

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

SECTION 10270

PART 1 - GENERAL

1.1 Section Includes

- A. Work of this section includes, but is not limited to: access floor panels, floor coverings, understructure and various electrical, data and communication accessories.

1.2 Related Sections

- A. Concrete sealer shall be compatible with pedestal adhesive, see Division 3.
- B. Electrical contractor shall provide necessary material and labor to electrically connect the access floor to the building, see Division 16.

1.3 Environmental Conditions for Storage and Installation

- A. Area to receive and store access floor materials shall be enclosed and maintained at ambient temperature between 35° to 95° F and humidity level between 20% to 80% relative. **All floor panels shall be stored at ambient temperature between 50° to 90° F for at least 24 hours before installation begins.** All areas of installation shall be enclosed and maintained at ambient temperature between 50° to 90° F and at humidity level between 20% to 80% relative, and shall remain within these environmental limits throughout occupancy.

1.4 References

- A. CISCA (Ceilings & Interior Systems Construction Association) - “Recommended Test Procedures for Access Floors” shall be used as a guideline when presenting load performance product information.
- B. Access flooring shall comply with NFPA 75 requirements for access flooring.

1.5 Performance Certification

- A. Product tests shall be witnessed and certified by independent engineering and testing laboratory based in the U.S. with a minimum of five years experience testing access floor components in accordance CISCA “Recommended Test Procedures for Access Floors”.

1.6 Country-of-Origin and Product Marking

- A. Access floor materials shall comply with the provisions outlined in FAR Subpart 25.2 – Buy American Act – Construction Materials.
- B. Floor panels shall be permanently marked with manufacturer’s name, product identification, manufacturing date and country-of-origin. Removable Product ID stickers are not acceptable.

1.7 Performance Requirements

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

Pedestals:

- A. **Axial Load:** Pedestal assembly shall sustain a 5000 lb. (22.24 Kn) axial load without permanent deformation.
- B. **Overturning Moment:** Pedestal assembly shall provide an average overturning moment of 1000 in-lbs. (113 Nm) when glued to a clean, sound, uncoated concrete surface. ICBO number for the specific system or structural calculations shall be required attesting to the lateral stability of the system under seismic conditions.

Stringers:

- A. **Midspan Concentrated Load:** Stringer shall be capable of withstanding a concentrated load of 250 lbs. (1.11 Kn) placed in the midspan stringer center on a one square inch (645.2 mm²) area using a round or square indenter without exceeding a permanent set of 0.010 inches (0.25 mm) after the load is removed.

Floor Panels:

- A. **Design Load:** Panel supported on actual understructure (the system) shall be capable of supporting a safe working load or design load of 1250 lbs. (5.56 Kn). This rating signifies that the system will withstand not only a concentrated load placed on a one square inch area at any location on the panel without yielding but also demonstrates the ability to withstand an overload capacity of two times its rating (ie. a safety factor of 2). (For a detailed description of this important criteria, refer to the Design Load bulletin at www.tateaccessfloors.com and click on Resources/Technical Bulletins).
- B. **Safety Factor:** Panel supported on actual understructure (the system) shall be capable of withstanding a minimum of (2) two times the design load anywhere on the panel without failure. Failure is defined as the point at which the system will no longer accept the load.
- C. **Uniform Load:** Panel shall be capable of supporting a uniform load of 300 lbs. placed on a one square foot area (14.36 Kn/m²) at any location on the panel with a maximum beam deflection of 0.060 inches (1.52 mm). Panel shall not exceed a permanent set of 0.010 inches (0.25 mm), after the load is removed. **Note: The uniform load rating of an access floor panel as specified herein should not be confused with the “uniform live load” as specified in seismic zone applications.**
- D. **Rolling Load:** Panel and supporting understructure shall be able to withstand the following rolling loads at any location on the panel without developing a local and overall surface deformation greater than 0.040 inches. Note: wheel 1 and wheel 2 tests shall be performed on two separate panels.

| | | |
|----------|---|--|
| Wheel 1: | Size: 3” dia x 1 13/16” wide (76.2 mm dia x 45.9 mm) | Load: 500 lbs. Passes: 10 (2.22 Kn) |
|----------|---|--|

| | | |
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| Wheel 2: | Size: 6” dia x 1 1/2” wide (152.4 mm dia x 38.1 mm) | Load: 500 lbs. Passes: 10,000 (2.22 Kn) |
|----------|--|--|

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

- E. **Impact Load:** Panel and supporting understructure shall be capable of supporting an impact load of 150 lbs. (0.66 Kn) dropped from a height of 36 inches (914.4 mm) onto a one square inch area (645.16 mm²), using a round or square indenter, at any location on the panel without failure.
- F. **Panel Drop Test:** Panel shall be capable of being dropped face up onto to a concrete slab from a height of 36”(914.4 mm), after which it shall continue to meet all load performance requirements as previously defined.
- G. **Flammability:** System shall meet *Class A* Flame spread requirements for flame spread and smoke development. Tests shall be performed in accordance with ASTM-E84-1998, Standard Test Method for Surface Burning Characteristics for Building Materials.

1.8 Design Requirements:

- A. Access floor system, where indicated on the design documents, shall consist of modular and removable all steel welded panels and supported on all four edges by structural steel members which are designed to bolt onto adjustable height pedestal assemblies forming a modular grid pattern.
- B. Panel shall be easily removed by one person with a lifting device and shall be interchangeable except where cut for special conditions.
- C. Quantities, finished floor heights (FFH) and location of accessories shall be as specified on the contract drawings.

1.9A Submittals for Review

- A. Detail sheets, for each proposed product type, which provide the necessary information to describe the product and its performance.
- B. Test reports, by an independent testing laboratory, certifying that component parts perform as specified.

1.9B Submittals for Information

- A. Manufacturer’s installation instructions and guidelines.
- B. Manufacturer’s Owner Manual outlining recommended care and maintenance procedures.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Access floor system shall be as manufactured by Tate Access Floors, Inc. and shall consist of the All Steel 1250 panel supported by bolted stringer understructure system.
- B. Alternative products shall meet or exceed the feature requirements as indicated herein and the performance requirements as outlined in section 1.6 and must receive prior written approval by the architect or designer.

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

- C. Access floor manufacture shall be ISO9001: 2000 certified demonstrating it has a robust and well documented quality management system with continuous improvement goals and strategies.
- D. Access floor manufacturer's facilities shall be ISO14001:2004 certified demonstrating that they maintain an environmental management system.

2.2 Support Components

Pedestals:

- A. Pedestal assemblies shall be corrosive resistant, all steel welded construction, and shall provide an adjustment range of +/- 1" (25.4 mm) for finished floor heights 6" (152.4 mm) or greater.
- B. Pedestal assemblies shall provide a means of leveling and locking the assembly at a selected height, which requires deliberate action to change height setting and prevents vibration displacement.
- C. Hot dip galvanized steel pedestal head shall be welded to a threaded rod that includes a specially designed adjusting nut. The nut shall provide location lugs to engage the pedestal base assembly, such that deliberate action is required to change the height setting.
- D. Threaded rod shall provide a specially designed anti-rotation device, such that when the head assembly is engaged in the base assembly, the head cannot freely rotate for FFH of 6" (152.4 mm) or greater. Note: This prevents the assembly from inadvertently losing its leveling adjustment when panels are removed from the installation during use.
- E. Hot dip galvanized pedestal base assembly shall consist of a formed steel plate with no less than 16 inches (406.4 mm) of bearing area, welded to a 7/8" (22.09 mm) square steel tube and shall be designed to engage the head assembly.

Stringer:

- A. Stringers shall support each edge of panel.
- B. Stringer shall have conductive hot dip galvanized coating.
- C. Stringers shall be individually and rigidly fastened to the pedestal with one machine screw for each foot of stringer length. Bolts shall provide positive electrical contact between the stringers and pedestals. Connections depending on gravity or spring action are unacceptable.
- D. Stringer grid shall be 1200 mm stringers in a basketweave configuration ensuring maximum lateral stability in all directions. (Also available in 600 mm x 1200 mm and 600 mm x 600 mm grid patterns).

2.3 Panel Components

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

Floor Panels:

- A. **All Steel Panels:** Shall consist of a top steel sheet **welded** to a formed steel bottom pan. **Mechanical or adhesive methods for attachment of the steel top and bottom sheets are unacceptable.**
- B. Panels shall have an electrically conductive epoxy paint finish.
- C. **Steel Airflow Panels:** Perforated steel airflow panels **designed for static loads** shall be interchangeable with standard field panels and capable of supporting concentrated loads of 1000 lbs. (4.44 Kn). Panels shall have 25% open surface area with the following air distribution capability:
 - 1. Panel without damper: 725 cfm at 0.1-inch of H₂O (static pressure).
(20.5 cubic meters per minute)
 - 2. Panel with damper at 100% open position: 550 cfm at 0.1-inch of H₂O (static pressure).
(15.6 cubic meters per minute)
- D. **Grate Airflow Panels:** Die cast aluminum grate panels designed for static and rolling loads shall be interchangeable with standard field panels. Grate panels shall have 56% open area with the following air distribution capability without a damper: 1884 cfm at 0.1-inch of H₂O (static pressure). Grate panels shall have the following load bearing capacities:
 - 1. Design Load: Panel supported on actual understructure shall be capable of supporting a safe working or design load of 1000 lbs. (4.44 Kn) placed on a one square inch area, using a round or square indenter, at any location on the panel without yielding.
 - 2. Uniform load: 250 lbs./ft.2 (11.97 Kn/m²)
 - 3. Safety Factor: (2) Times Design Load
 - 4. Impact load: 100 lbs. (45.3 kg)
 - 5. Rolling Load: Grate panel and supporting understructure shall be able to withstand the following rolling loads at any location on the panel without developing a local and overall surface deformation greater than 0.040 inches. Note: wheel 1 and wheel 2 tests shall be performed on two separate panels.

Wheel 1: Size: 3” dia x 1 13/16” wide Load: 1000 lbs. Passes: 10
(76.2 mm dia x 45.9 mm) (4.44 Kn)

Wheel 2: Size: 6” dia x 2” wide Load: 800 lbs. Passes: 10,000
(152.4 mm dia x 50.8 mm) (3.55 Kn)

2.4 Accessories

- A. UL listed Power, Voice & Data Servicers shall be provided in locations as detailed on the contract drawings. High capacity 11-1/4 inch (285.75 mm) square PVD Servicers shall be capable of

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

accommodating four duplex receptacles, three knockouts for standard voice/data faceplates or Tate voice/data interface plates (or grommeted interface plates). Standard capacity 7-5/16 inch (185.67 mm) by 6-15/16 inch (176.02 mm) PVD Servicenters shall be capable of accommodating two duplex receptacles, two individual voice data/termination points and one grommet port. The service outlet box shall be a drop-in design having a hinged Lexan lid with carpet insert and Lexan frame with tapered edge. Service outlet box shall be capable of withstanding without failure an 800 lb. (3.55 Kn) load.

- B. Provide manufacturer's standard steps, fascia plate, perimeter support, and grommets where indicated on the contract drawings.
- C. Provide _____ spare floor panels and _____ square feet of understructure systems for each type used in the project for maintenance stock. Deliver to project in manufacturer's standard packaging clearly marked with the contents.
- D. Provide _____ panel lifting devices.
- E. When applicable provide manufacturer's standard underfloor air systems components (including, grilles, diffusers and perforated floor panels) where indicated on the contract drawings.

2.5 Finishes

- A. Finish the surface of floor panels with floor covering material as indicated on the contract drawings. Where floor coverings are by the access floor manufacturer, the type, color and pattern shall be selected from manufacturer's standard. **All storage and installation areas furnished with laminated floor panels must be maintained at ambient temperature between 35° to 95° F and at humidity level between 20% to 80% relative and shall remain within these ranges through installation and occupancy.**
- B. High-pressure laminate floor covering shall meet requirements of NEMA LD3, and shall conform with one of the following grades: Grade HDH 1/8" (3.0 mm) or Grade HDM 1/16" (1.5 mm).
- C. High-pressure laminate floor coverings shall have an edge condition that is integral to the tile. Separate edge trim pieces are not acceptable.
- D. [Vinyl] [Rubber] [Linoleum] floor covering shall have monolithic edge.
- E. **Surface to Ground Resistance of Standard High Pressure Laminate Anti-Static Covering:** Average test values shall be within the range of 1,000,000 ohms (1.0×10^6) to 20,000 megaohms (2.0×10^{10} ohms), as determined by testing in accordance with the test method for conductive flooring specified in Chapter 3 of NFPA 99, but modified to place one electrode on the floor surface and to attach one electrode to the understructure. Resistance shall be tested at 500 volts.
- F. **Surface to Ground Resistance of Conductive Laminate Covering:** Not less than 25,000 ohms (2.5×10^4), nor more than 1,000,000 ohms (1.0×10^6), as determined by testing in accordance with the test method for conductive flooring specified in Chapter 3 of NFPA 99, but modified to place one

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

electrode on the floor surface and to attach one electrode to the understructure. Resistance shall be tested at 500 volts.

2.6 Fabrication Tolerances

- A. Floor panel flatness measured on a diagonal: +/- 0.035" (0.88 mm)
- B. Floor panel flatness measured along edges: +/- 0.025" (0.635 mm)
- C. Floor panel width or length of required size: +/- 0.010" (0.25 mm)
- D. Floor panel squareness tolerance: +/- 0.015" (0.38 mm)

PART 3 - EXECUTION

3.1 Preparation

- A. Examine structural subfloor for unevenness, irregularities and dampness that would affect the quality and execution of the work. Do not proceed with installation until structural floor surfaces are level, clean, and dry as completed by others.
- B. Concrete sealers, if used, shall be identified and proven to be compatible with pedestal adhesive. Verify that adhesive achieves bond to slab before commencing work.
- C. Verify dimensions on contract drawings, including level of interfaces including abutting floor, ledges and doorsills.
- D. The General Contractor shall provide clear access, dry subfloor area free of construction debris and other trades throughout installation of access floor system. Area to receive access floor shall be enclosed and be maintained at a temperature range of 35° to 95° F and a humidity range of 20% to 80% relative. All laminated floor panels shall be stored and maintained in this environment upon delivery to storage sites. Bare access floor panels must be stored in this environment at least 24 hours before installation begins.

3.2 Installation

- A. Pedestal locations shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal installation.
- B. Installation of access floor shall be coordinated with other trades to maintain the integrity of the installed system. All traffic on access floor shall be controlled by access floor installer. No traffic but that of access floor installers shall be permitted on any floor area for 24 hours to allow the pedestal adhesive to set. Access floor panels shall not be removed by other trades for 72 hours after their installation.
- C. Floor system and accessories shall be installed under the supervision of the manufacturer's authorized representative and according to manufacturer's recommendations.
- D. No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.
- E. Access floor installer shall keep the subfloor broom clean as installation progresses.

Tate Access Floors, Inc.
All Steel 1250 Access Floor Panel – 600 mm
Bolted Stringer Understructure System

- F. Partially complete floors shall be braced against shifting to maintain the integrity of the installed system where required.
- G. Additional pedestals as needed shall support panels where floor is disrupted by columns, walls, and cutouts.
- H. Understructure shall be aligned such that all uncut panels are interchangeable and fit snugly but do not bind when placed in alternate positions.
- I. Finished floor shall be level, not varying more than 0.062” (1.57 mm) in 10 feet (3.04 m) or 0.125” (3.175 mm) overall.
- J. Acceptance: General contractor shall accept floor in whole or in part prior to allowing use by other trades.

End