

Commercial & Data Centre

Product Solutions Guide



Tate[®]

About Tate



Why Tate

Tate has been an industry leading global provider of innovative next generation products for both commercial and data centre applications for over 50 years. Our world-class manufacturing plants have the flexibility to create modular solutions quickly with up-front cost optimization and Tate’s in-house engineering team has the experience and industry knowledge to design the best solutions from concept to completion.

Commercial

Tate raised access floor systems offer the ability to capture your building’s signature style with high-end architectural finishes, while maintaining the sustainability, high-performance, and long-term return on investment advantages associated with a flexible and adaptive raised access floor. With Tate’s raised access floors and underfloor service distribution systems, you have the ability to address all of the factors required to create the perfect indoor environment that will reflect the goals and image of your organization.

Data Centre

Our wide range of custom manufactured data centre products include raised access floors, structural ceilings, and containment as well as airflow panels and controls which work together to maximize your data centre’s performance. Tate is your single source solution builder for your data centre.

Table of Contents

Access Floors	
Access Floor Panels.....	Page 4
Understructure Systems	Page 7
Architectural Finishes	
High-End Architectural Finishes	Page 9
Data Centre Solutions	
In-Floor Cooling Solutions	Page 17
Aisle Level Containment.....	Page 25
Structural Ceiling	Page 31

Access Floors



ConCore Panels	page 4
Composite Board Panels.....	page 5
Concrete Panels.....	page 6
Understructure Systems	page 7
System Performance	page 8

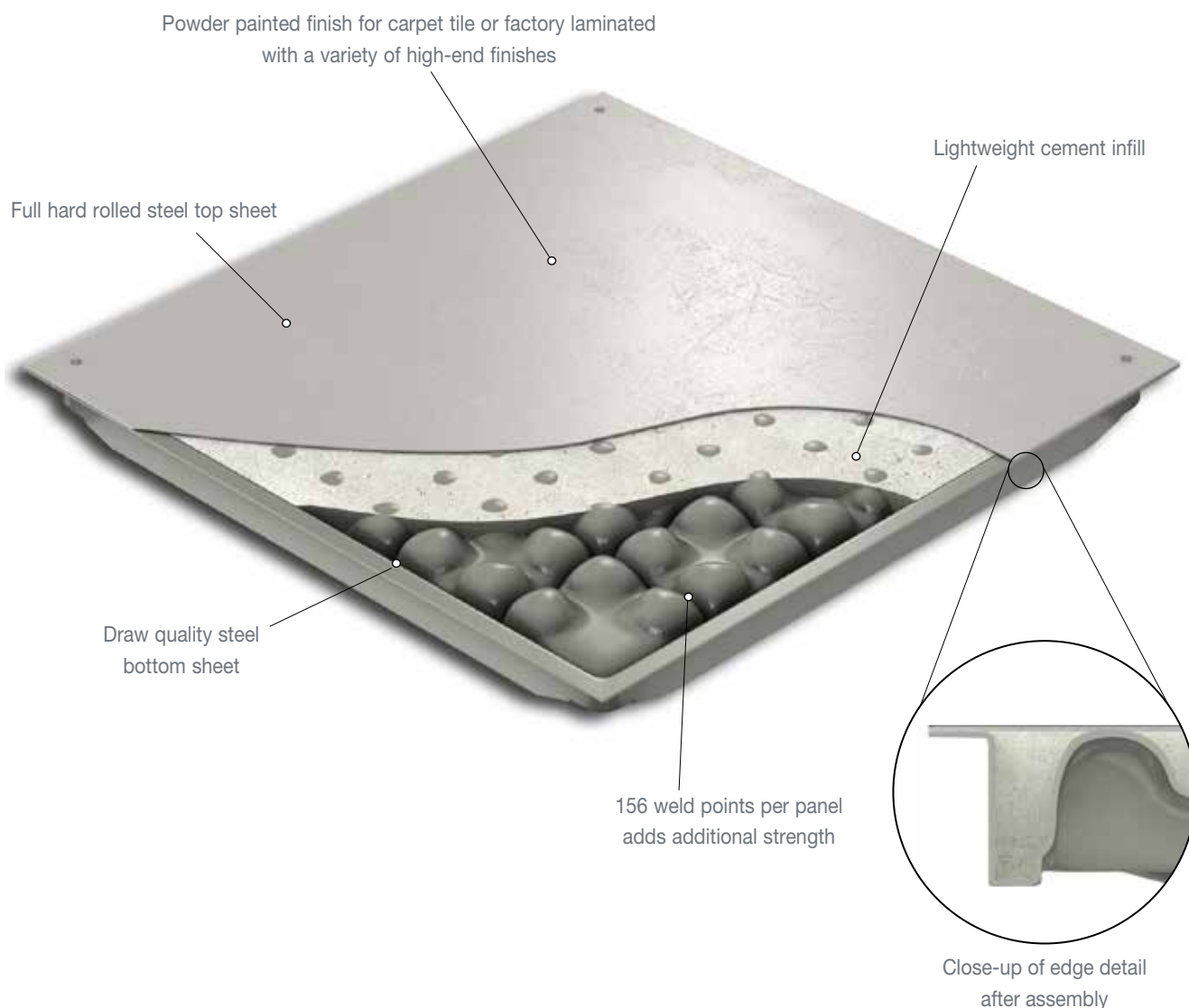
ConCore[®] Panels

ConCore[®] Access Floor panels are epoxy coated unitized shells consisting of a flat steel top sheet welded to a formed steel bottom sheet filled with a highly controlled mixture of a lightweight cement infill. Manufactured to exacting tolerances, these non-combustible, rigid panels deliver the ultimate in strength, durability, and acoustic performance. ConCore Access Floor panels are powder painted with a corrosion-resistant finish and completed with either a carpet tile or with a number of custom high-end finishes (See the Architectural Finishes section for more information).

ConCore Access Floor panels are available in six standard load performance grades that meet all Tate Standards and CISCA Testing Requirements, as well as Australian Standards.

Panel Features

- Follows all CISCA testing requirements
- Complies with Australian Standards
- Six standard design load performance grades from 3.5kN to 11.1kN
- Corrosion resistant powder painted finish
- Appropriate for both commercial and data centre applications
- Compatible with all understructure systems (See pg. 7)
- Adaptable to a number of high-end finishes



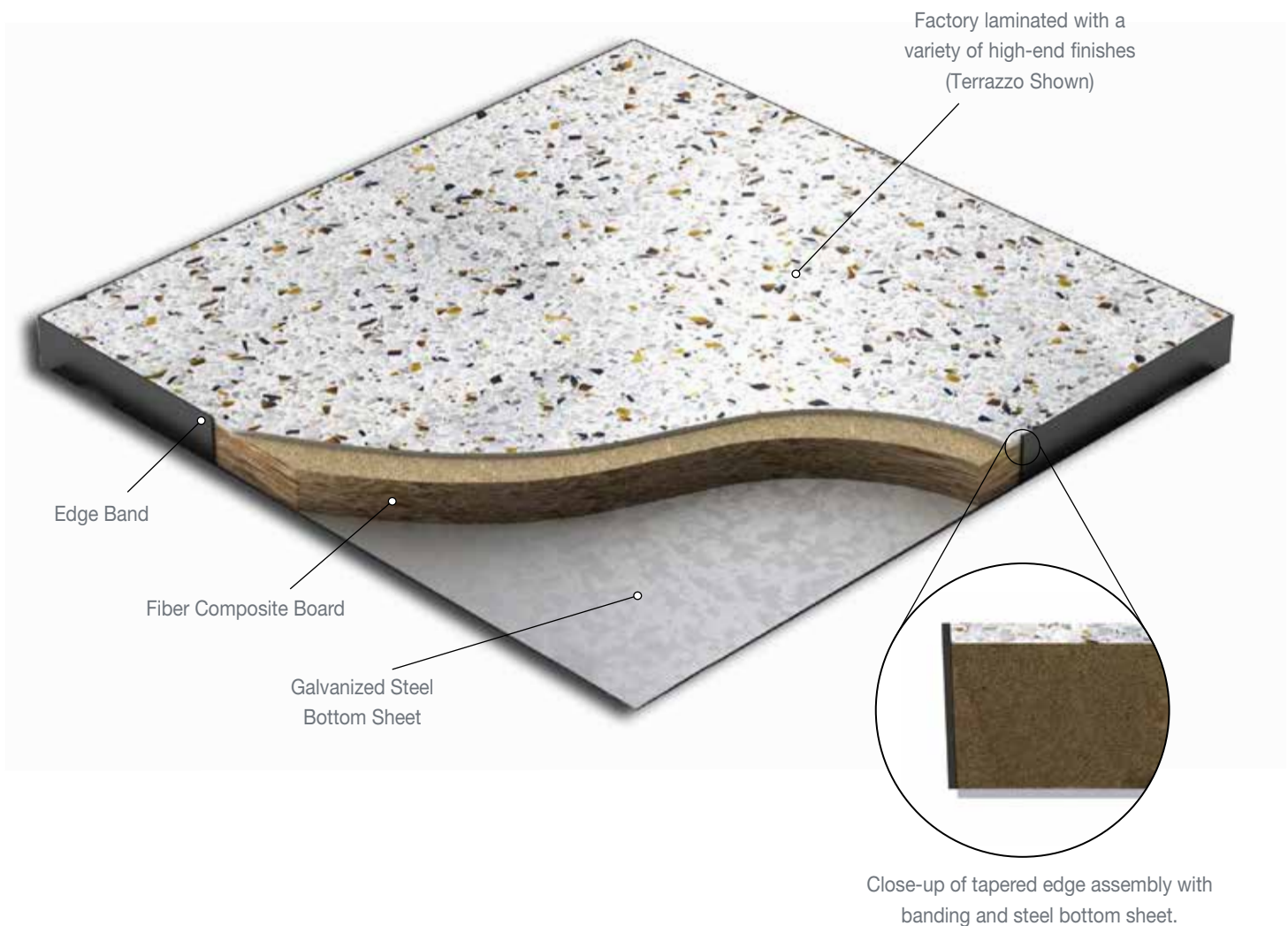
Composite Board Panels

Composite board panels are comprised of a strong wood fiber composite core; laminated to a galvanized steel bottom sheet for unparalleled strength. This panel is exceptionally flat and smooth, making it an ideal substrate for factory laminated finishes, especially soft tile and terrazzo finishes. (See the Architectural Finishes section for more information). The tapered edge of the composite board panel allows for easy accessibility to underfloor components, while the edge banding creates a more consistent looking seam and is available in almost unlimited colors to allow for contrasting or blended seams that can create a completely custom look. .

Composite board panels can be manufactured to custom panel sizes and meet all Tate Standards and CISCA Testing Requirements, as well as Australian Standards.

Panel Features

- Follows all CISCA Testing Requirements
- Complies with Australian Standards
- Design loads of 5.6kN with a safety factor of 2
- Corrosion resistant galvanized bottom steel sheet
- Appropriate for both most commercial applications
- Adaptable to a number of laminated high-end finishes
- Custom panel sizing is available
- Compatible with the Bolted Stringer understructure systems only (See pg. 7)



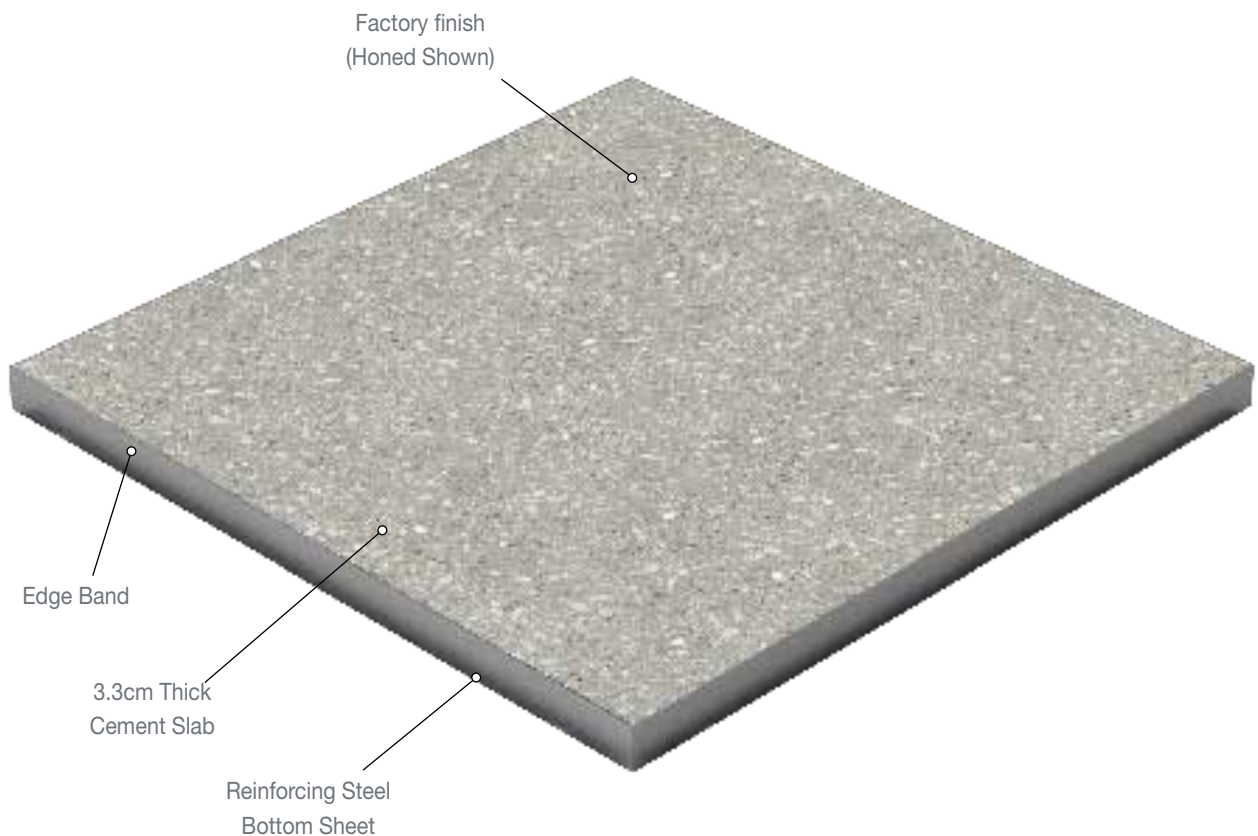
Concrete Panels

The concrete panel is a solid cement slab that consists of a controlled mixture of cement and aggregate which is cured and finished with either a honed for an exposed aggregate finish or a natural set finish with a reinforcing steel bottom sheet. The concrete panel meets all Tate Standards and CISCA Testing Requirements.

The edge of the panel is factory laminated with a plastic banding which creates a more consistent looking seam and is available in almost unlimited colors to allow for contrasting or blended seams that can create a completely custom look.

Panel Features

- Follows all CISCA Testing Requirements
- 3.3 cm thick cement slab has a design load of 5.56kN
- Corrosion resistant reinforcing steel bottom sheet
- Appropriate for most commercial applications
- 610 mm module size
- Honed to showcase an exposed aggregate finish
- Tapered edge for near seamless appearance and ease of underfloor accessibility
- Compatible with the Bolted Stringer understructure systems only (See pg. 7)



Understructure Systems

Corner Lock

Understructure Features

- Precision pin design provides self-engagement and positive positioning of floor panels
- 4mm thick steel pedestal head provides maximum strength
- Pedestal nut provides anti-vibration and locking features
- Typical floor heights from 15cm-60cm



Bolted Stringers

Understructure Features

- Designed for data centres and commercial applications with high-end finishes
- Allows floors to be built over 60cm high
- Panels can be gravity-held in understructure for fast removal and replacement
- Stringers provide lateral resistance to heavy rolling loads and seismic loading
- Typical floor heights from 60cm-90cm
- Heavy Duty Bolted Stringer options are available

Clip On & UFAD Stringer

Understructure Features

- Clip On design provides self-engagement and positioning of floor panels
- Continuous gasket ensures air-tight seals for underfloor air distribution
- 4mm thick steel pedestal head provides maximum strength
- Pedestal nut provides anti-vibration and locking features
- Typical floor heights from 15cm-40cm



Custom & Seismic Pedestals

Understructure Features

- Available with standard and fillet welded base assembly
- Steel pedestal head provides optimum strength
- Seismic force-resistant pedestals eliminate the need for special bracing
- Vertical supports ranging from 16 gauge 2.2cm galvanized tubing to Schedule 40 pipe
- Pedestals can accommodate finished floor heights over 90cm
- Easily levels uneven floors.

System Performance

Tate Standards to CISC Testing Requirements

System Performance Criteria (Tested on Actual Understructure*)							
Panel	Understructure	Static Loads			Rolling Loads		Impact Loads (kN)
		Design Loads ¹ (kN)	Minimum Ultimate Loads (kN)	Safety Factors (min 2.0) ²	10 Passes (kN)	10,000 Passes (kN)	
ConCore® 800	Corner Lock	3.5kN	8.8kN	PASS	2.6kN	1.8kN	0.6kN
ConCore® 1000	Corner Lock	4.4kN	8.9kN	PASS	3.6kN	2.7kN	0.6kN
ConCore® 1250	Corner Lock	5.6kN	11.1kN	PASS	4.4kN	3.5kN	0.6kN
ConCore® 1500	Corner Lock	6.7kN	13.3kN	PASS	5.6kN	4.4kN	0.6kN
ConCore® 1000	Bolted Stringer	4.4kN	8.9kN	PASS	3.6kN	2.7kN	0.6kN
ConCore® 1250	Bolted Stringer	5.6kN	11.1kN	PASS	4.4kN	3.5kN	0.6kN
ConCore® 1500	Bolted Stringer	6.7kN	13.3kN	PASS	5.6kN	4.4kN	0.6kN
ConCore® 2000	Bolted Stringer	8.9kN	17.8kN	PASS	6.7kN	5.6kN	0.8kN
ConCore® 2500	Bolted Stringer	11.1kN	22.2kN	PASS	8.9kN	8.9kN	0.8kN
Composite Board	Bolted Stringer	5.6kN	11.1kN	PASS	4.4kN	3.6kN	0.6kN
Concrete Panel	Bolted Stringer	5.6kN	8.0kN	PASS ²	4.4kN	3.6kN	0.6kN

***All tests are performed using CISC's Recommended Test Procedures for Access Floors with the exception of Design Load**

1. System Design Load is based on permanent set $\leq 0.010"$ and is verified by loading panels in accordance with the CISC concentrated load method but with panels installed on actual understructure instead of steel blocks. (Testing on blocks does not represent performance of an actual installation.) Ultimate, Rolling, and Impact Load tests are performed using CISC Test Procedures.

2. Safety Factor is Ultimate Load divided by Design Load. The Concrete Panel has a Safety factor of 1.5

Architectural Finishes



Concrete Panels.....	page 10
Terrazzo Panels.....	page 11
Wood Panels.....	page 12
Porcelain Panels.....	page 13

Resilient Panels	page 14
Carpet Panels.....	page 15
Custom Panels & Designs	page 16

Classic Concrete

The simple beauty of concrete

Tate's new line of classic concrete access floor panels offer the ultimate combination of appearance and functionality. The concrete panel consists of a controlled mixture of cement and aggregate which is cured and then honed for an exposed aggregate finish, and is available in both white and grey options. The edge of the panel is factory laminated with a plastic banding which creates a faux grout line and provides protection during removal. As the panel is made from natural products, moderate shade and color tone differences will occur and is the reason this product is assigned a V2 Moderate Variation rating.

Key Performance Characteristics

- Honed to showcase an exposed aggregate finish
- Controlled mix design for a light-weight panel with superior strength
- Supported by a bolted stringer system
- Edge banding provides a consistent seam appearance that protects the edge during removal.
- Sealed in the field after installation for a long lasting, durable finish
- Classic Concrete is available in white and grey options



Terrazzo

Create completely customised looks

Tate's beautiful terrazzo finish is manufactured from natural or recycled marble or crystal chips embedded in a flexible resin that is extremely durable and provides an easy to care for finish. Each panel has a protective edge banding available in unlimited colors for contrasting or blended seams customised for each application.

Key Performance Characteristics

- Available in recycled marble, natural marble, or recycled glass
- Laminated to composite board panel supported by a bolted stringer system
- Precise sizing allows for interchangeable panels
- Sealed and polished in the field after installation for a long lasting, durable finish
- Recycled Marble and Recycled Glass contains up to 70% post-industrial recycled material
- Maintains accessibility, as opposed to poured in place terrazzo
- Protective edge banding protects the surface edge from chipping



Wood

Natural luxury finish for access floors

Tate's wood panels offer a long-lasting and versatile finish that enhances the look of your application. Tate's wood finishes are available in plank and stacked designs in a variety of species to meet any of your application requirements.

Stacked Wood

Stacked wood is a series of thin wooden fillets that are in a staggered layout, similar to traditional hardwood floors. The staggered fillets are 1/8" thick hardwood on 7/16" backer board, for an overall thickness of 7/16". The surface is comprised of 3/4" to 1" wide by 10" to 14" random length fillets, coated with a high solids natural oil finish.

Plank Wood

Tate's plank design consists of 1/8" thick hardwood laminated to a 5/16" backer board, for an overall thickness of 7/16". The surface is comprised of 4" wide by 24" long planks, coated with a UV cured acrylic varnish finish.

Key Performance Characteristics

- Available in a variety of species and designs
- Long-lasting natural architectural finish
- Laminated to composite board panel supported by a bolted stringer system
- Protective edge banding protects the surface edge from chipping



Porcelain

The ultimate combination of aesthetics and flexibility

Tate's line of laminated porcelain raised floor panels offer the ultimate combination of aesthetics and flexibility. With a variety of aesthetics and colors to choose from, these tiles can enhance the architectural form and space of a building. The porcelain panels come in two primary designs: One-Piece and Multi-Piece, and the factory laminated porcelain access floor panels come with an edge banding that produces clean even lines that appear more like grouted tiles.

One-Piece Design

The one-piece layout design is a common grid with a single factory laminated porcelain tile. This design can utilise any aesthetic or be combined in conjunction with other aesthetics to produce a unique tiled appearance.

Multi-Piece Design

The multi-piece design contains multiple pieces of porcelain of any aesthetic and color combination on a single panel. Each piece of porcelain has been individually edge banded to create a unique look that helps blend the access floor grid to look as a custom tiled surface.

Key Performance Characteristics

- Available in single and multi-piece design
- Available in a variety of colors and aesthetics
- Supported by a bolted stringer system
- Tiles designed to meet precise specifications
- Edge banding protects against chipping
- Easy to clean maintenance



Resilients

Smooth application of our most popular finishes

Resilient tiles are a durable and easily maintained finish and are available in an almost unlimited selection of colors, styles, and textures. Tate works with dozens of manufacturers who offer a wide range of Resilients finishes from linoleum and vinyl to cork, rubber, and HPL.

Key Performance Characteristics

- Can offer specific acoustical, conductive, and slip resistant qualities
- Laminated to composite board to provide a smoother surface
- Supported by a bolted stringer system
- Tapered edge allows for easy accessibility to underfloor areas
- Wide range of finish options with a variety of styles and colors
- Protective edge banding protects the surface edge



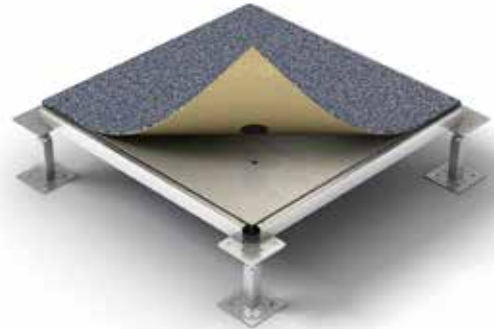
Carpet

PosiTile® maintains easy accessibility and reduces waste

Each PosiTile® carpet module is engineered to match one-to-one with Tate ConCore® and All Steel access floor panels. Four ultrasonically welded buttons on the underside of the tile provide precise indexed alignment with four matching holes in the panel. Now anyone can rearrange their work area quickly and easily. For designers, Tate has partnered with different carpet tile manufacturers to offer a wide range of carpet options and styles.

Key Performance Characteristics

- Reduces move time
- No Additional Attic Stock
- Eliminates Waste Due to Churn
- One-to-one fit with ConCore® & All Steel access floor panels
- Supported by a bolted stringer system



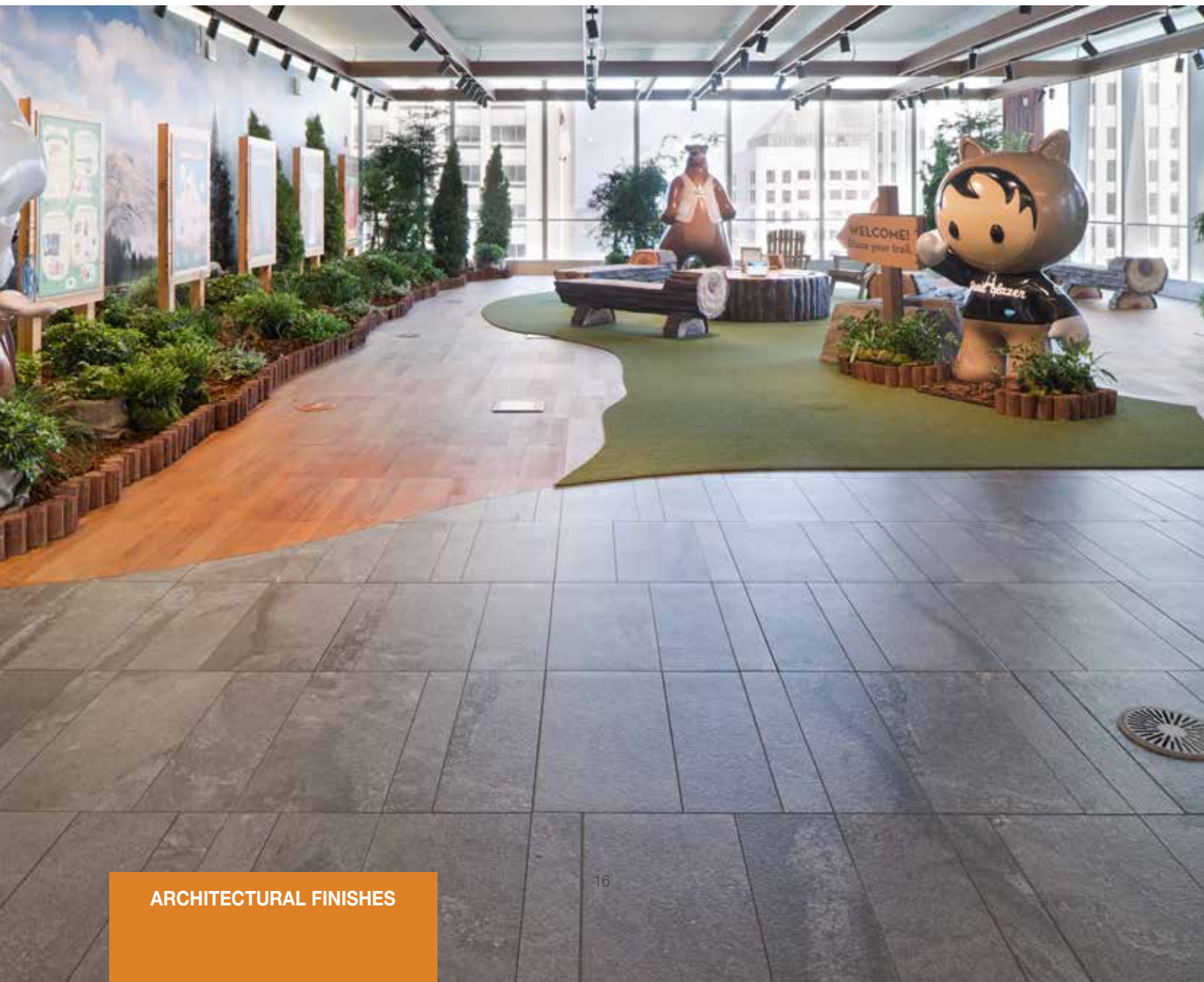
Custom Panels & Designs

Customise projects even further

Tate's state-of-the-art engineering and manufacturing capabilities allow us to customise our customer's projects even further. Increased design aesthetic and transition capabilities allow for more raised floor finish options than ever before, and help ensure you truly capture your project's signature style.

Key Performance Characteristics

- Able to blend multiple finishes on single panel
- Customised Inlays, designs, corporate logos and more
- Maintains accessibility
- Supported by a bolted stringer system



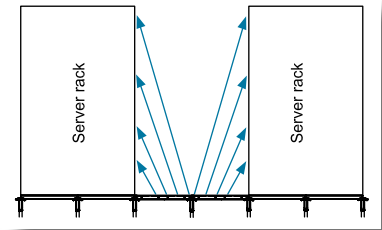
In-Floor Cooling Solutions



Airflow Panels: Directional Flow.....	page 18
Airflow Panels: Vertical Flow.....	page 20
Manual Controls.....	page 21
Fan-Assisted Controls.....	page 29

Airflow Panels: Directional Flow

For Maximum Air Capture



Cool over 19kW with
1224 L/s @ 25 Pa



Cool up to 10kW with 612
L/s per side @ 25 Pa

DirectAir Panels

DirectAir® uses patent pending technology to angle the air toward the equipment achieving a 93% capture index. This means 93% of the airflow delivered through the airflow panel is entering the face of the server rack, providing the highest cooling capacity and energy efficiency of any airflow panel on the market. DirectAir has a 68% open area and a strong durable design that provides superior load performance. DirectAir is designed for a one-to-one pairing with a standard 42U rack.

Panel Features

- 93% Capture Index
- 68% open area provides 1224 L/s @ 25 Pa
- Cools over 19kW per rack @ 25 Pa
- 11.1 kN design load performance
- 6.67 kN 10 pass rolling load capacity
- Available in 24" and 60cm panel sizes

DirectAir X2 Panels

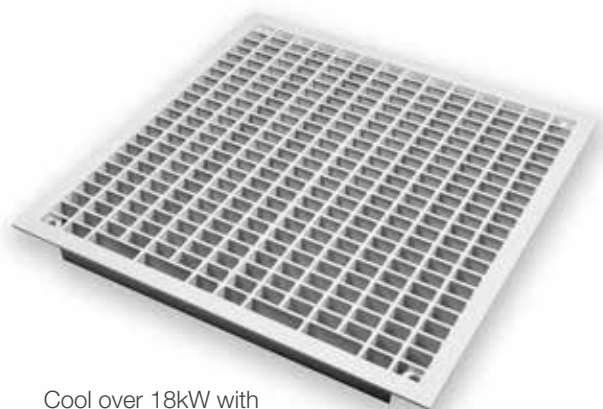
DirectAir® X2's ability to deliver high volumes of air directly and evenly across the face of two server racks gives it the capacity to cool high-density equipment in a range of facility designs. DirectAir X2 is specifically designed for use in cold aisles that are only one airflow panel wide. The panel's angular throw evenly distributes the majority of the air it delivers directly to the face of two opposite facing racks providing virtual containment when used in conjunction with other airflow management best practices.

Panel Features

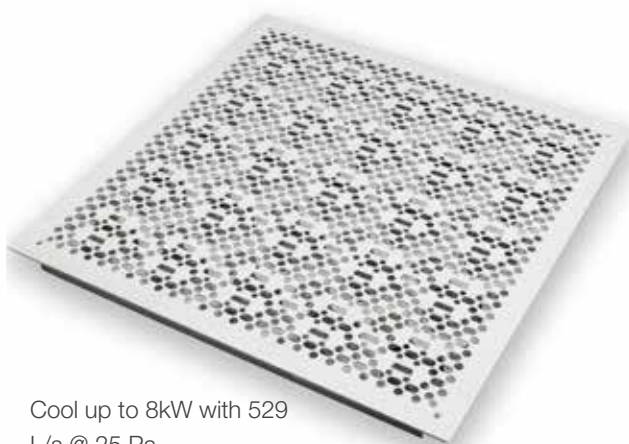
- 93% Capture Index
- 68% open area delivers 612 L/s per side @ 25 Pa
- Cools up to 9.5kW per rack at @ 25 Pa
- 11.1 kN design load performance
- 6.67 kN 10 pass rolling load capacity
- Available in 24" and 60cm panel sizes

Airflow Panels: Directional Flow

For Maximum Air Capture



Cool over 18kW with
1157 L/s @ 25 Pa



Cool up to 8kW with 529
L/s @ 25 Pa

DirectAire AI Panels

The DirectAire® AI is an all aluminum airflow panel that provides the same directional airflow benefits of the steel DirectAire. This allows similar cooling capacities with a panel that is 40% lighter.

Panel Features

- 93% Capture Index
- 60% Open Area delivers 1157 L/s @ 25 Pa
- Die-cast aluminum construction
- 40% lighter than a steel DirectAire
- Cools over 18kW per rack @ 25 Pa
- 6.7 kN design load
- 5.6 kN 10 pass rolling load capacity
- Surface adjustable and automatic damper options
- Available in 24" and 60cm panel sizes

DirectPerf 32% Panels

In uncontained spaces DirectPerf® 32% provides nearly the same cooling capacity as a standard 56% open area grate using about half the airflow.

Panel Features

- 88% Capture Index
- 32% open area delivers 529 L/s @ 25 Pa when installed without a damper.
- Cools up to 8kW per rack
- 5.56 kN design load
- Easily integrates into existing 24" and 60cm raised floor systems

Load Performance Chart*

Airflow Panel	Understructure	System Weight (kg/m ²)	Static Loads kN			Rolling Loads kN		Impact Load (kN)	Capture Index	%Open Area
			Design Load	Safety Factor ²	Ultimate Load	10 Passes	10,000 Passes			
DirectPerf 32	Bolted Stringer	30kg/m ²	5.6kN	Min. > 2	>11.1kN	-	-	0.67kN	88%	32%
DirectAire	Bolted Stringer	63kg/m ²	11.1kN	Min. > 2	>22.2kN	6.7kN	6.7kN	0.8kN	93%	68%
DirectAire X2	Bolted Stringer	63kg/m ²	11.1kN	Min. > 2	>22.2kN)	6.7kN	6.7kN	0.8kN	93%	68%
DirectAire AI	Bolted Stringer	36kg/m ²	6.7kN	Min. > 2	>13.3kN)	5.6kN	4.4kN	0.67kN	93%	60%

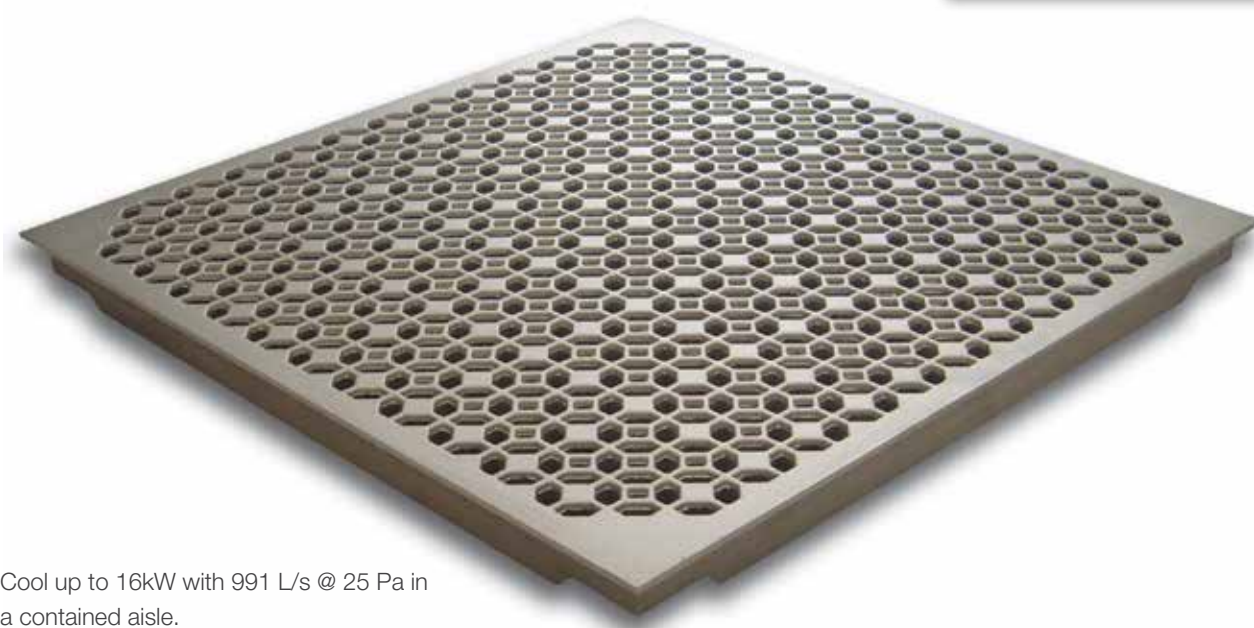
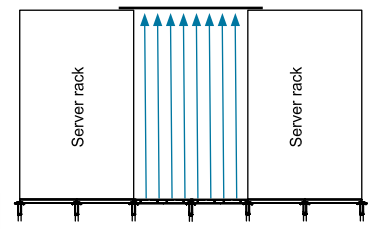
*All tests are performed using CISCAs Recommended Test Procedures for Access Floors with the exception of Design Load

1. System Design Load is based on permanent set $\leq 0.010"$ and is verified by loading panels in accordance with the CISCAs concentrated load method but with panels installed on actual understructure instead of steel blocks. (Testing on blocks does not represent performance of an actual installation.) Ultimate, Rolling, and Impact Load tests are performed using CISCAs Test Procedures.

2. Safety Factor is Ultimate Load divided by Design Load.

Airflow Panels: Vertical Flow

Physical Aisle Level Containment Airflow Panels



Cool up to 16kW with 991 L/s @ 25 Pa in a contained aisle.

GrateAire® Panels

Physical Aisle Level Containment Airflow Panels

GrateAire® die cast aluminum panels are designed for new and existing data centre applications. The high strength, low weight, all aluminum construction makes it the ideal solution for use in contained aisles with high foot traffic. With 56% open area the lightweight aluminum panel is ideal for areas that need high airflow and load capacity.

Panel Features

- GrateAire® die-cast aluminum panels are compatible with any 24" or 60cm bolted stringer systems
- Cools up to 16kw per rack in a contained aisle
- 56% open area
- High rolling load capacity (4.4kN/3.6kN)
- Available with top surface adjustable damper
- Available with an unpainted textured surface or epoxy powder coatings
- Interchangeable with Tate's full line of laminated raised floor panels in a stringer system

Load Performance Chart*

Airflow Panel	Understructure	System Weight (kg/m ²)	Static Loads kN			Rolling Loads kN		Impact Load (kN)	Capture Index	%Open Area
			Design Load ¹	Safety Factor ²	Ultimate Load	10 Passes	10,000 Passes			
GrateAire	Bolted Stringer	30kg/m ²	4.4kN	Min. > 2	>8.9kN	4.4kN	3.6kN	0.67kN	50%	56%

*All tests are performed using CISCA's Recommended Test Procedures for Access Floors with the exception of Design Load

1. System Design Load is based on permanent set $\leq 0.010"$ and is verified by loading panels in accordance with the CISCA concentrated load method but with panels installed on actual understructure instead of steel blocks. (Testing on blocks does not represent performance of an actual installation.) Ultimate, Rolling, and Impact Load tests are performed using CISCA Test Procedures.

2. Safety Factor is Ultimate Load divided by Design Load.

Manual Airflow Controls

Manual Zone Control for Diverse and Partially Loaded Racks



Opposed Blade Damper for use with DirectAir[®], DirectAir AI, DirectPerf 32%, and GrateAir[®] Panels

Opposed Blade Damper (OBD)

Tate's opposed blade damper allows the user infinite airflow adjustability with very little airflow resistance. Easily adjustable through the top surface of the panel for balancing airflow to IT equipment with fixed requirements.

Key Performance Characteristics

- Provides more airflow at 100% open than slide dampers
- Easily adjustable from above without panel removal
- Drop in design allows for easy retrofits under Tate airflow panels



Multi-zone Opposed Blade Damper for use with DirectAir[®], DirectAir AI, or DirectPerf 32% Panels

Multi-Zone Opposed Blade Damper

Tate's multi-zone opposed blade damper enables the airflow delivery to be balanced based on the specific load in the rack. The damper allows data centre operators to individually adjust airflow to three zones within the rack: top, middle, and bottom.

Key Performance Characteristics

- Reduces cooling energy usage
- For use with full or partial loaded racks
- Provides the most granular airflow control available
- Easily adjustable from above without panel removal



Dual-zone Opposed Blade Damper for use with DirectAir X2 Panels

Dual-zone Opposed Blade Damper

The dual-zone damper allows the user to control the airflow through each half of a panel independently so that racks on opposite sides of the aisle can receive the right amount of cooling for the load in the rack.

Key Performance Characteristics

- Provides more airflow at 100% open than slide dampers
- Easily adjustable from above without grate removal
- Drop in design allows for easy retrofits, with DirectAir X2 in a Tate bolted stringer systems

SmartAir® MZ

Automatic Airflow Controls for Virtual Aisle Containment



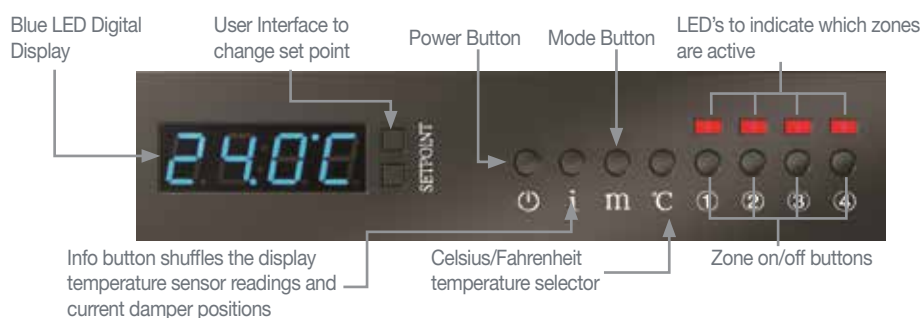
Temperature probes control 4 individual zones with a single LED status indication.

SmartAir® MZ

The new SmartAir MZ automatic variable-air-volume damper offers the most granular airflow control available for a data centre. The product is designed to be utilized with a DirectAir® panel. The unit adjusts airflow independently to 4 separate zones to accommodate for variable loads and partially deployed areas within a rack. During equipment changes, the unit automatically re-balances the airflow without manual control adjustments. A SmartAir MZ Basic option is also available. The SmartAir MZ Basic is a manual variable-air-volume damper with a single temperature probe and rack-mounted LED temperature status indicator.

Key Performance Characteristics

- Automatically re-balances airflow to the rack during equipment refresh or tenant changes
- 0-19kW supported IT load with DirectAir panel
- Fail safe operation: opens 100% during failure
- Low-voltage Power over Ethernet (POE) available
- Four zone damper positions are variable from 0-100%
- Rack-Mounted LED Temperature Status Indicator
- Multiple control options available
 - Quad - 4 rack mounted temperature sensor each controlling an individual zone
 - Dual - zones 1&2 and 3&4 are controlled together
 - Single - entire unit acts a single zone
 - P - pressure differential sensor
 - T - technician activated unit



PowerAire®

Fan Assisted Airflow Controls



PowerAire® Quad

The PowerAire Quad fan is equipped with 4 fans connected in parallel to provide built-in redundancy. This unit is only 10cm deep making it ideal for retrofit situations with finished floor heights as low as 19cm. This unit can cool up to 0-16kW of supported IT load per PowerAire Quad/DirectAire @ 0 Pa.

Key Performance Characteristics

- Zero maintenance
- Installation can be carried out by IT staff
- Multiple control options available
- User programmable set point
- EC fan technology is variable from 0-100%
- Available in 100-120V or 200-240V power options
- Viewable Peak Temp for walk-through check of racks
- Available Auto Transfer Switch offers A/B power feed
- 24" and 60cm raised floor compatible



Airflow Performance Information

CFM & kW Capacity Chart*

Airflow Panel	5 Pa (0.02" H ₂ O)		10 Pa (0.04" H ₂ O)		15 Pa (0.06" H ₂ O)		20 Pa (0.08" H ₂ O)		25 Pa (0.10" H ₂ O)	
	L/s (CFM)	(kW/Rack)	L/s (CFM)	(kW/Rack)	L/s (CFM)	(kW/Rack)	L/s (CFM)	(kW/Rack)	L/s (CFM)	(kW/Rack)
DirectAir® / X2										
w/o Damper	543 (1151)	8.5	767 (1626)	12.0	947 (2007)	14.8	1093 (2318)	17.1	1224 (2594)	19.1
w/ OBD	465 (986)	7.3	673 (1427)	10.5	844 (1789)	13.2	970 (2056)	15.2	1100 (2331)	17.2
w/ SmartAir® MZ	443 (939)	6.9	619 (1312)	9.7	753 (1595)	11.8	865 (1833)	13.5	963 (2041)	15.1
w/ PowerAir®	1594 (3378)	24.9	1620 (3432)	25.3	1650 (4395)	25.8	1658 (3512)	25.9	1678 (3555)	26.2
w/ PA Quad	950 (2012)	14.9	973 (2061)	15.2	996 (2111)	15.6	1018 (2158)	15.9	1038 (2199)	16.2
DirectAir® AI										
w/o Damper	528 (1123)	8.3	753 (1572)	11.6	906 (1913)	14.1	1062 (2200)	16.3	1167 (2451)	18.1
w/ OBD	404 (857)	6.3	610 (1293)	9.5	730 (1546)	11.4	824 (1745)	12.9	921 (1951)	14.4
w/ SmartAir® MZ	410 (869)	6.4	570 (1208)	8.9	691 (1465)	10.9	792 (1679)	12.4	881 (1867)	13.8
w/ PowerAir®	1538 (3258)	24.0	1586 (3360)	24.8	1600 (3390)	25.0	1630 (3453)	25.5	1682 (3564)	26.3
w/ PA Quad	952 (2018)	14.9	996 (2110)	15.6	1010 (2140)	15.8	1005 (2130)	15.7	1019 (2158)	15.9
DirectPerf® 32%										
w/o Damper	251 (531)	3.7	351 (744)	5.2	420 (890)	6.2	477 (1010)	7.1	529 (1121)	7.8
w/ OBD	227 (480)	3.4	327 (693)	4.8	388 (822)	5.7	454 (963)	6.7	502 (1063)	7.4
GrateAir®										
w/o Damper	432 (916)	3.6	623 (1320)	5.2	759 (1608)	6.4	878 (1860)	7.4	989 (2096)	8.3
w/ OBD	382 (810)	3.2	529 (1121)	4.5	654 (1386)	5.5	753 (1595)	6.3	842 (1785)	7.1
w/ Slide damper	238 (504)	2.0	336 (712)	2.8	413 (876)	3.5	476 (1008)	4.0	532 (1128)	4.5

*Cooling capacity per rack is based on: CFM x Capture Index % / 126 (CFM needed to cool 1kW @ -3.8° Celsius ΔT)
 Tests Conducted with fans operating at 100% power and dampers 100% open.

Containment Solutions



Custom Solutions.....	page 26
Containment Solutions.....	page 27
Air Sealing Grommets	page 29
Rack Level Management.....	page 30

Physical Containment Solutions for Data Centres

Dual & Single Sliding Doors

- Full perimeter compression gaskets efficiently seal and minimize air leakage
- No threshold design prevents tripping
- Sturdy aluminum framing
- Multi-wall panel option adheres to new NFPA codes
- Ergonomically designed with angled handles to reduce pinch points
- Easy installation with integrated door slide locks
- Available with auto-closure



Single Hinged Doors

- Full perimeter compression gaskets efficiently seal and minimize air leakage
- Right or left hinged option for easy maintenance and installation
- No threshold design prevents tripping
- Sturdy aluminum framing
- Multi-wall panel option adheres to new NFPA codes
- Ergonomically designed with angled handles to reduce pinch points
- Available with auto-closure



Strip Door

- Unique Pivot and Grip installation method for vinyl allows for any location any time installation or adjustment
- Modular design (field adjustable)
- UL listed fusible links
- 360° ceiling attachment
- Overlapping vinyl
- Temperature release point
- Tool-less assembly



Physical Containment Solutions for Data Centres



Hard Roof

- Pre-assembled sections for quick and easy installation
- Drop away tiles allow for use under sprinkler system when permitted by code
- Custom sizing available
- Thin profile to prevent overhead obstructions
- Modular design works with any aisle length



Soft Partitions

- Unique Pivot and Grip installation method for vinyl allows for any location any time installation or adjustment
- Modular design (field adjustable)
- Overlapping design for improved air sealing
- 360° mounted fire suppression link equipped hanger
- UL listed Fusible Links



Hard Partitions

- Pre-assembled for easy installation
- Modular design (all parts screw together)
- Transparent or semi-transparent panel
- Compression gaskets efficiently seal and minimize air leakage

Air Sealing Grommets

By-pass air, which is any air delivered into the data centre that is not consumed by the equipment and exhausted as waste heat, can have a significant impact on the cooling capacity of a data centre. Tate's air sealing grommets are designed to improve the energy efficiency and air sealing performance of your data centre by preventing leakage from the raised floor plenum when penetrations are required for power and data cables above the floor.

Tate has identified a standard cut-out location that works with any rack to ensure that the cutout is always in the proper location inside the back door. Tate's unique standardization options mean that the time and mess associated with field cutting are eliminated.

Standard Integral

A heavy duty grommet with a removable lid. The grommet uses a double layer gasket system made of a flexible rubber membrane below a brush to deliver airtight seals around cables.



Mini

Designed to seal small cable openings in the raised floor of new or existing computer rooms. The 13cm x 6cm opening offers flexibility for data centres that have multiple cable opening sizes.



Surface Mount

Provides a quick and easy way to seal existing cable cutouts without the need to disconnect cables. Installs using adhesive tape on the underside of the grommet and screws.



Round

The Split feature of the Round 10cm allows product installation or removal without disturbing cables. Designed to seal openings in new and existing raised floor cutouts to block bypass airflow and maximize cooling system efficiency.



Extended

Designed to seal a variety of existing larger openings, with the added flexibility of modification for unique openings. Can be modified to seal unique cable openings and areas such as gaps around CRAC & CRAH units.



Grommet Name	Area	Metric (mm)
Standard Integral	Usable Cable Area	184 x 120
Surface Mount	Usable Cable Area	165 x 165
Mini	Usable Cable Area	127 x 64
Round	Usable Cable Area	102 Dia.
Extended	Usable Cable Area	559 x 64

Rack Level Management

Snap In Blanking Panels

Blanking panels eliminate the migration of hot and cold air through unoccupied areas of an IT equipment rack. Ergonomically designed for simple tool free installation. Also available with quick view temperature strips that display a temperature range from 50°- 102° F (10° - 38.8° C)



Pass Through Blanking Panels

This innovative aluminum and Hybrid Brush Technology panel cost-effectively controls airflow. Designed to provide an effective airflow sealing solution when used in conjunction with pullout switches or servers that may be occasionally extracted.



Full Rack Blanking Panels

Designed to seal up to 42U of opening in the server rack, the Full Rack Blanking Panel Kit greatly reduces bypass airflow by eliminating the gaps in the server rack and creating a contained server rack environment.



Aisle Level Management

Under Rack Panels

Designed to seal large and unique openings found under various sized racks and cabinets, the Under Rack Panel allows easy modifications for new and retrofit applications.



Air Sealing Tape

Tate's air sealing tape is an innovative time released, self-expanding tape that provides an excellent seal for unique spaces with varying dimensions.



Structural Ceilings



Tate Grid..... page 32

Tate Grid

Aluminum Extrusion with Continuous Threaded Slot

Tate Grid is the ideal solution for any application where large, heavy items need to be suspended within a building. Replacing custom-built on-site structural support systems such as unistrut, with Tate Grid, can offer many advantages. A structural ceiling allows you to pre-design and specify the support solution in advance and, best of all it's less expensive and faster to install.

Benefits of Tate's Structural Ceiling Grid:

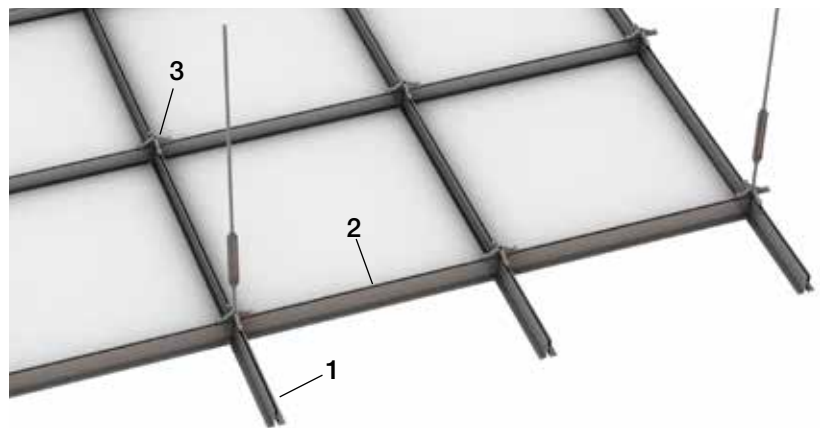
- Faster and easier to install than other grid systems
- 600mm grid accepts standard ceiling tiles and lights
- Eliminates the need for multiple trades on-site
- Experienced data centre product manufacturer and contracting teams



Grid Profile

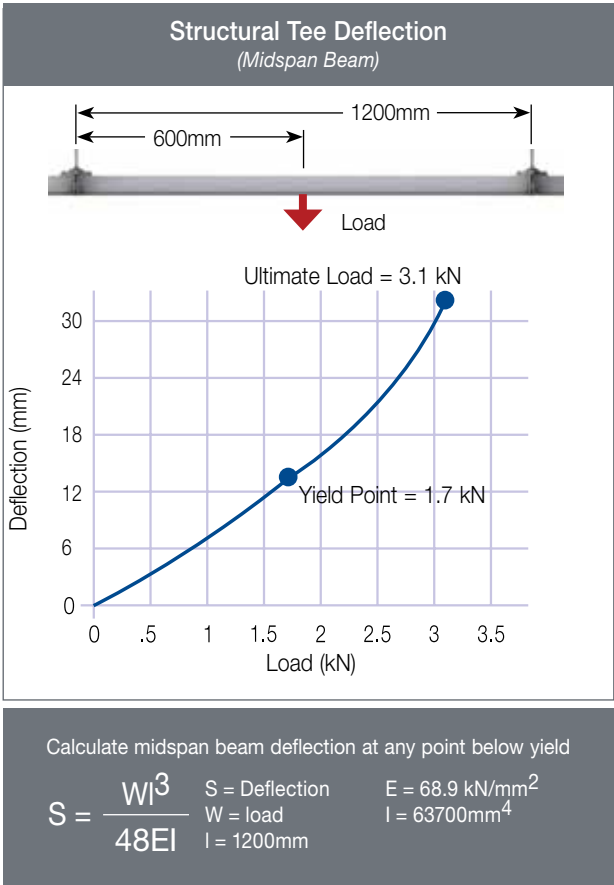
Tate Grid Component List:

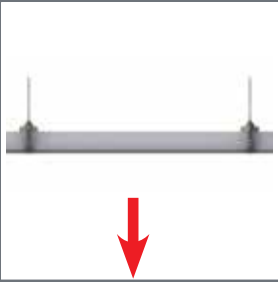
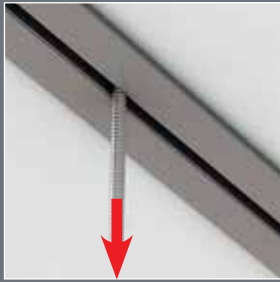
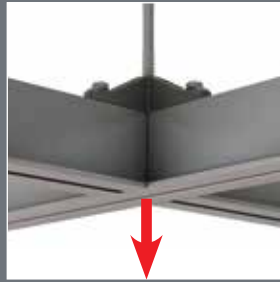
1. Aluminum Main Runner
2. Aluminum Primary Structural Tee
3. Field Connector



Performance Criteria

The bottom side of the structural grid is available with a M10-1.5, 3/8"-16, or 1/4"-20 continuous threaded slot for mounting items directly to the grid. Refer to the table below for load performance details on the grid and connections.



System Performance Criteria			
Hanging Method	Grid Load Performance (with building connections 1200mm x 1200mm on centers)	Connection to Bottom Slot (3/8"-16 or 1/4"-20)	Connector to Grid
Point Load (kN)	1.7 kN*	1.7 kN*	3.6 kN*
Uniform Load (kN/m ²)	2.4 kN/m ²	-	-
Ultimate Point Load (kN)	3.1 kN	3.4 kN	7.2 kN

*Max point load no less than 120cm apart in any direction.

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