Understanding the contributions of underfloor service distribution towards LEED-NC certification

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When all the components of Tate's Underfloor Service Distribution solutions are utilized the access floor, underfloor air, wire and cabling, and PosiTile® carpet they can greatly contribute to the LEED Scorecard of a project striving for certification. The Tate solution can help to achieve prerequisites and accumulate points in the following categories and credit areas of LEED-NC 3.0: Energy and Atmosphere, Optimize Energy Performance, Materials and Resources, Building Reuse, Materials Reuse, Recycled Content, Regional Materials, Indoor Environmental Quality, Increased Ventilation, Controllability of Systems, Thermal Comfort, Daylight & Views

Tate®

Tate LEED-NC 3.0 Certification Contribution

A Tate access floor system and the advanced service distribution technologies it affords can contribute towards the achievement of numerous credits for LEED-NC 3.0 certification. When all the components of Tate's Underfloor Service Distribution solutions are utilized — the access floor, underfloor air, wire and cabling, and PosiTile® carpet — they can greatly contribute to the LEED Scorecard of a project striving for certification. The Tate solution can help to achieve prerequisites and accumulate points in the following categories and credit areas of LEED-NC 3.0:

Energy and Atmosphere

Optimize Energy Performance

Materials and Resources

Building Reuse

Materials Reuse

Recycled Content

Regional Materials

Indoor Environmental Quality

Increased Ventilation

Controllability of Systems

Thermal Comfort

Daylight & Views

In addition, several major benefits of access floor and underfloor service distribution technologies not addressed by the LEED rating system provide opportunities to pursue points for *Innovation in Design.* Several possibilities for achieving ID credits have been developed by Tate and appear on pages 11 through 13 of this bulletin.

The following pages include two prerequisites and the credits that can be pursued with the help of Tate systems and underfloor service distribution methods. For each prerequisite or credit, see "Tate Contribution" to find out how the Tate solution contributes. Most of the credits are achievable early in the building's life, while a few, such as *Building Reuse* and *Material Reuse*, are long-term sustainability strategies that can pay off later in the building's life. Documentation demonstrating compliance with credit requirements may come from Tate, architects, general contractors, mechanical engineers, electrical engineers, power cable suppliers, IT engineers, signal cable suppliers and carpet suppliers.

LEED V2.2 vs. V3.0

The LEED Version 3.0 Rating System has six categories, adding 'Regional Priority' to the five original categories from Version 2.2. All of the original credits that may be attained with the help of access floors and underfloor service distribution systems remain. LEED 3.0 builds on the fundamentals of LEED 2.2 but incorporates new technologies and allows for pressing concerns to be recognized such as energy use. Notable technical advancements include:

1. LEED prerequisite/credit alignment and harmonization
2. Transparent environmental/human impact credit weighting and
3. Regionalization.

LEED-NC 3.0 - ENERGY AND ATMOSPHERE

EA Prerequisite 2: Minimum Energy Performance

Intent: To establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use.

Requirements:

Option 1: Whole Building Energy Simulation

Demonstrate a 10% improvement in the proposed building performance rating for new buildings, or a 5% improvement in the proposed building performance rating for major renovations to existing buildings, compared with the baseline building performance rating.

Option 2: Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide

Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide appropriate to the project scope. Project teams must comply with all applicable criteria as established in the Advanced Energy Design Guide for the climate zone in which the building is located.

Option 3: Prescriptive Compliance Path: Advanced Buildings™ Core Performance™ Guide

Comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute. Building must be less than 100,000 square feet.

Tate Contribution (EA Prerequisite 2):

A Tate access floor may contribute to this prerequisite as underfloor air delivery (UFAD) systems, when used in conjunction with access floors can reduce energy use below the energy consumption of comparative overhead systems by:

- Reducing the amount of fan-power required
- Using higher-temperature supply air for cooling
- Using a greater amount of "free" outside air for cooling
- Delivering conditioned air to occupants rather than to the entire volume of space.

EA Credit 1 - Optimize Energy Performance

Intent:

To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use**.**

Requirements:

Option 1: Whole Building Energy Simulation (1–19 points)

Demonstrate a percentage improvement in the proposed building performance rating compared with the baseline building performance rating. Calculate the baseline building performance according to Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2007 using a computer simulation model for the whole building project.

Option 2: Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide (1 point)

Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide appropriate to the project scope, outlined below. Project teams must comply with all applicable criteria as established in the Advanced

Energy Design Guide for the climate zone in which the building is located. The building must be less than 20,000 square feet (1,800 square meters).

Option 3: Prescriptive Compliance Path: Advanced Buildings™ Core Performance™ Guide (1–3 points)

Comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute. The building must be less than 100,000 square feet.

Tate Contribution (EA Prerequisite 2 and EA Credit 1):

An UFAD system's energy performance will easily exceed the requirements of Prerequisite 2 and significantly contribute toward achievement of Optimize Energy Performance credits (for which up to 19 points may be awarded to standard commercial office buildings). A UFAD system maximizes the energy efficiency of a building. This is because energy performance is enhanced by several major benefits of UFAD:

1. **Fan Power Savings:** Fan power is reduced because UFAD systems operate at lower static pressures (between 0.05" and 0.10" wg) compared to 1.5" to 2.0" wg for overhead systems. According to the Center for the Built Environment located at the University of California, the average fan-power savings with a variable air volume UFAD system can range from 25 to 50% depending on the amount of CFM required.

2. **Higher Air Supply Temperature for Cooling:** Because air is delivered directly to the occupied zone, supply temperatures for cooling are typically 10°F higher than in overhead systems.

3. **Free Cool Air from Outside:** By using higher-temperature air for cooling, the system can use economizer mode (free outside air) to cool the building for a longer period of time each day, thereby reducing the central plant energy consumption.

4. **Reduced Air Volume Requirement**: By delivering conditioned air directly to the occupied six-foot vertical zone rather than to the entire volume of space, the amount of air required to provide thermal comfort is the same even with the warmer supply temperatures.

LEED-NC 3.0 - MATERIALS & RESOURCES

MR Credit 1.2: Building Reuse—Maintain Interior Nonstructural Elements (1-2 points)

Intent:

To extend the lifecycle 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.

Requirements:

Use existing interior nonstructural elements (e.g., interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building, including additions. If the project includes an addition with floor area more than 2 times the floor area of the existing building, this credit is not applicable.

Tate Contribution (MR Credit 1.2):

A Tate floor will last the lifetime of a building and accommodate a variety of future occupant requirements. Although an access floor will not help a LEED-NC project to achieve Building Reuse credits immediately, it can significantly help to do so later in the building's life. Walls on access floors are easy to detach and erect elsewhere (walls are attached to floors by framing fasteners). In-floor air diffusers and electrical boxes are moved by simply relocating the floor panels that they are mounted in. Additional floor panels and understructure components can be purchased to complete new occupant fit-out requirements.

MR Credit 2: Construction Waste Management (Divert from Disposal 50% = 1 point 75% = 2 points)

Intent:

To 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.

Requirements:

Recycle and/or salvage nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or comingled

Tate Contribution (MR Credit 2):

Although an access floor does not directly influence this point, it can help contribute to meeting the requirements as a long term sustainable strategy. Raised floor designs tend to produce minimal construction waste as only a few tiles need to be trimmed or have penetrations installed on-site. Modular power and data wiring used in conjunction with an access floor allows for technology infrastructure to be installed with virtually no waste, as well as allowing for a faster build. Tate access floors are also 100% re-useable, eliminating waste on future configurations.

MR Credit 3: Materials Reuse (10% = 1 point, 20% = 2 points)

Intent:

To 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.

Requirements:

Use salvaged, refurbished or reused materials, the sum of which constitutes at least 5% or 10%, based on cost, of the total value of materials on the project.

Tate Contribution: (MR Credit 3):

Access floor panels, pedestals and stringers can be uninstalled in their original locations and be reused in other buildings. An underfloor air distribution system strategy may also contribute to this credit as diffusers can be easily relocated when the need arises, Be aware that just as with the Building Reuse credit, the materials reuse strategy will not likely help to achieve LEED-NC points immediately. Some salvaged or used raised floor panels are available, however the technology is relatively new (less than 50 years) meaning the longevity of the buildings they are installed in has only generated a limited amount of refurbished panels to date. This strategy is more of a long term sustainability strategy that an access floor can contribute towards in the future.

MR Credit 4: Recycled Content (10% = 1 point, 20% = 2 points)

Intent:

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

Requirements:

Use materials with recycled content1 such that the sum of postconsumer[2] recycled content plus 1/2 of the preconsumer[3] content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project.

Tate Contribution: (MR Credit 4):

The standard Tate floor system used in commercial offices contains 51.6% recycled material consisting of 18.4% post-consumer and 33.2% pre-consumer content. All office floor systems and data center systems manufactured by Tate contain recycled content in excess of the 20% (post-consumer/ + ½ pre-consumer) credit requirement.

To obtain documentation verifying the recycled content of each type of access floor system please click here.

MR Credit 5: Regional Materials (10% = 1 point, 20% = 2 points)

Intent:

To 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.

Requirements:

OPTION 1
All building materials or products have been extracted, harvested or recovered, as well as manufactured within a 500 mile (800 kilometer) radius of the project site.

OR

OPTION 2
Building materials or products shipped by rail or water have been extracted, harvested or recovered, as well as manufactured within a 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula:

(Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) ≤ 500 miles [800 kilometers]

Tate Contribution (MR Credits 5)

OPTION 1

Tate access floor systems are manufactured entirely in York County, Pennsylvania. The steel used for panels and understructure components is recovered/manufactured in Sparrows Point, Maryland and Delta, Ohio. The cement materials used to fill the panels is recovered from Fleetwood, Pennsylvania.

To obtain documentation verifying the location of Tate's manufacturing facility and to view the location on a map, please click here.

OPTION 2

Tate has calculated the distances from our factory in Red Lion, PA to main freight train transportion hubs as well as shipping ports around the US using the formula above. Please download the Excel Document in supporting documents to verify distances.

LEED-NC 3.0 - INDOOR ENVIRONMENTAL QUALITY

IEQ Prerequisite 1: Minimum Indoor Air Quality Performance

Intent:

To 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.

Requirements:

Meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality.

IEQ Credit 2: Increased Ventilation (1 point)

Intent:

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

Requirements (for Mechanically Ventilated Spaces):

Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2007 as determined by IEQ Prerequisite 1: Minimum Indoor Air Quality Performance.

Tate Contribution (EQ Prerequisite 1 and EQ Credit 2):

By using an UFAD system in conjunction with a Tate access floor, the volumes of fresh air delivered to the breathing level of occupied spaces will easily comply with the minimum ventilation requirements of the IAQ prerequisite and the ASHRAE Standard. In fact, a UFAD system may alone qualify the building for the Increased Ventilation credit. The key to exceeding the ASHRAE rate by 30% is to provide higher rates of outdoor air *to the breathing level* of the occupied spaces. A UFAD system does exactly that — it delivers fresh air from below directly to occupants' six-foot breathing zone. As the fresh air enters the zone it *replaces* existing contaminated air (rather than diluting it). Pollutants and stale air in the zone are carried to the ceiling by natural convection, where they are removed through return outlets.

For more information, please verifying these findings, please click here to read the study "Air Distribution Effectiveness with Stratified Air Distribution Systems" by ASHRAE fellow Qingyan Chen, Ph.D. Kisup Lee, ASHRAE Student member and Zheng Jiang, PhD

IEQ Credit 3.1: Construction Indoor Air Quality Management Plan – During Construction (1 point)

Intent:

To reduce indoor air quality (IAQ) problems resulting from construction or renovation and promote the comfort and well-being of construction workers and building occupants.

Requirements:

Develop and implement an IAQ management plan for the construction and preoccupancy phases of the building.

Tate Contribution (IEQ 3.1):

A Tate Access Floor system with Underfloor Air Distribution (UFAD) may contribute to this credit by eliminating a majority of overhead ductwork, producing significantly less construction waste and dust when compared with traditional overhead systems.

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

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.

Requirements:

All adhesives and sealants used on the interior of the building must comply with requirements as applicable to the project scope: Adhesives, Sealants and Sealant Primers must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168.

Tate Contribution (EQ Credit 4.1):

The Tate floor system utilizes adhesives for adhering pedestals to the building floor which are in compliance with South Coast Air Quality Management District Rule #1168.

To obtain documentation verifying compliance of Tate's pedestal adhesive with SCAQM District Rule #1168 please click here.

IEQ Credit 4.2: Low-Emitting Materials - Paints and Coatings (1 point)

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.

Requirements:

Paints and coatings used on the interior of the building must comply with the following criteria as applicable to the project scope: Clear wood finishes, floor coatings, stains, primers, sealers, and shellacs applied to interior elements must not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

Tate Contribution (EQ Credit 4.2):

Tate's panel paint is applied and cured at the factory. The VOC content of our panel paint is less than the content limit stipulated by EQ Credit 4.2.

Please click here to view this verification.

IEQ Credit 4.3: Low-Emitting Materials—Flooring Systems (1 point)

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.

Requirements:

All carpet installed in the building shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus. All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L. Floor finishes must meet the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

Tate Contribution (EQ Credit 4.3):

PosiTile carpet tiles manufactured for Tate floor panels are installed without field-applied adhesive, ensuring compliance with the required VOC limit of 50 g/L. Each carpet tile is held in place by positioning buttons on its underside which fit into holes in the floor panel. Carpet tile and adhesive product data verifying compliance with credit requirements are available from PosiTile carpet suppliers.

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

Intent:

To provide a high level of thermal comfort system control1 by individual occupants or groups in multi-occupant spaces (e.g. classrooms or conference areas) and promote their productivity, comfort and well-being.

Requirements:

Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to meet individual needs and preferences. Provide comfort system controls for all shared multi-occupant spaces to enable adjustments that meet group needs and preferences

Tate Contribution (EQ Credit 6.2):

When a building uses *overhead* air delivery systems, occupants have little or no control over the air diffusers in their workspaces. Overhead systems are thermostatically controlled in large zones. By locating diffusers in an access floor, occupants gain control over volume *and* direction of airflow. Since this LEED point is so difficult to achieve without the use of an UFAD system, the LEED-NC V3 Reference Guide actually suggests using floor diffusers as a potential

technology/strategy toward achieving this credit. Providing adjustable floor air diffusers to serve just 50% of regular occupants contributes toward achieving this credit. And further, occupant control is easily maintained when layouts change because floor panels with diffusers are easily relocated.

IEQ Credit 7.1: Thermal Comfort - Design ASHRAE Standard 55-2004 (1 Point)

Intent:

Provide a comfortable thermal environment that supports the productivity and well-being of occupants.

Requirements:

Design heating, ventilating and air conditioning (HVAC) systems and the building envelope to meet the Requirements of ASHRAE Standard 55-2004 Thermal Environmental Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 documentation.

Tate Contribution (EQ Credit 7.1):

Thermal comfort is enhanced by several major benefits of UFAD:

- **Efficient Heat Removal:** An UFAD system does a superior job of maintaining comfortable air temperatures by delivering conditioned air directly to the six-foot high occupied zone. Air from the floor diffusers creates an upward flow which efficiently forces air out of the zone that's been heated by people and equipment. Natural convection carries the heated air to the ceiling where it is exhausted through return outlets. This system is considerably more effective than an overhead system which mixes cool air with heated air near the ceiling and forces it down to the occupied zone before it is exhausted.

- **Air Velocity & Cold Spot Reduction:** Because UFAD systems discharge cool air at higher temperatures (60 - 65°F), and at lower velocities than overhead systems, the likelihood of occupant discomfort due to high air speed and cold spots is minimized.

- **Comfortable Proximity:** The use of higher temperatures and lower velocities allows diffusers to be located nearer to occupants for optimal personal comfort. Diffuser locations are easily changed to suit personal preferences -- whereas overhead systems are difficult to change and rarely are. If layouts change and people are relocated, comfort is maintained simply by moving the floor panels fitted with diffusers to where the people are.

- **Occupant Control:** Experience has shown that simply having control over the volume and direction of air flow in the immediate workspace significantly increases occupant satisfaction with thermal conditions.

EQ Credit 7.2: Thermal Comfort: Verification (1 point in addition to IEQ credit 7.1)

Intent:

To provide for the assessment of building occupant thermal comfort over time.

Requirements:

Achieve IEQ Credit 7.1: Thermal Comfort—Design. Provide a permanent monitoring system to ensure that building performance meets the desired comfort criteria as determined by IEQ Credit 7.1. Agree to conduct a thermal comfort survey of building occupants within 6 to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building, including an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include

measurement of relevant environmental variables in problem areas in accordance with the standard used for design in IEQ Credit 7.1: Thermal Comfort—Design.

Tate Contribution (EQ Credit 7.2):

The use of an UFAD system with an access floor can aid fulfillment of credit compliance by helping to avoid the need for corrective action. Taking into account the thermal comfort enhancements described above, having underfloor air delivery *increases* the probability that 80% of occupants will be satisfied; thereby *lessening* the possibility that corrective action will be required.

IEQ Credit 8.1: Daylight and Views - Daylight (1 Point)

Intent:

To provide building occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Requirements:

Achieve a minimum of day lighting in at least 75% of regularly occupied space.

IEQ Credit 8.2: Daylight and Views - Views (1 Point)

Intent:

To provide building occupants a connection to the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Requirements:

Achieve a direct line of sight to the outdoor environment via vision glazing between 30 inches and 90 inches (between 0.8 meters and 2.3 meters) above the finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with a direct line of sight by totaling the regularly occupied floor area that meets the following criteria:

- In plan view, the area is within sight lines drawn from perimeter vision glazing.
- In section view, a direct sight line can be drawn from the area to perimeter vision glazing.

Tate Contribution (EQ Credits 8.1 and 8.2):

An obvious strategy to maximize daylight and views is to increase window area and height. Integration of access floors with UFAD and underfloor wire and cable distribution facilitates this by reducing the ceiling cavity space allocated for supply ductwork and cables, thereby allowing the ceiling to be raised and window heights to increase — without increasing building's height. For each building level with an access floor and UFAD system, as much as one foot of space between floors can be gained by eliminating two feet in the ceiling cavity and allocating just one foot for an access floor.

Note: Further in this bulletin you will see that we have developed an Innovation in Design credit (ID Credit 1.3) based on using the ceiling cavity reduction to reduce the building's overall height -- a strategy which works against increasing the window height for increased daylight and views. The effect of this conflict is that the pursuit of either credit lessens or eliminates the possibility of achieving the other.

LEED-NC 3.0 - Innovation in Design

With the exception of ID Credit 2 (LEED Accredited Professional), the following Innovation in Design credits were developed by Tate to provide design teams and projects the opportunity to be awarded points for innovative performance in areas not specifically addressed by the LEED Rating System.

ID Credit 1.1: Power Distribution Systems: Reduction of Materials and Waste

Intent: Reduce the volume of power wiring and power distribution components required to supply power in buildings in order to reduce the demand for virgin materials and to reduce waste; thereby reducing the impacts associated with manufacturing, material transportation and the extraction and processing of virgin resources.

Requirements: For the proposed power distribution system, demonstrate a 20% reduction in the total length of cabling required to meet the building's initial power requirements compared to the total length required for comparable conventional power distribution methods. Provide cut sheets and product data from the access floor and/or power cable manufacturer to show that all of the system's cables and outlets can be reused (not abandoned) when workstations, offices and meeting rooms are relocated.

Potential Technologies & Strategies: Source products/technologies which reduce the initial lengths of power cabling required and which allow the original cables to be reused throughout the life of the building.

Tate Contribution (ID Credit 1.1):

When a Tate floor is used; power cables are laid on the building floor and terminated at power distribution boxes in the access floor. This eliminates vertical cable runs from the ceiling through columns or power poles, greatly reducing the lengths of cables required to reach workstations. Underfloor wiring also eliminates the need for wall outlets and the additional cable runs from the ceiling. Immediate and future outlet needs can be accommodated with power distribution boxes in the access floor. Fewer floor boxes than wall outlets are required up front because the access floor is always accessible for changes and additions whereas pathways in walls are generally inaccessible. When power distribution boxes in an access floor need to be relocated, everything is accessible, eliminating wasteful cable and outlet abandonment that often occurs with conventional power distribution.

In addition, when modular wiring systems are used, the extender cables which are terminated at the ends with plug together connectors can be used anywhere along the entire length of the system. This encourages cable reuse rather than abandonment

ID Credit 1.2: Voice and Data Distribution Systems: Reduction of Materials and Waste

Intent: Reduce the volume of voice/data cabling and cable support systems required to provide computer and telecom service in buildings in order to reduce the demand for virgin materials and to reduce waste; thereby reducing the impacts associated with manufacturing, material transportation and the extraction and processing of virgin resources.

Requirements: Provide plans/drawings which show that cable tray systems will not be utilized for routing voice and data cables in general office areas. For the proposed voice/data cable distribution system, demonstrate a 20% reduction in the total length of cabling required to meet the building's initial cabling requirements compared to the total length required for conventional overhead distribution methods. Provide cut sheets and product data from the access floor and/or cable manufacturer to show that all of the system's cables and outlets can be reused (not abandoned) when workstations, offices and meeting rooms are relocated.

Potential Technologies & Strategies: Source products/technologies which reduce the initial lengths of cabling required, which eliminate the need for cable trays or other suspension systems, and which allow the original cables to be reused throughout the life of the building.

Tate Contribution (ID Credit 1.2):

When an access floor is used, voice and data cables are laid directly on the slab below the floor, eliminating the need for cable trays or other suspension systems used in ceiling distribution systems. Vertical cable runs extending from the ceiling cavity through walls, columns or poles are eliminated, greatly reducing the lengths of cable required to reach termination points. The complete accessibility of cables under the raised floor eliminates abandonment of cables located in inaccessible pathways when reconfigurations occur. (The original cables in conventional distribution systems are often difficult to access and are simply abandoned as requirements change.)

ID Credit 1.3: Building Materials: Reduce Building Height and Construction Materials

Intent: Reduce the volume of construction materials required for new buildings; reduce the environmental impacts of new buildings as they relate to energy consumption, materials manufacturing, natural resource consumption and materials transport.

Requirements: Demonstrate that the proposed building design reduces the total air delivery and service distribution cavity height on each level by 10% compared to designs utilizing conventional air and service distribution methods. Note: "Total air delivery and service distribution cavity height" is the vertical section of each building level required to house and conceal air supply and return ductwork, power cabling, and voice/data cable distribution systems.

Potential Technologies & Strategies: Design the building to utilize service distribution systems such as underfloor air delivery and underfloor power and voice/data cabling which require less vertical space between floors than conventional systems.

Tate Contribution (ID Credit 1.3):

The integration of UFAD systems and underfloor power and voice/data cabling systems with access floors creates an opportunity for reduction of floor-to-floor height throughout the building by eliminating the need for ceiling-based supply ductwork and cabling. On each building level, a net reduction of up to one foot can be had by eliminating two feet in the ceiling and adding a one-foot high access floor to the building floor below. A 12-inch access floor on each level can be used to distribute air throughout the space and route power and voice data cables to termination points anywhere in the floor. A building's overall height reduction reduces the demand for structural steel, exterior skin materials, interior wall materials, elevator shaft and stairway components, air risers, and risers for cables. In addition, energy costs associated with construction activities and transportation are significantly reduced.

ID Credit 1.4: Elimination of Carpet Waste

Intent: Reduce the amount of carpet waste incurred with raised floor systems that use off-module carpet tiles in order to reduce the demand for virgin materials and to reduce waste; thereby reducing the impacts associated with manufacturing, material transportation and the extraction and processing of virgin resources.

Requirements: Provide product literature and/or product data demonstrating that the proposed carpet system allows utility services to be relocated in the raised floor without incurring waste of existing carpet tiles and the addition of new ones.

Potential Technologies & Strategies: Use a carpet tile system with tiles that have a one-to-one fit with the access floor panels.

Tate Contribution (ID Credit 1.4):

Tate's PosiTile carpet tiles are engineered to have a one-to-one fit with Tate's floor panels, allowing utility services to be relocated without incurring waste and cutting of new carpet tiles. Each 24-inch PosiTile carpet tile has positioning buttons to align it with the 24-inch floor panel. The location of a cutout for an air diffuser or power distribution box in a PosiTile carpet tile will precisely match the location of the cutout in the floor panel, enabling the panel and carpet tile to be moved as one unit to another location. Product literature and data verifying compliance with credit requirements is available from Tate.

ID Credit 1.5: Elimination of Suspended Ceilings

Intent: Reduce the volume of construction materials required for new buildings; reduce the environmental impacts of new buildings as they relate to energy consumption, materials manufacturing, natural resource consumption and materials transport.

Requirements: Eliminate the use of suspended ceilings in the proposed building.

Potential Technologies & Strategies: Design the building to utilize modern service distribution technologies that eliminate the need to install HVAC supply ducts and power and voice/data cables overhead.

Tate Contribution (ID Credit 1.5):

The integration of UFAD systems and underfloor cable systems with Tate access floors in the building eliminates unsightly assortments of ceiling-based HVAC supply ducts and metal cable trays that need to be hidden from view by suspended ceilings. The elimination of suspended ceilings creates opportunities to incorporate alternative ceiling materials and finishes.