SECTION 10270

ACCESS FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Access flooring system including access floor panels, floor panel covering, understructure and required accessories.

1. Gravity-held panels on bolted stringer understructure.
2. Provide access flooring at rooms as shown on Drawings with:
   a. Carpet finish.
   b. Static dissipative tile finish

B. Products Installed *And* Supplied Under This Section:

1. Section 09650 - Resilient Flooring: Static dissipative tile

C. Products Installed But Not Supplied Under This Section:

1. Section 09680 – Carpet: Carpet tile for access flooring.

D. Related Sections:

1. Division 3 Section "Cast-in-Place Concrete" for concrete floor sealer.
2. Division 16 – For connection to ground of access flooring understructure

1.2 REFERENCES

A. CISCA (Ceilings & Interior Systems Construction Association): "Recommended Test Procedures for Access Floors".

B. ASTM E84: Test for Surface Burning Characteristics of Building Materials.

1.3 DESIGN REQUIREMENTS

A. Access floor system, where indicated on the Drawings, shall consist of modular and removable cementitious filled welded steel panels supported on all four edges by structural steel members, which are designed to bolt onto adjustable height pedestal assemblies forming a modular grid pattern.

1. Panel shall be easily removed by one person with a lifting device and shall be interchangeable except where cut for special conditions.
2. Quantities, finished floor heights (FFH) and location of accessories shall be as indicated on the Drawings.

1.4 PERFORMANCE REQUIREMENTS

A. Performance Requirements, General: Provide access flooring systems consisting of proprietary portable assemblies composed of modular floor panels on elevated supports (understructures) forming accessible underfloor cavities (air spaces) to accommodate electrical and mechanical services and complying with performance requirements specified.

B. Performance Certification: Utilize CISCA - "Recommended Test Procedures for Access Floors" (Modified) for presenting load performance product information. Provide product performance tests certified by an independent engineering and testing agency based in the U.S. with a minimum of five years experience testing access floor components in accordance CISCA test procedures.

C. Pedestals:

1. Axial Load: Pedestal assembly shall provide a 6000 lb. axial load without permanent deformation.
2. Overturning Moment: Pedestal assembly shall provide an average overturning moment of 1000 in-lbs. 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.

D. Stringers – Mid-span Concentrated Load: Stringer shall be capable of withstanding a concentrated load of 450 lbs. placed in the mid-span stringer center on a one square inch area using a round or square indentor without exceeding a permanent set of 0.010" after the load is removed.

E. Floor Panels:

1. Concentrated Load: Panel shall be capable of supporting a concentrated load of 1250 lbs. placed on a one square inch area (using a round or square indenter) at any location on the panel with a maximum top surface deflection of 0.100 inches. Panel shall not exceed a permanent set of 0.010 inches, after the load is removed. Panel shall demonstrate ductility by being loaded to a deflection of 0.100 inches without incurring damage.
2. Uniform Load: Panel shall be capable of supporting a uniform load of 300 lbs. placed on a one square foot area at any location on the panel with a maximum top surface deflection of 0.060 inches. Panel shall not exceed a permanent set of 0.010 inches, 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.
3. Ultimate Load: Panel shall be capable of withstanding a minimum concentrated load of 3750 lbs. applied onto a one square inch area (using a round or square indenter) at any location on the panel without failure. Failure is defined as the point at which the panel will no longer accept the load. Certified test shall be provided attesting to this ultimate load.
4. 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.
   a. Wheel 1: Size: 3" dia. x 1 13/16" wide Load: 1000 lbs. Passes: 10
   b. Wheel 2: Size: 6" dia. x 1 1/2" wide Load: 800 lbs. Passes: 10,000
5. Impact Load: Panel and supporting understructure shall be capable of supporting an impact load of 150 lbs. dropped from a height of 36 inches onto a one square inch area (using a round or square indenter) at any location on the panel, after which it shall continue to meet all load performance requirements as previously defined.

6. Panel Drop Test: Panel shall be capable of being dropped face up onto to a concrete slab from a height of 36", after which it shall continue to meet all load performance requirements as previously defined.
7. Panel Cutout: Panel with 8" diameter cutout shall be capable of withstanding an ultimate load without failure of 2300 lbs. anywhere on the panel.
8. 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.
9. Combustibility: Access floor panels shall qualify as noncombustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

F. Static-Dissipative Floor Covering Resistance: Not less than 1 megohm (1.0 x 106 ohms) nor more than 100 megohms (1.0 x 108 ohms), as determined by testing identical products according to the method for conductive flooring specified in ASTM F 150 but modified to place one electrode on floor surface and to attach the other electrode to understructure.

1.5 SUBMITTALS

A. Product Data: Submit product data for grid system, panels, accessories and manufacturer's installation instructions.

B. Shop Drawings: Submit shop drawings showing complete layout of access flooring based on field-verified dimensions. Indicate floor layout, interruptions to grid, special sized panels, panels requiring drilling or cut-out for services, appurtenances or interruptions, edge details and elevation differences.

C. Samples: Submit two 6" x 6" samples of floor panel with finished surface and understructure components for each type of floor system.

D. Certificates: Submit manufacturer's certificate that products meet or exceed specified design strength and electrical resistance requirements.

E. Test Reports: Submit certified test reports evidencing compliance of access flooring with performance requirements specified based on comprehensive testing of current products representative of those provided for this project.

F. Maintenance Data: Include recommended cleaning and stain removal methods.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain access flooring through one source from a single manufacturer. which has a minimum of five years experience in the manufacture of access floor systems and can demonstrate that they have completed projects of similar scope and size.

B. NFPA Standard: Provide access flooring complying with NFPA 75 requirements for raised flooring.

C. Installer: Contractor shall be approved by the access flooring manufacturer and shall have a history of five years of successful projects of similar size and complexity.

D. Fire Resistance: Panels without covering shall have Class A flame spread rating when tested in accordance with ASTM E84.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene a pre-installation conference one week prior to commencing work of this Section to establish schedule, review shop drawings and coordinate trades.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials in original, unopened packages clearly labeled with the manufacturer's name and item description.

B. Storage: Provide secure storage and a clean subfloor, which is free of dust, construction debris and other trades during the installation of access floor system.

C. Distribute material packages around the areas where they will be used to avoid overstressing the subfloor and to facilitate installation.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not install access flooring until spaces are enclosed, subfloor has been sealed, ambient temperature is between 35 and 95 deg F (1.6 and 35 deg C), and relative humidity is not less than 20 and not more than 80 percent. Maintain spaces within these environmental limits throughout installation. Store all laminated floor panels within these limits upon delivery to storage sites. Store all bare floor panels within these limits at least 24 hours before installation begins.

B. Field Measurements: Verify actual locations of walls, columns, and other construction contiguous with access flooring by field measurements before fabrication and indicate measurements on Shop Drawings.

1.10 COORDINATION

A. Coordinate application of concrete sealer or curing agent specified in Division 3 Section "Cast-in-Place Concrete" so that subfloor will be dry prior to installation of access floor pedestals and adhesives.

B. Coordinate location of mechanical and electrical work in underfloor cavity to prevent interference with access flooring pedestals.

C. Mark pedestal locations on subfloor by use of a grid to enable mechanical and electrical work to proceed without interfering with access flooring pedestals.

D. Proceed with installation only after completion of other construction within affected spaces.

1.11 SEQUENCING AND SCHEDULING

A. **Do not proceed with installation** of access flooring until all other performable work within affected spaces has been completed.

1.12 EXTRA MATERIALS

A. **Furnish** extra panels, pedestals and stringers described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Five percent of total job, all new product, no scraps

PART 2 - PRODUCTS

2.1 FLOOR PANELS AND UNDERSTRUCTURE

A. **Approved Product/Manufacturer:** Access floor system shall be as manufactured by Tate Access Floors, Inc. and shall consist of the ConCore® 1250 panel supported by a bolted stringer understructure system or approved equal.

B. **Floor Panels, General:** Provide modular field panels complying with the following requirements that one person, using a portable lifting device, can interchange with other field panels without disturbing adjacent panels or understructure and that are free of exposed-metal edges with floor covering in place:

1. Nominal Panel Size: 24 by 24 inches (610 by 610 mm).
2. Fabrication Tolerances: Fabricate panels to the following tolerances with squareness tolerances expressed as the difference between diagonal measurements from corner to corner:
    a. Size and Squareness: Plus or minus 0.010 inch (0.25 mm) of required size, with a squareness tolerance of plus or minus 0.015 inch (0.38 mm), unless tolerances are otherwise indicated for a specific panel type.
    b. Flatness: Plus or minus 0.040 inch (0.100 mm), measured on a diagonal on top of panel.
3. Panel Attachment to Understructure: By gravity.

2.2 SUPPORT COMPONENTS

A. **Pedestals:** Pedestal assemblies shall be corrosive resistant, all steel welded construction, and shall provide an adjustment range of +/- 2”.

1. 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.
2. Galvanized steel pedestal head shall be welded to a threaded rod, which 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.
3. 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” or greater).

4. Hot dip galvanized pedestal base assembly shall consist of a formed galvanized steel plate with no less than 16 inches of bearing area, welded to a 7/8" square galvanized steel tube and shall be designed to engage the head assembly.

B. Stringers: Stringer shall be galvanized steel and shall have a factory applied conductive coating.

1. Stringers shall support each edge of panel.
2. Steel stringer shall have conductive galvannealed coating
3. 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.
4. Stringer grid shall be 4' stingers in a basketweave configuration ensuring maximum lateral stability in all directions.

2.3 PANEL COMPONENTS

A. Floor Panels: Panels shall consist of a top steel sheet welded to a formed steel bottom pan filled internally by a lightweight cementitious material. Mechanical or adhesive methods for attachment of the steel top and bottom sheets is unacceptable.

1. Cementitious fill material shall be totally encased within the steel welded shell except where cut for special conditions. Note: This greatly reduces the potential for dust in the environment from exposed cement materials.
2. Panel shall have an electrically conductive epoxy paint finish.

2.4 FLOOR PANEL COVERING

A. General: Provide factory-applied floor coverings of type indicated that are laminated by access flooring manufacturer to tops of floor panels including perforated panels.

1. Static dissipative tile (see section 09650 - Resilient Flooring)

B. Provide modified bare panels for application of field-applied "One-to-One" carpet tiles.

1. Access flooring contractor shall install tiles as specified in Section 09680 - Carpet

2.5 ACCESSORIES

A. Service Outlets: UL listed Power, Voice & Data Servicenters shall be provided in locations as detailed on the contract drawings. High capacity 11 ¼ inch square PVD Servicenters shall be capable of 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 by 6-15/16 inch PVD Servicenters shall be capable of accommodating two duplex receptacles and two Tate voice/data interface plates (or grommeted interface plates). 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 a load of 800 lb.

B. Cutouts: Provide cutouts in floor panels for cable penetrations and service outlets. Provide reinforcement or additional support, if needed, to make panels with cutouts comply with standard performance requirements.

C. Accessories: Provide manufacturer's standard fascia plate, perimeter support, railings, and grommets where indicated on the Drawings.

D. Lifting Devices: Provide four (4) panel-lifting devices.

2.6 FABRICATION TOLERANCES

A. Floor panel flatness: 0.030" in any direction.

B. Floor panel width or length from specified size: +/- 0.010"

C. Floor panel squareness: +/- 0.015".

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify structural sub-floor for unevenness, irregularities and dampness that would affect the quality and execution of the work.

1. Do not proceed with installation until structural sub-floor surfaces are level, clean, dry and clear of other trades.

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 field measurements are as shown on Shop Drawings.

D. Verify that required sub-floor utilities are available, in proper location, and ready for use.

E. Beginning of installation means installer accepts existing conditions.

3.2 PREPARATION

A. Clean structural subfloor surfaces.

B. Protect elements surrounding the work of this Section from damage or disfiguration.

3.3 INSTALLATION

A. Install access floor system and accessories in accordance with manufacturer's instructions and under supervision of access flooring manufacturer's authorized representative to produce a rigid, firm installation that complies with performance requirements and is free of vibration, rocking, rattles, and squeaks.

B. Lay out floor panel installation to keep the number of cut panels at floor perimeter to a minimum. Scribe perimeter panels to provide a close fit with adjoining construction where panels abut vertical surfaces.

C. **Pedestal locations** shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal installation.

D. **Coordinate installation** of access floor with other trades to maintain the integrity of the installed system.

1. Traffic shall not be permitted on any floor area for 24 hours to allow the pedestal adhesive to set.

E. **Install additional pedestals** (if recommended by manufacturer) where grid pattern is interrupted by room appurtenances and at cutouts.

F. **Keep subfloor clean** as installation progresses.

G. **Brace** partially complete floors against shifting to maintain integrity of the installed system.

H. **Secure stringers** to pedestal heads according to access flooring manufacturer's written instructions.

I. **Installed system** shall be free of vibration, rocking rattles, squeaks and other unacceptable performance.

J. **Cutouts:** Make cutouts required for services penetrating panels.

1. Trim field cut edges of floor panels with "F" molding with sponge rubber inserts and seal.

K. **Connect grounding strips** embedded in static-conductive floor covering to connector clips attached to pedestals at intervals needed to comply with performance requirements for electrical resistance of floor covering.

L. **Attach one grounding continuity connector** to each access floor panel laminated with static-conductive floor covering to comply with performance requirements for electrical resistance of floor covering.

M. **Level Tolerances:** Finished floor shall be level, not varying more than 0.062" in 10 feet and plus or 0.125"overall.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. **Adjust pedestals** to achieve a level floor and to assure adjacent floor panel surfaces are flush.

B. **After completing installation,** vacuum clean access flooring and cover with continuous sheets of reinforced paper or plastic. Maintain protective covering until time of Substantial Completion.

C. **Replace access flooring panels** that are stained, scratched, otherwise damaged, or not complying with specified requirements.

END OF SECTION