

Access Floors

Higher Education Technology Platform



SustainAbility
to the *Power* of **Tate**®

“Your institution will discover improved levels of flexibility, environmental integrity, and cost control.”



SustainAbility to the Power of Tate

Sustainability has been the key corporate philosophy within Tate since the company was founded in 1962. Through continuous improvements and focus our **Ability** to **Sustain** our environment, customers, community and company is stronger today than it has ever been.



Environment: Over the years Tate has taken many initiatives to lessen the environmental impact of our manufacturing process from reducing energy usage through automation, significantly reducing VOC's from the paint line and implementing a 100% grey water recycling system on the auto-fill line. Our quest for continual improvement has recently lead us to ISO 14001:2004 & ISO 9001:2000 certifications and membership in the EPA's Climate Leaders program to set aggressive goals for reducing our GHG emissions.



Customers: Tate is committed to providing the best quality access floors in the world by requiring stringent product performance and consistency criteria from both its manufacturing operations and partners. With the continued addition of sustainable technology and capacity in our fully owned manufacturing facilities, coupled with international manufacturing agreements we ensure our ability to respond to our customer's needs quickly and efficiently delivering on-time shipment of material at a rate needed to support any size installation.

Access flooring and underfloor service distribution offer a more sustainable solution for the design and construction of commercial buildings. The distribution of HVAC, electrical power, voice and data cabling and other utilities underneath an accessible modular floor offers enhanced energy-efficiency, life-cycle material savings, configuration flexibility and building sustainability.



Community: As an advocate of green and sustainable construction we support both our business and local community through participation in key organizations, ethical procurement and supply chain management and social responsibility



Company: Tate is ensuring the sustainability of our company through our graduate recruitment and mentoring program and by giving each employee adequate training in sustainability issues. This assures that everyone from key suppliers to installation contractors are fully involved in helping maintain the **SustainAbility** of Tate.

To learn more about Tate's **SustainAbility** visit us online at www.tateaccessfloors.com/sustainability

Creating the Perfect Learning Environment

The perfect learning environment in a library or higher education facility should address a variety of needs. These needs include maintaining high-quality clean air, improving personal comfort control, attenuating noise, responding to organizational and technological changes quickly and easily, and supporting the overall aesthetic value of the facility – all while being cost-effective in both during building and operation. With Tate's Higher Education Technology Platform®, you have the ability to address all of the factors required to enhance and enable the learning experience and create the perfect environment that will reflect the goals and image of your institution.

Advantages

- Enhanced indoor environmental quality through superior IAQ, improved acoustics, and increased daylighting opportunities.
- Maximum occupant comfort control at design inception and throughout the life of the building using underfloor air with modular 'plug & play' VAV or passive diffusers.
- Energy efficiency through economizer operation, and less fan energy.
- Easily adapts to technological and organizational changes over the building's lifecycle at low cost.
- Point-of-use services wherever you need them with complete flexibility, accessibility, and unlimited capacity.
- Accelerated tax depreciation opportunities.
- Reduced first cost and construction time due to significant reduction in HVAC ductwork and use of underfloor pre-fabricated 'plug & play' wire/cable services.
- Reduced operating costs and lower facility and maintenance costs through accessible, flexible, and adaptable services.

Tate PVD Servicenters provide point of use power, voice and data services anywhere on the floor plate

Slab-to-slab height reduction due to no overhead HVAC system ductwork



Tate ConCore® access floor system – welded steel floor panel, filled internally with lightweight cement for the ultimate in strength and acoustic performance

'Plug & play' modular power wiring system, saving valuable construction time and facilitating quick and easy reconfigurations

Enhanced ceiling design freedom
with services underfloor

Non-powered workstations providing
simplified relocation and significant cost
savings compared to powered furniture

Tate PosiTile® carpet providing
one-to-one indexable fit to panel
– no messy adhesive required

Underfloor VAV perimeter
solutions provide both heating
and cooling capability



Modular and relocatable VAV or passive diffusers
provide increased personal comfort control

Tate PosiLock® understructure – positive positioning and lateral
retention of floor panels with typical FFH from 2-1/2 to 12 inches

Underfloor service pathway accommodates any type of voice and data
system approach, from homerun to passive or active zone cabling



Facility Solutions: Northern Arizona University Applied Research & Development

Located prominently at the entrance of Northern Arizona University (NAU), stands the school's flagship building for campus sustainability – the Applied Research and Development (ARD) facility. This spectacular LEED® -NC Platinum rated building draws together various research groups in a single structure where they can easily collaborate.

Sustainability was the principal driver for the ARD project which largely includes office, research and laboratory space. To meet aggressive energy targets and to attain points for building energy performance, NAU's world-class project team included things like displacement and low-pressure ventilation systems.

Members of the project team understood from the beginning that one of the best ways to meet its low energy targets for ventilation was through the implementation of raised access floors with underfloor air distribution (UFAD).

Tate Education Technology Platform Solution:

"The whole building was really intended to function as a sustainable project with systems. One of the precepts was UFAD right from the start," said Robin Schambach, Technology Principal at Burns Wald-Hopkins Architects.

The use of the raised floors was further extended to electrical and tele-data distribution. This lent itself to a sustainable approach as well, in that it would not be necessary to tear down existing structures when the need to reconfigure spaces arises.

As a result of this type of sustainable systems design, along with a photovoltaic solar power system, and a heat exchanger to regulate the building's temperature, ARD enjoys a 60% reduction in energy needs. NAU's new icon of sustainability is a working showcase for the latest technical innovations leveraged in the design and construction of high performance structures.

A Healthy and Productive Learning Environment

Tate Access Floors provide significant advantages in maintaining air quality and control of a facility's environment. Air quality, access to additional sunlight, correct thermal and humidity conditioning, and proper acoustics all work together to create a comfortably maintained learning environment. Properly managed environments have been proven* to significantly impact student health, comfort, and learning performance. Tate's Education Technology Platform features high performance underfloor HVAC services that provide improved indoor air quality, enhanced comfort control, daylighting opportunities, and improved acoustics meeting today's most stringent government and environmental standards.

* According to the U.S. Environmental Protection Agency (EPA)

The Next Generation Learning Environment

Tate's Education Technology Platform® assists organizations in addressing their new and growing responsibility to the environment, staff and students. Tate provides cost-effective solutions that can help facilities, like yours, achieve 'Green' environment levels of air, sound, and light quality that promote good health, and create a more productive and comfortable learning environment. The Tate Education Technology Platform® also enhances the aesthetic value of your building – adding significant worth to your facility in terms of image and attractiveness for prospective students and staff.

LEED® Driven



Keys to creating a healthier facility for students and staff

- Deliver supply air at floor level to improve ventilation effectiveness and provide occupants with first benefit of clean, fresh air.
- Locate floor air diffusers throughout facility for even and properly conditioned circulation of clean air.
- Provide diffusers with air direction, volume, and 'plug and play' placement flexibility to ensure maximum personal comfort control.
- Deliver floor supply air at low pressure to maximize acoustic performance, energy efficiency, and maintain clean air in occupied zone.
- Increase natural daylight for improved student and staff comfort and performance through overall reduction in overhead service distribution space.

Solutions for Green Building Status

Tate Access Floors created the Tate Education Technology Platform® to provide learning facilities such as student unions, libraries, classrooms and administration facilities with the solutions they need to reach green building status*. The Tate Education Technology Platform® offers a number of significant opportunities for your building to achieve LEED® points and certification. The Tate Education Technology Platform® scores high points in three of the five LEED® credit categories – delivering optimum performance in the critical areas of Indoor environmental quality, materials and resources, and in energy and atmosphere.

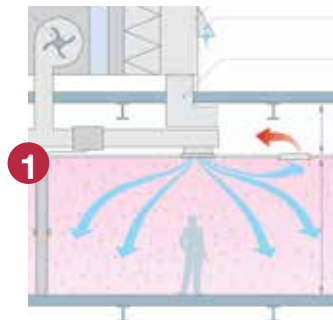
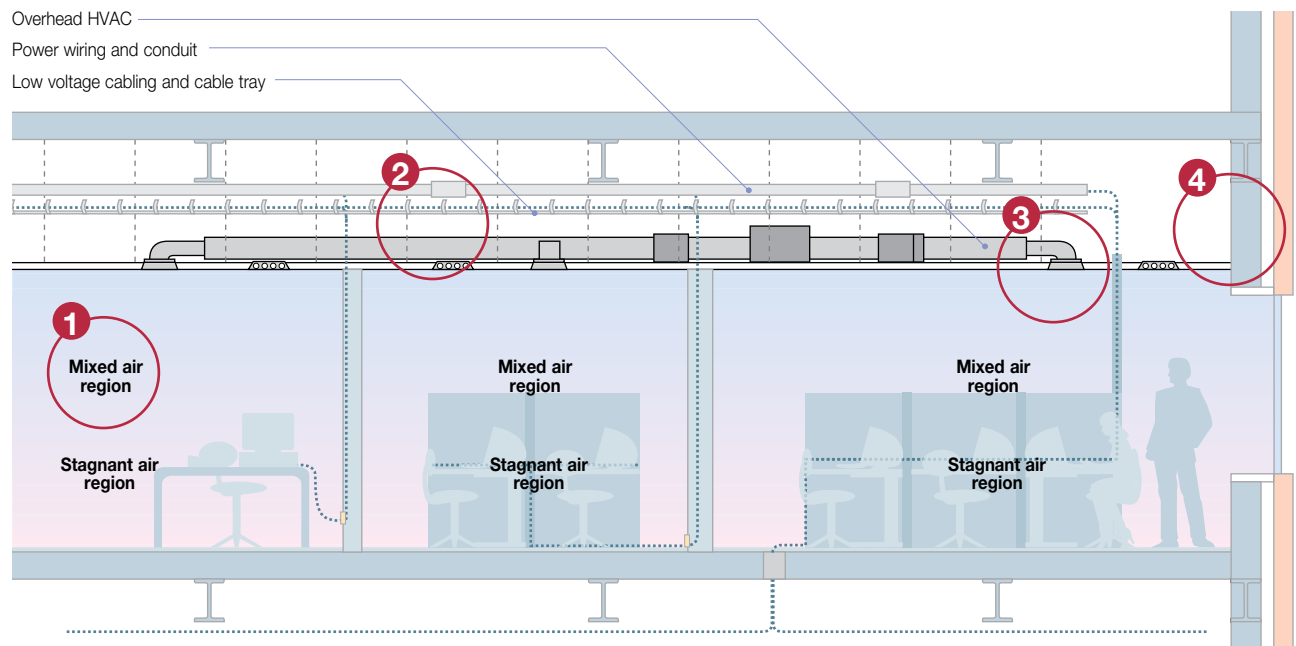
* As designated by U.S. Green Building Council (USGBC) and the Leadership in Energy and Environmental Design (LEED®) program.

Tate Underfloor Air Management Solution

Avoid the complaints. Conventional overhead HVAC systems do not provide optimum efficiency or personal comfort control. With Tate's underfloor HVAC system, consisting of modular 'plug &

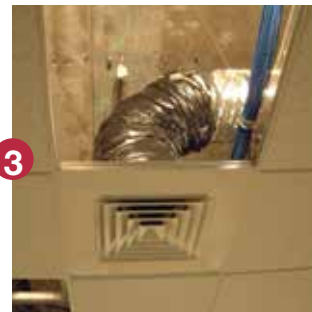
play' floor mounted diffusers, ultimate flexibility, energy efficiency, and personal comfort control can be assured.

Conventional overhead HVAC method



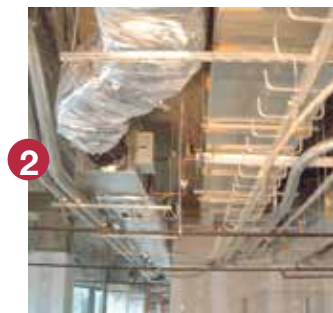
Wastes energy

Hot air rises, yet conventional HVAC distribution is designed to force cool clean air from the ceiling and mix it with the hottest, most pollutant-filled air before getting to the occupants.



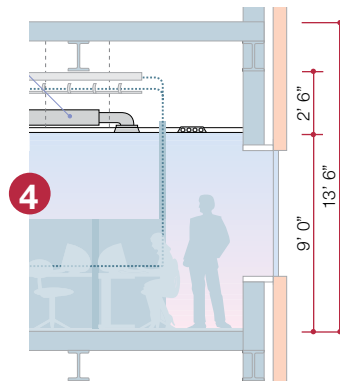
Lack of individual control

Hot/cold complaints consistently rank at the top of the list of issues raised by building occupants. Conventional systems are difficult to access and expensive to change. Therefore, they rarely are changed.



Expensive and inflexible

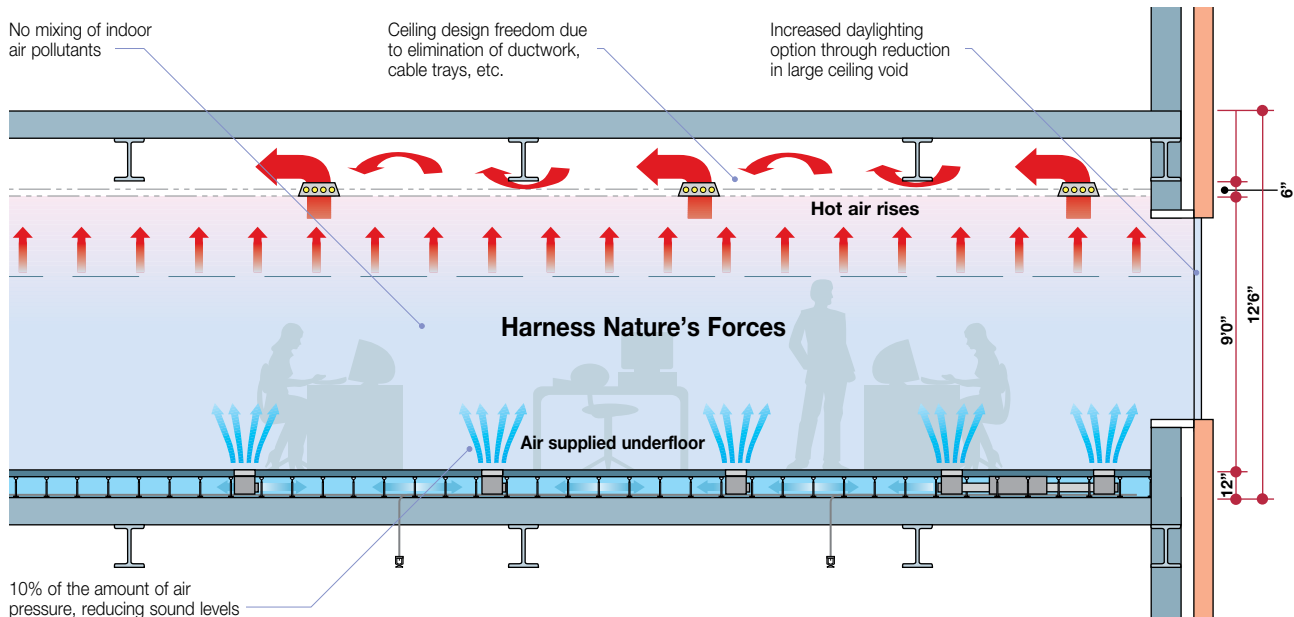
Rigid, fixed ductwork makes changes expensive and disruptive. Extensive amounts of ductwork and labor intensive installation slow down construction and drive costs up.



Poor space utilization

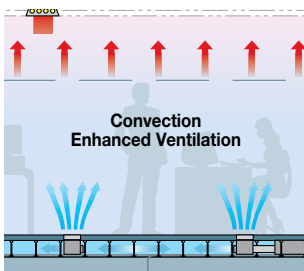
Large ceiling void space required due to poor integration of fixed service pathways.

Tate ETP underfloor air management system



Unrivalled flexibility

With the entire space under the access floor used as an air distribution pathway, you can plug modular VAV or passive diffusers in anywhere, and when you make changes in your space, simply adjust air direction or unplug and relocate in minutes!



Improved Energy Efficiency

Save at least 20% of your HVAC energy cost using underfloor air. How? Significant fan energy savings, more hours of economizer operation, and reduced outside air option due to better ventilation effectiveness.



Improved Indoor Environment Quality

- Better ventilation effectiveness – superior (IAQ)
- Quieter operation – improved acoustics
- Optimized ceiling void – increased daylighting opportunities



Improved Personal Comfort Control

With options available for individual volume and air direction control, underfloor air delivers the ultimate in personal comfort control.



Facility Solutions: University of Memphis FedEx Emerging Technology Complex

Some are calling it the research epicenter of the Mid-South United States. Already established in the area of technology, the University of Memphis is ready to move to the next level with the FedEx Institute of Technology. The FedEx Institute of Technology required a state-of-the-art building designed to house an educational endeavor that teaches the newest technologies using the most advanced learning techniques. This building design needed to provide the infrastructure that facilitates the development of products and skills in the information technology area, set in the surroundings of a very human space that supports high technology, and offers the flexibility to adapt to new technologies and educational needs at Internet speed.

Tate Education Technology Platform Solution:

Needing to maintain open access to its infrastructure, architects turned to Tate for an access flooring system ready to meet the most demanding technology changes imaginable. The use of Tate ConCore® 1250 Access Floor Panels, Tate PosiLock® Understructure, and modular wiring and cabling capabilities offer The FedEx Institute of Technology the ability to create phone and email clusters, video conferencing suites, and collaboration chambers; as well as internet cafés, instruction spaces and laboratories. With limitless reconfiguration capabilities and open technology architecture, the ever-changing institute has the flexibility it needs to remain on the emerging edge of business.

Easy Adaptation and Flexibility for Years of Low-cost Service

The Tate Education Technology Platform has been designed to provide optimum value, flexibility, and trouble-free service now, and in the future. The modular design allows you to adapt to change easily and at a low cost. With Tate Access Floors adapting to ever-changing technologies, fluctuating class sizes, architectural changes and improvements, new environmental regulations and standards will no longer demand expensive facility investment and construction costs. Tate underfloor systems allow you to update your technical capabilities, floor plan, HVAC controls, and image, using your own effective and low-cost resources.

The Freedom of flexibility

Spaces are reconfigured at a rate of 40% per year. To meet this demand for change, Tate Education Technology Platform's are designed to afford interior design freedom and quick plug & play access to all services.

- Flexible and accessible services allow you to plan your space around functional requirements rather than be limited by fixed, inflexible services.
- Simple service connections minimize the need for professional outside services.
- Power, voice, data, and heating and cooling services can all be quickly accessed and reconfigured to meet any layout.
- Service changes can be made with minimal disruption to the work environment.



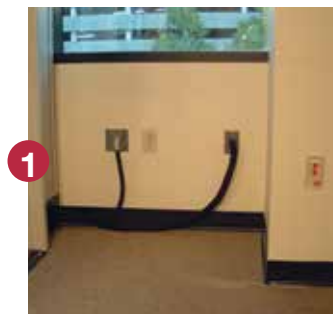
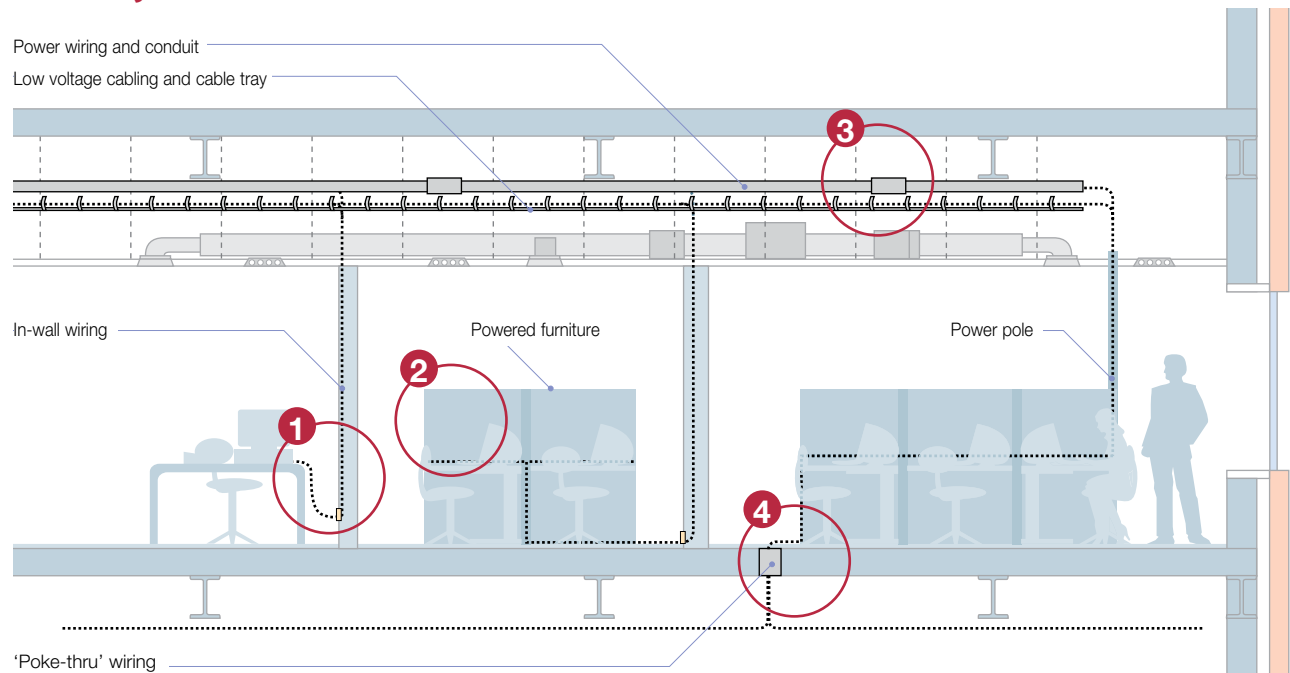
“When changes are needed, the flooring is easily opened, granting access to the cables underneath.”

Tate Wire & Cable Management System

Avoid the trap of using inflexible and expensive wire and cable systems in your building. With Tate's Wire and Cable Management solution, consisting of a Tate Access Floor with modular 'plug & play' power wiring and zone cabling solutions,

you can be assured your building will provide ultimate flexibility that allows you to respond to organizational and technology changes quickly, easily, and cost effectively.

Existing conventional overhead wire and cable method



Rigid and non-adaptive

Wiring and cabling embedded in walls and columns are fundamentally inflexible, making moves, adds and changes to technology expensive, disruptive, and wasteful.



Poor integration and wasteful

Ceiling pathway for wiring and cabling increases vertical run lengths, labor, and suspension material costs and makes subsequent changes disruptive and expensive.



Expensive and inflexible

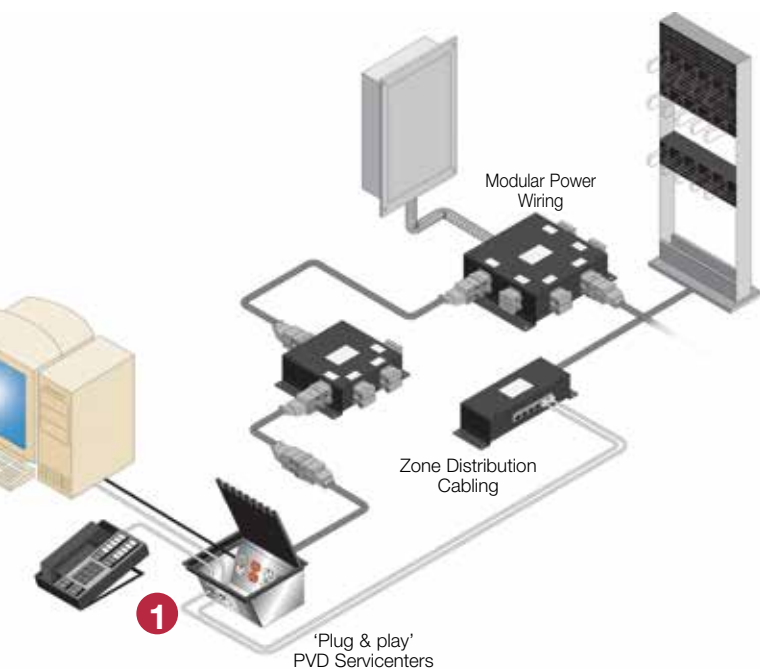
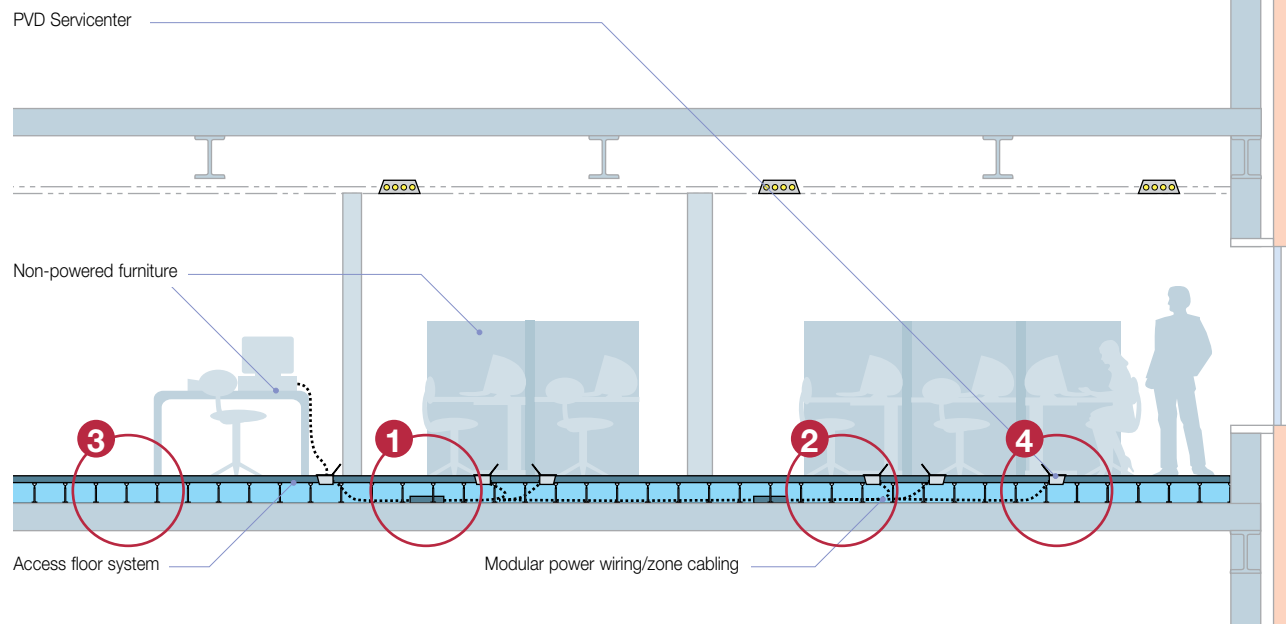
Running wiring and cabling in highly reconfigurable furniture is expensive, limits capacity, and severely compromises its reconfiguration capabilities.



Disruptive

Fixed 'poke-thru' devices for wire and cable delivery cause disruption and security issues with tenants both above and below.

Tate ETP underfloor wire and cable management system



Complete flexibility and reconfiguration capability

Access floor with modular 'plug & play' power wiring, and cabling components provide complete flexibility. As your facility needs change so too can your service distribution system – quickly, easily and cost-effectively!



Reduced impact on base building

Access floors eliminate the need to embed wiring and cabling within concealed rigid structures such as walls and columns, thereby allowing tenants the freedom to access their wiring and cabling quickly and easily.



Complete accessibility and unlimited capacity

An access floor provides you with access to your service pathway at any location on the floor plate, with finished floor heights that accommodate any capacity needs.



Point of use services wherever you need them

PVD Servicercenters with modular 'plug & play' connections provide point of use termination of power, voice, and data at any location on the floor plate for any type of workstation and application

First-Cost Competitive

Lower installation costs are just the beginning of the cost savings and efficiencies that the Tate Education Technology Platform® has to offer your institution's facilities. This system is equipped with a service distribution system that creates maximum value and flexibility.

You'll realize immediate benefits in regards to time and expense with this system. Advanced service distribution solution projects have reduced installation costs by up to 10% and achieve 15% faster build and completion times. The ability to reconfigure easily to meet future facility needs helps to control and lower costs incurred through adding new technologies, or redesigning environments to respond to new progressive learning environment models.

- Flexible design adapts easily to existing or new architectural features.
- Voice/Data cabling - Reduce cable run lengths, eliminate cable trays, and lower labor costs at installation.
- Power wiring - 'Plug & play' technology significantly reduces installation costs.
- Furniture - Eliminate dependency on costly powered furniture and improve space planning options.
- Air distribution - Significantly reduce trunk, branch, and discharge ductwork.
- Ceiling - Reduce or eliminate suspended ceiling requirements.
- Time to occupancy - Underfloor services install quickly, allowing for earlier occupation.
- Structure - Improved integration of underfloor services provide slab to slab height savings opportunities.



Operational Cost Savings

The Tate Education Technology Platform® offers a number of cost-saving features that provide your institution with the ability to make future changes to technology without extensive demolition or disruption. Tate Access Floors are not only easy and cost efficient to install; they significantly reduce the time it takes to bring your classrooms online. The underfloor design makes access to cabling, power, communication, data, and HVAC systems simple. And the system's inherent flexibility keeps reconfiguration costs low with full floor access to all infrastructure services.

Tate Access Floors allow you to address technical needs in laboratory or advanced technology classrooms with easy access to power, communications, and other service delivery systems. Tate underfloor air delivery systems also provide comfortable environment control and improved air quality. With a built-in energy-efficient design and long-term flexibility, this space will continue to provide operational benefits well beyond a successful move-in.

- Energy - Lower fan power, extended use of economizer, and reduced outside air due to better ventilation effectiveness.
- Space churn - Reduce costs by at least 50%. With flexible and accessible wire/cable infrastructure and floor mounted plug & play components, changes are easily accommodated using in-house personnel.
- HVAC - Floor diffusers are not ducted to the air supply allowing for better comfort control, more flexible zoning strategies, and improved productivity.
- Tax Savings - Underfloor components may be considered personal tangible property and qualify for accelerated depreciation tax benefits.

Tate's Integrated Cost Modeling Software

Tate provides an interactive cost modeling tool designed to evaluate the cost differences between traditional overhead service distribution and Tate's ETP® utilizing access floors and underfloor 'plug & play' wiring, zone cabling, and air. It has built-in flexibility, allowing the user to define many of the design parameters providing an extensive array of cost comparison options.

The following cost analysis is for an 5 story, 250,000 ft² building in Baltimore, MD, comparing conventional service distribution with powered furniture and overhead air to access flooring for wire, cable, and HVAC distribution.

For an evaluation of the cost saving opportunities for your specific project using Tate's integrated cost model visit:



**www.
tateaccessfloors.com**
or call us at: **1-800-231-7788**

First-Cost Competitive

First Cost Comparison	Traditional (\$/ft ²)	BTP® (\$/ft ²)	Difference (\$/ft ²)
Facade and main structure	\$20.48	\$19.81	\$0.67
Raised core	\$0.00	\$0.19	(\$0.19)
Access floor	\$0.00	\$5.25	(\$5.25)
HVAC distribution	\$6.61	\$5.12	\$1.49
Cable management voice/data	\$2.38	\$1.77	\$0.61
Electrical - horizontal feeds	\$2.11	\$1.16	\$0.95
Workstation electrification	\$2.53	\$0.81	\$1.72
Earlier owner occupancy savings	\$0.00	\$0.25	\$0.25
Ceiling finish	\$1.41	\$1.10	\$0.30
Total	\$13.34	\$13.21	\$0.80
First cost savings for BTP			\$200,000

Operational Savings

Lifecycle costs	Cumulative cost savings by year (\$/ft ²)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Workstation churn	\$1.16	\$2.36	\$3.59	\$4.86	\$6.16
HVAC churn	\$0.33	\$0.66	\$1.01	\$1.37	\$1.73
Energy reduction	\$0.25	\$0.50	\$0.77	\$1.04	\$1.32
Accelerated depreciation	\$0.65	\$1.73	\$2.35	\$2.68	\$3.02
Total	\$2.38	\$5.26	\$7.71	\$9.94	\$12.23
Operational savings 1st year					\$504,914

Improved Productivity

Staff productivity savings	Cumulative cost savings by year (\$/ft ²)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Absenteeism	\$1.30	\$2.64	\$4.02	\$5.43	\$6.90
Productivity	\$1.62	\$3.30	\$5.02	\$6.79	\$8.62
Total	\$2.92	\$5.93	\$9.03	\$12.23	\$15.52
Staff productivity savings 1st year					\$730,710

Rethinking Construction - The Savings Add Up!

	First Cost Savings (\$/ft ²)	Cumulative cost savings by year (\$/ft ²)				
		Year 1	Year 2	Year 3	Year 4	Year 5
First Cost Competitive	\$0.80	-	-	-	-	-
Operational Savings	-	\$2.38	\$5.26	\$7.71	\$9.94	\$12.23
Improved Productivity	-	\$2.92	\$5.93	\$9.03	\$12.23	\$15.52
Total	\$0.80	\$6.10	\$11.99	\$17.54	\$22.97	\$28.55



Facility Solutions: Seattle Public Library

The Seattle Public Library was designed with architectural creativity and sustainability in mind and is a major architectural wonder for the city of Seattle. Its all glass and aluminum exterior and variable geometry design provide a spectacular visual sight while allowing for a high degree of natural light for the occupants.

Some major sustainable strategies used were energy and water conservation techniques, recycled building materials, long lasting, low cost lighting with motion sensors to reduce costs, triple glazed glass, rainwater storage for outdoor irrigation, waterless urinals, and a Tate raised access floor just to name a few.

Tate Education Technology Platform Solution:

The Tate access floor were specified in the building to provide for underfloor power and voice data systems as well as displacement ventilation from the underfloor plenum. Underfloor air distribution results in increased indoor air quality, reduced HVAC costs and increased ventilation efficiency.

The Tate raised floor is used in conjunction with multiple floor finishes including carpet, hardwood, bamboo, resilient finishes and aluminum plate. Together, they further add to the unique design elements of this spectacular building!

Floor Finish Solutions

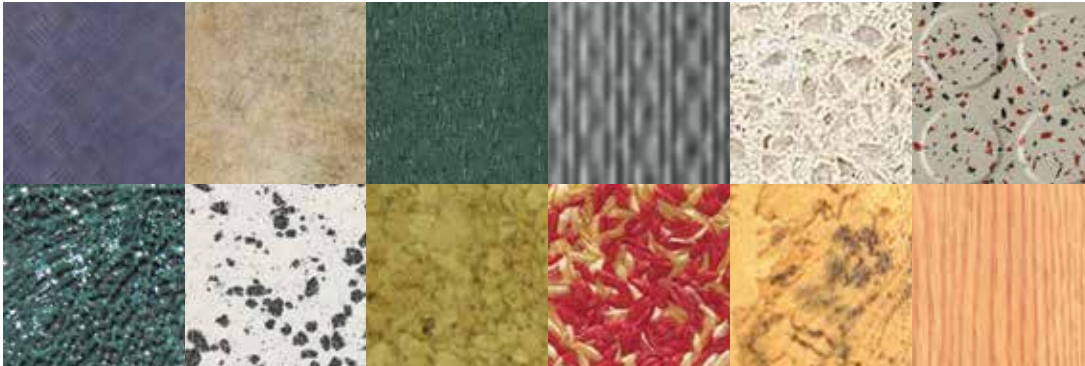
Finish with style

While service distribution is critical to productivity, image and style also play a key role in creating new spaces. A wide range of new and exciting finishes can be accommodated such as luxury vinyls, wood veneers, cork, rubber and terrazzo as well as the traditional high pressure laminates, static control vinyls and freelay carpet and hard tile finishes. These finish options give architects and designers freedom to create a look that is unique and coordinated to their specific project, while still maintaining the versatility and convenience that this space offers.

These finish options give architects and designers practically unlimited freedom to create a look that is unique and coordinated to their specific project, while still maintaining the versatility and convenience that an access floor offers.

Interchangeable panels with a variety of surfaces

Floor Finishes



Hard finishes, textures, and effects



Soft finishes – carpet or carpet tiles

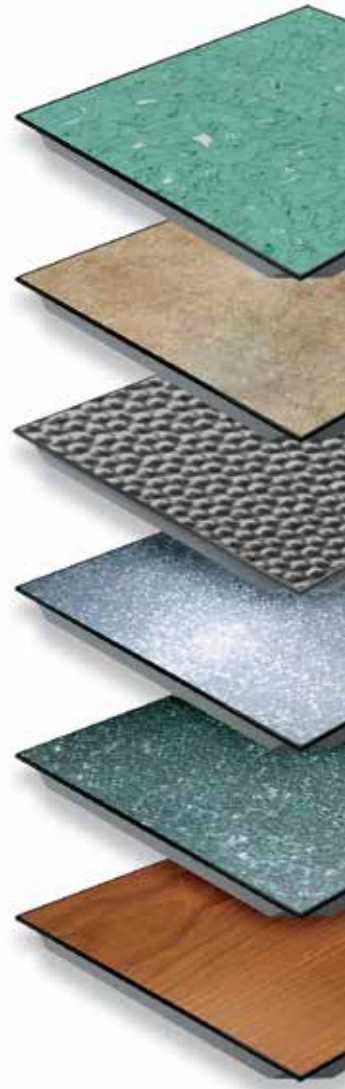
Note: Precise color should be judged from the actual material. All finishes are subject to availability.

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 educational 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



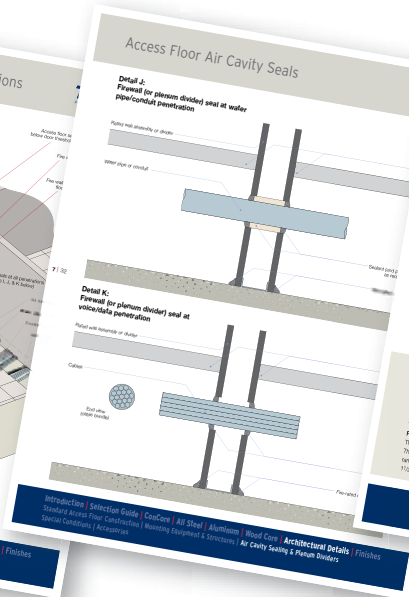
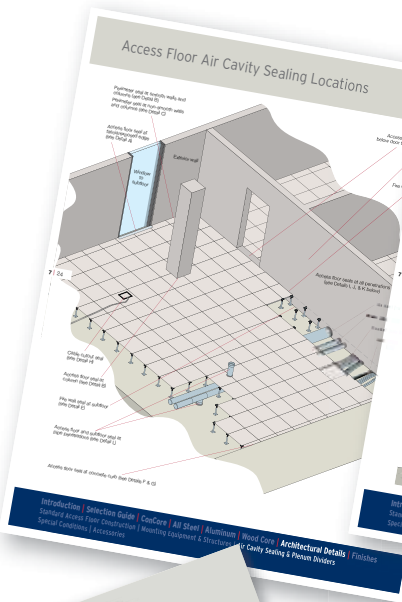
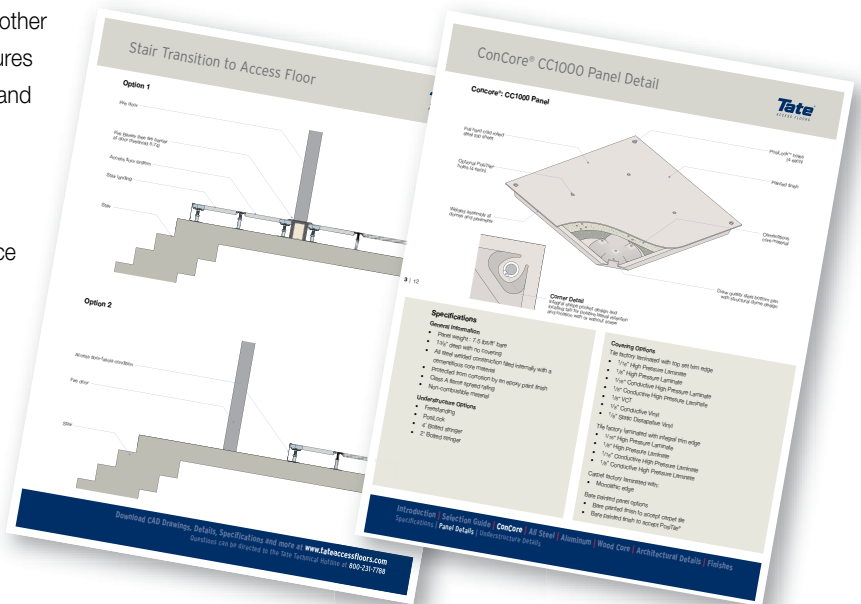
Integration

Incorporating Access Flooring into Your Building

Incorporating access floors throughout a building is not difficult or costly if this need is considered early in the building's design phase. This process helps to minimize transitional steps, ramping and difficult interfaces with other architectural elements. When proper integration measures are taken during this critical stage, maximum investor and tenant value is achieved.

Maintaining maximum flexibility and accessibility throughout the building requires access floors to be placed in areas such as service rooms and main service pathways to provide critical 'connections' to the main office environment. These areas include, but are not limited to; main lobby, corridors, elevator lobbies, and mechanical, electrical and telecom rooms.

Tate has developed a complete set of construction details which consider the requirement of designing the core and shell with access floors.



Please call the **Tate Technical Hotline**
1-800-231-7788 or visit **www.tateaccessfloors.com**
 for further information.



The Queen's University Gordon Hall student administration office building is an example of what can be achieved when transforming an old heritage building with outdated interior infrastructure into an updated fully flexible work space.

Some major sustainable strategies used were access flooring throughout to allow for underfloor air distribution and underfloor modular power and voice/data wiring, reuse of the original limestone block heritage structure, and maintaining and reinstating the original window openings to allow for a high degree of natural light and viewing.

Facility Solutions: Queens University, Gordon Hall Kingston, Ontario, Canada

Tate Education Technology Platform Solution:

To further contribute to Gordon Halls goal for sustainability an engineered hardwood with an ecological oil finish was factory laminated to the access floor for all the corridor areas in place of vinyl floor coverings.

This gave the building an environmentally friendly finish that would retain its natural beauty long after man-made finishes would wear out. Having an oil finish instead of a man made clear finish allows the floor to be periodically maintained with natural environmentally friendly soaps and cleaners. By factory laminating the hardwood directly onto the panels Tate was able to provide a high-end environmentally friendly finish that maintains the accessibility and flexibility of the Education Technology Platform.

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