCrete panels for data centers and wall systems.

TecCrete Airflow Panel Performance Ratings**

Airflow Performance Ratings	Test Value	Test Standard
Concentrated Load	1250	CISCA A/F Section 1, Concentrated Loads
Rolling Load 10 Pass	1000	CISCA A/F Section 3, Rolling Loads
Rolling Load 10,000 Pass	650	CISCA A/F Section 3, Rolling Loads

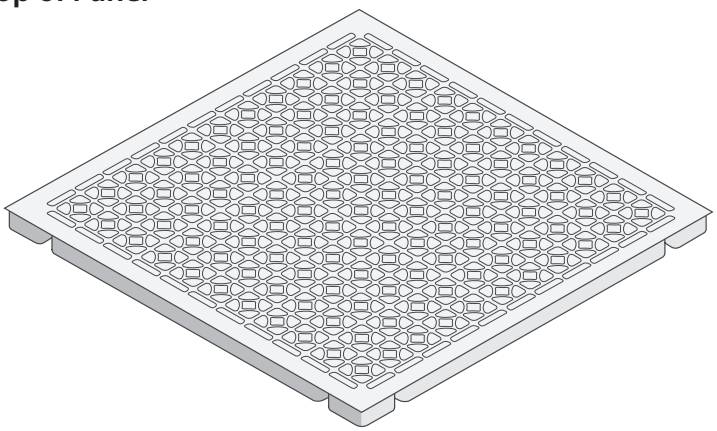
*At 12 finished floor height with stringers and without floor coverings.

**10-pass and 10,000-pass rolling load ratings allow for maximum 0.040 permanent set. 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).

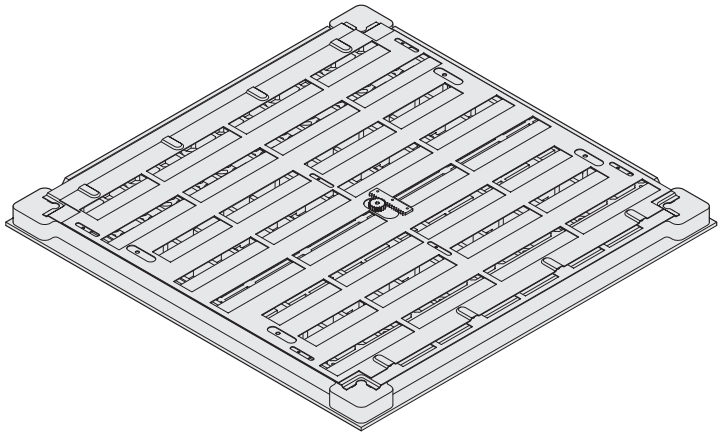
55% Open Airflow Panel

The 55% open airflow panel is a high performance panel with 55% open area for air to flow up from the underfloor into a data cabinet. The lightweight aluminum structure provides robust load capacity at a manageable weight.

Top of Panel



Bottom of Panel with Damper



55% Open Airflow Panel Product Features

General Information

Construction:	• Cast aluminum frame and grate
Panel Size (nominal):	• 24 x 24 (610mm x 610mm)
Panel Thickness:	• 1 ⅛" h panel for use with 1250 and 1500 systems • 1 ½" h panel for use with the 1500SL, 2000 or 2500 systems
Panel Weight*:	• 21.2 lbs with damper
System Weight:	• 5.8 lbs/ft2 with damper
Finished Floor Height:	• 6" to 64" (152mm x 1626mm) – Other heights available
Panel Finish:	• Painted white epoxy paint • Other surfaces also available by special order
Fire Resistance:	• Non-combustible

Panel Options

- Damper

Understructure Options

- Understructure is available from 6" (152mm) to 64" (1626mm) finished floor heights.
- One pedestal head addresses field and perimeter applications.
- Seismic options are also available.
- For non-standard pedestal options, please contact your Haworth representative.
- Stringers are available in 2' (610mm) and 4' (1219mm) lengths.
- Shims may be required when a 1/16 laminate airflow panel will be used next to a ⅛ HPL to match up to various adjacent finishes.

Companion Products and Systems

- TecCrete panels for data centers.

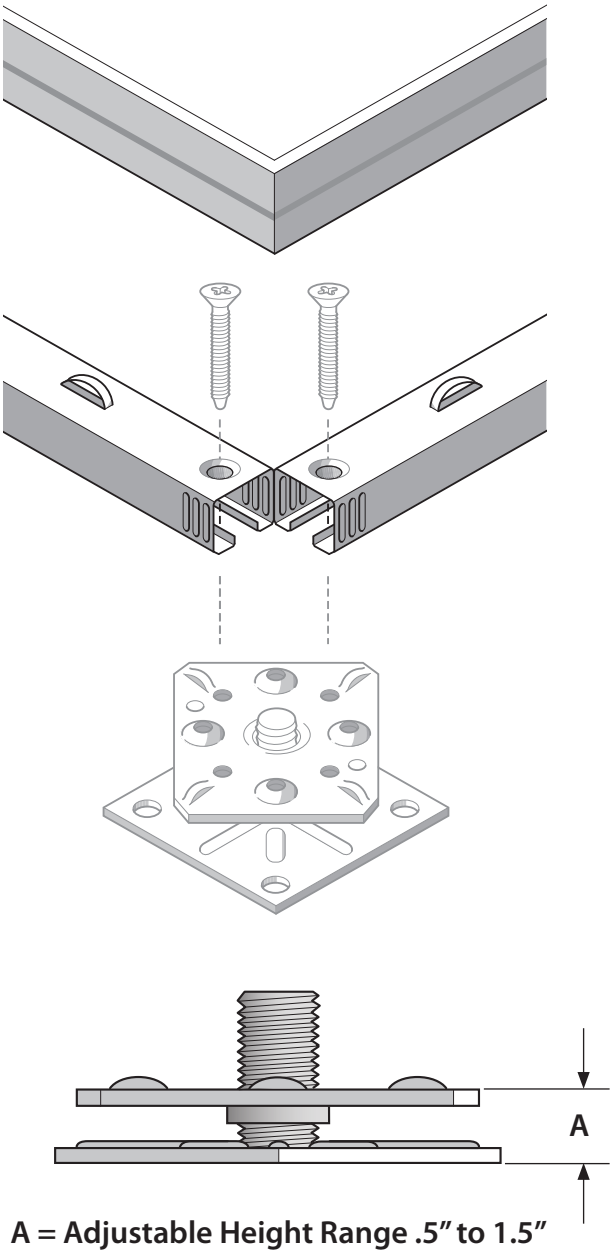
Performance Ratings

Product	Static Load Rating		Dynamic Load Rating	
Performance	CISCA Section 1 Concentrated	CISCA Section 2 Ultimate	CISCA Section 3 Rolling 10-Pass	CISCA Section 3 Rolling 10,000-Pass
55 % Open Grate	1,000 lbs	2,500 lbs	1,000 lbs	800 lbs

Ultra Low Profile Pedestal

The Ultra Low profile pedestal is used to support TecCrete 1⅛" floor panels on stringers in data center applications where minimal height adjustment is required.

Finished Floor Height Adjustment Range:



A = Adjustable Height Range .5" to 1.5"

Ultra Low Profile Pedestal Head and Base Ranges

Description	Finished Floor Heights	Adjustment Range	
		Low	High
1 ⅛" Panel With Stringer	3" (76mm)	2.875 " (73mm)	3.875" (98mm)
1 ½" Panel With Stringer	3.5" (89mm)	3.26" (89mm)	4.26" (108mm)

Ultra Low Profile Pedestal

Stability
When recommended pedestal adhesive is used on a clean unsealed concrete slab, pedestal assemblies have an overturning moment of 600 inch-pounds (115.6Nm).

Load Rating
Pedestal assemblies can support a 6,000 lb. (2,6689N) axial load without permanent deformation.

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

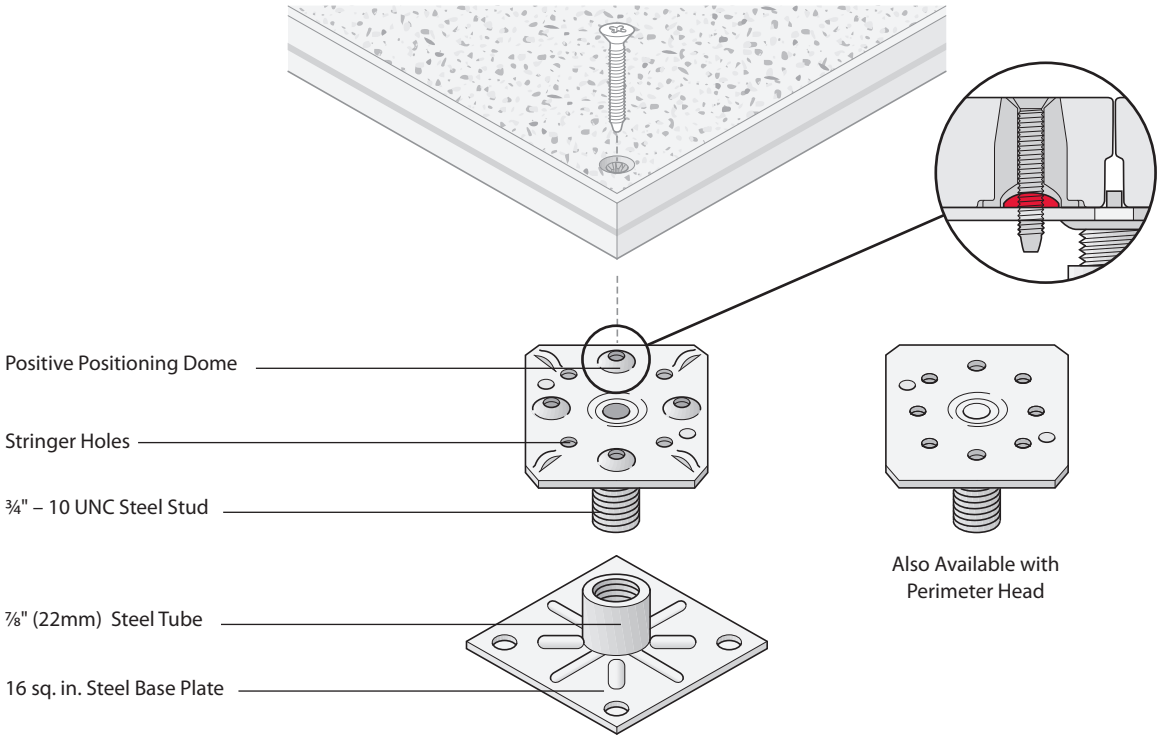
Pedestal Adjustment
Pedestal assemblies provide adjustment of ½" (127.7mm) up, and ½" (127.7mm) down, 1" (25.4mm) total adjustment for leveling, with a minimum finished floor height of 2.75" with a stringer.

Pedestal Base
- There are two standard TecCrete head options.
- Pedestal heads are made in America.
- Pedestal heads are made of die-formed hot-dipped galvanized steel, attached to a threaded rod. The galvanized nut is ¾" – 10 UNC in diameter.
- Pedestal heads have tapped holes for engagement of 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 ¾" (19mm) in diameter.

Stringers
- This pedestal is designed for use with stringers.

TecCrete Low-Profile Pedestal Assembly

Low-profile pedestals are used to support TecCrete1⅛" 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.



Low Profile Pedestal Head and Base Ranges

Description	Finished Floor Heights	Adjustment Range	
		Low	High
TecCrete1⅛" Panel	3" (76mm)	2.79" (71mm)	3.33" (85mm)
	4" (102mm)	3.33" (85mm)	4.28" (109mm)
	5" (127mm)	4.13" (105mm)	5.83" (148mm)
TecCrete1⅛" Panel with stringer	4.2" (107mm)	4.04" (102mm)	4.58" (116mm)
	5.0" (127mm)	4.58" (116mm)	5.53" (140mm)
	6.0" (152mm)	5.38" (137mm)	7.08" (180mm)
TecCrete1½" Panel	3.5" (89mm)	3.16" (80mm)	3.70" (94mm)
	4.0" (102mm)	3.70" (94mm)	4.65" (118mm)
	5.0" (127mm)	4.50" (114mm)	6.20" (157mm)
TecCrete1½" Panel with stringer	4.5" (114mm)	4.42" (112mm)	4.96" (126mm)
	5.2" (132mm)	4.96" (126mm)	5.91" (150mm)
	6.0" (152mm)	5.76" (146mm)	7.46" (189mm)

TecCrete Low-Profile Pedestal Assembly

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. (2,6689 N) axial load without permanent deformation.

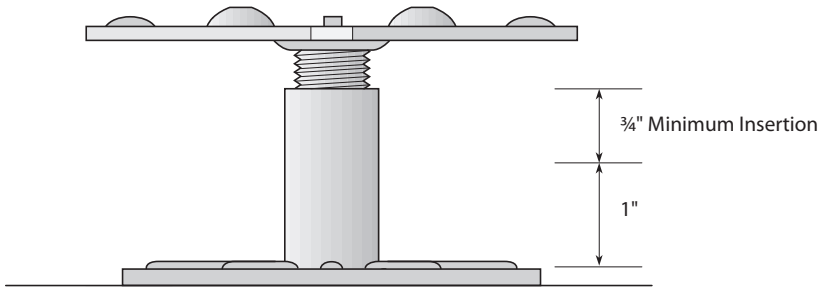
Finished Floor Height: Low Profile Pedestal Assembly
Standard finished floor heights are 3" (76mm), 4" (102mm), and 5" (127mm).

Pedestal Adjustment
Pedestal assemblies provide adjustment of ½" (12.7mm) up, and ½" (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 ⅞" (21mm) round hot-dipped galvanized steel.

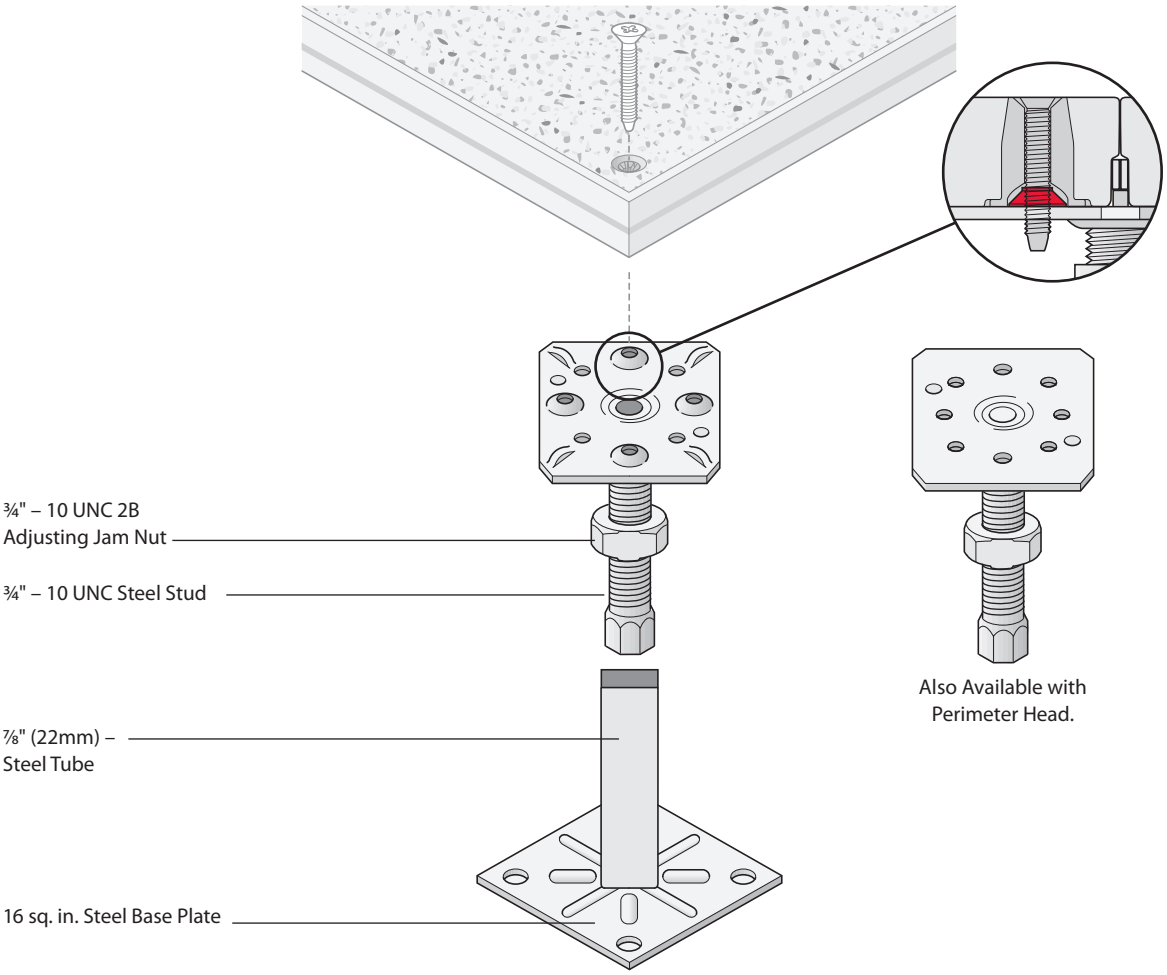
Pedestal Head
- There are two standard TecCrete head options that can be used with standard cornerlock or seismic pedestal bases:
  - Pedestal head for cornerlock field applications.
  - Pedestal head for perimeter applications.
- Pedestal heads are made in America.
- Pedestal heads are made of die-formed hot-dipped galvanized steel, attached to a threaded rod. The galvanized nut is ¾" – 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 ¾" (19mm) in diameter.

Stringers
Stringers may be connected for additional support of heavy loads or to accommodate gravity-held rigid-grid applications.



Standard Cornerlock Understructure

Standard cornerlock pedestals are used to support floor panels for 6" to 64" (152mm to 1626 mm) 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 Bases

General Information

Construction	• Pedestal bases are made of hot-dipped galvanized steel to prevent zinc whiskers. • Pedestal tubes are made of ⅞" (21mm) hot-dipped galvanized steel. • Bases are at least 16" (406mm) square. • Made in America.
Stability and Load Rating	• To obtain overturning moment and axial load test values please contact your Haworth representative.
Finished Floor Height	• Finished floor heights are 6" to 68" (152mm to 1727mm). Other heights available.
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 1250/1500 without stringers, or 7" (178mm) for TecCrete1250/1500 with stringers. 6 ⅜" TecCrete 1500SL without stringers. TecCrete 2000/2500 will be a minimum of 7 ⅜" with stringers.
Pedestal Head	• There are two standard TecCrete head options that can be used with standard cornerlock or seismic pedestal bases: - Pedestal head for field applications. - Pedestal head for perimeter applications. • Pedestal heads are made of steel with bright zinc finish attached to a threaded tube with a galvanized ¾" diameter - 10 UNC nut. • 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 ¾" (19mm) in diameter.
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, or to accommodate gravity-held rigid-grid applications..

Note **When stringers are used, pedestal bases must be specified 1" shorter for any floor height.**

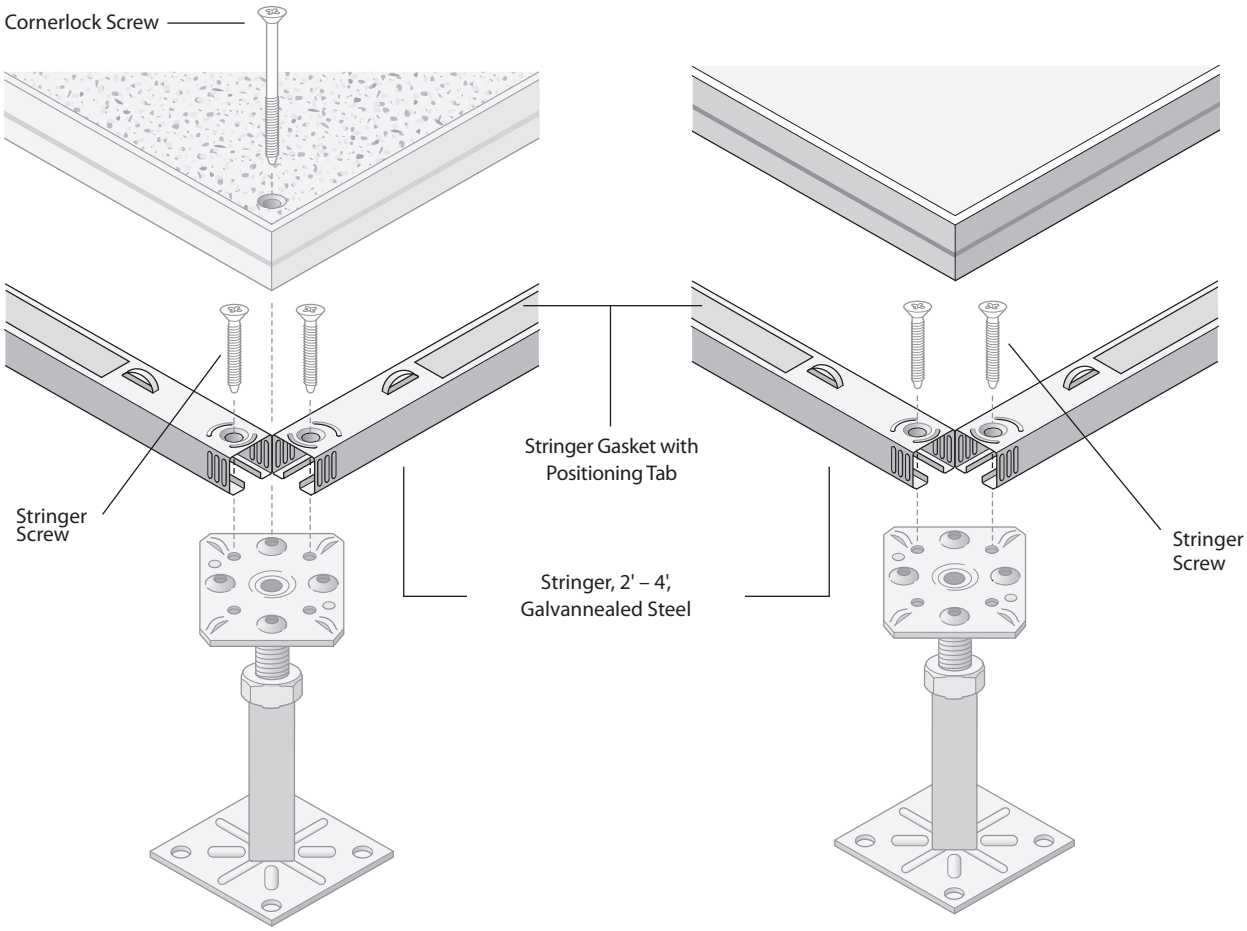
Pedestal Base Dimensions

BASE TYPE	FINISHED FLOOR HEIGHT RANGE	MIN. FINISHED FLOOR HEIGHT	SQUARE BASE DIMENSIONS	TUBE DIAMETER (OUTSIDE)	TUBE LENGTH	PEDESTAL ADJUSTMENT	ADJUSTMENT INCREMENTS
Type 0	6" to 30" (152mm to 762mm)	6" (152mm)	4" x 4" x 0.108" (102mm x 102mm x 3mm)	0.875" square (22mm)	3" to 27" (76mm to 686mm)	±1" (±25mm)	1/64" (0.4mm)
Type 1	6" to 64" (152mm to 1626mm)	6" (152mm)	5" x 5" x 0.188" (102mm x 102mm x 5mm)	0.875" square (22mm)	3" to 60" (76mm to 1524mm)	±1" (±25mm)	1/64" (0.4mm)
Type 3	12" to 64" (305mm to 1626mm)	12" (305mm)	5" x 5" x 0.188" (127mm x 127mm x 5mm)	1.163" (29.54mm)	9" to 60" (229mm to 1524mm)	±1" (±25mm)	1/64" (0.4mm)
Type 4	12" to 64" (305mm to 1626mm)	12" (305mm)	6" x 6" x 0.188" (152mm x 152mm x 5mm)	1.500" (38.1mm)	9" to 60" (229mm to 1524mm)	±1" (±25mm)	1/64" (0.4mm)
Type 5	12" to 64" (305mm to 1626mm)	12" (305mm)	6" x 6" x 0.25" (152mm x 152mm x 6mm)	1.500" (38.1mm)	9" to 60" (229mm to 1524mm)	±1" (±25mm)	1/64" (0.4mm)

Rigid Grid Understructure

Rigid Grid and Cornerlock with Bare Panel

Rigid Grid and Cornerlock with Laminate Panel



Construction
Stringers are roll formed 16 gauge galvannealed steel.

Load Rating
Stringers can support a concentrated load of 450 lbs (205 kg) at a center of a 24" (610mm) span without exceeding a 0.010" (0.25400mm) permanent set.

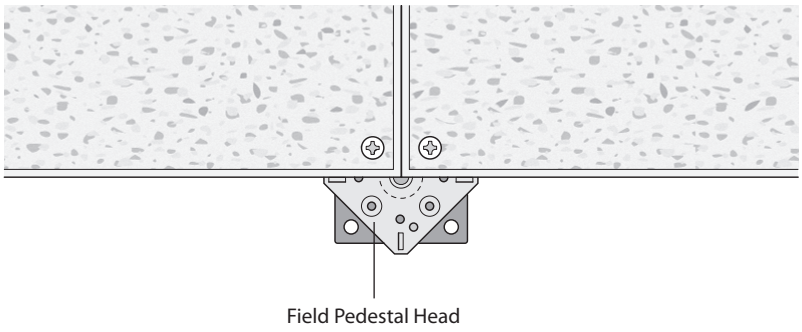
Grid Pattern Options
Stringer grid patterns are 2' x 2' (610mm x 610mm), 2' x 4' (610mm x 1219mm), or 4' x 4' (1219mm x 1219mm).

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

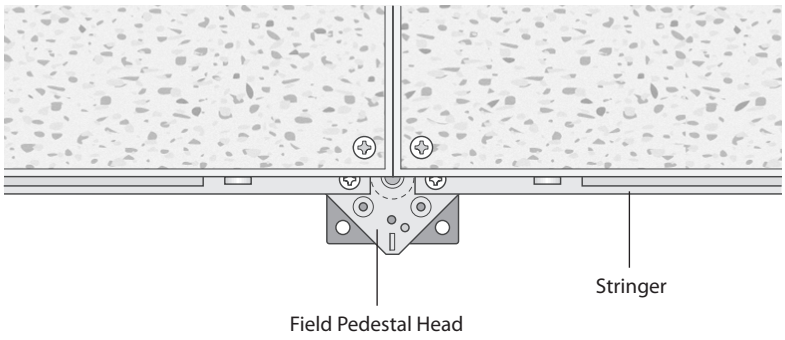
Electrical Grounding
A grounding screw can be used for stringered applications where the panel-to-pedestal resistance is required to be less than 10 ohms.

Understructure Applications

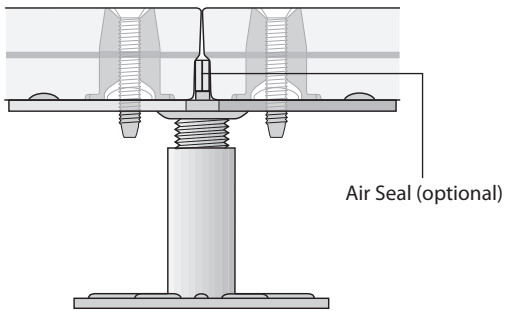
Field Pedestal Attachment without Stringers



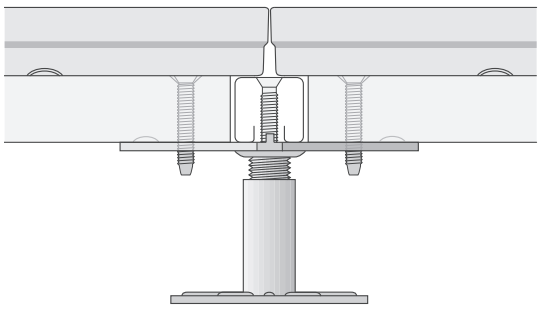
Field Pedestal Attachment with Stringers



Field Pedestal Attachment Detail without Stringers

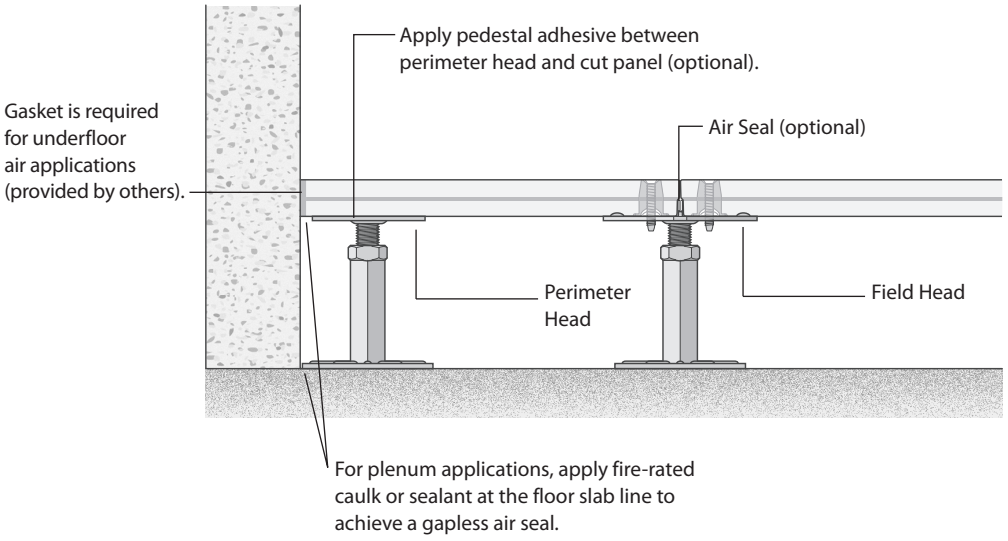


Field Pedestal Attachment Detail with Stringers

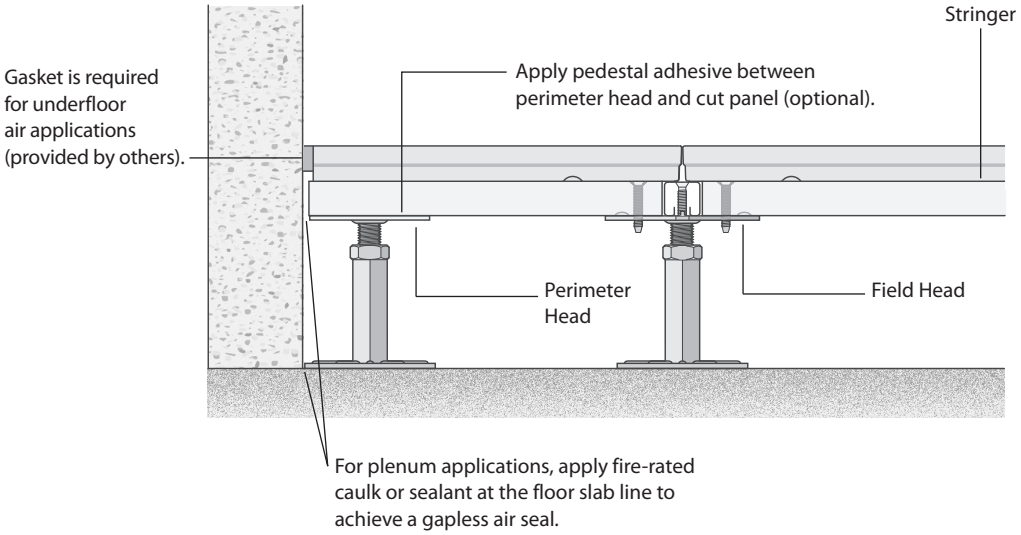


Understructure Applications

Perimeter Wall Condition without Stringers



Perimeter Wall Condition with Stringers

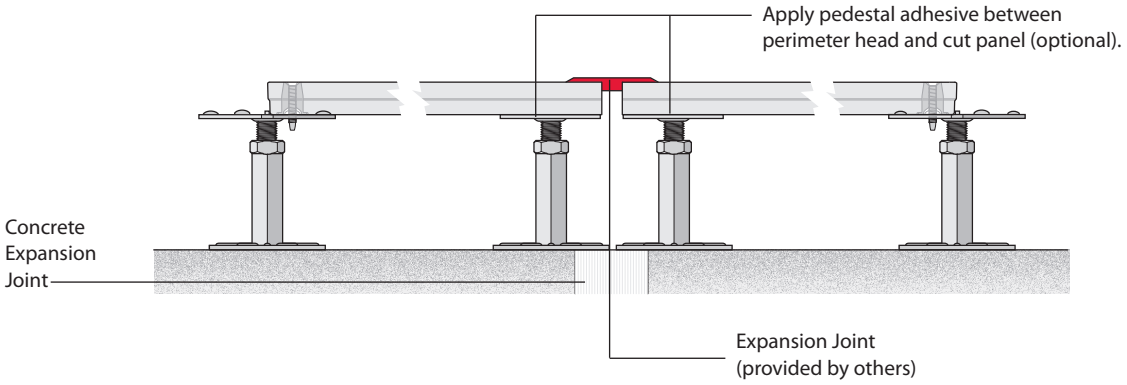


Notes

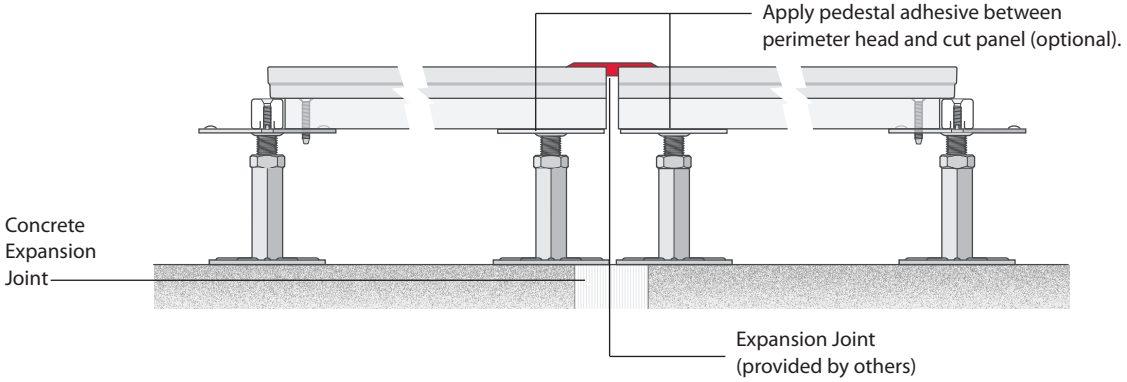
- **Perimeter heads should be located as close to the edge of the panel as possible on 24" centers, maximum.**
- **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**
- **All application details apply to low and standard height, except where noted.**

Cornerlock with Expansion Joint and Expansion Joint Detail

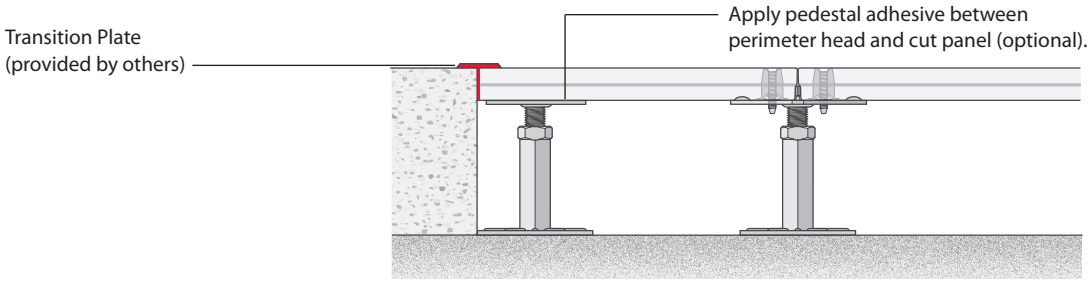
Expansion Joint Application and Detail without Stringers



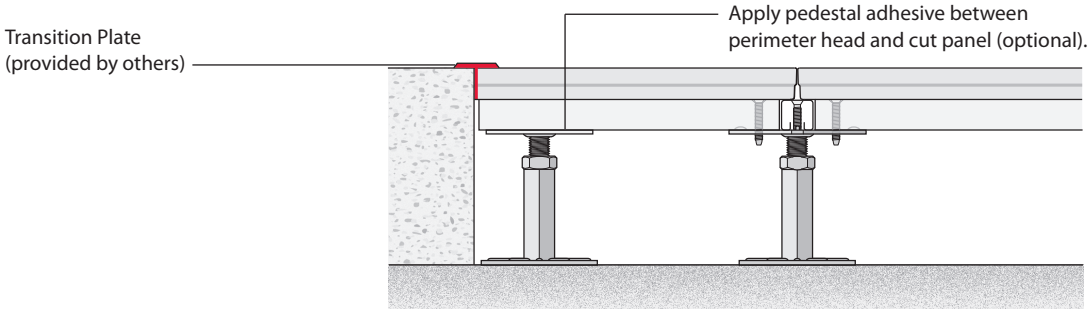
Expansion Joint Application and Detail with Stringers



Curb Application without Stringers

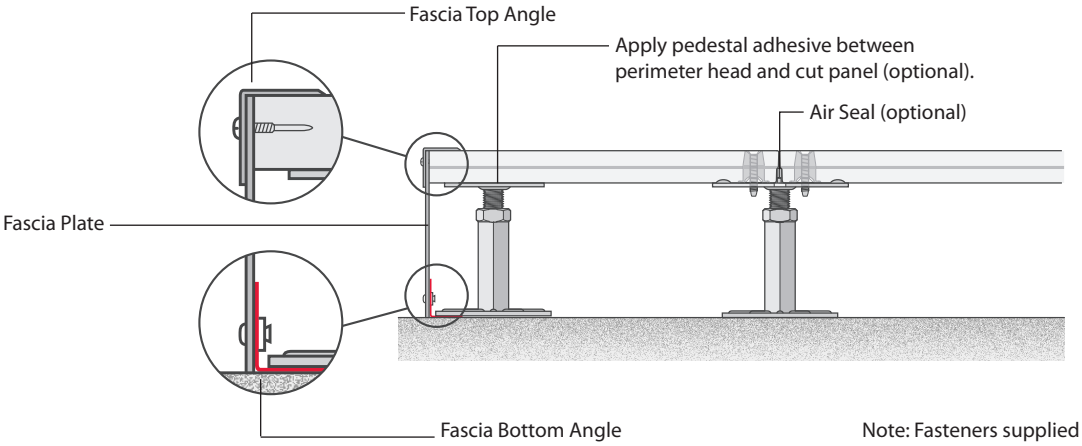


Curb Application with Stringers



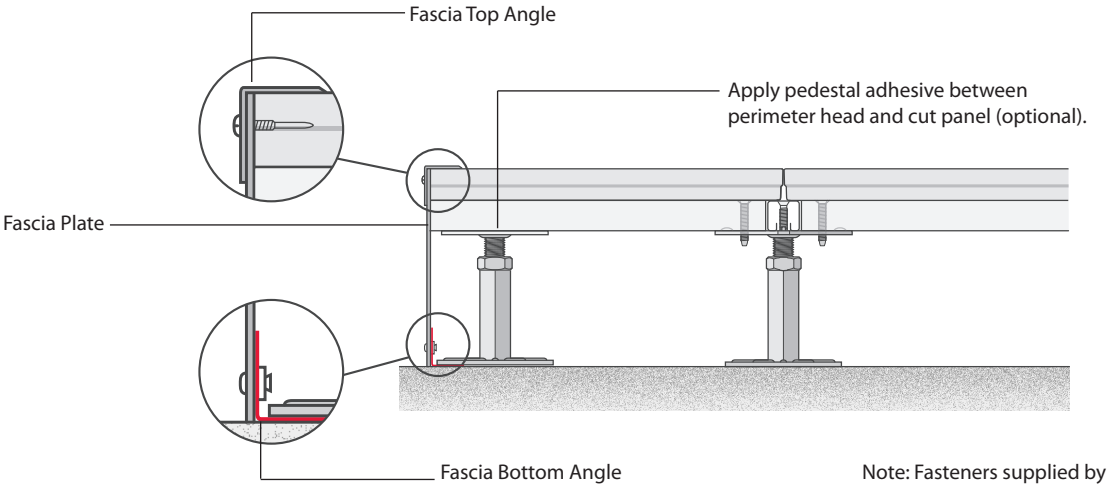
Cornerlock with Expansion Joint and Expansion Joint Detail

Fascia Application without Stringers



Note: Fasteners supplied by others.

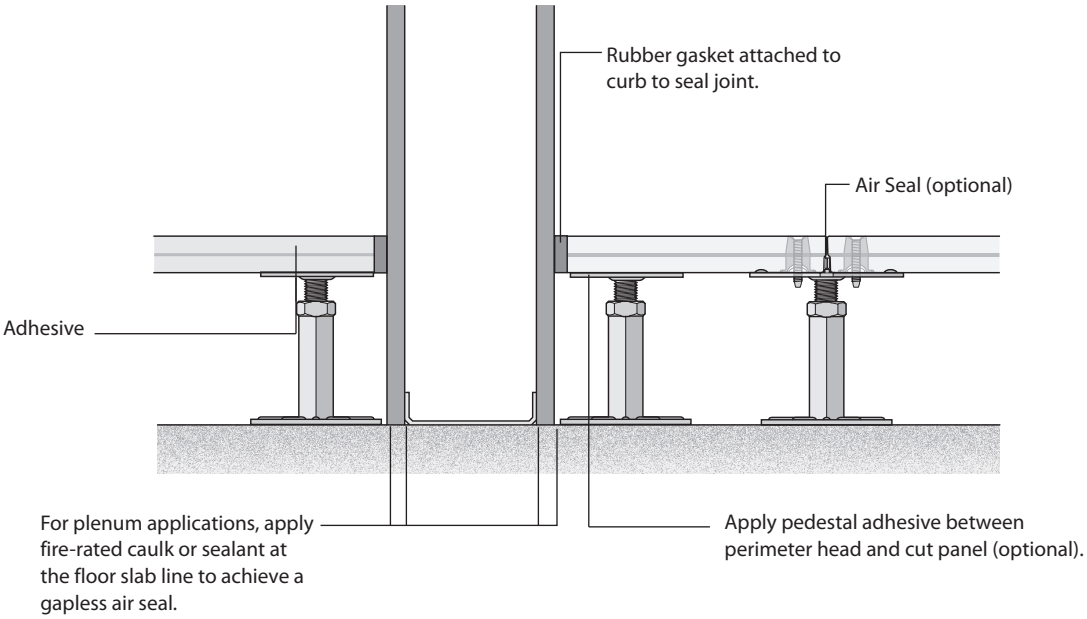
Fascia Application with Stringers



Note: Fasteners supplied by others.

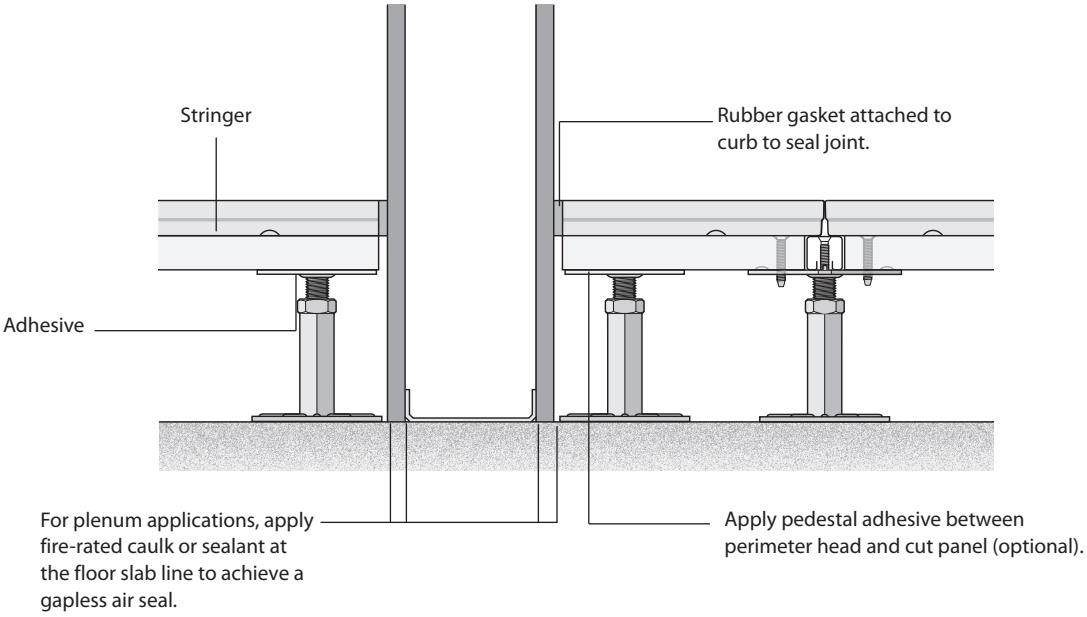
Wall Surface Partition and Doorway Applications

Penetrating Wall without Stringers



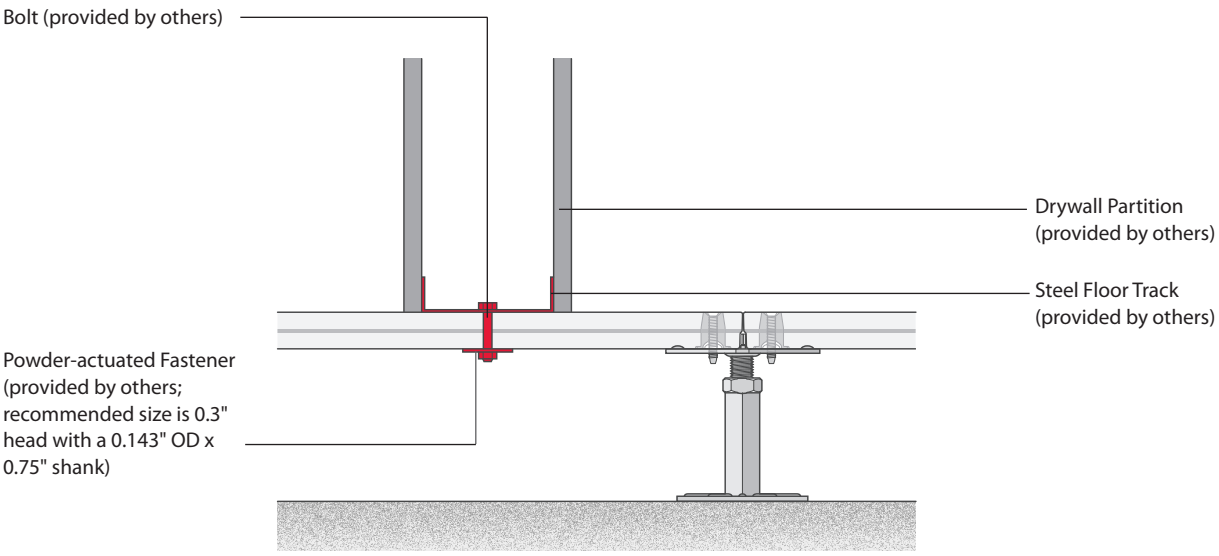
Note **For plenum applications not utilizing carpet tile or stringers, specify an integral air seal on panels to minimize cost and optimize underfloor air system performance.**

Penetrating Wall with Stringers



Wall Surface Partition and Doorway Applications

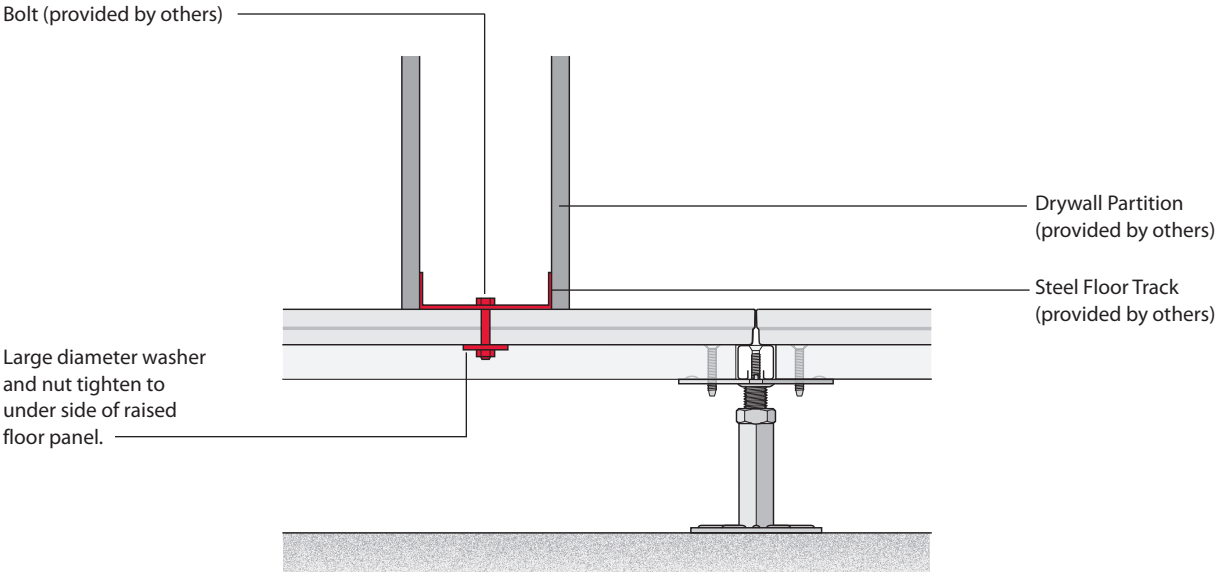
Surface Wall Partition Detail (without Stringers)



Alternative attachment method: If walls are secured at ceiling level, or stabilized by attached perpendicular walls, then powder actuated pins (with a 0.3" diameter head and a 0.143" diameter ¾" long shank), spaced at 16-inch intervals, can be used to fasten floor track to the surface of the TecCrete panel.

Note **For plenum applications not utilizing carpet tile or stringers, specify an integral air seal on panels to minimize cost and optimize underfloor air system performance.**

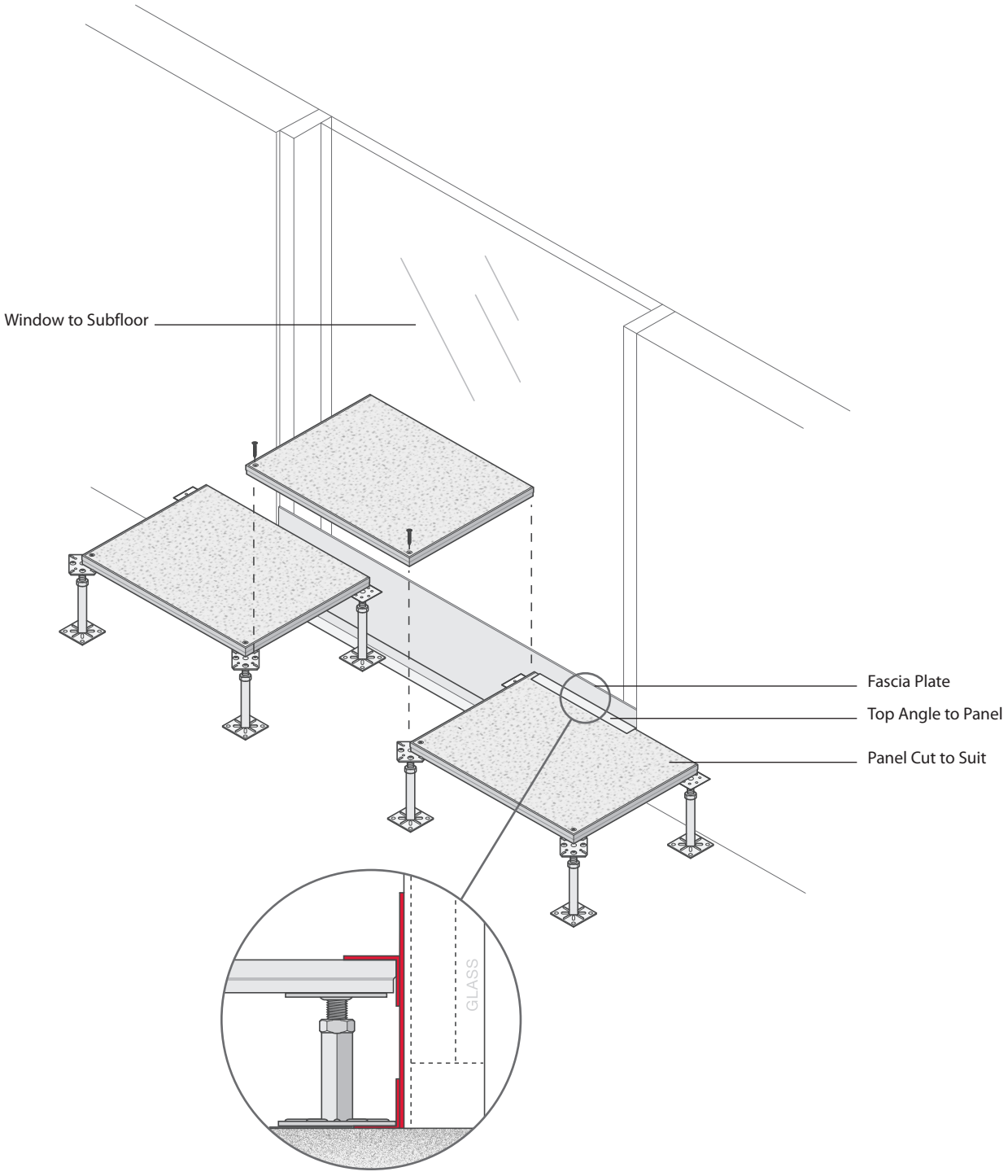
Surface Wall Partition Detail (with Stringers)



Alternative attachment method: If walls are secured at ceiling level, or stabilized by attached perpendicular walls, then powder actuated pins (with a 0.3" diameter head and a 0.143" diameter ¾" long shank), spaced at 16-inch intervals, can be used to fasten floor track to the surface of the TecCrete panel.

Wall Surface Partition and Doorway Applications

Access Floor Interface at Glass Wall (without Stringers)

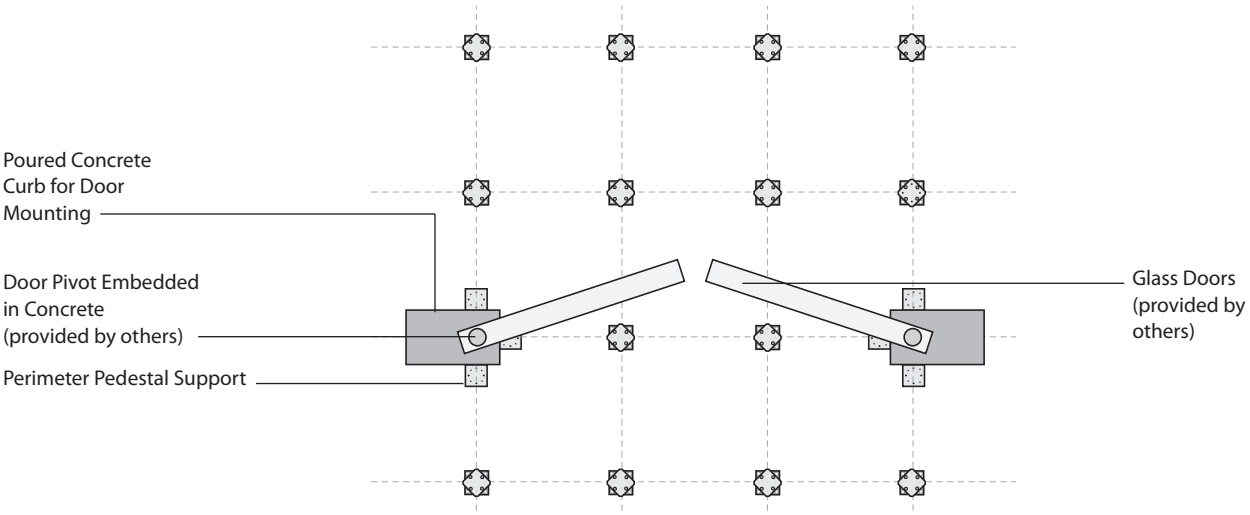


Notes

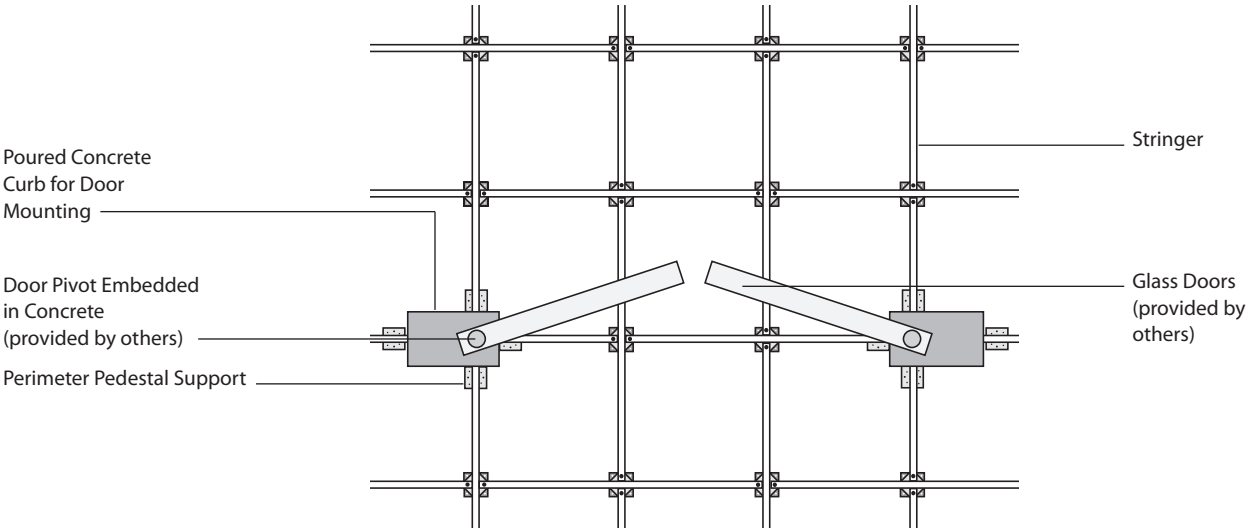
- **Apply pedestal adhesive on top of flat pedestal head and cut panel.**
- **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

Wall Surface Partition and Doorway Applications

Access Floor Interface at Glass Doorway: Non-Stringer Application



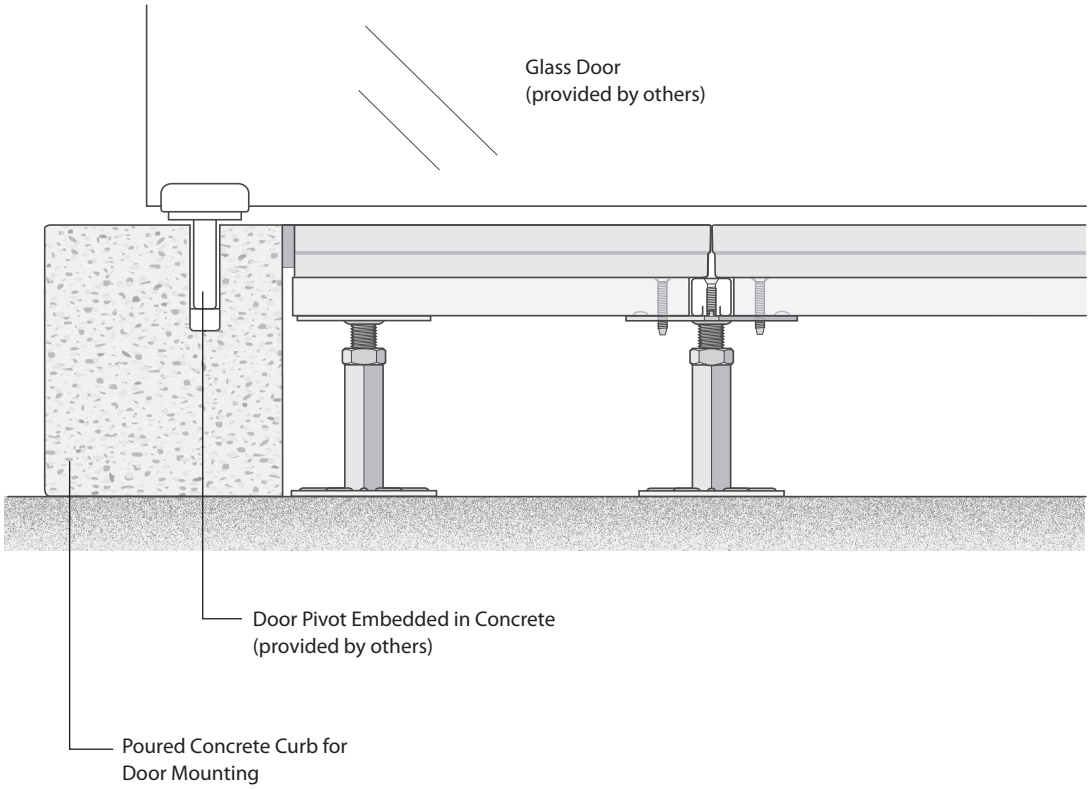
Access Floor Interface at Glass Doorway: Stringer Application



Basket weave configuration of stringers is recommended to create a square floor aligning the floor panels.

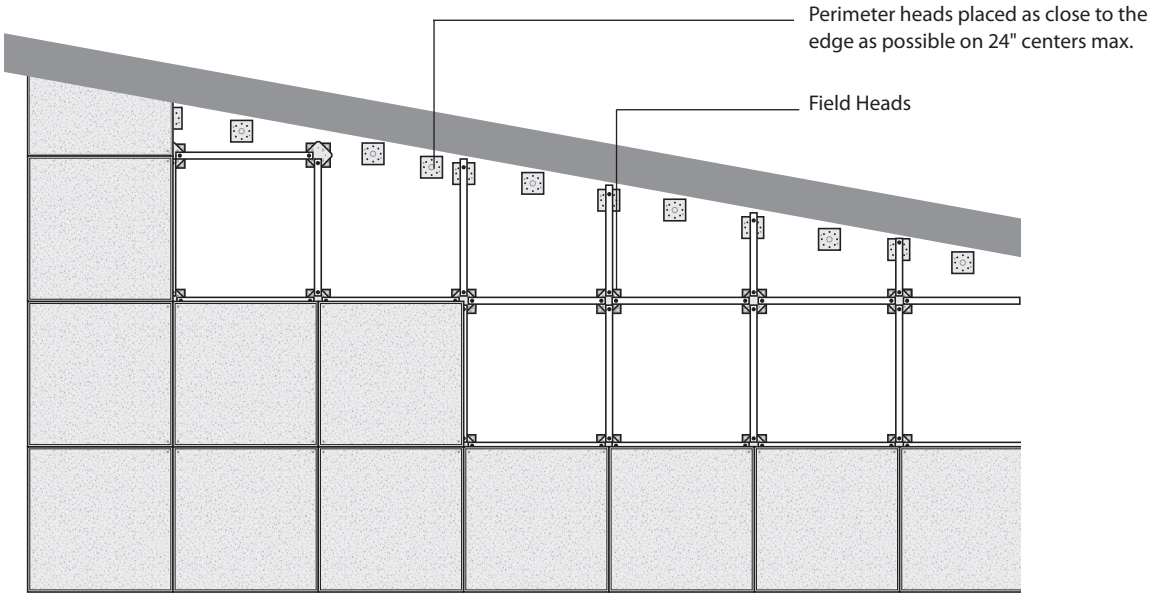
Wall Surface Partition and Doorway Applications

Access Floor Interface at Glass Doorway Detail: Stringer Application

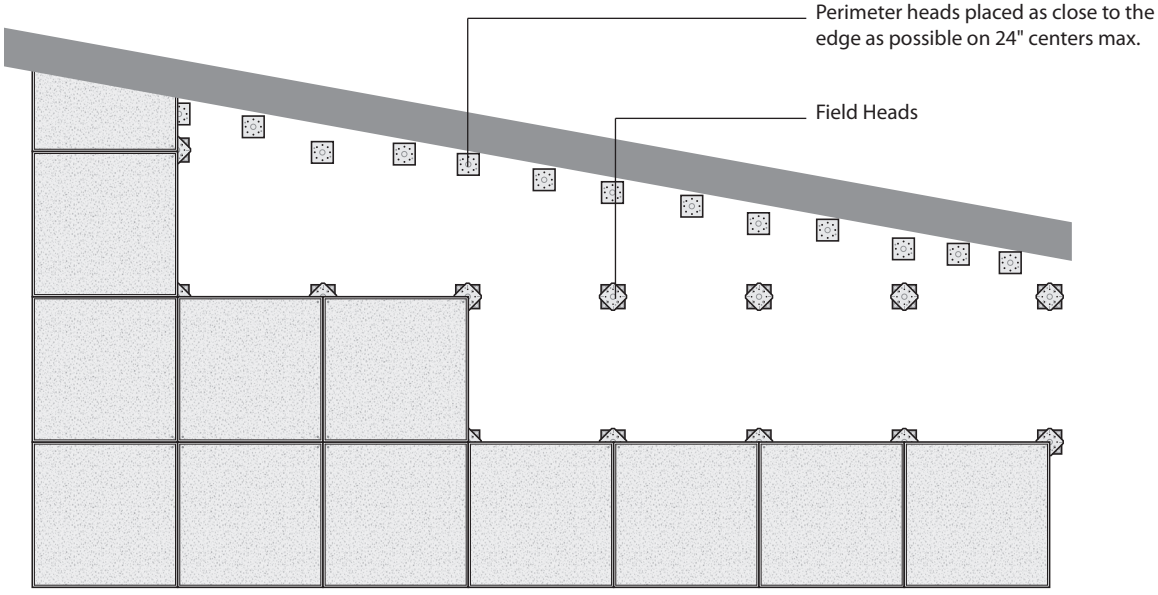


Angled Wall Applications

Perimeter Condition at Angled Wall with Stringers

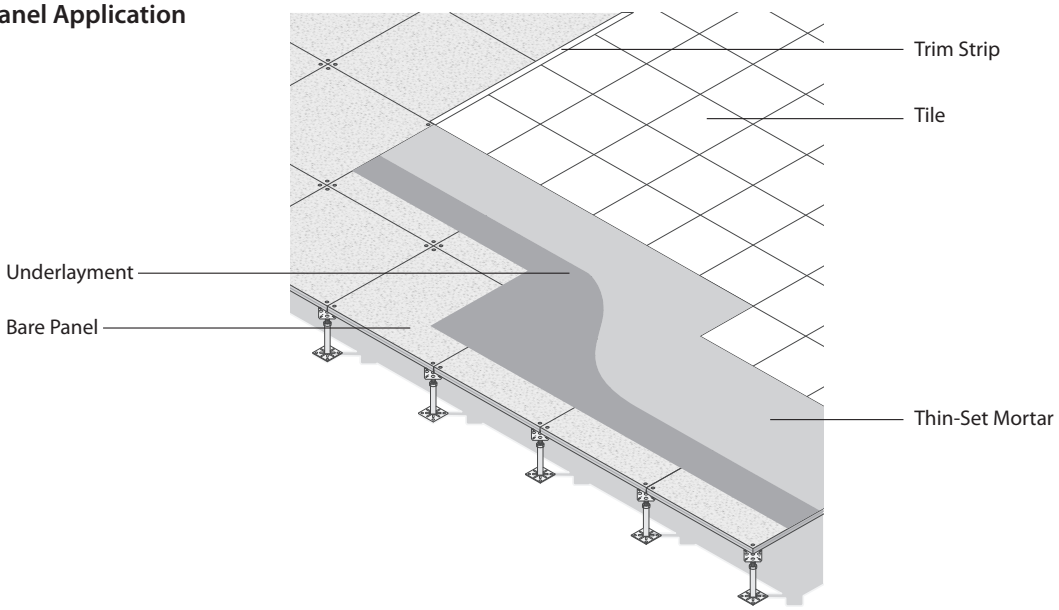


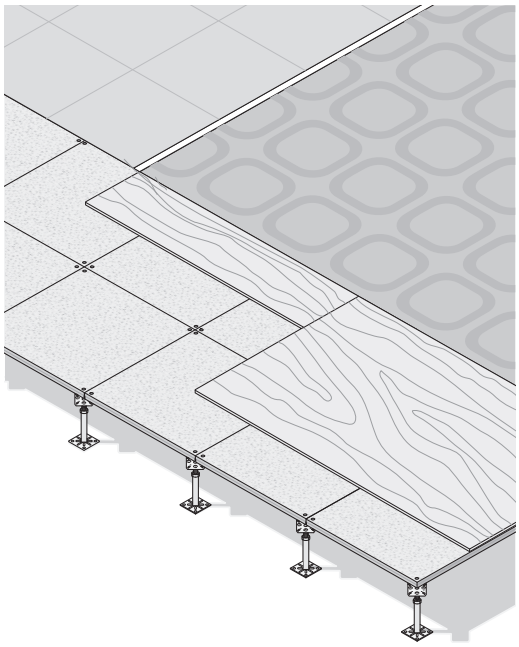
Perimeter Condition at Angled Wall without Stringers



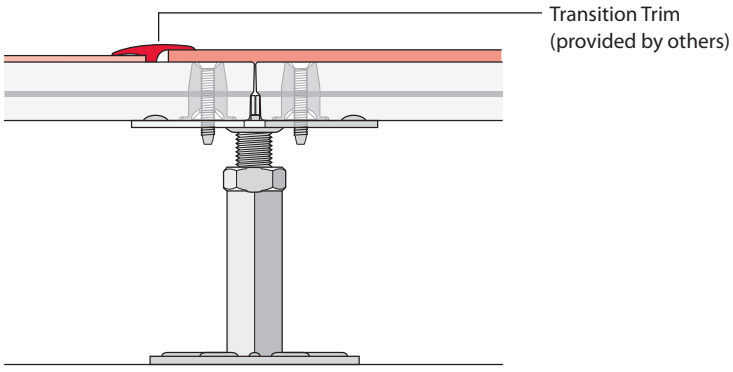
Specialty Floor Finish Applications: Finish Transitions

Bare Panel Application



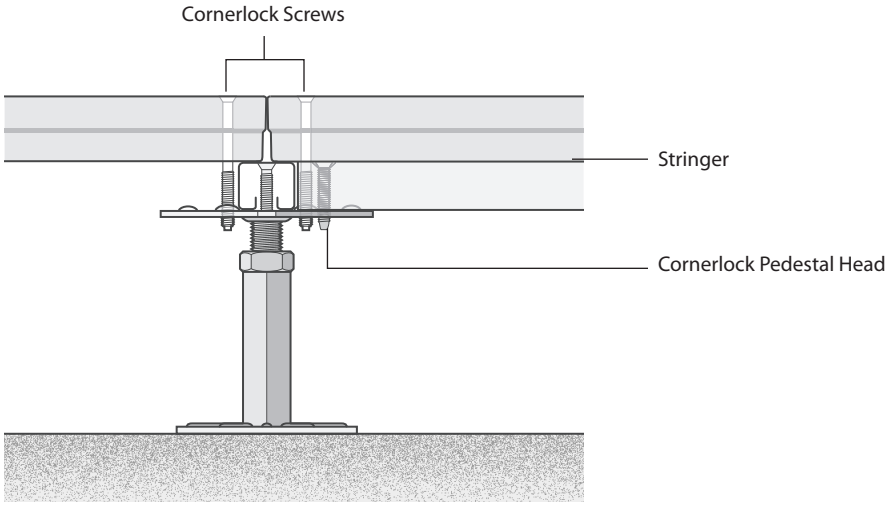


Ceramic Tile/Carpet with Trim Strip Transition

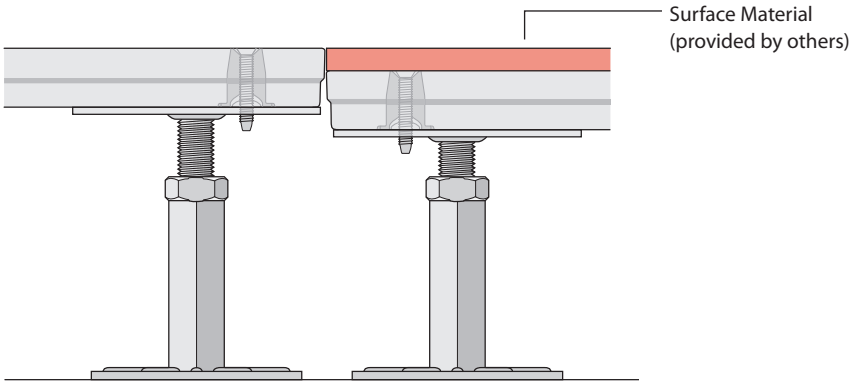


Specialty Floor Finish Applications: Finish Transitions

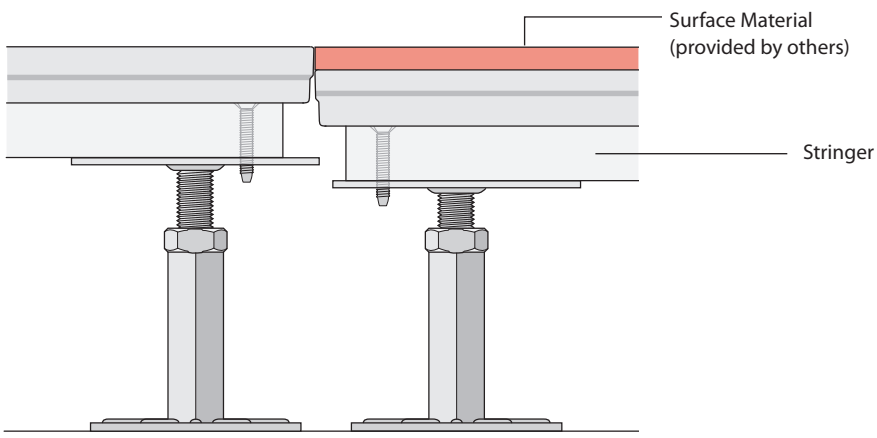
Transition from Cornerlock to Stringer-Supported Panels



Transition Made Using Adjustable Head without Stringers

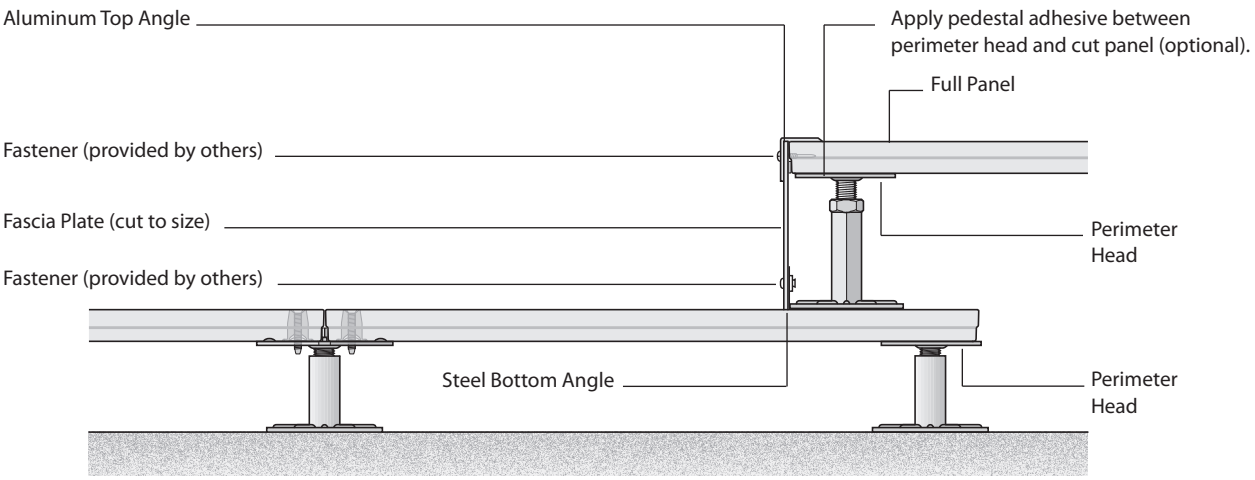


Transition Made Using Adjustable Head with Stringers

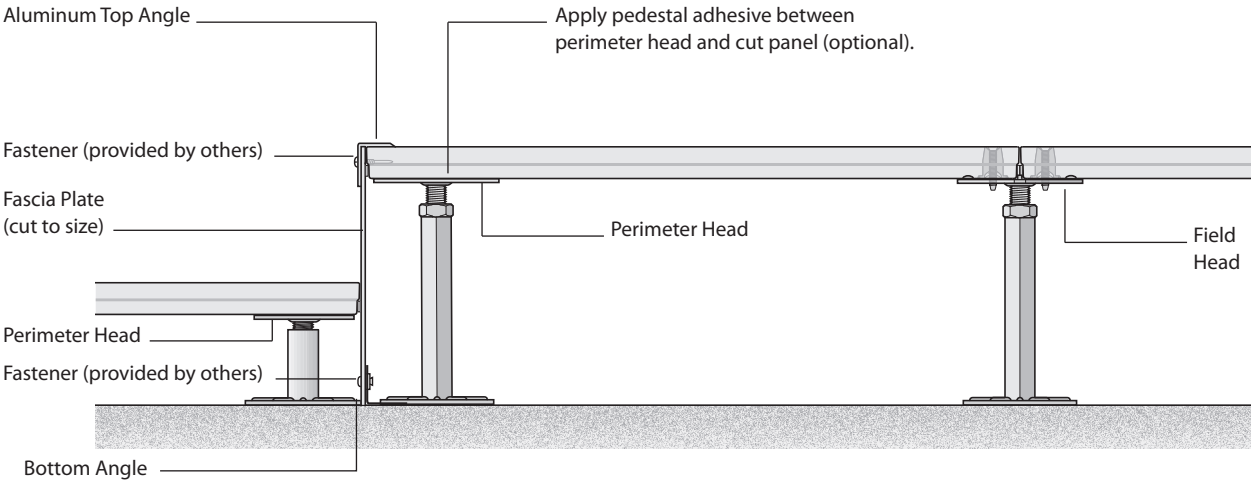


Floor Area Transitions

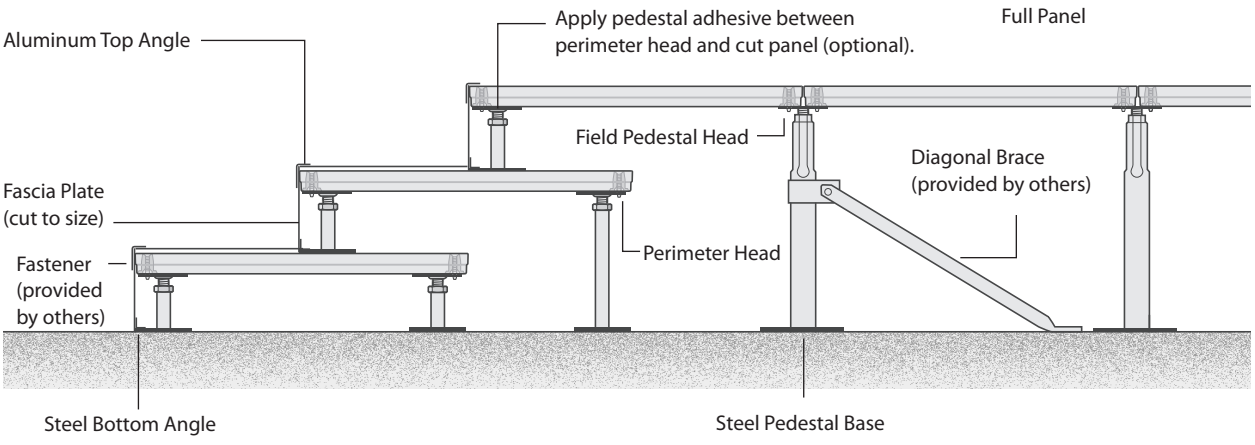
Transition Between Access Floor Levels



Transition Between Access Floor Levels: Floor Supported

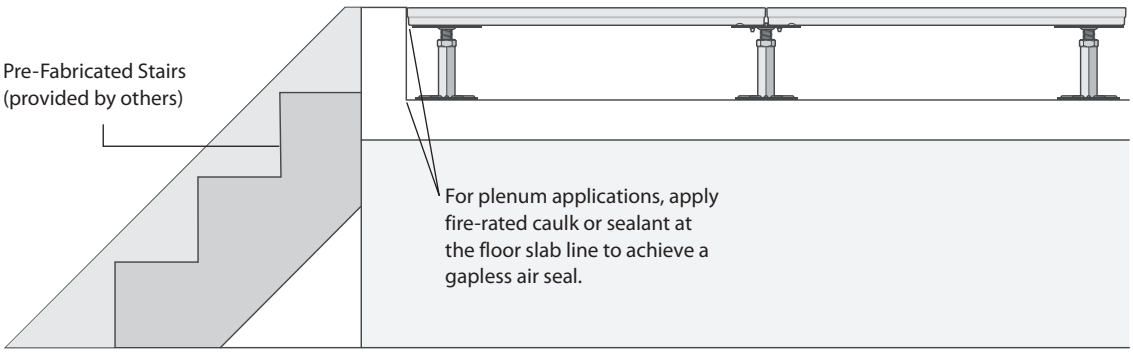


Transition Between Access Floor Levels: Steps



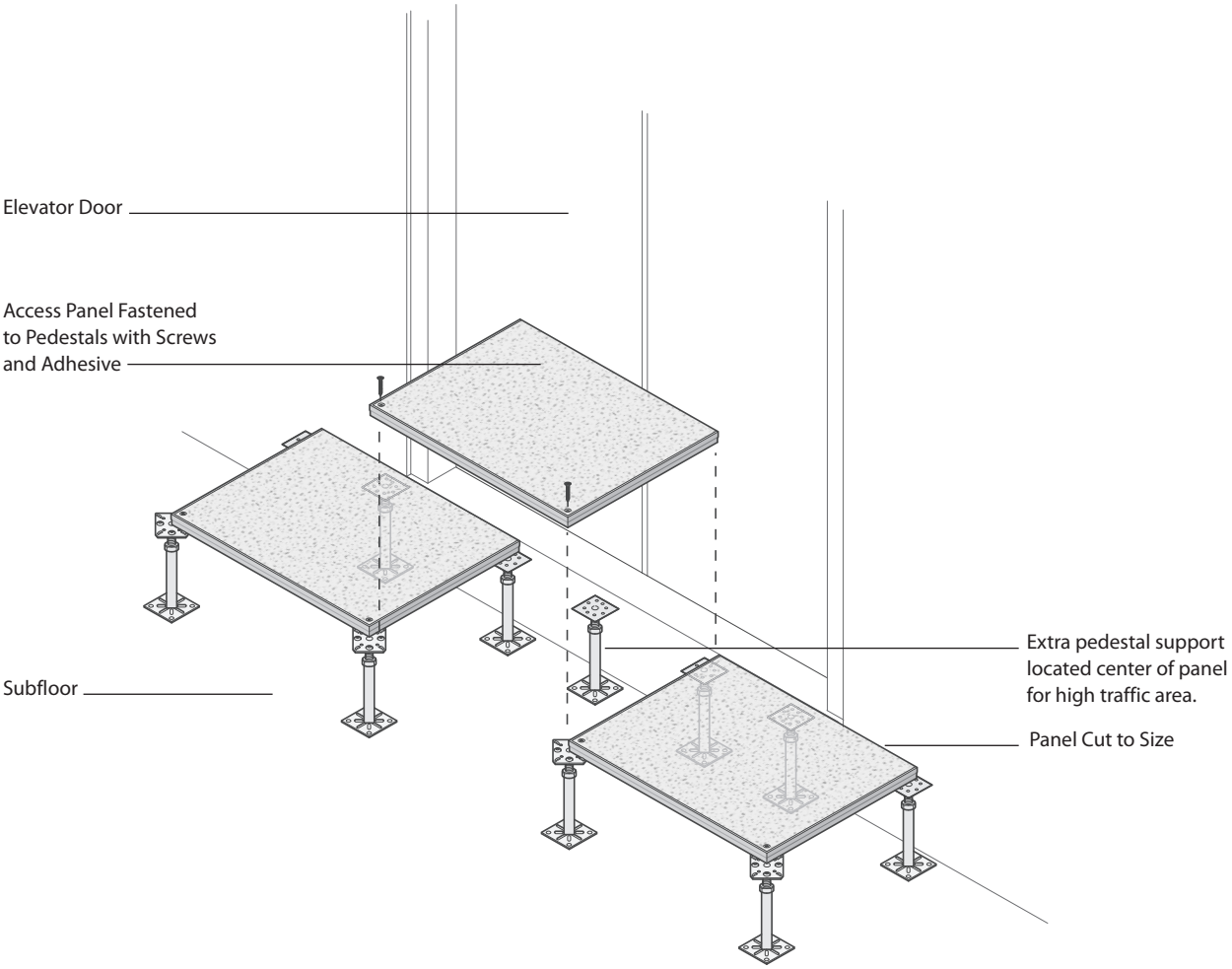
Floor Area Transitions

Step Detail at Recessed Slab



Note **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

Transition from Elevators/On-Slab Doorways

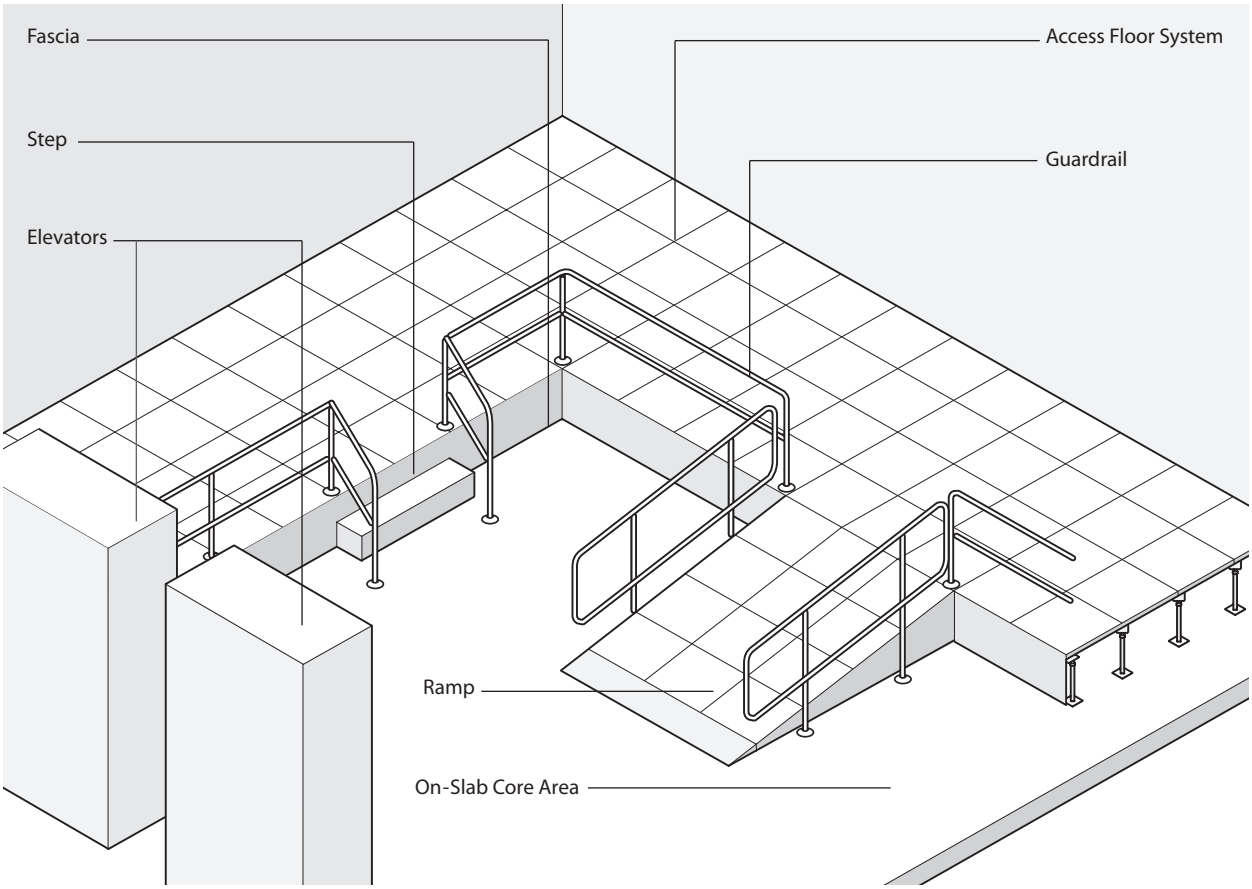


Notes

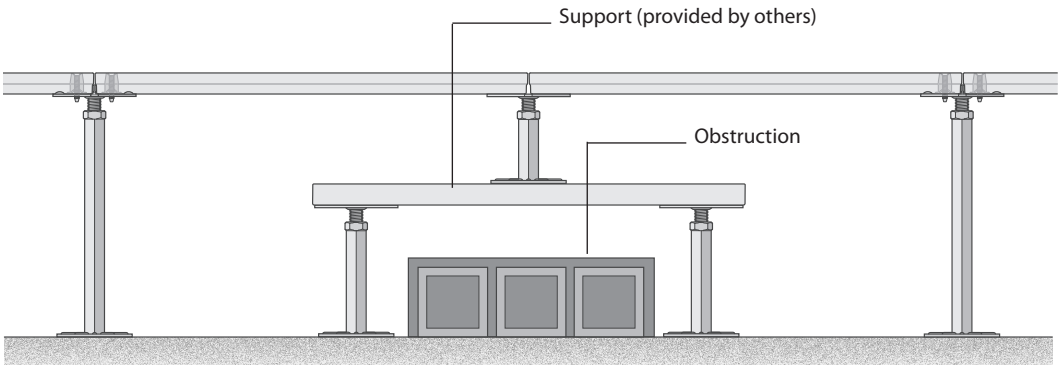
- **Apply pedestal adhesive between perimeter head and cut panel.**
- **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

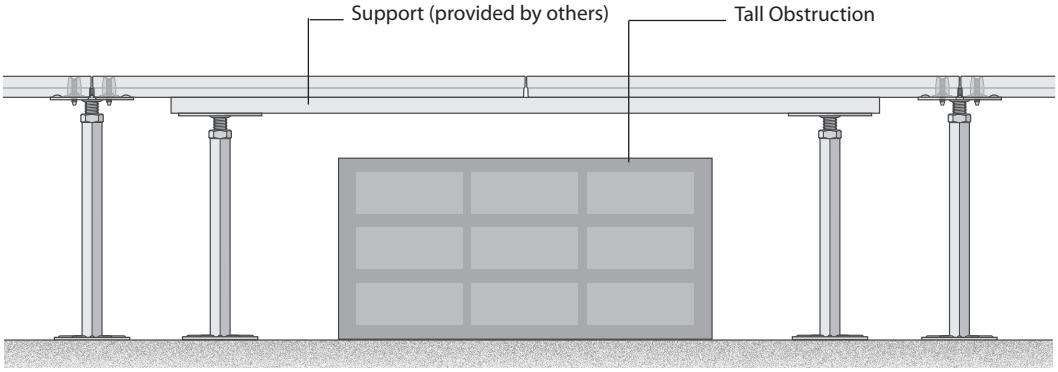
Floor Area Transitions

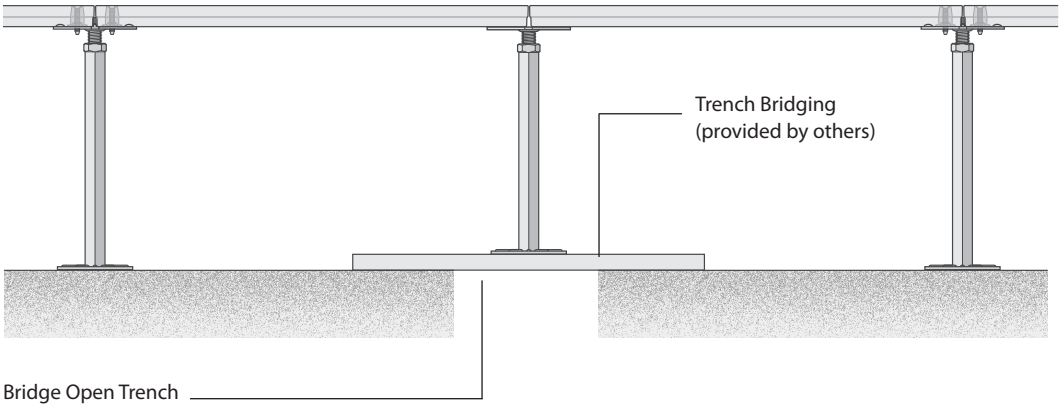
Transition from Core Area to Access Floor



Bridging Obstructions on Subfloors

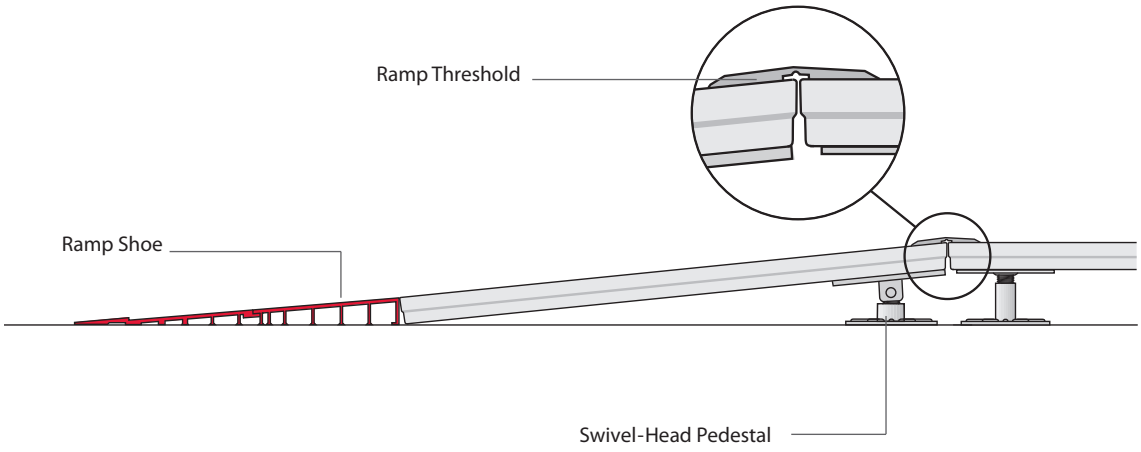


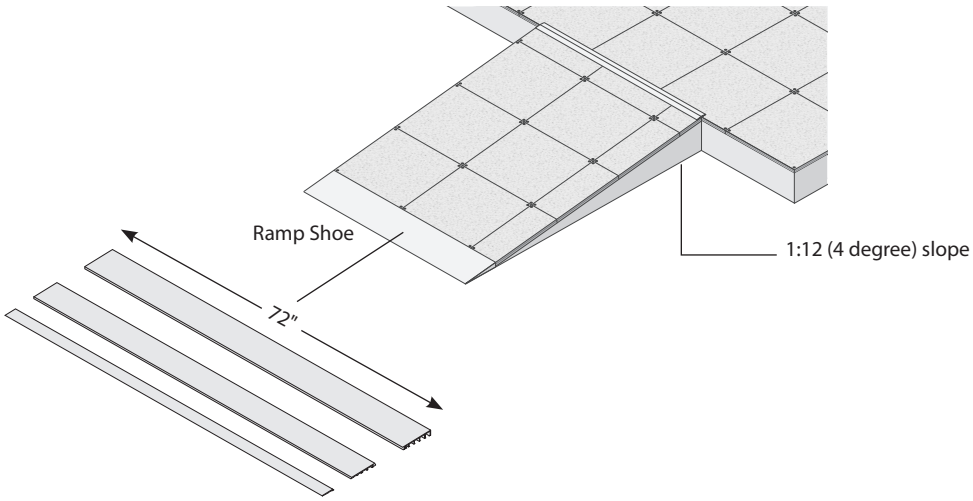




Ramp Details

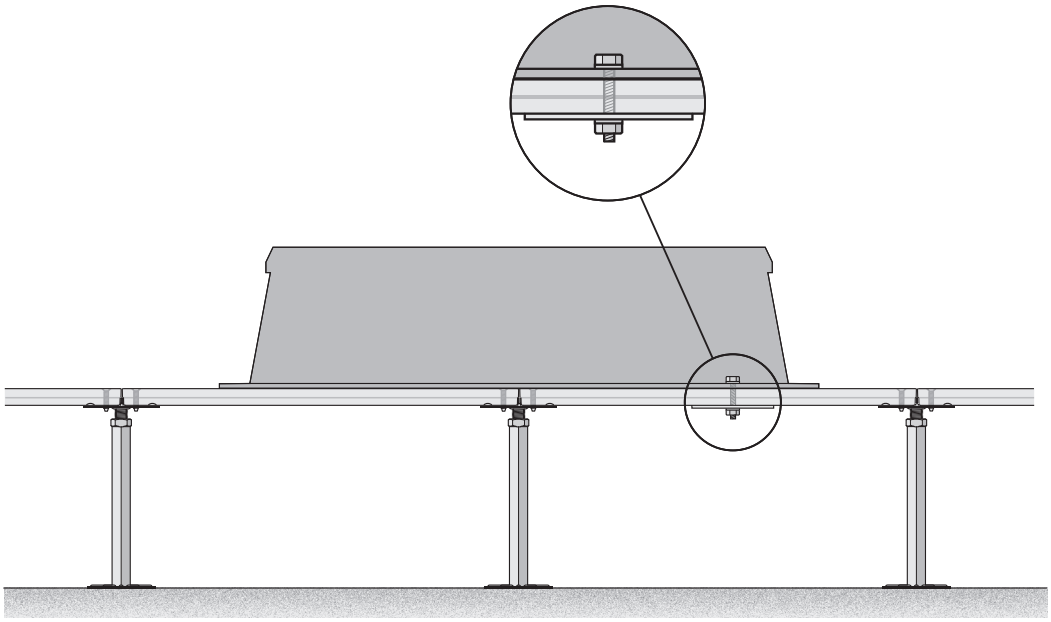
Ramp without Stringers



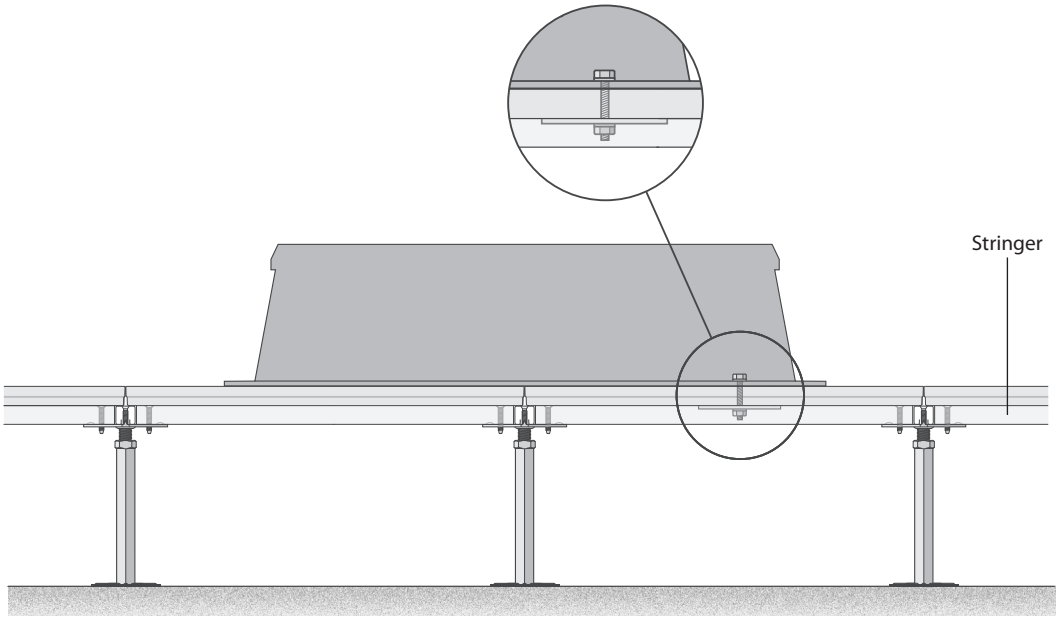


Mounting Equipment to TecCrete Access Floors

Mounting Equipment to Access Floors without Stringers

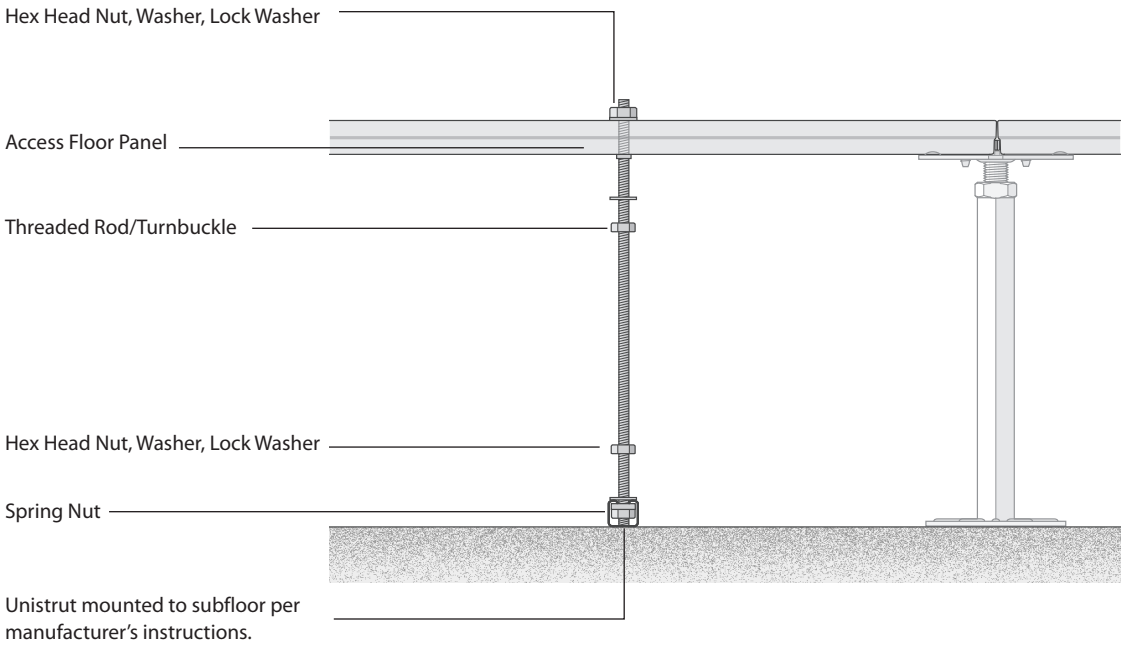


Mounting Equipment to Access Floors with Stringers

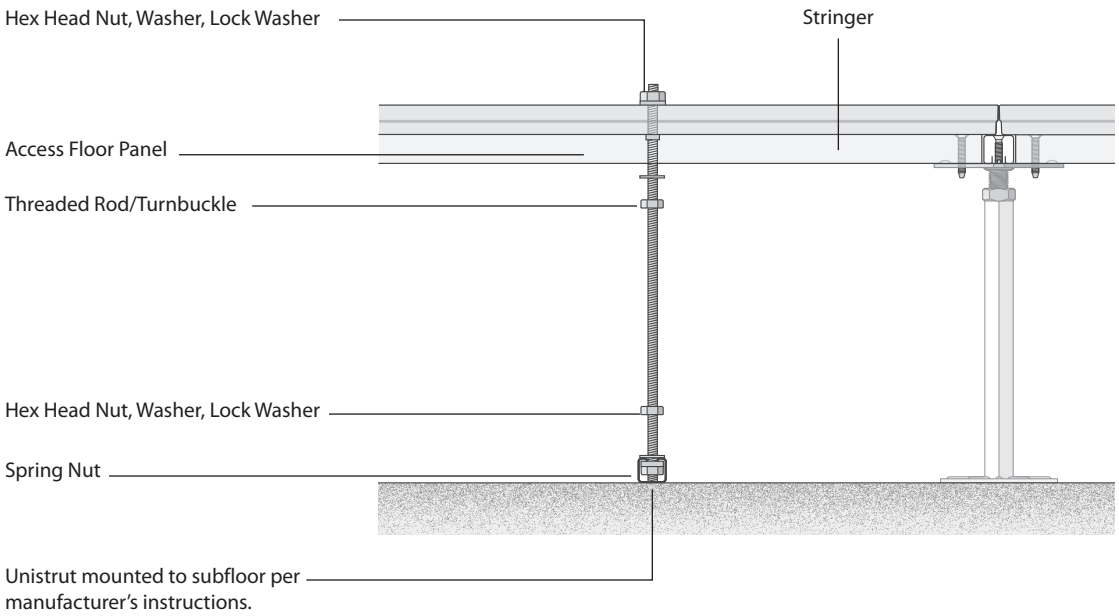


Mounting Equipment to TecCrete Access Floors

Mounting Equipment to Subfloors without Stringers



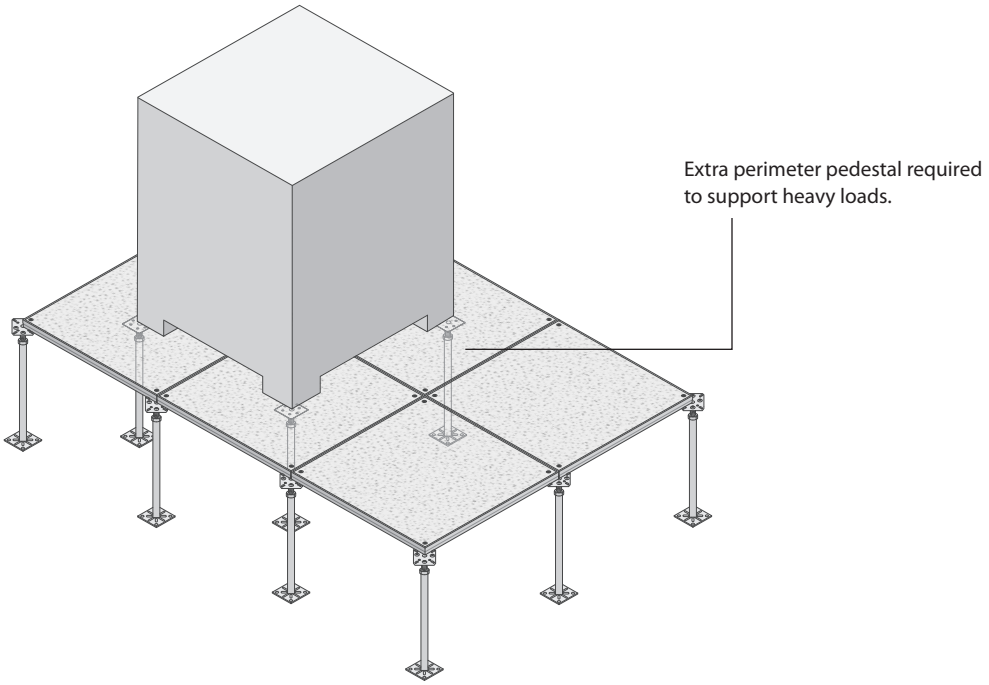
Mounting Equipment to Subfloors with Stringers



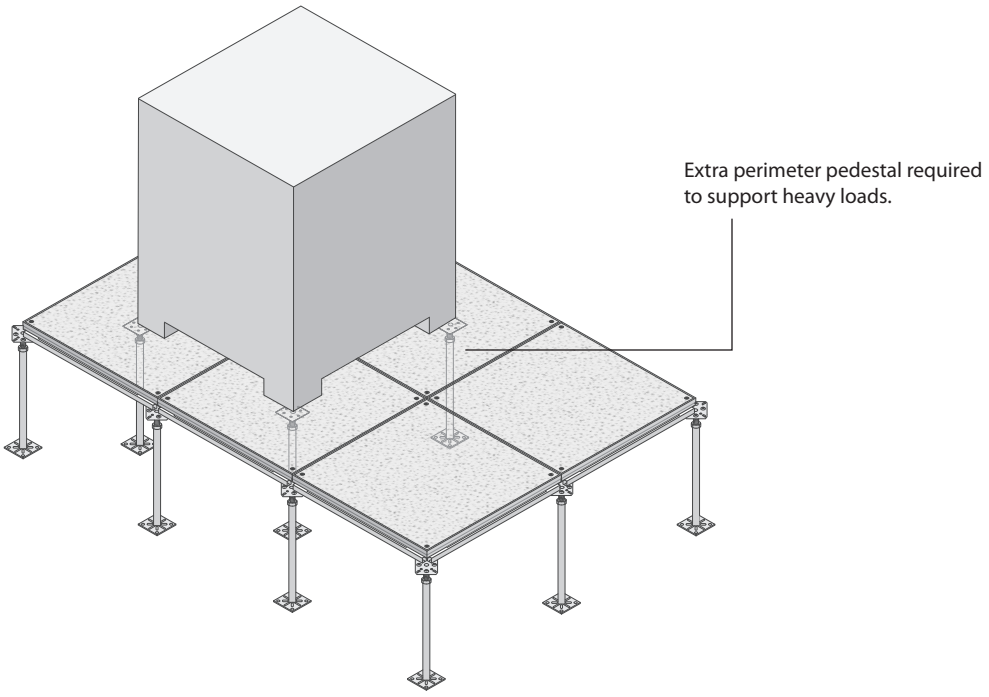
Mounting Equipment to TecCrete Access Floors

Supplemental Support for Heavy Equipment without Stringers

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

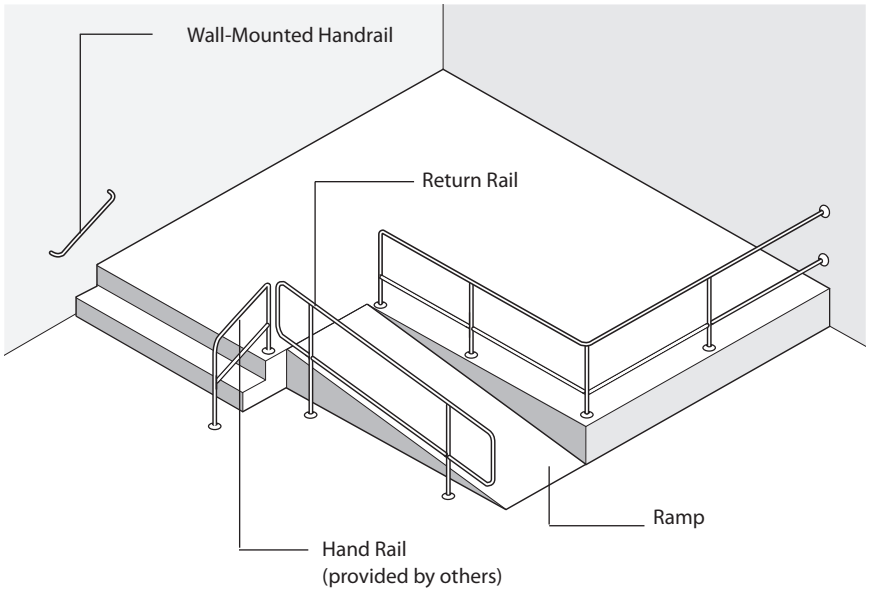


Supplemental Support for Heavy Equipment with Stringers

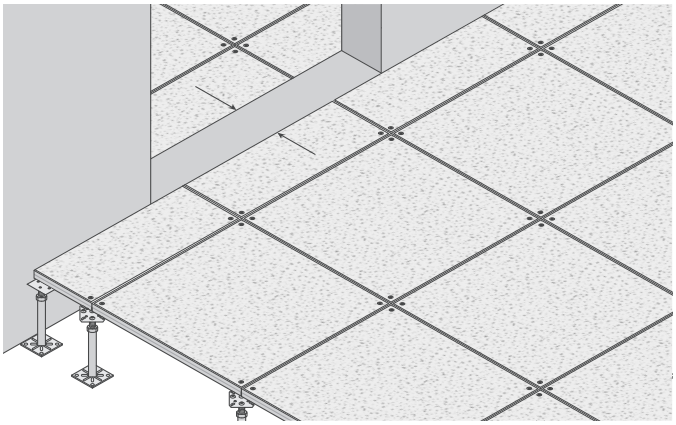


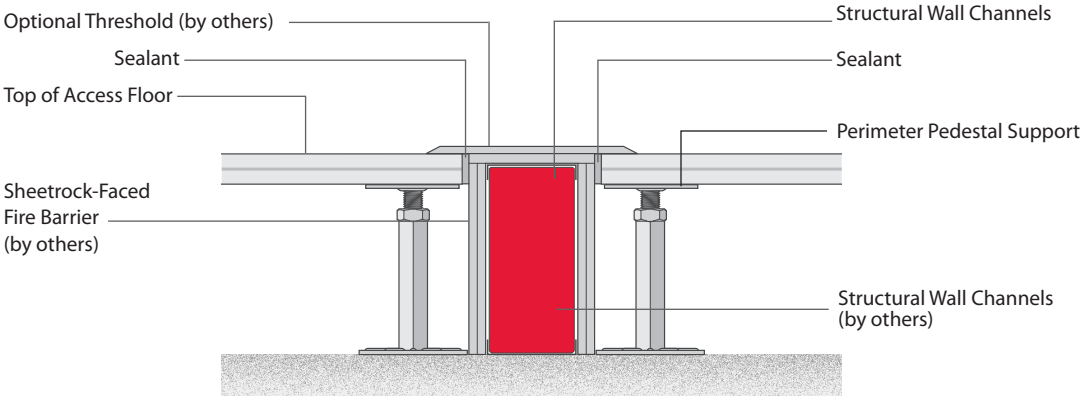
Fire and Safety Applications

Handrail Assemblies



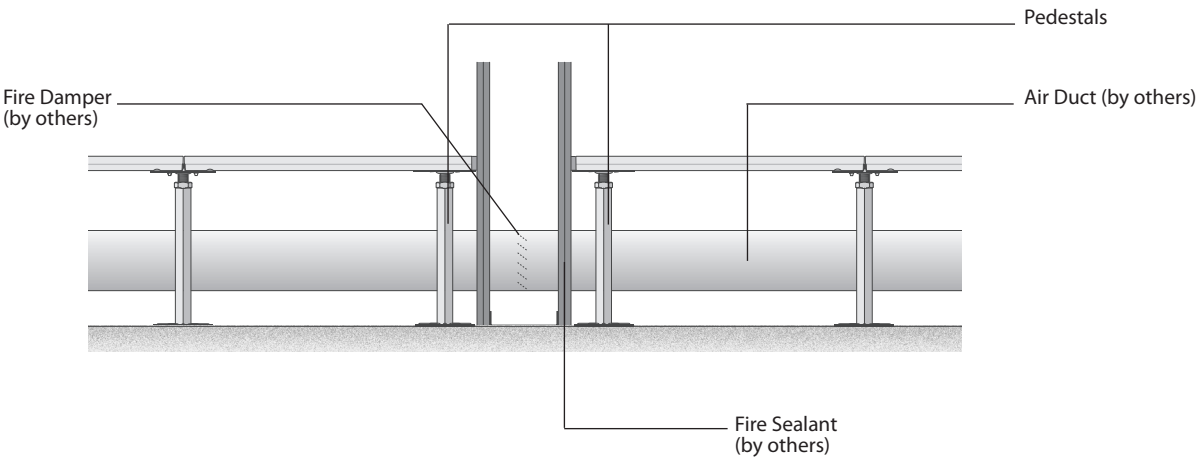
Fire Barrier at Door Threshold



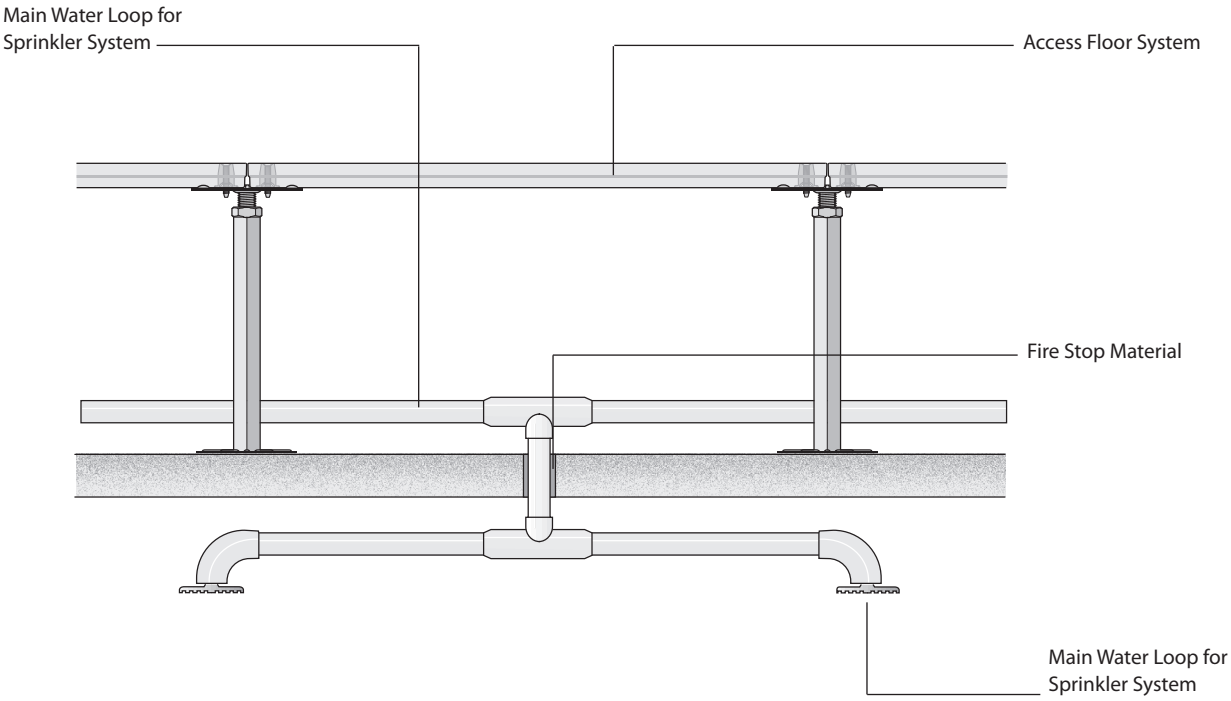


Fire and Safety Applications

Air Duct Through a Firewall

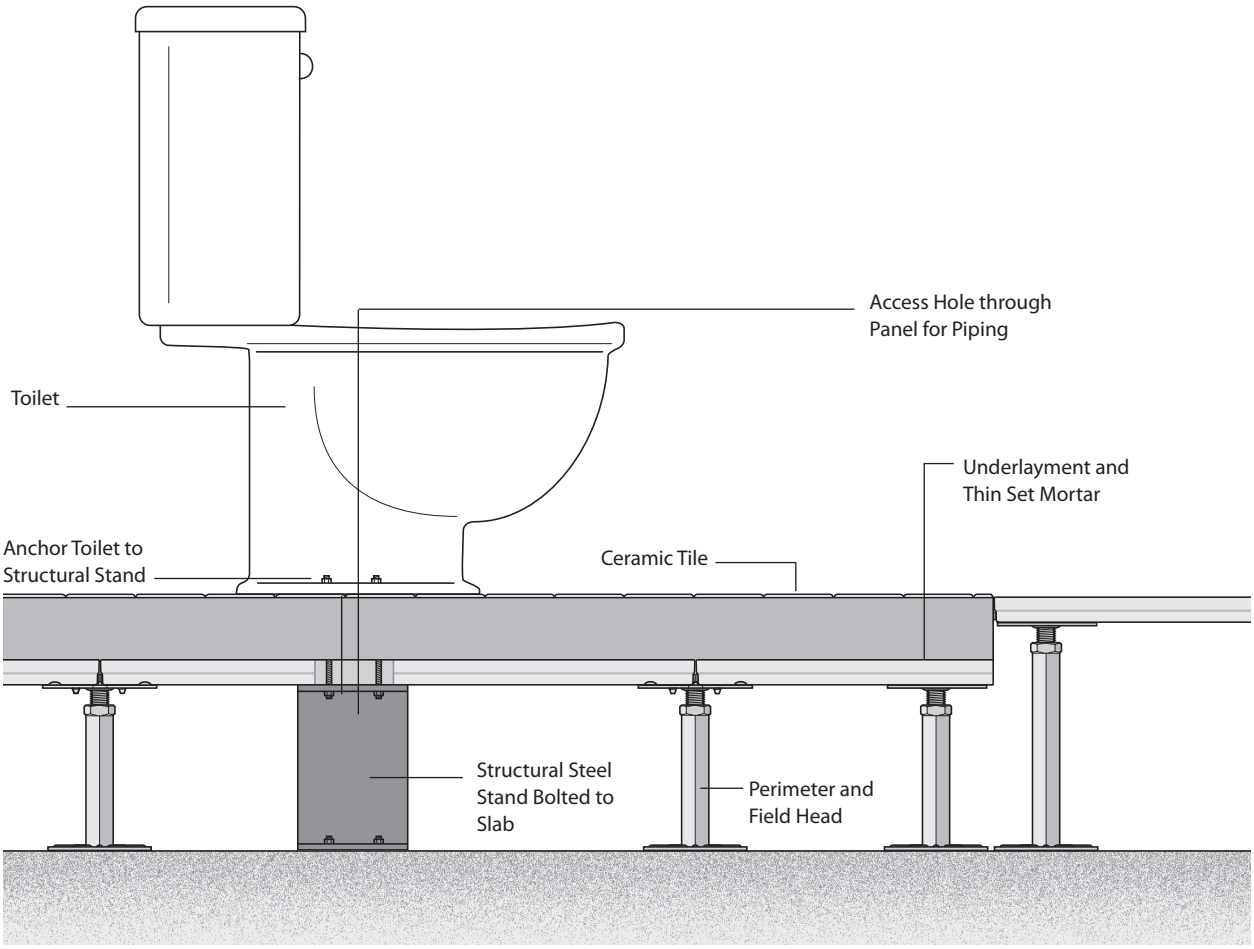


Thru-Slab Sprinkler Detail



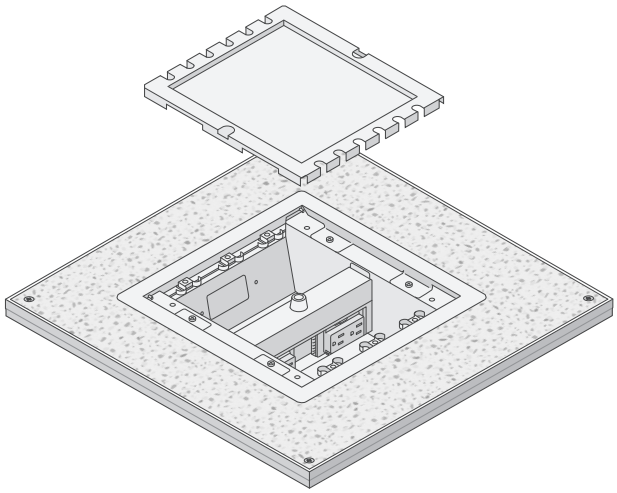
Note **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

Bathroom Applications

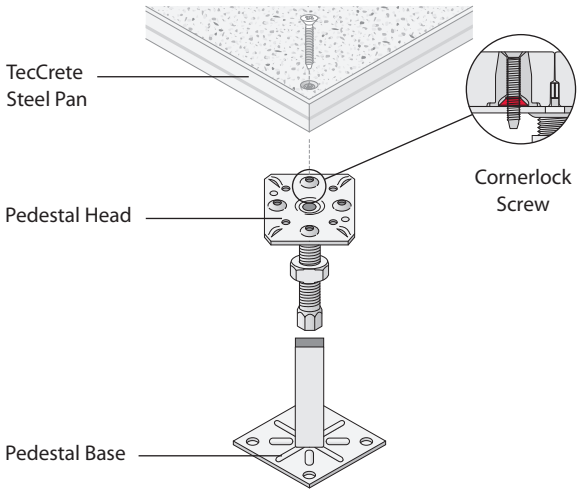


Electrical Applications

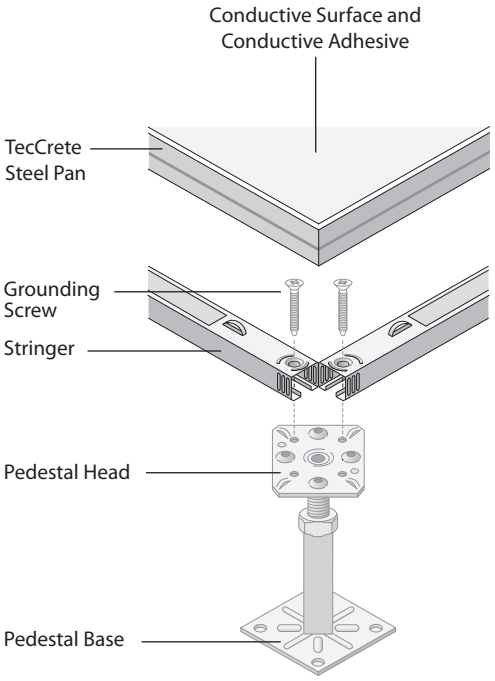
Electrical Box in Floor



TecCrete Conductive Path to Ground without Stringers



TecCrete Conductive Path to Ground with Stringers



Notes

- **Bare panel conductive path to ground: a cornerlock screw connects the steel pan to the pedestal head which is connected to the pedestal base — creating a ground path.**
- **Covered panel conductive path to ground: conductive surface and conductive adhesive contact the TecCrete steel pan which contacts the grounding screw. The grounding screw is attached to the stringer which is also connected to the pedestal head and base — creating 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.

Air Distribution System Static Pressure	0.05"	0.10"
TecCrete floor panel with carpeted surface	No greater than 0.10 CFM / sq. ft	No greater than 0.10 CFM / sq. ft

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.

Air Distribution System Static Pressure	0.05"	0.10"
TecCrete Panel Bare Floor with Air Seal Leak Rates	0.36 CFM / sq. ft.	0.44CFM / sq. ft.
TecCrete Panel with Solid-Backed Carpet Tiles – Leak Rates	0.04 CFM / lin. ft.	0.04 CFM / lin. ft.

Note **The leak rates do not include leakage at floor perimeters; the carpet tiles overlapped the panel seams in the tests.**

Controlling Air Leakage

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.

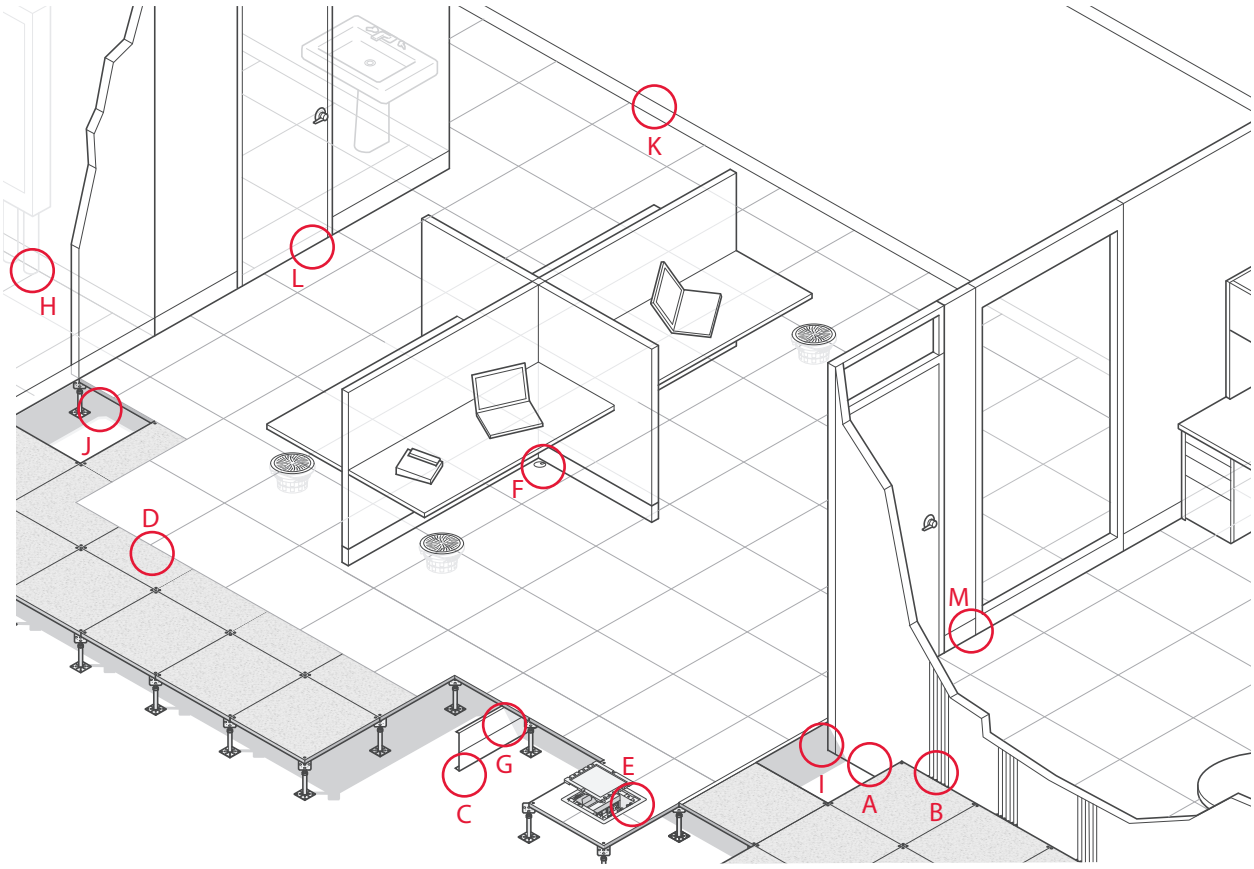
Building contractors must completely seal cavity seams where walls rest on subfloors, and where access flooring connects with slab-to-ceiling walls, columns and other obstructions.

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.

Note **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

Proper Air Sealing Before and During Access Floor Installation



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 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 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.

Proper Air Sealing Before and During Access Floor Installation

D Seals at curb interfaces:
- When access floor coverings extend all the way to the curb, cut the floor panels to within 1⁄16" of perimeter.
- Attach sealing foam or rubber tape to the curb if a gap exceeds 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 1⁄16" of perimeter.
- Attach sealing foam or rubber tape to the curb if a gap exceeds 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.

E Seals at utility access points

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

G 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.

H 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.

I Seals at fire barriers

J 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.

K Seals at firewalls at the access floor:
- Floor panels should fit to within 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.

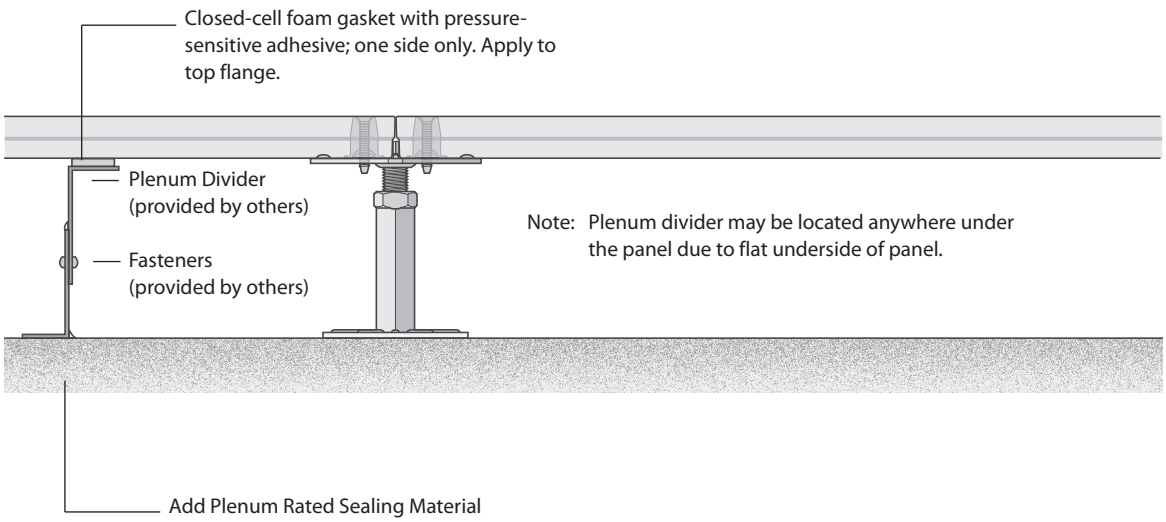
L Seals at access floors at fire barrier below door threshold:
- Floor panels should be cut to fit to within 1⁄16" of the fire barrier.
- Joints can be sealed by installing a threshold plate with a gasket attached to the bottom.
- Another option for sealing joints is to attach a gasket to the vertical 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.

M Seals at firewalls at the subfloor:
- 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.

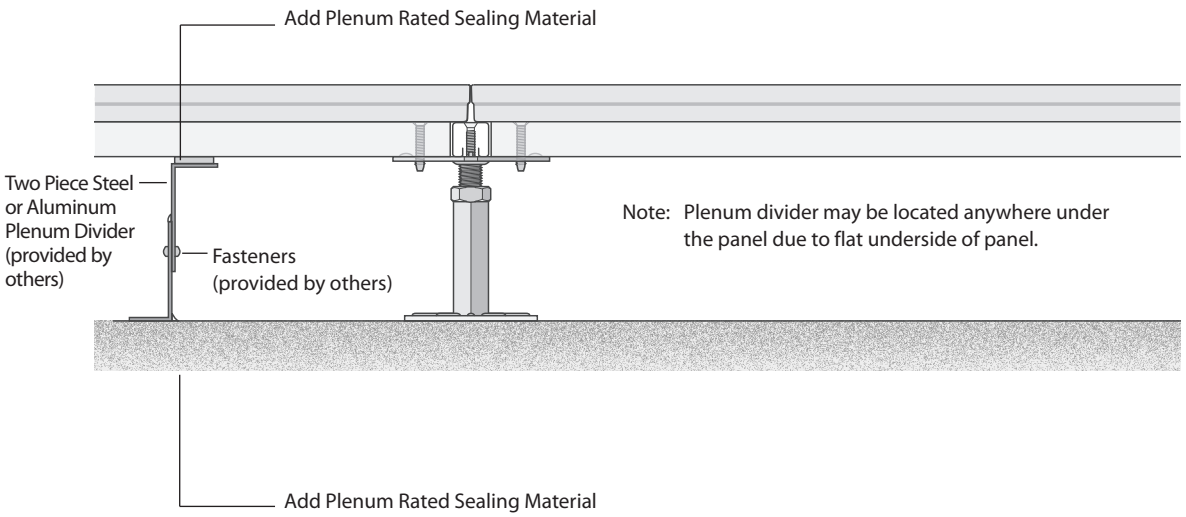
Note **Please refer to the TecCrete installation instructions for more detailed information.**

Plenum Applications

Without Stringer

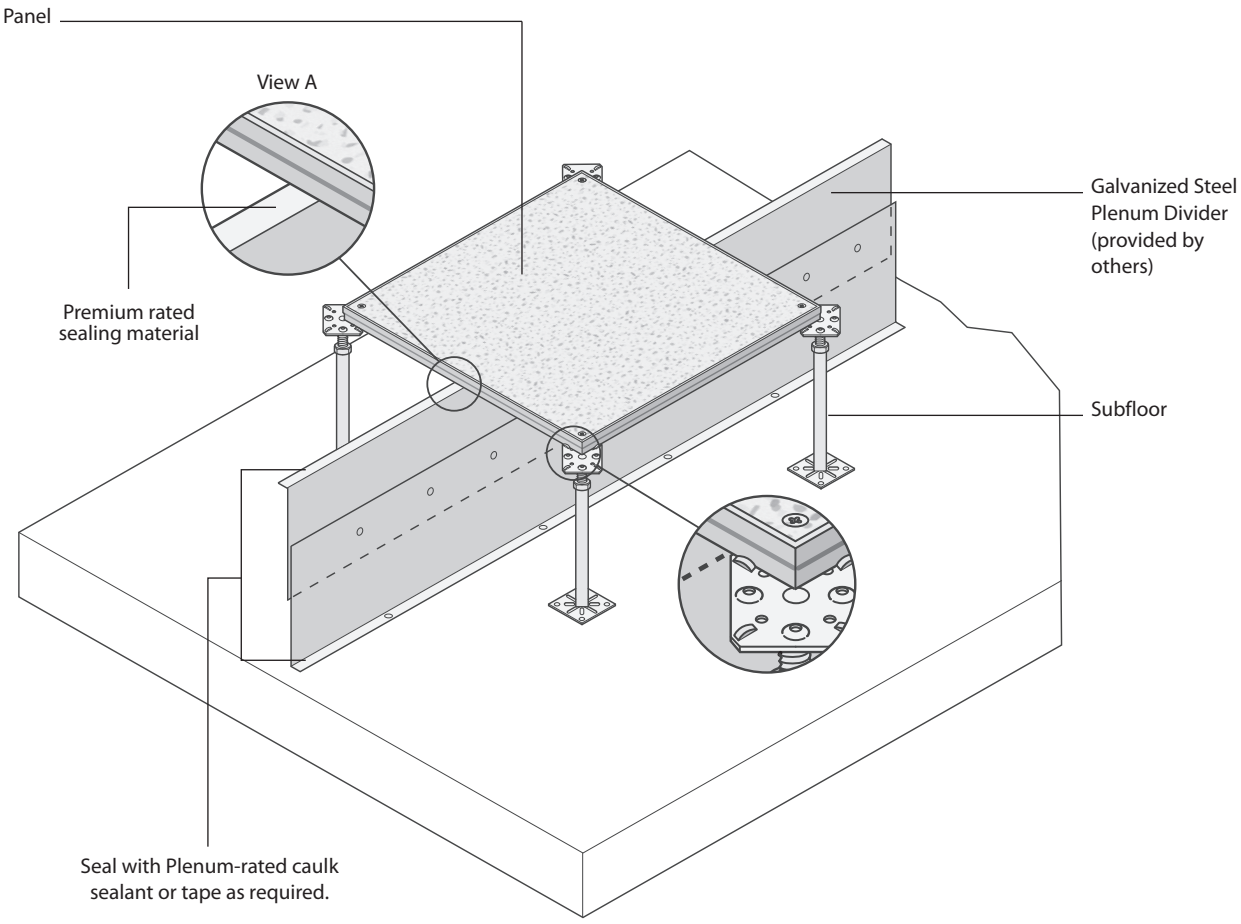


With Stringer

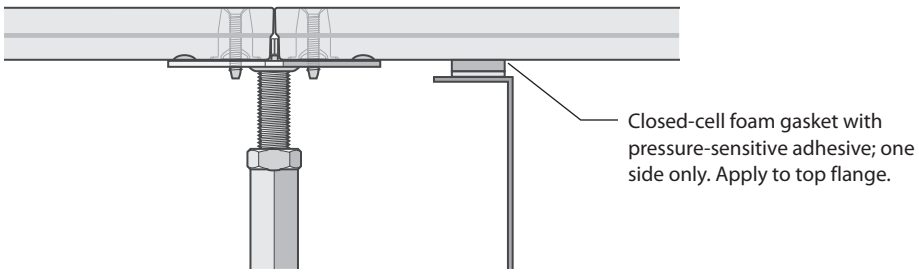


Plenum and Air Highway Applications

Plenum Divider/Plenum Divider Detail

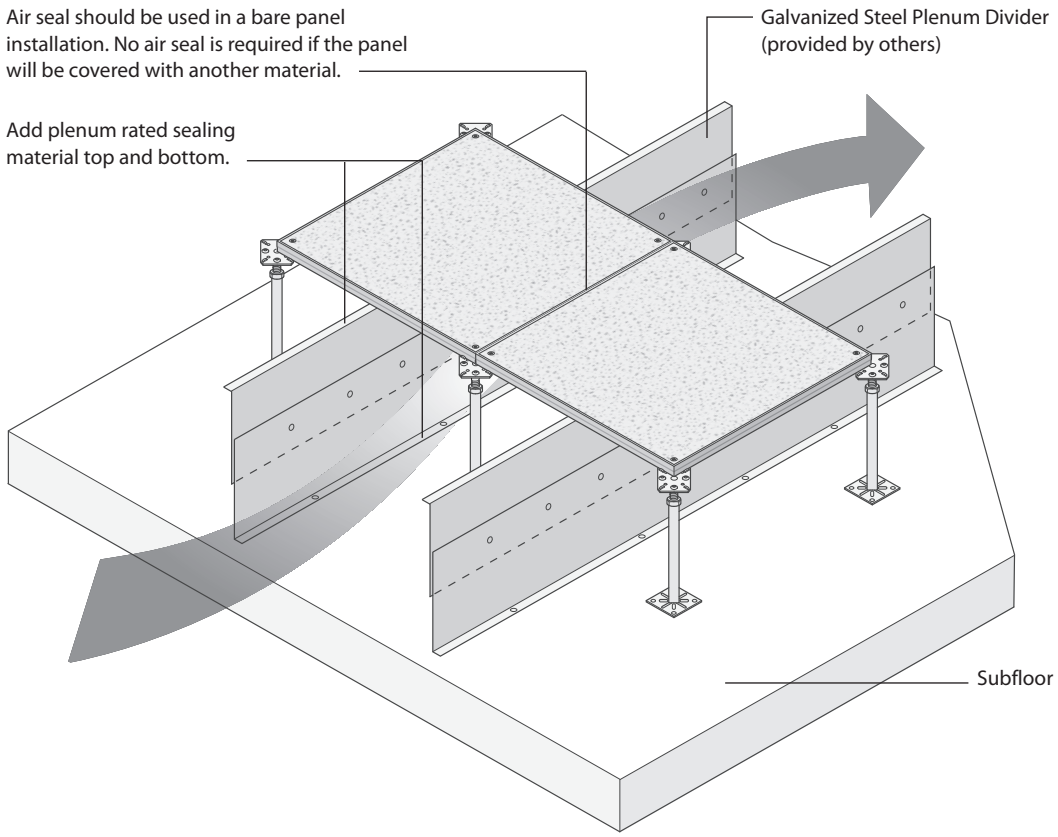


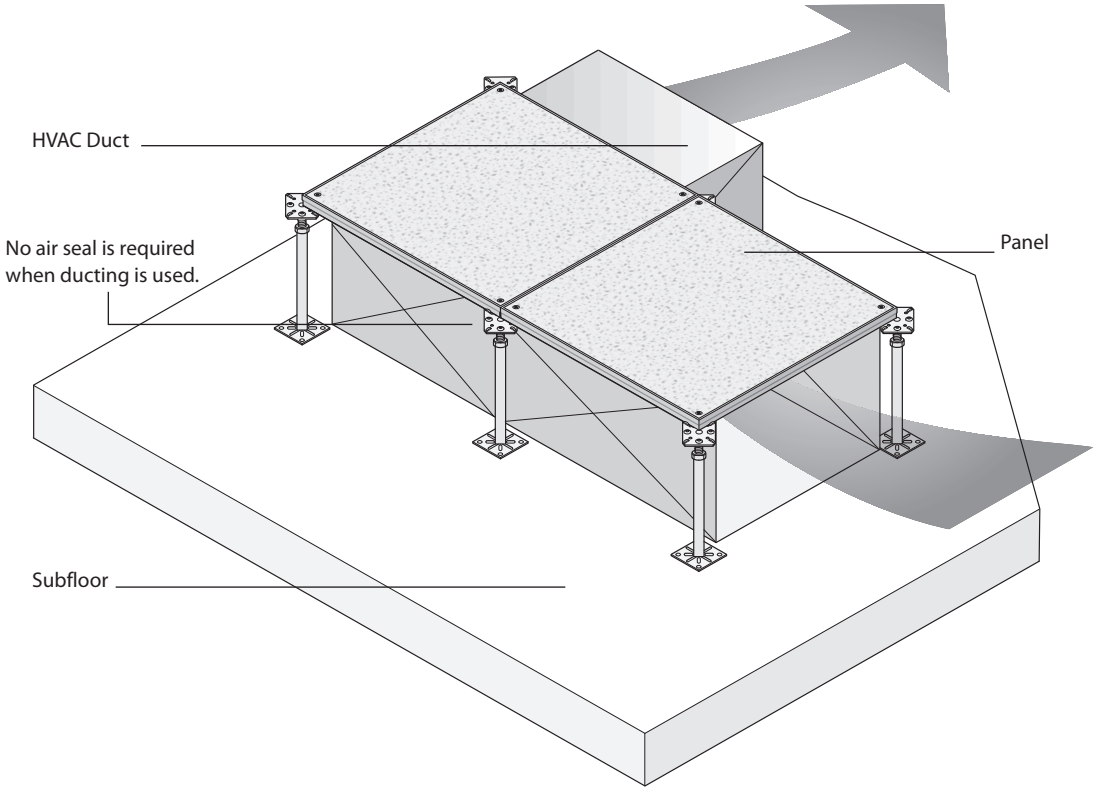
View A Detail: Side View



Plenum and Air Highway Applications

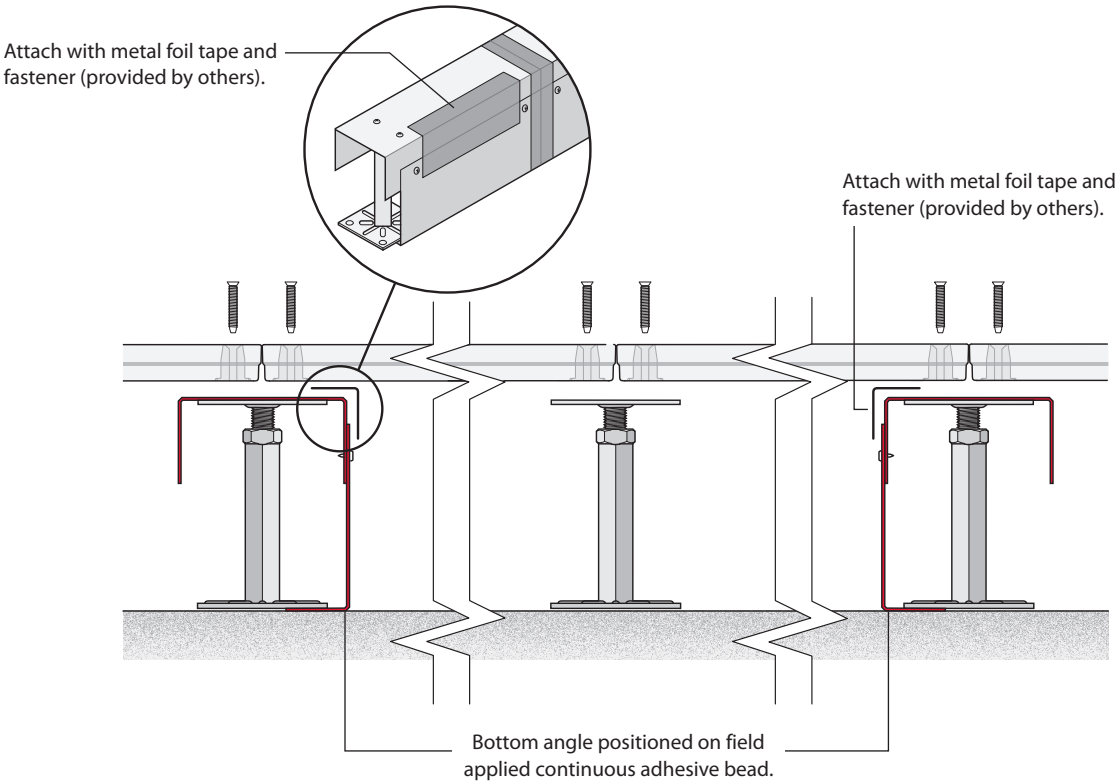
Air Highway: Interior



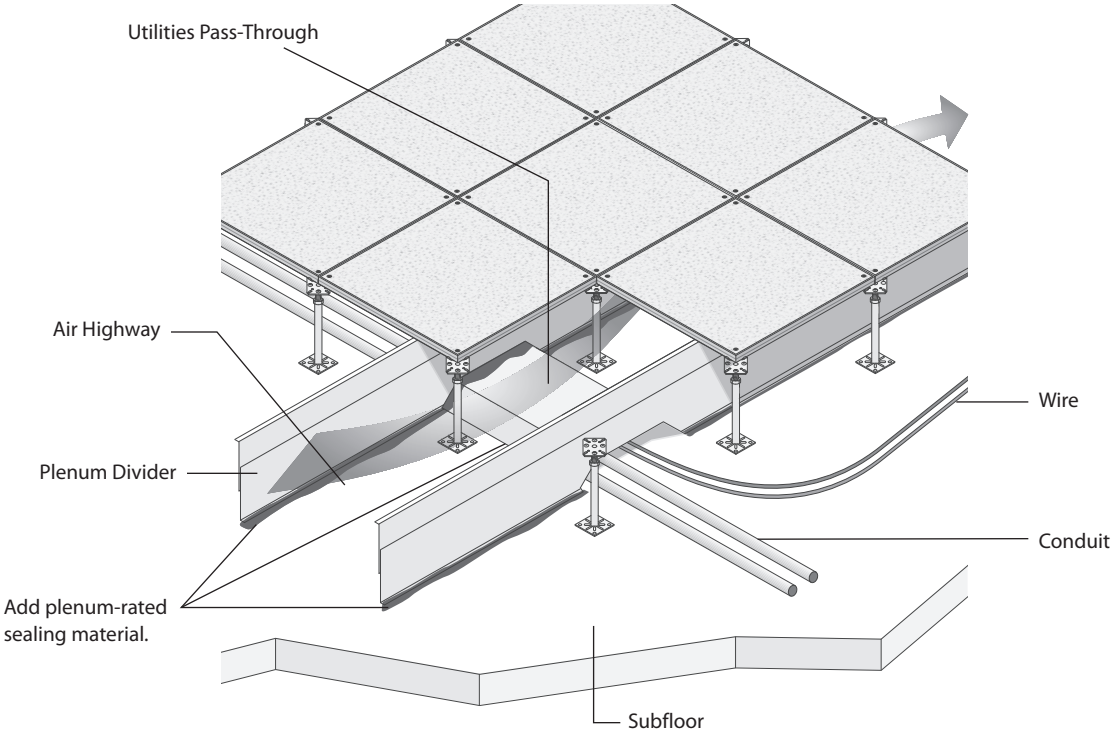


Plenum and Air Highway Applications

Air Highway and Divider Detail



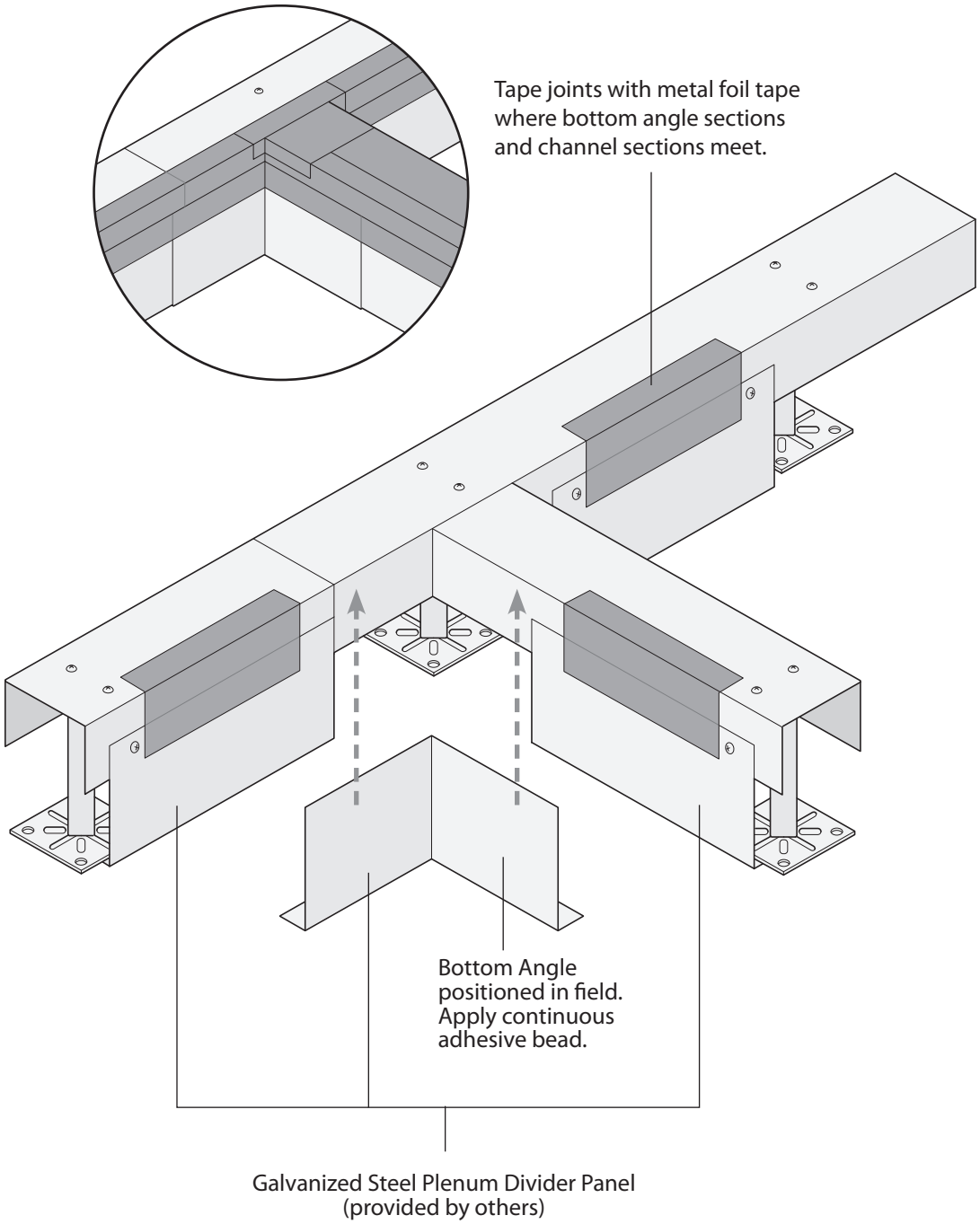
Air Highway with Utilities Pass-Through



Plenum and Air Highway Applications

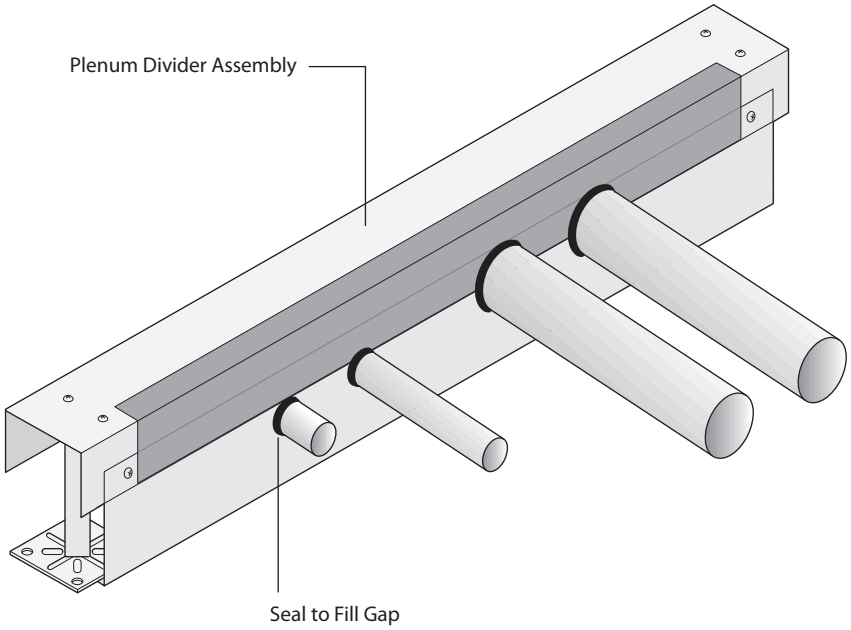
Plenum Zone Divider Detail

- TecCrete's flat panel underside delivers a gapless seal no matter where a plenum divider is positioned under the panel.

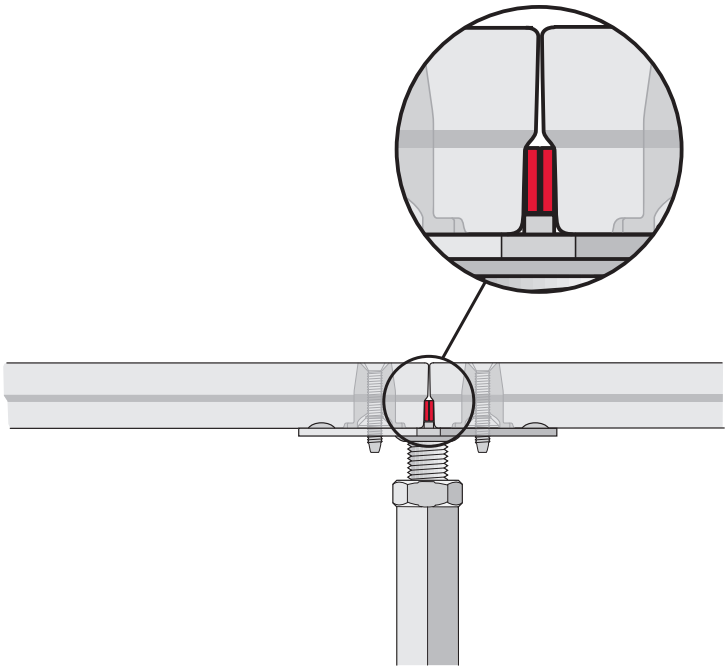


Plenum and Air Highway Applications

Penetration through Plenum Divider

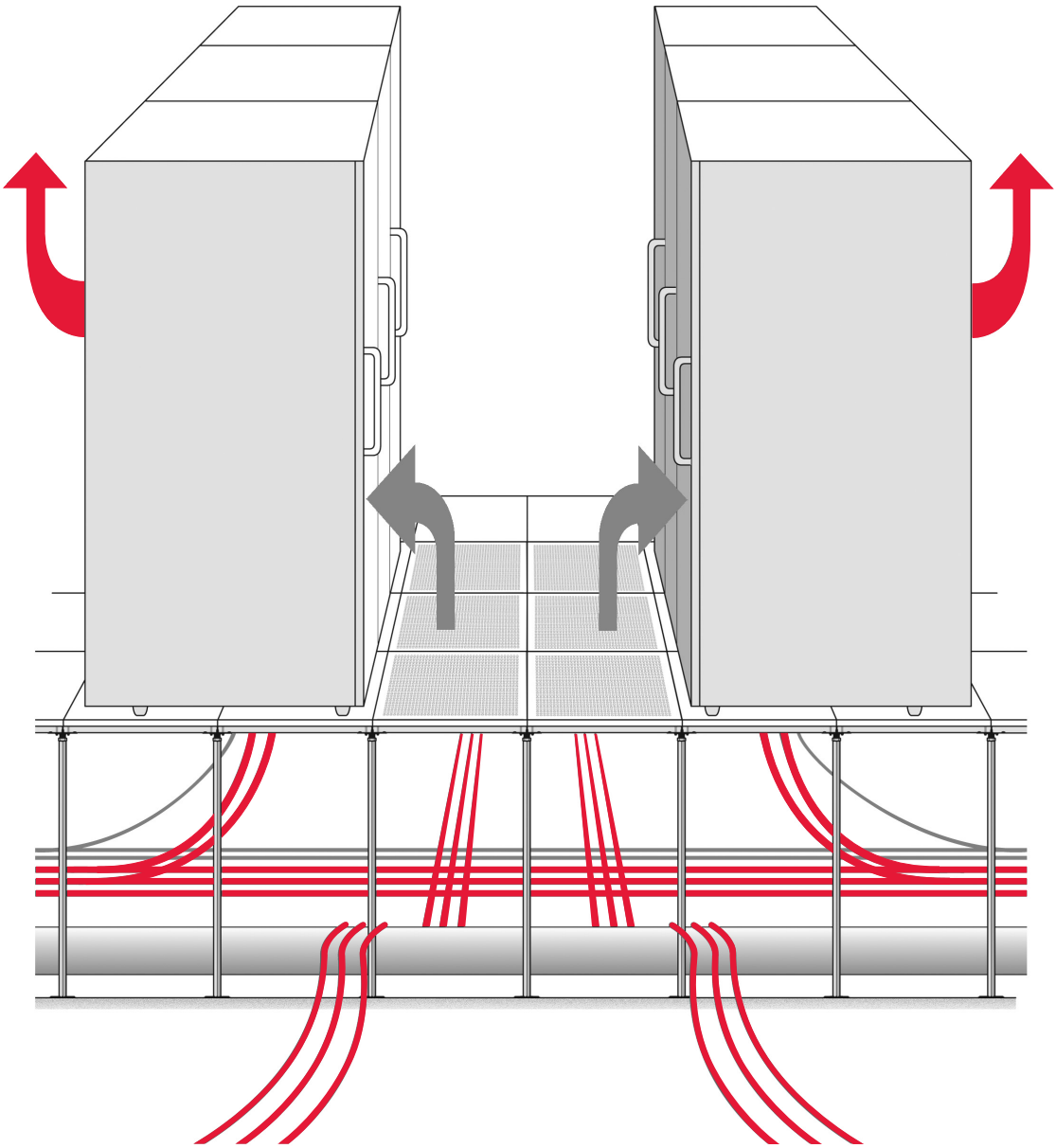


Air Seal Detail (optional)

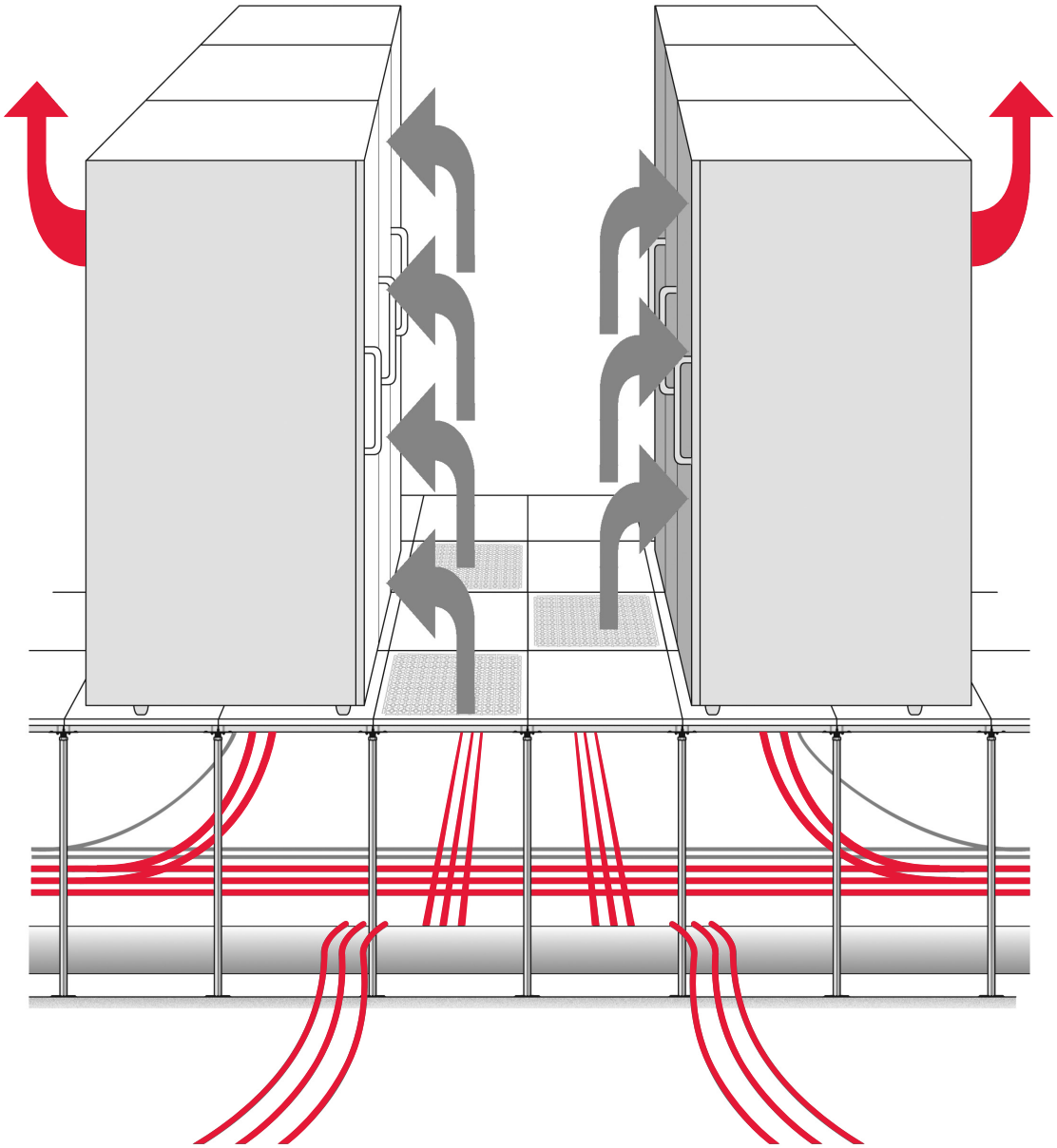


Note **For plenum applications not utilizing carpet tile or stringers, an integral air seal may be specified on panels to optimize underfloor air system performance.**

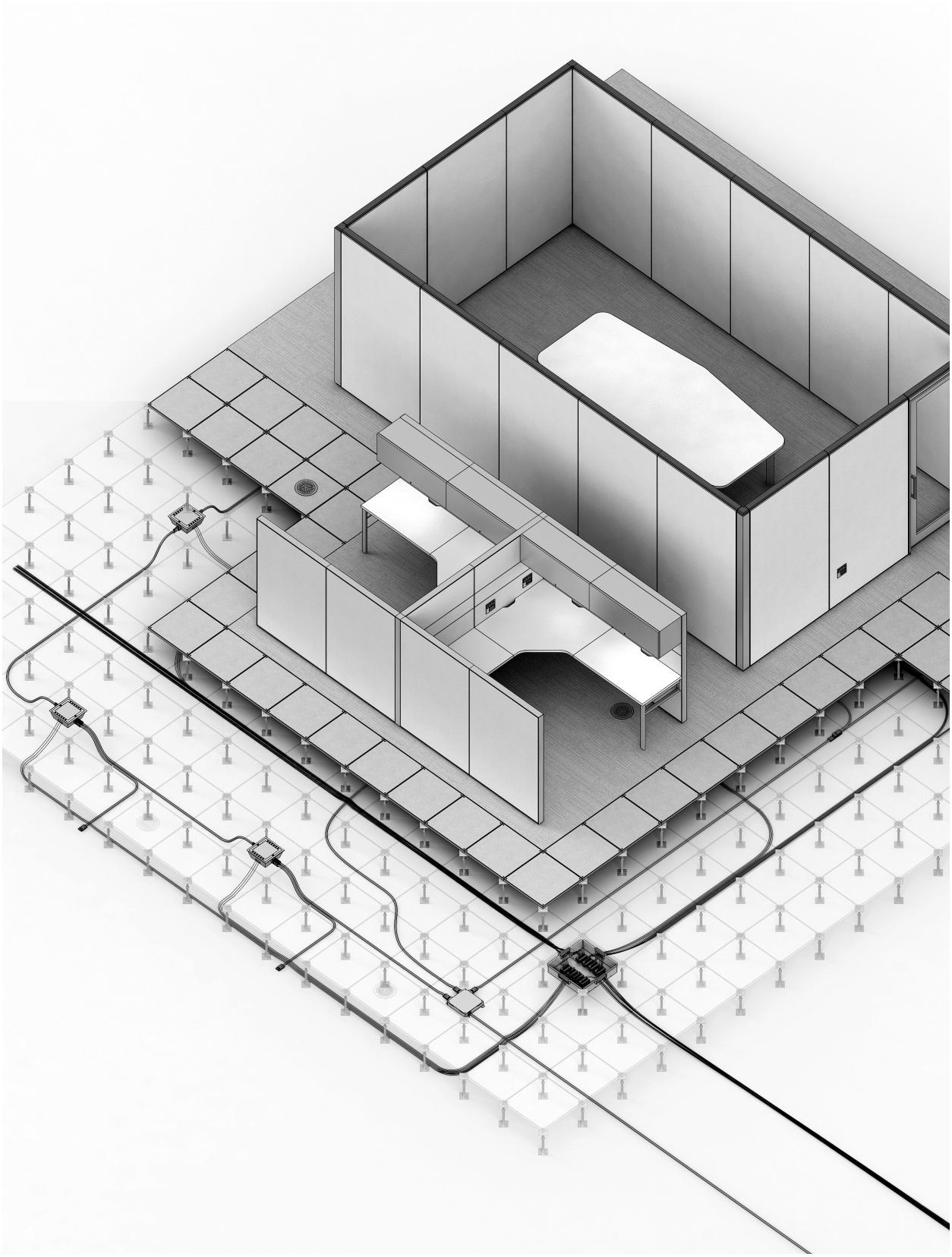
Perforated Panel



Triad Grate



Electrical Overview: Introduction



Our Philosophy On Electrical

Haworth has a unique approach when it comes to Electrical Distribution and its ever changing layout. Our philosophy is to design and install for tomorrow rather than conventionally wiring for today. How do we do that? By running everything right beneath your feet using plug-and-play technology and a zone distribution methodology that delivers power to where the customer needs it. This ensures that your electrical infrastructure will be able to respond to today's fast pace and fast rate of change. Being flexible today is critical to tomorrow's survival.

Reconfiguring should be fast, growing should be easy, and with Haworth Power Base AI, it is. Our quick-connect systems power you up ...fast!

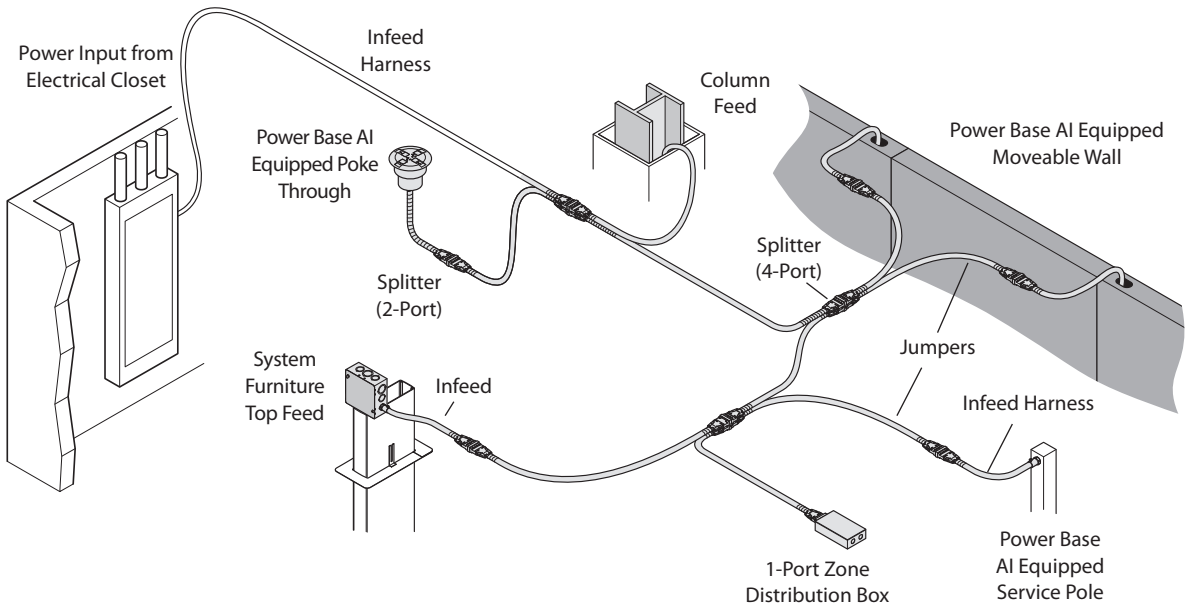
Haworth offers Power Base AI, a modular power system for raised floor applications, which helps to ensure quick installation and future flexibility. Quick installation reduces construction schedule risk and controls jobsite labor overruns. Future flexibility helps increase tenant satisfaction and lowers operating and renovation costs.

Haworth has developed two power distribution systems to accommodate the electrical needs of all major North American office furniture manufacturers: The 3-Circuit and the 4-Circuit systems. Each has been specifically designed for use in Haworth Access Flooring and is based on plug-and-play connectivity.

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 version helps to maximize the number of circuits while staying within the common ½" trade conduits. This modular power system is UL Listed, CSA Certified, and complies with NEC Article 604.

The Power Base AI system consists of six main elements to distribute power. They include the following:
- Zone Distribution Box
- Jumper
- Splitter
- Service Module
- Modular Receptacle
- Haworth Plug-and-Play Furniture Base Feed

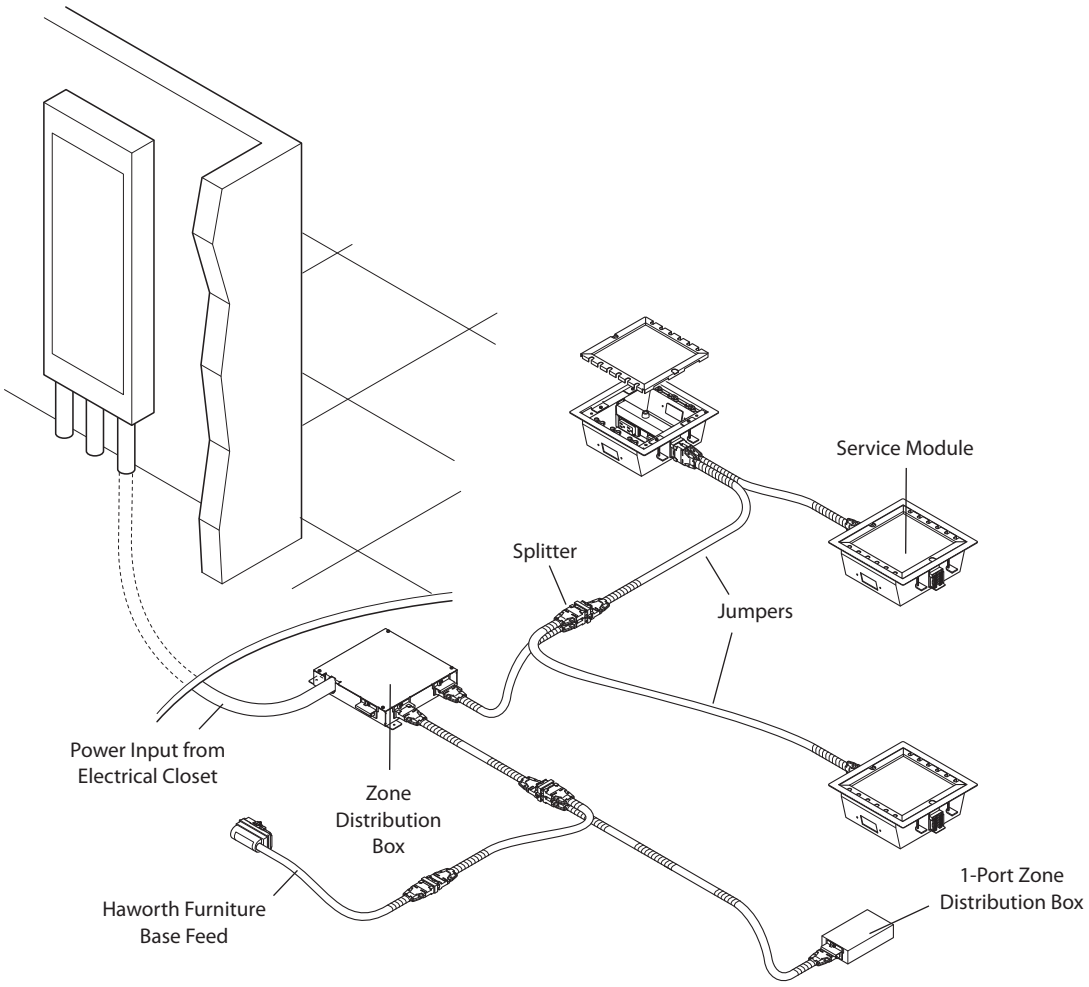
Above Ceiling Application



System Overview

Power is typically routed from the electrical closet through pre-wired flexible conduit to separate zones of the floor plate. Power is then distributed within each zone using modular wiring. Modular wiring puts flexibility out in the area where most day-to-day reconfigurations occur. Power can be routed from the electrical closet with the pre-wired Zone Distribution Box or an Infeed Harness. The Zone Distribution Box is available with factory installed pre-wired conduits with three sets up to 125', and two sets of circuits up to 200', or the field wired Zone Distribution Box can be used with locally supplied MC cable or conduit. The infeed harness routes a single set of circuits and is available in lengths up to 100'. Power is routed within the zone by 8-Wire modular flex conduit Jumpers. The Jumpers are fully populated with all eight wires so all circuits are available for future moves. The Flush Service Module provides Modular Receptacles under a hinged lid. The Modular Receptacles allow fast change of circuits as users' needs change. Flush Service Modules can be moved to other floor tile locations by re-routing the flex conduit Jumpers. The Service Modules allow for multiple Jumpers to connect (two Dual Service Modules/four Quad Service Modules) for branching within a zone. The Splitter is used to join up to four Jumpers. By using Splitters, the zone can be expanded to meet future needs. For more extensive renovations, the Zone Distribution Box can be moved by re-routing the flex conduit feed.

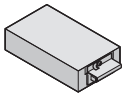
Under Floor Application



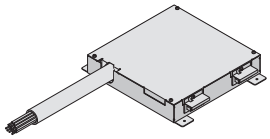
Note **MC Cable = Metal Clad Cable in this document.**

Statement of Line: Power Base AI

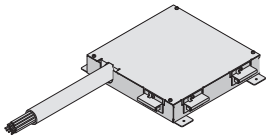
3- and 4-Circuit



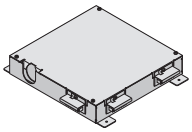
Field-Wired 1-Port
Zone Distribution Box



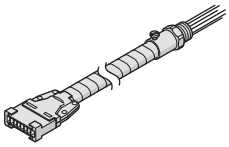
Pre-Wired 2-Port
Zone Distribution Box



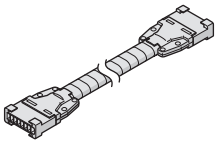
Pre-Wired 3-Port
Zone Distribution Box



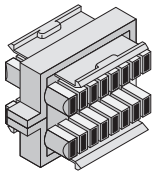
Field-Wired 3-Port
Zone Distribution Box



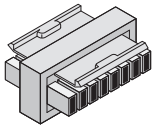
Infeed Harness
15", 10', 25', 50', 75', or 100' Long



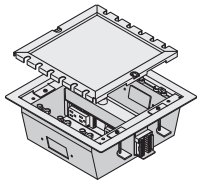
Jumper
5', 10', 15', 20', 35', or 50' Long



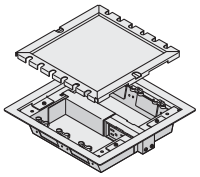
4-Port Splitter



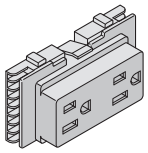
2-Port Splitter



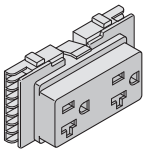
Quad Service Module



Dual Service Module

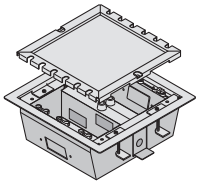


Modular Receptacle
(15 Amp Duplex)

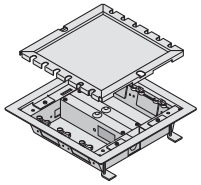


Modular Receptacle
(20 Amp Duplex)

Hardwire



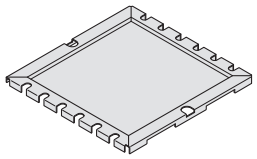
Quad Service Module
(Field-Wired)



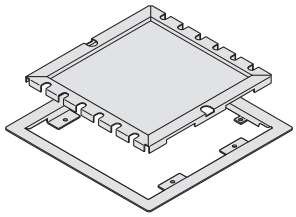
Dual Service Module
(Field-Wired)

Statement of Line: Power Base AI

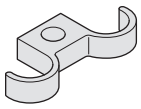
Accessories



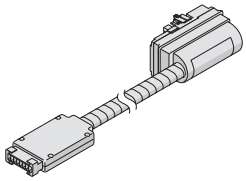
Service Module Lid



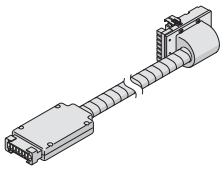
Service Module Lid and Trim Ring



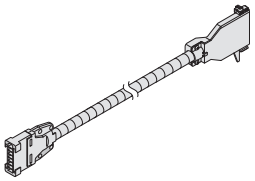
Cord Manager Loop



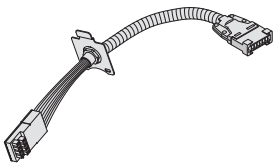
PREMISE®, Moxie®, and Compose™ Floor Infeed



PLACES®, UniGroup®, and Tactics® Floor Infeed



Floor Infeed



RACE® Single Harness Connector

Typical Power Base AI Application

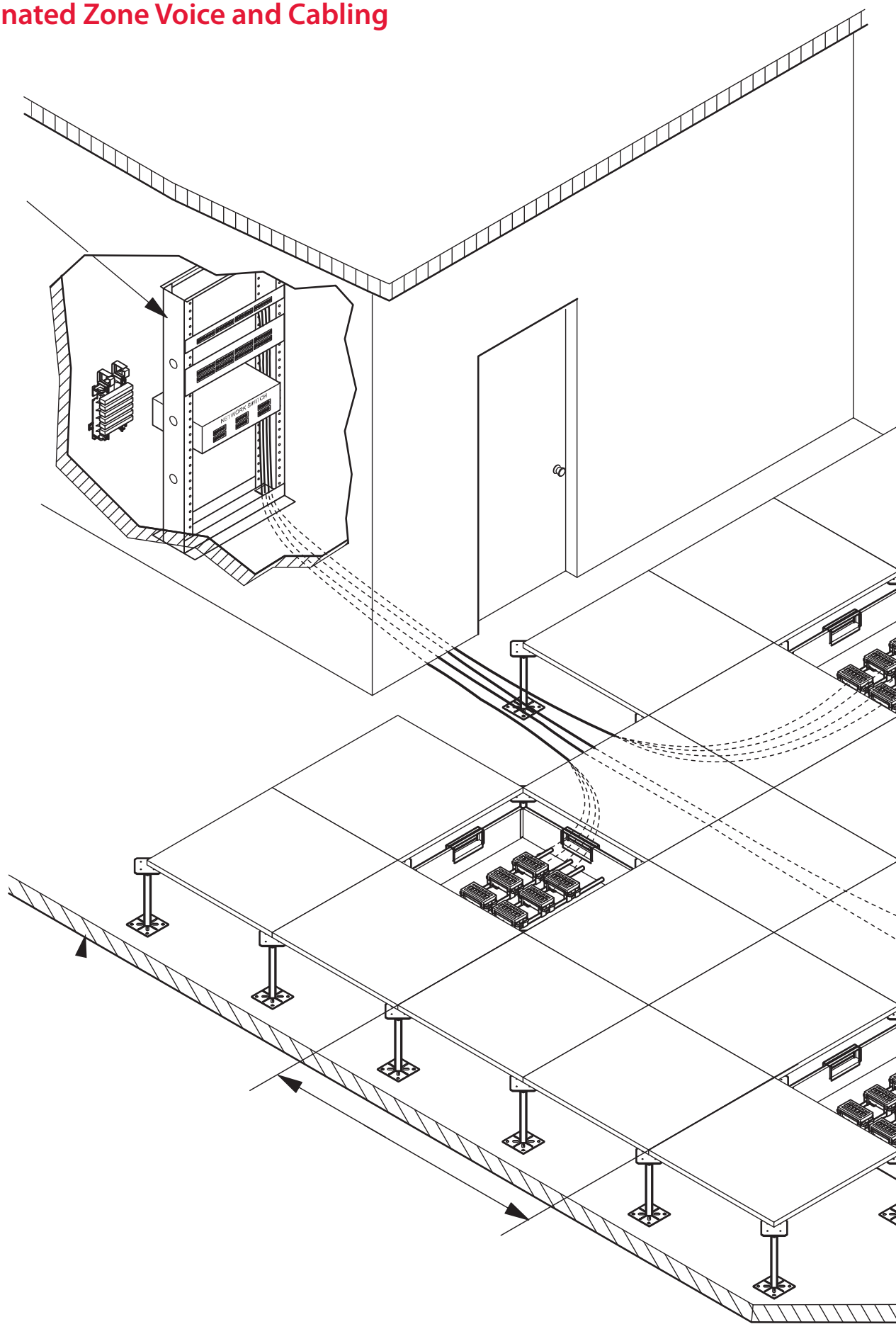
Using Power Base AI with Enclose® or LifeSPACE® allows for maximum flexibility in reconfiguration of office space:

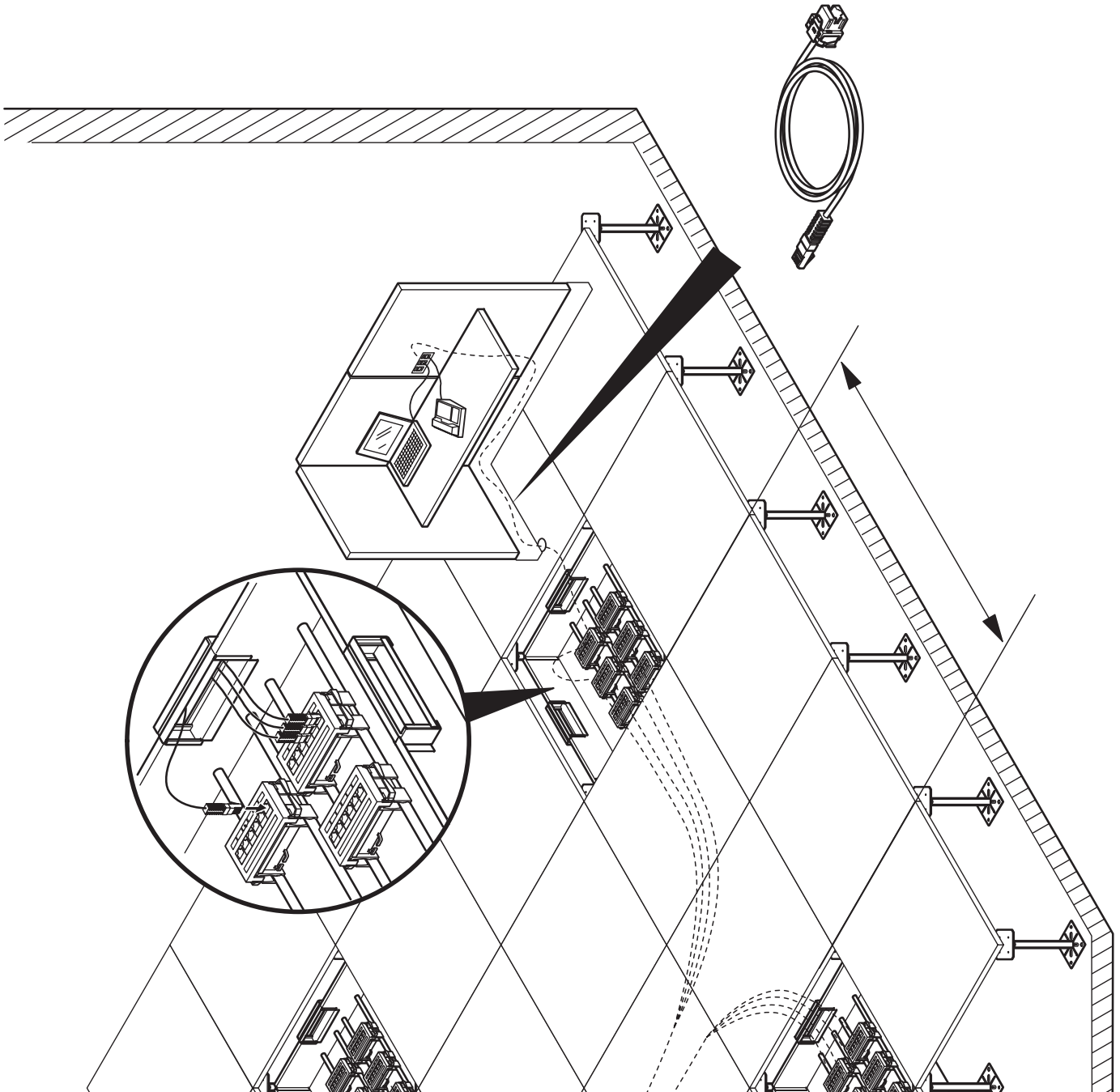
- To move an Enclose or LifeSPACE panel a short distance, simply move the panel to any new location within the jumper cable length.
- When reconfiguration requires a new layout, simply disconnect the jumper from the Enclose or LifeSPACE panel and Zone Distribution Box, move the Enclose or LifeSPACE panel to the new location, and reconnect the jumper to the Enclose or LifeSPACE panel and Zone Distribution Box.

Notes

- **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 Base AI must be coordinated.**
- **For more information, please see "Application Guidelines" on pages 23-25 of Haworth's Power Base AI Application Guide.**

Pre-Terminated Zone Voice and Cabling

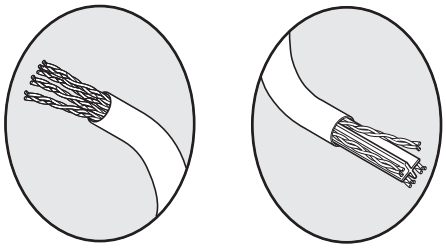




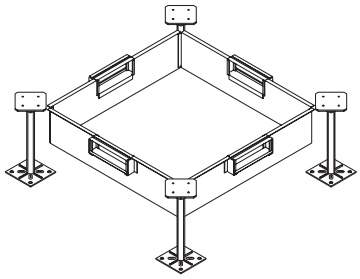
Statement of Line: Pre-Terminated Zone

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.

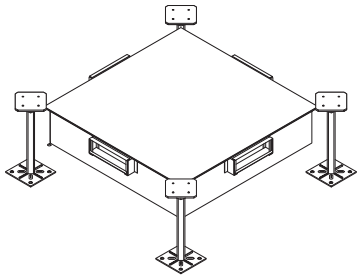
1. Standard Horizontal Cabling: Communication Cabling and Consolidation Points
Communication cabling (Cat 5e or Cat 6) that is routed through the ceiling or floor to a consolidation point (UMS Patch Panels, Ultim8, etc.). It is available in non-plenum and plenum rated jacket.



2. Pre-Terminated Zone Consolidation Points
A plenum box is available for air handling applications. Each type of consolidation point device acts as a modular connection point for outlet taps.



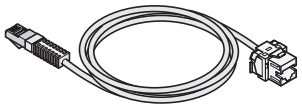
Plenum Box



Plenum Box
With Cover

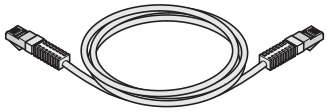
Statement of Line: Pre-Terminated Zone

3. Outlet Taps
Outlet taps include an outlet jack on one end (RJ45) and a modular plug on the other. Plenum-rated versions are available.

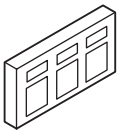


Outlet Tap with Jack

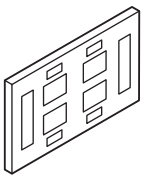
4. Faceplates and Patch Cords
Modular furniture and single-gang faceplates are available, along with TrueNet® patch cords in 4', 7', 10', and 15' lengths.



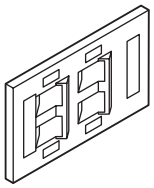
Patch Cord



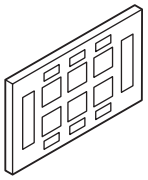
3-Port Modular Faceplate



4-Port Flush Modular Faceplate



4-Port Angled Faceplate



6-Port Flush Mount Faceplate

Note **For additional information, please refer to Haworth's Power Base AI / Voice and Data Price List.**

Introduction

TecCrete® Contributions Toward Meeting LEED®-NC 3

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% reusable. 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.

Credit Description	Direct Impact	Indirect Impact
EA Prerequisite 2 – Minimum Energy Performance		•
EA Credit 1 – Optimize Energy Performance		•
MR Credit 1.2 – Building Reuse, Maintain Interior Non-Structural Elements	•*	
MR Credit 2 – Construction Waste Management		•*
MR Credit 3 – Materials Reuse	•*	
MR Credit 4 – Recycled Content	•	
MR Credit 5 – Regional Materials	•	
IEQ Prerequisite 1 – Minimum IAQ Performance		•
IEQ Credit 2 – Increased Ventilation	•	
IEQ Credit 3.1 – Construction IAQ Management Plan		•
IEQ Credit 4.1 – Low Emitting Materials (Adhesives and Sealants)		•
IEQ Credit 4.3 – Low Emitting Materials (Flooring Systems)		•
IEQ Credit 6.2 – Controllability of Systems (Thermal Comfort)	•	
IEQ Credit 7.1 – Thermal Comfort	•	
IEQ Credit 8.1, 8.2 – Daylight and Views	•	

*For TecCrete product that is part of the existing building

Notes

- **LEED® -NC rating system is continually updated, please refer to www.usgbc.org for the most current versions.**
- **Intent and Requirement information is paraphrased from the U.S. Green Building Council publication "LEED Reference Guide for Green Building Design and Construction V3". For exact wording consult the U.S.G.B.C website at www.usgbc.org.**

Energy and Atmosphere

EA Prerequisite 2: Minimum Energy Performance

Intent
- Establish the minimum level of energy efficiency for the proposed building and systems.

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.

EA Credit 1: Optimize Energy Performance (1-10 pts)

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

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 **Intent and Requirement information is paraphrased from the U.S. Green Building Council publication "LEED Reference Guide for Green Building Design and Construction V3". For exact wording consult the U.S.G.B.C website at www.usgbc.org.**

Materials and Resources

MR Credit 1.2: Building Reuse (1-2 pts)

- Maintain 75% (100%) of Interior, Non-Structural Elements

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.

How TecCrete Helps Meet This Requirement

- Contribution to this credit 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% reusable. 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.

MR Credit 2: Construction Waste Management (Divert from Disposal 50% [1pt] / 75% [2pts)

Intent

- Divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.

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.

Note **Intent and Requirement information is paraphrased from the U.S. Green Building Council publication "LEED Reference Guide for Green Building Design and Construction V3". For exact wording consult the U.S.G.B.C website at www.usgbc.org.**

Materials and Resources

MR Credit 3: Materials Reuse (1-2 pts)

Intent
- Reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.

How TecCrete Helps Meet This Requirement
- Contribution to this credit 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% reusable. 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% reusable. 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 reusable.

MR Credit 4: Recycled Content (1-2 pts)

Intent
- Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

TecCrete Recycled Content

Material	Material Weight	Post-Consumer Recycled Content	Pre-Consumer Recycled Content
Steel	7.51 lbs. (16%)	4.25 lbs	2.46 lbs.
Gypsum	35.10 lbs. (78%)	0.00 lbs	19.92 lbs.
Portland Cement			
Aggregate			
Water	3.02 lbs. (6 %)	0.00 lbs.	0.00 lbs.
Total	45.63 lbs. (100%)	4.25 lbs. (9.3%)	22.40 lbs. (49.1%)
Total Recycled Content: (4.25 lbs. + 22.40 lbs.) / 45.63 lbs. = 58.4%			

How TecCrete Helps Meet This Requirement
- TecCrete has recycled content values as listed:
  - 58.4% Total Recycled Content % by weight
  - 9.3% Post-Consumer Content % by weight
  - 49.1% Post-Industrial Content % by weight
  - 33.9% LEED RC (PC+½PI) % by value

Note **Intent and Requirement information is paraphrased from the U.S. Green Building Council publication "LEED Reference Guide for Green Building Design and Construction V3". For exact wording consult the U.S.G.B.C website at www.usgbc.org.**

Materials and Resources

MR Credit 5: Regional Materials (1 pt)

Intent

- Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

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.

Raw Material Components of TecCrete (including understructure)

Raw Material	Extraction Source
Gypsum	Ft. Dodge, Iowa
Aggregate	Brooklyn, Indiana
Portland Cement	Alpena, Michigan
Coil and Other Steel	Butler, Indiana
Other Materials	Michigan

Indoor Environmental Quality

IEQ Prerequisite 1: Minimum IAQ Performance

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

How TecCrete Helps Meet This Requirement
- Underfloor air distribution systems (UFAD) are inherently likely to meet or exceed the requirements of ASHRAE 62.1-2007 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.

IEQ Credit 2: Increased Ventilation (1 pt)

Intent
- Provide additional outdoor air ventilation to improve indoor air quality (IAQ) and promote occupant comfort, well being, and productivity.

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.

IEQ Credit 3.1: Construction IAQ Management Plan (During Construction): (1 pt)

Intent
- Prevent indoor air quality problems resulting from construction or renovation and promote the comfort and well-being of construction workers and building occupants.

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.

IEQ Credit 4.1: Low Emitting Materials (Adhesives and Sealants) (1 pt)

Intent
- Reduce the quantity of indoor air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of installers and occupants.

How TecCrete Helps Meet This Requirement
- Haworth sells adhesives that meet the requirements of this credit.
- Haworth keeps a list of sealants that work with the TecCrete system meeting the requirements of this credit.

Indoor Environmental Quality

IEQ Credit 4.3: Low Emitting Materials (Flooring Systems) (1 pt)

Intent:

- To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

How TecCrete Helps Meet This Requirement

- TecCrete floor system has been SCS Indoor Advantage Gold certified, assuring that it meets tough indoor air quality standards including the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, effective January 1, 2004.

IEQ Credit 6.2 Controllability of Systems: Thermal Comfort (1 pt)

Intent

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

How TecCrete Helps 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.

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

Intent

- Provide a comfortable thermal environment that promotes occupant productivity and well-being.

How TecCrete Helps Meet This Requirement

- Buildings with access floors that utilize underfloor air distribution (UFAD) have an inherent advantage in meeting and exceeding ASHRAE Standard 55-2004. 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.

IEQ Credit 8.1 Daylight and 8.2 Views (Daylight 75% and Views 90% of Spaces): (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.

How TecCrete Helps Meet This Requirement

- TecCrete Access Flooring used in conjunction with underfloor 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.

Note **Intent and Requirement information is paraphrased from the U.S. Green Building Council publication "LEED Reference Guide for Green Building Design and Construction V3". For exact wording consult the U.S.G.B.C website at www.usgbc.org.**

TecCrete System Performance Ratings

Haworth Access Floors are tested according to "Recommended Procedures for Access Flooring" as established by the Ceiling and Interior Systems Construction Association (CISCA).

TecCrete 1250 System Performance Ratings

Rolling Load
- 1,300 lbs. applied through a 3" (76mm) dia. x 1 13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of 0.040" (1mm) top surface permanent set.
- 900 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 0.040" (1mm) top surface permanent set.

Impact Load Rating
150 lb. load dropped from 36" (914mm) onto a one-inch square indenter shall not render the system unserviceable.

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 0.010" (0.25mm).

Uniform Load Rating
With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 600 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

TecCrete 1500/1500SL System Performance Ratings

Rolling Load
- 1,500 lbs. applied through a 3" (76mm) dia. x 1 13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of 0.040" (1mm) top surface permanent set.
- 1,250 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 0.040" (1mm) top surface permanent set.

Impact Load Rating
150 lb. load dropped from 36" (914mm) onto a one-inch square indenter shall not render the system unserviceable.

Concentrated Load Rating
1,500 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 0.010" (0.25mm).

Uniform Load Rating
With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 700 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

TecCrete System Performance Ratings

TecCrete 2000 System Performance Ratings

Rolling Load
- 2,000 lbs. applied through a 3" (76mm) dia. x 1⅜" (46mm) wide caster for 10 cycles over the same path with a maximum of 0.040" (1mm) top surface permanent set with edge supported stringers.
- 2,000 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 0.040" (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 render the system unserviceable.

Concentrated Load Rating
Allows for maximum 2,000 lbs. at 0.10" deflection and 0.010" permanent set.

Uniform Load
With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 800 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

TecCrete 2500 System Performance Ratings

Rolling Load
- 2,000 lbs. applied through a 3" (76mm) dia. x 113⁄16" (46mm) wide caster for 10 cycles over the same path with a maximum of 0.040" (1mm) top surface permanent set with edge supported stringers.
- 2000 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 0.040" (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 render the system unserviceable

Concentrated Load Rating
Allows for maximum 2,500 lbs.at 0.10" deflection and 0.015" permanent set.

Uniform Load
With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 900 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

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HAWORTH®

TecCrete Access Flooring: Office

Three Part Guide Specification

PART 1 - GENERAL

An editable MicroSoft® Word version of this document is available for download at http://flooring.haworth.com/haworth-access-floors/specifications

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. Access floor manufacture shall be ISO9001:2000 certified demonstrating it has a robust and well documented quality management system with continual improvement goals and strategies.

C. Access floor manufacturer's facilities shall be ISO14001:2004 certified demonstrating that they maintain an environmental management system.

D. Access floor product must be indoor air quality certified to conform to CA Section 01350 Specification for classroom and standard office.

E. Access floor product shall be manufactured in a zero landfill facility.

F. 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 68 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).

FOR ACCESS FLOOR SYSTEMS USING UNDERFLOOR AIR DELIVERY USE THIS SECTION (DELETE IF NOT USING UNDERFLOOR AIR)

G. Access Floor Air Plenum Requirements

1. The access floor contractor is aware that the space beneath the access floor will be used as an air delivery plenum and as such will take the necessary precautions when installing their work so as not to impact the integrity of the plenum space specific to air leakage and cleanliness.

2. Panel construction shall have a flat steel bottom to create a fully sealed plenum.

3. When panels are to be used bare without carpet or other floor coverings an optional air sealing gasket may be used to prevent air leakage.

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 120° 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.

PART 1 - GENERAL

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 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.

FOR 1250 LB SYSTEM USE THIS SECTION (DELETE IF USING 1500, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1,250 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (2.5mm), and a permanent set not to exceed .010" (.25mm).

2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm) TecCrete can hold 600 pound per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010"(0.25mm).

3. Ultimate Load: Panel shall be designed to withstand a load of 1800 lb. applied over one inch at the weakest point on a pedestal.

4. Rolling Load: Panels shall withstand a rolling load of 1,300 lbs. applied through a 3" (76mm) dia. x 1-13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .040" (1mm) top surface permanent set. Panels shall withstand a rolling load of 900 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.

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 " pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

PART 1 - GENERAL

FOR 1500SL LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .010" (.25mm).

2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 700 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

3. Ultimate Load: Panel shall be designed to withstand load of 2500 lb. applied over one inch at the weakest point on a pedestal.

4. Rolling Load: Panels shall withstand a rolling load of 1,500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed 0.040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

FOR 1500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500SL, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).

2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 700 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

3. Ultimate Load: Panel shall be designed to withstand load of 2500 lbs. applied over one inch at the weakest point on a stringer.

PART 1 - GENERAL

4. Rolling Load: Panels shall withstand a rolling load of 1500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demo strating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

FOR 2000 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250 OR 1500 LB SYSTEM)

1. Concentrated Load: 2000 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).

2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 800 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

3. Ultimate Load: Panel shall be designed to withstand load of 2800 lbs applied over one inch at the weakest point on a stringer.

4. Rolling Load: Panels shall withstand a rolling load of 1500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

PART 2 - PRODUCTS

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

FOR 2500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500, 1500SL OR 2000 LB SYSTEM)

1. Concentrated Load: 2500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).

2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 900 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).

3. Ultimate Load: Panel shall be designed to withstand a load of 3100 lb. applied over one inch at the weakest point on a stringer.

4. Rolling Load: Panels shall withstand a rolling load of 2000 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 2000 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

PART 2 - PRODUCTS

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

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 component 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 a current seismic program and submitted to a local structural engineer 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 5 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" (.4mm) or less.
   b) Panel flatness ± 0.020" (.5mm) or less.
   c) Panel squareness ± 0.015" (.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.

PART 2 - PRODUCTS

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 to 120° F and between 35% and 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. Any damage to panels or finishes resulting from construction work done after floor is installed shall be the responsibility of the general contractor or others.

PART 2 - PRODUCTS

2.01 Materials

A. Manufacturer: The access flooring system shall be as manufactured by Haworth, Inc. located in Grand Rapids, MI 49512.

1. Substitutions will be considered, providing the alternative products meet or exceed the feature requirements as indicated herein and the performance requirements including the rolling load as outlined in section 1.06 and receive prior written approval by the Architect. The manufacturer shall certify that all panels meet or exceed the stated design criteria.

B. Floor Panels: TecCrete 1250/1500 or 2000/ 2500 lb 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 1-1/8" (29mm) or 1 ½" (38mm) deep, manufactured with galvannealed 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.

C. Air Supply Panels:

1. Provide and/or install passive floor diffusers with factory cutouts as indicated on drawings.

2. 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.

3. 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.

PART 3 - EXECUTION

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

4. The threaded stud will be 3/4" (19mm) diameter steel.

5. The head assembly shall be designed so that the panels will be held in place with or without 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 1/64" (.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. Stringers:

1. Stringer shall capture panels and be capable of supporting a 450 lb. concentrated load at mid span with less than 0.010" permanent set after the load is removed.

2. Stringers shall be individually and rigidly fastened to the pedestal with one machine screw for each foot of stringer length. Bolts shall provide positive electrical contact between the stringers and pedestals. Connections depending on gravity or spring action are unacceptable

3. Stringer shall be either 2'x 2' or 4'x 4' pattern and shall be secured by a fastener.

F. Accessories:

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

2. Manufacturer of the access floor shall also provide a modular power system, including in-floor service outlets for power, communications, and data wiring in locations as shown on Drawings.

   a) Zone Distribution Box: Used as transition point to convert from bulk power distribution into easily reconfigurable modular power distribution components. Supports "plug and play" power distribution within each power zone.

      i. 3-Port Distribution box is constructed of .0575"-.0635" (16 gage) thick black zinc plated steel box with cover. Provided with one 1-1/4" conduit containing 21 - 10 AWG wires in lengths up to 125 feet. This is intended to be connected to the building Circuit Breaker box. Three modular ports are factory wired, ready for modular jumpers. Available in 8 wire 3- or 4-circuit wiring configuration.

      ii. 2-Port Distribution box is constructed of .0575"-.0635" (16 gage) thick black zinc plated steel box with cover. Provided with one 1-1/4" conduit containing 14 - 8 AWG wires in lengths of 150 to 200 feet. This is intended to be connected to the building Circuit Breaker box. Two modular ports are factory wired, ready for modular jumpers. Available in 8 wire 3- or 4-circuit wiring configuration.

      iii. Field Wired Distribution box is constructed of .0575"-.0635" (16 gage) thick black zinc plated steel box with cover. This is intended to be connected to the building Circuit Breaker box by a licensed electrician using 1-1/4" conduit and appropriately sized wire. Terminal strips inside the box are connected to three modular ports, which are factory wired, ready for modular jumpers. Available in 8 wire 3- or 4- circuit wiring configuration.

PART 3 - EXECUTION

iv. Low Profile Distribution box is constructed of .0575"-.0635" (16 gage) thick black zinc plated steel box with cover. This is intended to be connected to the building Circuit Breaker box by a licensed electrician using 1/2" conduit and appropriately sized wire. Wire leads inside the box are connected to a modular port, ready for a modular jumper. Available in 8 wire 3- or 4-circuit wiring configuration.

b. Jumpers: Used to interconnect modular power components within each power zone. Flexible conduit construction with quick connect modular male power connector heads. Available in 8 wire 3-or 4-circuit wiring configuration. Connector populated with all 8 wires to support future reconfigurations of the power distribution system. Available in 5', 10' 15' and 20' lengths. Available with either all 10 gage or 10/12 gage wires, all 10 gage is a ¾" oval flexible metal conduit and the 10/12 gage is 5/8" oval flexible metal conduit.

c. Splitters: Act as 'splitter' to interconnect up to 4 Jumpers within each power zone. Constructed with 8 tin plated copper busbars within polymeric enclosure with integral latching system. Available in 3 or 4 circuit configurations. Typically one acts as the inlet and the others are outbound branches.

d. Service Modules: Used to provide power and/or data outlets at floor level.

i. 2.5" Dual Flush Service Module constructed of .0575-.0635" (16 gage) thick black zinc plated steel box with 2 integral female connectors. Receptacle/Data plates are concealed under hinged lid. Powder coat painted (black) lid and trim ring with hinged cord exit port. Lid accepts carpet insert. Unit fits in 10-1/2" square opening in raised access floor tile. Unit is secured to floor tile using 4 mounting screws. Available in 8 wire 3- or 4- circuit configurations. Unit accepts 2 modular receptacles, which are specified separately, with common or isolated ground receptacles. Available in 2.5" 2-gang configuration.

ii. 4.5" Quad Flush Service Module constructed of .0575-.0635" (16 gage) thick black zinc plated steel box with 4 integral female connectors. Receptacle/Data plates are concealed under hinged lid. Powder coat painted (black) lid and trim ring with hinged cord exit port. Lid accepts carpet insert. Unit fits in 10-1/2" square opening in raised access floor tile. Unit is secured to floor tile using 4 mounting screws. Available in 8 wire 3- or 4- circuit configurations. Unit accepts 4 modular receptacles, which are specified separately, with common or isolated ground receptacles. Available in 4.5" 4-gang configuration.

e. Systems Furniture Feed: Used to connect systems furniture modular wiring directly to zone power distribution.

i. Haworth Base Feeds are constructed with male connector head for quick connect attachment to Jumpers of zone power system. Available in 3- or 4-circuit configuration, depending on type of power available in the Haworth Furniture. Base feeds are UL/CSA listed for direct connection to the Jumpers.

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 1/8" (3mm) in 10 feet (3m).

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

PART 3 - EXECUTION

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 feet (3m) and +/- 0.100" (3mm) for the entire floor area.

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

I. The General Contractor or Subcontractor shall assure compatibility between the concrete sealer and the pedestal adhesive provided by the access floor manufacturer.

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.

C. The General Contractor shall be responsible for the final underfloor cleaning.

END OF SECTION

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HAWORTH®

TecCrete Access Flooring: Data Centers

Three Part Guide Specification

PART 1 - GENERAL

An editable MicroSoft® Word version of this document is available for download at http://flooring.haworth.com/haworth-access-floors/specifications

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. Access floor manufacture shall be ISO9001:2000 certified demonstrating it has a robust and well documented quality management system with continual improvement goals and strategies.

C. Access floor manufacturer's facilities shall be ISO14001:2004 certified demonstrating that they maintain an environmental management system.

D. Access floor product must be indoor air quality certified to conform to CA Section 01350 Specification for classroom and standard office.

E. Access floor product shall be manufactured in a zero landfill facility.

F. 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 68 00 (09680 MasterFormat 95).

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

4. Electrical connections, grounding and modular power systems 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 120° 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 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

PART 1 - GENERAL

FOR 1250 LB SYSTEM USE THIS SECTION (DELETE IF USING 1500, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1,250 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (2.5mm), and a permanent set not to exceed .010" (.25mm).

2. Uniform Load: 600 lb. per square foot with a maximum top surface deflection not to exceed .040" (1mm), and a permanent set not to exceed .010" (.25mm).

3. Ultimate Load: Panel shall be designed to withstand a load of 1800 lb. applied over one inch at the weakest point on a pedestal.

4. Rolling Load: Panels shall withstand a rolling load of 1,200 lbs. applied through a 3" (76mm) dia. x 1-13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .040" (1mm) top surface permanent set. 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.

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

FOR 1500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 2000 or 2500 LB SYSTEM)

1. Concentrated Load: 1500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .010" (.25mm).

2. Uniform Load: 700 lb. per square foot with a maximum top surface deflection not to exceed .040" (1 mm), and a permanent set not to exceed .010" (.25mm).

3. Ultimate Load: Panel shall be designed to withstand load of 2500 lb. applied over one inch at the weakest point on a stringer.

PART 1 - GENERAL

4. Rolling Load: Panels shall withstand a rolling load of 1,500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed 0.040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

12. Stringer Concentrated Load: Stringer shall be capable of withstanding a concentrated load of 450 lbs. placed in its midspan on a one square inch area using a round or square indentor without exceeding a permanent set of 0.010" after the load is removed.

13. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

FOR 2000 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500 or 2500 LB SYSTEM)

1. Concentrated Load: 2000 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).

2. Uniform Load: 800 lb. per square foot with a maximum top surface deflection not to exceed .040" (1mm), and a permanent set not to exceed .010" (.25mm).

3. Ultimate Load: Panel shall be designed to withstand load greater than 2800 lbs applied over one inch at the weakest point on a stringer.

4. Rolling Load: Panels shall withstand a rolling load of 1500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

PART 1 - GENERAL

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demon strating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

12. Stringer Concentrated Load: Stringer shall be capable of withstanding a concentrated load of 450 lbs. placed in its midspan on a one square inch area using a round or square indentor without exceeding a permanent set of 0.010" after the load is removed.

13. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

FOR 2500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500 or 2000 LB SYSTEM)

1. Concentrated Load: 2,500 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (2.5mm), and a permanent set not to exceed .010" (.25mm).

2. Uniform Load: 900 lb. per square foot with a maximum top surface deflection not to exceed .040" (1mm), and a permanent set not to exceed .010" (.25mm).

3. Ultimate Load: Panel shall be designed to withstand a load of 3100 lb. applied over one inch at the weakest point on a stringer.

4. Rolling Load: Panels shall withstand a rolling load of 2,000 lbs. applied through a 3" (76mm) dia. x 1-13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .040" (1mm) top surface permanent set. Panels shall withstand a rolling load of 2,000 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.

5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.

6. Flammability: Bare panel system shall meet Class A requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

PART 1 - GENERAL

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lbf (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

12. Stringer Concentrated Load: Stringer shall be capable of withstanding a concentrated load of 450 lbs. placed in its midspan on a one square inch area using a round or square indentor without exceeding a permanent set of 0.010" after the load is removed.

13. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

G. Product test shall be tested by a third party accredited 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 floor panel layout including ramps, steps, handrails and anchoring of pedestal bases to subfloor and panel edge details.

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 a current seismic program and submitted to a local structural engineer 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 5 years experience in the installation of access floor systems of comparable size and complexity.

PART 1 - GENERAL

B. Tolerances:

1. Manufacturing tolerance:
   a) Nominal panel size ± 0.015" (.4mm) or less.
   b) Panel flatness ± 0.020" (.5mm) or less.
   c) Panel squareness ± 0.015" (.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 to 120° F and between 35% and 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. Any damage to panels or finishes resulting from construction work done after floor is installed shall be the responsibility of the general contractor or others.

PART 2 - PRODUCTS

PART 2 - PRODUCTS

2.01 Materials

A. Manufacturer: The access flooring system shall be as manufactured by Haworth, Inc. located in Grand Rapids, MI 49512.

1. Substitutions will be considered, providing the alternative products meet or exceed the feature requirements as indicated herein and the performance requirements including the rolling load as out lined in section 1.03 and receive prior written approval by the Architect. The manufacturer shall certify that all panels meet or exceed the stated design criteria.

B. Floor Panels: TecCrete 1250, 1500 or 2500 lb Panels shall be integrated steel pan construction with top surface of lightweight concrete fill covered with a factory applied finish.

1. Panels shall be nominal 24" (610mm) square x 1 1/8" (29mm) or 1 ½" (38mm) deep, manufactured with hot-dip galvaneal 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 or stringer.

2. Panel Finish: Floor panel surface shall be factory applied 1/8" or 1/16" thick high pressure laminate, static dissipative or conductive vinyl as indicated on the Architectural Plans. High pressure laminates shall be optionally finished with the TecTrim edge. One-piece vinyl tile shall be optionally finished at the edges with vinyl trim, as indicated on the Architectural Plans. Panels shall have a maximum electrical resistance of 10 ohms or less from the top edge of the panel to the understructure, less surface covering, as tested according to NFPA 99 modified.

C. Air Supply Panels:

1. Provide and/or install passive floor diffusers with factory cutouts as indicated on drawings.

2. 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.

3. 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 galvanized steel.

2. The base shall be a minimum of 16 square inches and shall be stamped and/or embossed on its under side 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 3/4" (19mm) diameter steel.

5. The head assembly shall be designed so that the panels will be held in place with or without 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 1/64" (.4mm) increments without rotating pedestal head.

PART 2 - PRODUCTS

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. Stringers:

1. Stringer shall capture panels and be capable of supporting a 450 lb. concentrated load at mid span with less than 0.010" permanent set after the load is removed.

2. Stringers shall be individually and rigidly fastened to the pedestal with one machine screw for each foot of stringer length. Bolts shall provide positive electrical contact between the stringers and pedestals. Connections depending on gravity or spring action are unacceptable

3. Stringer shall be either 2'x 2' or 4'x 4' pattern and shall be secured by a fastener.

F. Accessories:

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

2. Provide modular power system, including in-floor service outlets for power, communications, and data wiring in locations as shown on Drawings.

PART 3 - EXECUTION

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 1/8" (3mm) in 10 feet (3m).

B. 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 feet (3m) and +/- 0.100" (3mm) for the entire floor area.

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

I. The General Contractor or Subcontractor shall assure compatibility between the concrete sealer and the pedestal adhesive provided by the access floor manufacturer.

3.03 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.

C. The General Contractor shall be responsible for the final underfloor cleaning.

END OF SECTION

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For more information call 800.344.2600 or 616.393.3000.

haworth.com | haworth-europe.com | haworth-asia.com