Creating the Perfect Data Center Environment

The perfect data center environment requires the ability to handle a large number of data cables. The ability to handle a high heat load, and a flooring system that performs with a high rolling and static load capacity. Tate's system addresses all of these needs in a highly adaptable space that provides the ability to respond quickly and easily to client, organizational and technological changes – all while being cost-effective in both construction and operation. With Tate's access flooring solutions, you'll be able to address all of the factors required of an equipment room while meeting the everyday demands of its users in a secure and reliable environment.

Advantages

- Enhanced cooling capabilities and control.
- Floor heights over four feet provide virtually unlimited cabling capacity in easy to access underfloor area.
- Cool air is distributed closer to the racks increasing heat load capabilities.
- Panel edges are die cut to +/- .010" tolerances to minimizes air leakage between panels.
- Easily adapts to technological and client changes over the building's life-cycle at low cost.
- Ability to terminate cables wherever you need them with complete flexibility, accessibility, and unlimited capacity.
- Reduced operating costs and lower facility and maintenance costs through accessible, flexible, and adaptable services.

A wide range of factory laminated HPL and static dissipative floor coverings are available.

Tate's perforated air flow panels feature 25% open area and are available with and without adjustable damper.

Tate's GrateAire® Aluminum airflow panels provide 56% open area and excellent rolling load capabilities.

5 panel load strengths to handle virtually any load requirement

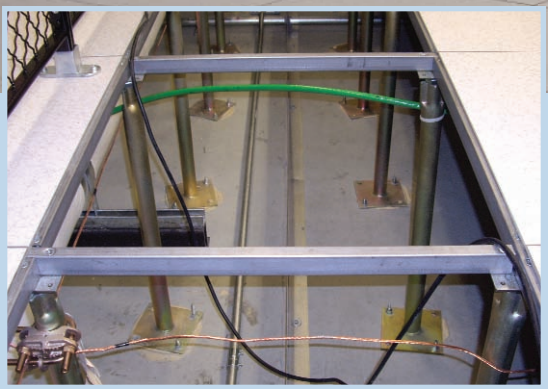
Cable cutout seals are required for all holes in the floor plate to to minimize air leakage

Placing wires and cables under the hot isle can reduce airflow obstructions in the cold isles.

A suction cup lifter is used to quickly access services under the floor.

Cable tray may be required with higher floor finish heights to allow for easy access to the cables. Installations 24" or less can typically eliminate this expense and place cables directly on the floor.

Tate's Bolted stringer understructure with typical finished floor heights in data centers range from 18 to 36 inches



Facility Solutions:
365 Main Data Center

This 111,000 square foot mission critical data center is located in Oakland less than 10 miles from San Francisco, California, just a short walk from the city's financial district. 365 Main Inc., is a developer and operator of the world's finest data centers with 6 facilities nationwide and over 1 million square feet of modern data center space under management. 365 Main 's data centers are certified to the highest industry standards and compliance requirements, and feature 24/7/365 power, cooling, connectivity and security capabilities to ensure mission-critical operations and business continuity for tenants such as Craigslist, Sun Microsystems and Ticketmaster.

Tate Access Floors for Data Centers:

Tate's ConCore panels and seismic pedestals provide the perfect foundation for mission critical facilities. 365 Main's Oakland Data Center features over 80,000 square feet of usable raised floor. The raised floor environment is ideal for a multi-tenant facility. The flexibility and ease of access to the 30" raised floor is ideal for all kinds of tenant cabling configurations and additions. The ability to swap solid, perforated and GrateAire panels anywhere within the space gives the tenant freedom of total configuration flexibility.

Superior Wire & Cable Management

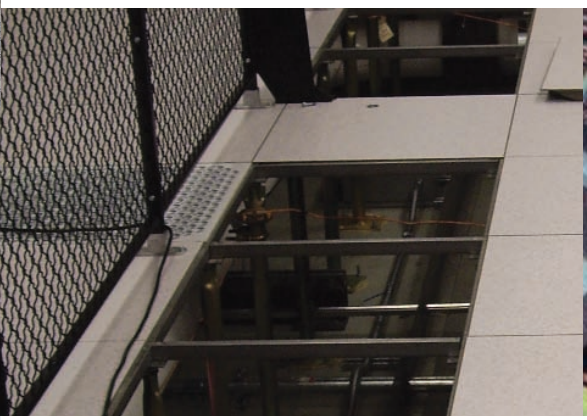
Distributing wire and cabling under a raised floor provides a perfect platform for creating an effective and efficient integrated space. Not only does it eliminate the investment required for cable tray it provides easier access and management capabilities, better separation of power & data, additional growth capabilities and increased airflow potential.

Easy Accessibility to Wires & Cables

Wiring and cabling placed under a raised floor is easier to access than overhead alternatives. There is no need for step ladders or expensive cat-walk structures to gain access to the wires. Relocating cables is as easy as removing a few panels with a suction cup lifter and walking along the length of the cable pathway. No need for constantly moving a step ladder every few feet over great lengths to move cables and wires.

Improved Organization and Separation of Services

Raised floor systems require pedestals to be place in a grid pattern every two feet. This grid provides the perfect foundation to create organized cabling pathways. For the majority of data center environments floor heights range from 18”-24”. Placing the cables directly on the floor provides superior support without pressure points and eliminates the need for expensive cable trays. This grid also helps to keep power wires a safe distance from data cables.



Fast, easy access to underfloor distribution area.

Overhead cable distribution is difficult to service, manage and reconfigure.

Adaptive and flexible with unlimited capacity for cable management.

Adaptable & Flexible

Placing the wires and cables directly on the slab makes virtually the entire slab available for distributing services to equipment. The ability to place cables directly where they are needed throughout the life of the facility makes upgrades and equipment changes easy to accommodate. This level of adaptability is not possible with an overhead cable tray system without disassembling and reinstalling the tray in a new location. With the entire slab available for wire and cable distribution capacity for new equipment is never a concern.

Improve Airflow With Underfloor Wire & Cabling

The virtually unlimited height options available for raised floors allow for sufficient underfloor space for both cooling air, and wiring and cabling. Using proper design principles for the pressurized underfloor plenum allows conditioned air to easily flow around any obstructions. Placing a network of cable trays with wires and cables overhead can hinder the natural flow of the hot exhaust air as it moves towards the ceiling return.

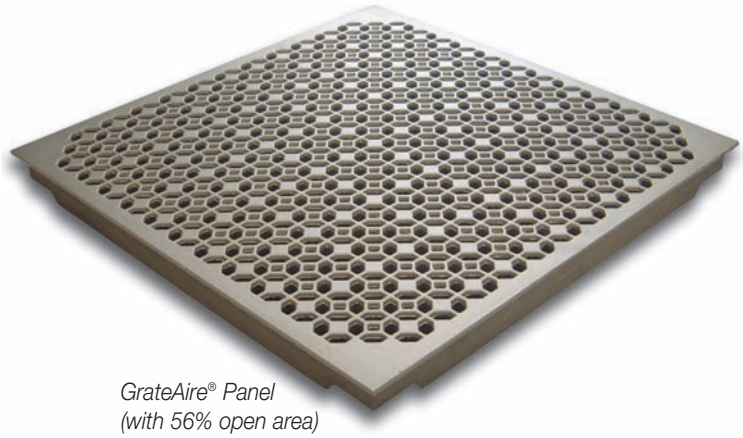
Tate®

Air Flow Solutions

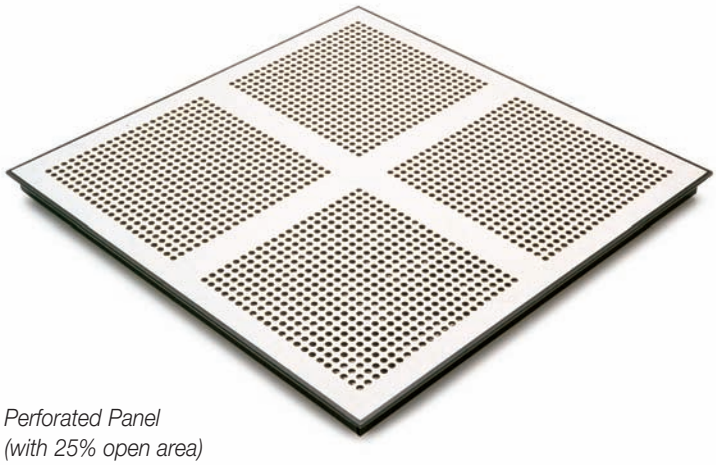
GrateAire® & Perforated Panels

Panel Features

- Perforated steel panels and GrateAire™ aluminum panels are compatible with ConCore® and All Steel panels in bolted stringer systems.
- GrateAire® die-cast aluminum panels have 56% unobstructed open area and rolling load capacity equal to that of ConCore® 1250 panels (1000 lbs/800 lbs).
- All panels are available with top surface adjustable damper.
- Steel perforated panels are available with High Pressure Laminate, vinyl and rubber floor coverings.
- GrateAire® aluminum panels are available with an unpainted textured surface or epoxy powder coatings.

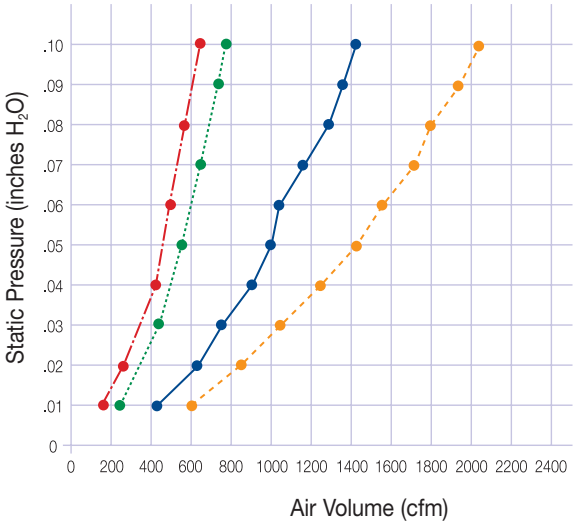


GrateAire® Panel (with 56% open area)



Perforated Panel (with 25% open area)

GrateAire® and Perforated Panel Air Flow



- *Perforated panel with damper*
- *Perforated panel without damper*
- *GrateAire® panel with damper*
- *GrateAire® panel without damper*

Static Pressure (inches H_2O)	Airflow (cfm)			
	GrateAire® Panel		Perforated Panel	
	w/o damper	w/damper*	w/o damper	w/damper*
0.01	600	416	228	192
0.02	856	616	348	280
0.03	1064	768	428	348
0.04	1248	896	492	408
0.05	1416	1000	552	456
0.06	1552	1080	612	504
0.07	1704	1176	652	540
0.08	1800	1272	696	580
0.09	1920	1344	748	616
0.10	2016	1408	784	652

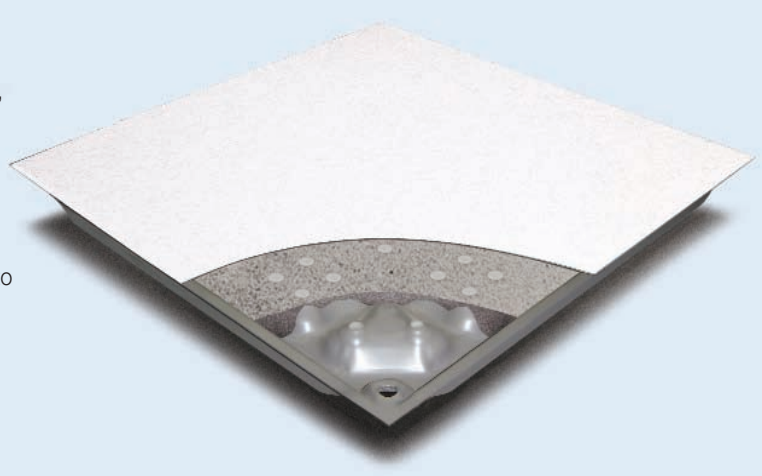
Tested with damper fully open

Panels to Meet any Performance Requirements

Tate Access Floor panels are manufactured to exact tolerances, these non-combustible rigid, solid panels deliver the ultimate in strength and durability. With three panel types and nine load performance grades, these panels coupled with an extensive selection of understructure and floor finishes are suitable for a wide range of applications from typical data/computer centers to telecommunication rooms, and all purpose equipment rooms.

Panel Features

- Panel load capacities up to 2,500 lbs
- Minimum overload capacity of two times the design load
- Made from post-industrial and consumer recycled content
- Excellent grounding and electrical continuity
- Full range of factory applied finishes
- ConCore®, All Steel, Perfs, and Grates are Interchangeable
- Completely non-combustible
- Available in 24" and 60cm sizes
- Zinc whisker free



ConCore® Panels

ConCore® access floor panels are epoxy coated unitized shells filled with a highly controlled mixture of lightweight cement. Engineered for superior performance the ConCore panel delivers the best in strengh and durability with superior design and rolling load performance.

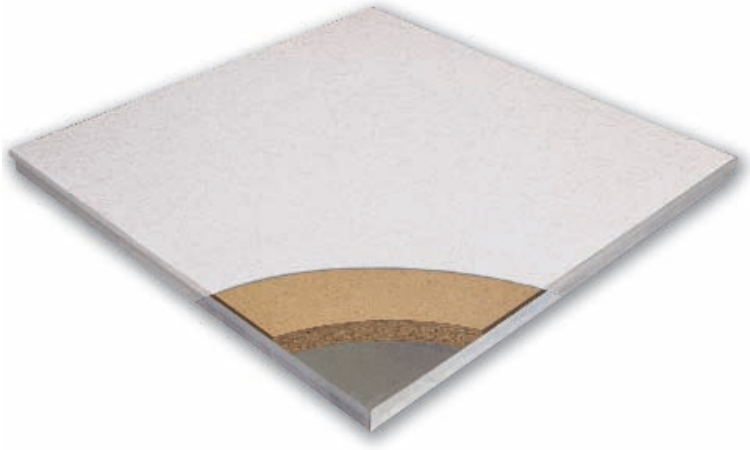
ConCore® Performance Selection Chart

System Performance Criteria (Tested on Actual Understructure)									**Panel Criteria** *(For Reference Only)*
			Static Loads			Rolling Loads			
Panel	Understructure	System Weight (lbs/ft²)	**Design Loads* (lbs)**	**Safety Factors* (min 2.0)**	Uniform Loads (lbs/ft²)	10 Passes (lbs)	10,000 Passes (lbs)	Impact Loads (lbs)	Concentrated Loads @ ≤ .010" perm set (lbs)
ConCore® 1000	Bolted Stringer	9.0	**1000**	**PASS**	350	800	600	150	1000
ConCore® 1250	Bolted Stringer	10.0	**1250**	**PASS**	400	1000	800	150	1250
ConCore® 1500	Bolted Stringer	10.5	**1500**	**PASS**	450	1250	1000	150	1500
ConCore® 2000	Bolted Stringer	11.5	**2000**	**PASS**	550	1500	1250	150	2000
ConCore® 2500	Bolted Stringer	12.0	**2500**	**PASS**	650	1500	2000	150	2500

For more information on design load visit Tate's website and click on Technical Resources / Technical Bulletins.
All other tests are conducted under CISCA's recommended test procedures for access floors.

All Steel Panels

All Steel access floor panels are epoxy coated unitized shells consisting of a flat steel top sheet welded to a formed steel bottom sheet. Manufactured to exacting tolerances, these non-combustible rigid, solid panels deliver excellent strength and durability with the convenience of lightweight construction.



Woodcore Panels

Woodcore panels consist of high density composite wood core glued to and encased in hot dipped galvanized formed steel sheets. These panels have a class A flame spread rating and provide excellent rigidity, durability, and acoustic performance.

All Steel & Woodcore Performance Selection Chart

System Performance Criteria (Tested on Actual Understructure)									**Panel Criteria** *(For Reference Only)*
			Static Loads			Rolling Loads			
Panel	Understructure	System Weight (lbs/ft²)	**Design Loads* (lbs)**	**Safety Factors* (min 2.0)**	Uniform Loads (lbs/ft²)	10 Passes (lbs)	10,000 Passes (lbs)	Impact Loads (lbs)	Concentrated Loads @ ≤ .010" perm set (lbs)
All Steel 1000	Bolted Stringer	6.0	**1000**	**PASS**	350	400	400	150	1000
All Steel 1250	Bolted Stringer	7.0	**1250**	**PASS**	400	500	500	150	1250
All Steel 1500	Bolted Stringer	8.5	**1500**	**PASS**	450	600	600	150	1500
Woodcore 5000	Snap-Tite/Bolt-Tite	7.4	**1000**	**PASS**	250	1000	600	150	1000

For more information on design load visit Tate's website and click on Technical Resources / Technical Bulletins.
All other tests are conducted under CISCA's recommended test procedures for access floors.

Tate®

Understructure For All Height and Seismic Needs

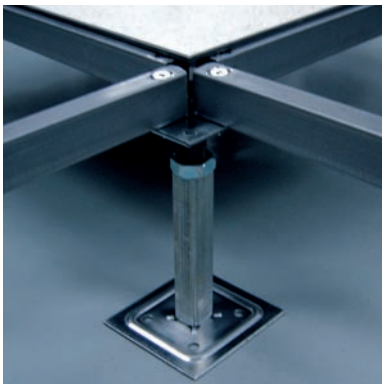
Tate offers a wide variety of standard pedestals to meet almost any height, seismic and lateral load requirements. Both gasketed and non gasketed stringers are available. The 4x4 steel frame is one of many bridging solutions we offer to handle obstructions of any size. Please visit our website for details on the complete line of standard understructure or contact us at 800-231-7788 to inquire about custom understructure solutions.

Seismic Pedestals

Understructure Features

- Available with standard and fillet welded bases assembly.
- Steel pedestal head provides optimum strength.
- Pedestal nut provides anti-vibration and locking features.
- Seismic force-resistant pedestals are available that limit or eliminate the need for special bracing.
- Vertical supports ranging from 17 gauge 7/8” galvanized tubing to Schedule 40 pipe.
- Pedestals can accommodate finished floor heights from 6"-36".
- Height options allow for sufficient underfloor space to provide for both cooling air and wire and cabling so the overhead space can be used for return air without any obstructions.
- Easily levels uneven floors.

Bolted Stringer



Zinc Whisker Free Pedestals

Understructure Features

- Designed for computer rooms, data centers, industrial applications, and heavy rolling load areas.
- Allows floors to be built over 24" high.
- Panels can be gravity-held in understructure for fast removal and replacement.
- Stringers provide lateral resistance to heavy rolling loads and seismic loading.
- All components are free of electro-zinc, a potential source of zinc whiskers.
- Typical floor heights from 12"-36".

4x4 Rigid Steel Frame Understructure

4x4 Understructure Features

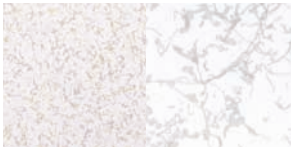
- Accommodates all panel systems.
- 4ft x 4ft grid spacing to accommodate large obstructions such as waffle slabs, ductwork, trenches, etc.
- Standard finished floor heights up to 60". Non-standard heights are available by special order.

Floor Finish Solutions

Finishes

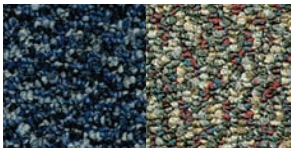
The advantages of access flooring and underfloor systems for data centers are evident. Just like the differences in the advanced equipment they hold, the buildings themselves and the spaces within them are becoming more varied, both functionally and aesthetically. As with conventional flooring applications, the access floor finish options are increasing. From advanced wood look HPL finishes to ElectroStatic dissapative rubber there is almost no limit to your creativity.

Selection of the many floor materials and finishes available

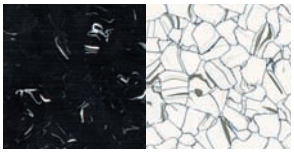


High Pressure Laminate

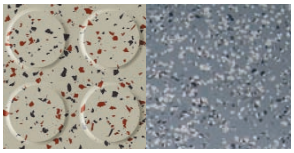
Wood Look HPL



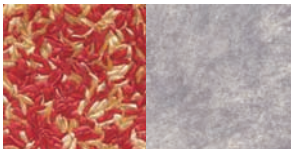
Static Control Carpet Tile



Static Control Vinyl



Static Dissipative Rubber

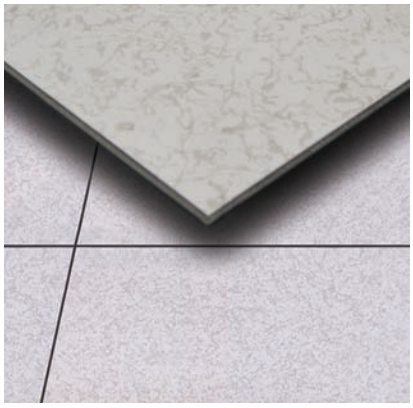


Freelay Hard Surfaces

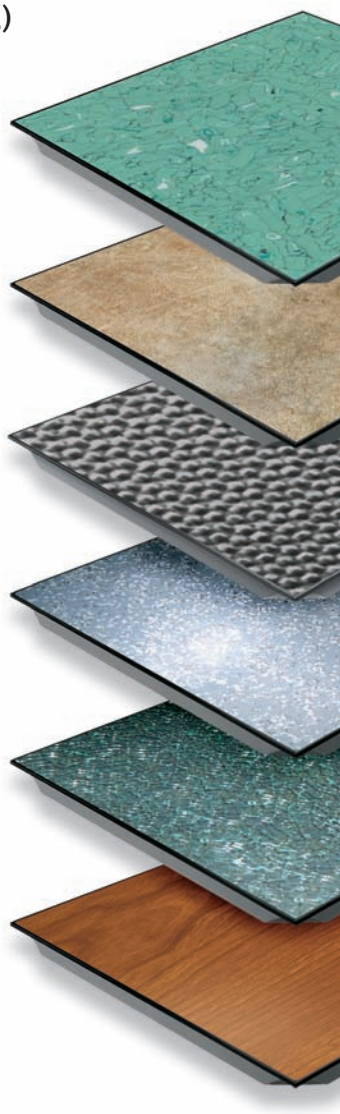
High Pressure Laminate (HPL) with Integral Trim® Edge

Integral Trim® Edge Features

- Decorative edge is routed into the HPL, exposing its colored core.
- Superior wear resistance - will not detach, chip or crack.
- Cost effective alternative to laminated panels with separate trim pieces.
- A full range of colorful HPL patterns are available in 1/16" and 1/8" thickness with either black or brown edge trim colors.
- Suitable for use in equipment rooms, computer rooms, electronic assembly facilities, and areas with frequent or heavy rolling loads.



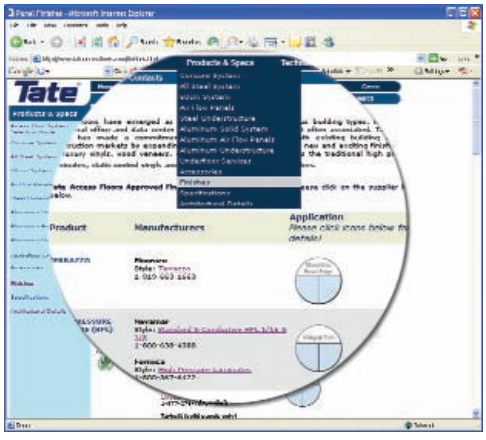
Integral Trim® Edge complements High Pressure Laminate tile patterns



Finishes Online

There are many different materials, vendors and application methods used to apply finishes on or over access flooring. Tate has comprised an online resource of tested and approved finishes for access floor applications. On the website you will find vendor contact information, application renderings, and product photos to help you select a finish for your data facility.

To access the finishes section of our website please visit www.tateaccessfloors.com/finishes. If you are interested in using a material or vendor that does not appear on the list or would like a printed finished brochure please contact the Tate Hotline at **800-231-7788** or e-mail **tateinfo@tateaccessfloors.com**



Tate®