

Section 09 69 00
(10270 MasterFormat 95)

PART 1 - GENERAL

1.01 Description

- A. The access floor system shall consist of interchangeable panels, understructure, and all labor, material, equipment, and installation as called for in the specifications and/or shown on the Architect's Drawings.
- B. Access floor manufacture shall be ISO9001:2000 certified demonstrating it has a robust and well documented quality management system with continual improvement goals and strategies.
- C. Access floor manufacturer's facilities shall be ISO14001:2004 certified demonstrating that they maintain an environmental management system.
- D. Access floor product must be indoor air quality certified to conform to CA Section 01350 Specification for classroom and standard office.
- E. Access floor product shall be manufactured in a zero landfill facility.
- F. Related Work Specified Elsewhere:
 - 1. Concrete work and concrete floor sealer is specified in Section 03 30 00.
 - a) Concrete sealer and pedestal adhesive must be chemically compatible with each other.
 - 2. Carpet and carpet tile work as specified in Section 09 68 00 (09680 MasterFormat 95).
 - 3. Mechanical air distribution as specified in Section 23 30 00 (15800 MasterFormat 95).
 - 4. Electrical connections and grounding as specified in Section 26 05 00 (16100 MasterFormat 95).

<p>FOR ACCESS FLOOR SYSTEMS USING UNDERFLOOR AIR DELIVERY USE THIS SECTION (DELETE IF NOT USING UNDERFLOOR AIR)</p>
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- G. Access Floor Air Plenum Requirements
 - 1. The access floor contractor is aware that the space beneath the access floor will be used as an air delivery plenum and as such will take the necessary precautions when installing their work so as not to impact the integrity of the plenum space specific to air leakage and cleanliness.
 - 2. Panel construction shall have a flat steel bottom to create a fully sealed plenum.
 - 3. When panels are to be used bare without carpet or other floor coverings an optional air sealing gasket may be used to prevent air leakage.

1.02 Environmental Conditions for Storage and Installation

- A. The General Contractor must provide a dry accessible area to receive and unload material with a free path to elevators, hoists, and/or the area receiving the access floor.
- B. Prior to and during installation, a secure and dry storage space closed to the weather must be made available for the access floor materials, with recommended environment at 40° F to 120° F and approximately 35% to 70% relative humidity, 24 hours a day during and after installation.
- C. The subfloor surface must be free of moisture, dust, dirt and other debris. Once installed, the access floor must be maintained in the same manner.

1.03 Design Performance and Certification of Product

- A. Provide access flooring system consisting of moveable assemblies composed of modular floor panels supported on pedestals forming accessible under floor cavities to accommodate electrical, mechanical, and HVAC services and complying with performance requirements specified. Raised Floor panels must be interchangeable with each other except where cut for special conditions.
- B. Where applicable load testing shall be performed according to “Recommended Test Procedures for Access Flooring” as established by the Ceiling and Interior Systems Construction Association (CISCA). These procedures shall be used as a guideline when presenting load performance product information.

FOR 1250 LB SYSTEM USE THIS SECTION (DELETE IF USING 1500, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1,250 lb. on one square inch (25mm) at any location with a top surface deflection not to exceed 0.10" (2.5mm), and a permanent set not to exceed .010" (.25mm).
2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm) TecCrete can hold 600 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010"(0.25mm).
3. Ultimate Load: Panel shall be designed to withstand a load of 1800 lb. applied over one inch at the weakest point on a pedestal.
4. Rolling Load: Panels shall withstand a rolling load of 1,200 lbs. applied through a 3" (76mm) dia. x 1-13/16" (46mm) wide caster for 10 cycles over the same path with a maximum of .040" (1mm) top surface permanent set. Panels shall withstand a rolling load of 800 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path with a maximum of .040" (1mm) top surface permanent set.
5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.
6. Flammability: Bare panel system shall meet *Class A* requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.
7. Combustibility: All components of the access floor system 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.
8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.
9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 "pedestal Axial Load Test."
10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.

11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lb (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, “Pedestal Overturning Moment Test.”

FOR 1500SL LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .010" (.25mm).
2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 700 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).
3. Ultimate Load: Panel shall be designed to withstand load of 2500 lb. applied over one inch at the weakest point on a pedestal.
4. Rolling Load: Panels shall withstand a rolling load of 1,500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 6" (152mm) dia. x 2" (51mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed 0.040" (1mm).
5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.
6. Flammability: Bare panel system shall meet *Class A* requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.
7. Combustibility: All components of the access floor system 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.
8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.
9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 “pedestal Axial Load Test.”

10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.
11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lb (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, "Pedestal Overturning Moment Test."

FOR 1500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500SL, 2000 OR 2500 LB SYSTEM)

1. Concentrated Load: 1500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).
2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 700 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).
3. Ultimate Load: Panel shall be designed to withstand load of 2500 lbs. applied over one inch at the weakest point on a stringer.
4. Rolling Load: Panels shall withstand a rolling load of 1500 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).
5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.
6. Flammability: Bare panel system shall meet *Class A* requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.
7. Combustibility: All components of the access floor system 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.
8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.

9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 “pedestal Axial Load Test.”
10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.
11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lb (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, “Pedestal Overturning Moment Test.”

FOR 2000 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250 OR 1500 LB SYSTEM)

1. Concentrated Load: 2000 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10” (2.5mm) and a permanent set not to exceed .015” (4mm).
2. Uniform Load: With a top surface deflection not exceeding 0.040” (1mm), TecCrete can hold 800 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010” (0.25mm).
3. Ultimate Load: Panel shall be designed to withstand load of 2800 lbs applied over one inch at the weakest point on a stringer.
4. Rolling Load: Panels shall withstand a rolling load of 1500 lbs. applied through a 3” dia. (76mm) x 1-13/16” (46mm) wide caster for 10 cycles over the same path with less than 0.040” top surface permanent set. Panels shall withstand a rolling load of 1250 lb. applied through a hard rubber-surfaced wheel 10” (254mm) dia. x 4” (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040” (1mm).
5. Impact Load: A 150 lb. load dropped from 36”(914mm) onto a one inch square indenter shall not render the system unserviceable.
6. Flammability: Bare panel system shall meet *Class A* requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.
7. Combustibility: All components of the access floor system 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.

8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.
9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 “pedestal Axial Load Test.”
10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.
11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lb (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, “Pedestal Overturning Moment Test.”

FOR 2500 LB SYSTEM USE THIS SECTION (DELETE IF USING 1250, 1500, 1500SL OR 2000 LB SYSTEM)

1. Concentrated Load: 2500 lb on one square inch (25mm) load at any location with a top surface deflection not to exceed 0.10" (2.5mm) and a permanent set not to exceed .015" (4mm).
2. Uniform Load: With a top surface deflection not exceeding 0.040" (1mm), TecCrete can hold 900 pounds per square foot evenly distributed over the surface of the panel with a permanent set not exceeding 0.010" (0.25mm).
3. Ultimate Load: Panel shall be designed to withstand a load of 3100 lb. applied over one inch at the weakest point on a stringer.
4. Rolling Load: Panels shall withstand a rolling load of 2000 lbs. applied through a 3" dia. (76mm) x 1-13/16" (46mm) wide caster for 10 cycles over the same path with less than 0.040" top surface permanent set. Panels shall withstand a rolling load of 2000 lb. applied through a hard rubber-surfaced wheel 10" (254mm) dia. x 4" (102mm) wide for 10,000 cycles over the same path. Permanent set at the conclusion of the test shall not exceed .040" (1mm).
5. Impact Load: A 150 lb. load dropped from 36"(914mm) onto a one inch square indenter shall not render the system unserviceable.
6. Flammability: Bare panel system shall meet *Class A* requirements for Flame spread and smoke development when tested in accordance with ASTM-E84 and a maximum Flame spread of 25, Smoke development of 50 based on the average of three runs when tested in accordance with CAN/ULC S102.

7. Combustibility: All components of the access floor system 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.
8. Recycled Content: Panel and understructure system shall be required to have a minimum recycled content of 50%.
9. Pedestal Axial Load Test: Provide pedestal assemblies without panels or other supports in place, capable of withstanding a 5000 lb (22 240 N) Axial load per pedestal, according to CISCA A/F, Section 5 “pedestal Axial Load Test.”
10. Verify requirements for pedestal overturning moment in seismic zones with authorities having jurisdiction. Coordinate with pedestals selected in Part 2 and method of attachment specified.
11. Pedestal Overturning Moment Test: Provide pedestal assemblies, without panels or other supports in place, capable of withstanding an overturning moment per pedestal of 1000 in*lb (113 N*m) when bonded to clean concrete slab according to CISCA A/F, Section 6, “Pedestal Overturning Moment Test.”

- C. Product test shall be witnessed and certified by an accredited independent engineering and testing laboratory based in the U.S.A. with a minimum of five (5) years experience testing access floor components in accordance with CISCA test methods.

1.04 Country of Origin

- A. Access floor materials shall be manufactured in North American.

1.05 Submittals

- A. Samples: Submit a sample of the floor panel and each understructure component.
- B. Shop Drawings:
 1. Submit drawings showing raised floor panel layout including starting point of installation.
 2. Include details of component panels and pedestals. If required show edge details of ramps, steps, handrails and anchoring of pedestal bases to subfloor.

C. Certificates:

1. Submit independent testing organization certificates indicating compliance with specified design criteria when tested and reported according to CISCA “Recommended Test Procedures for Access Floors.”
2. Submit seismic calculations if required in accordance with local and state building codes as specified. Calculations shall be performed using a current seismic program and submitted to a local structural engineer licensed in the state where the project is located. The structural engineer shall sign and seal these calculations confirming that these calculations meet all local and state codes for seismic pedestal assemblies. A signed copy of these calculations must be given to the architect and local building department as required.

1.06 Quality Assurance

- A. Installer: A company with minimum of 5 years experience in the installation of access floor systems of comparable size and complexity.
- B. Tolerances:
 1. Manufacturing tolerance:
 - a) Nominal panel size ± 0.015 " (.4mm) or less.
 - b) Panel flatness ± 0.020 " (.5mm) or less.
 - c) Panel squareness ± 0.015 " (.4mm) or less.
 - d) Panel interchangeability-all panels, except those modified to meet special conditions, shall be interchangeable.
 2. Installation Tolerance:
 - a) Finished installation shall be level within ± 0.060 " (2mm) in 10 feet (3m) and ± 0.100 " (3mm) for the entire floor.

1.07 Project Conditions

- A. The General Contractor and/or Owner shall provide a clean, level, dry subfloor, temperature controlled, and protected from the weather.
- B. Access flooring storage and installation areas shall be maintained at a temperature between 40° F to 120° F and between 35% and 70% relative humidity for 24 hours a day before, during and after installation.
- C. Overhead construction work must be completed before installing access floor to avoid damage to panels and finishes. Any damage to panels or finishes resulting from construction work done after floor is installed shall be the responsibility of the general contractor or others.

PART 2 - PRODUCTS

2.01 Materials

- A. Manufacturer: The access flooring system shall be as manufactured by Haworth, Inc. located in Grand Rapids, MI 49512.
1. Substitutions will be considered, providing the alternative products meet or exceed the feature requirements as indicated herein and the performance requirements including the rolling load as outlined in section 1.06 and receive prior written approval by the Architect. The manufacturer shall certify that all panels meet or exceed the stated design criteria.
- B. Floor Panels: TecCrete 1250/1500 or 2000/ 2500 lb Panels shall be integrated steel pan construction with exposed top surface of lightweight concrete fill. Floor Panels are bare corner-lock.
1. Panels shall be nominal 24" (610mm) square x 1-1/8" (29mm) or 1 1/2" (38mm) deep, manufactured with galvanized steel pan having shear tabs that integrally bond to the lightweight, high-strength concrete fill. Panel corners shall be manufactured to receive the pedestal head positioning dome and containing a corner-lock/grounding insert. Each panel shall accept a flush-fit metal fastener which securely fastens each panel corner to the pedestal head.
 2. Panel Finish: Floor panel surface shall be factory standard bare concrete for field installed carpet tile. Panels shall have a maximum electrical resistance of 10 ohms or less from the top edge of the panel, less surface covering, to the understructure.
- C. Air Supply Panels:
1. Provide and/or install passive floor diffusers with factory cutouts as indicated on drawings.
 2. Factory cut-outs shall be (centered) (quadrant) as shown. Panels with cutouts that are located in traffic areas as shown on the drawings shall have extra pedestal assemblies under the panel to support the cutout.
 3. For under floor air applications, provide air strip gaskets for exposed concrete panels, or high pressure air highways, as indicated.
- D. Understructure:
1. Pedestal assemblies shall be of hot-dip galvanized steel.

2. The base shall be a minimum of 16 square inches and shall be stamped and/or embossed on its underside and shall be adhered to the sub floor with an adhesive recommended by the access flooring manufacturer.
3. Where mechanical anchors are required for seismic zones, provide same as required by project specific seismic calculations.
4. The threaded stud will be 3/4" (19mm) diameter steel.
5. The head assembly shall be designed so that the panels will be held in place with or without corner-lock fasteners.
6. Pedestal assembly shall provide an adjustment range of +/- 1" (25mm) when finished floor height is 6" (152mm) or more, adjustable at 1/64" (.4mm) increments.
7. The assembly shall provide a mechanical means to lock the floor in a level plane and adjustments shall be capable of being made without special tools.
8. For corner-lock system, the head of the all-steel assembly shall be designed to accept a metal fastener to mechanically lock the panels in place.
9. Pedestal assembly shall support not less than 6,000 lb. axial load and shall resist an average 1,000 inch-pound overturning moment when bonded to a clean concrete slab.

E. Stringers:

1. Stringer shall capture panels and be capable of supporting a 450 lb. concentrated load at mid span with less than 0.010" permanent set after the load is removed.
2. 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
3. Stringer shall be either 2'x 2' or 4'x 4' pattern and shall be secured by a fastener.

F. Accessories:

1. Furnish ramps, steps, lateral bracing, fascia, handrails, cutouts and miscellaneous items where indicated.
2. Camino Modular Systems Inc. shall also provide a modular power system, including in-floor service outlets for power, cable-sets & power distribution boxes in locations as shown on Drawings.

PART 3 - EXECUTION

3.01 Inspection

- A. Examine the subfloor which is to receive access flooring for dryness, cleanliness, unevenness, or any irregularities that will affect the quality of the access flooring.
 - 1. Verify that material storage and installation areas are at recommended temperature and relative humidity before, during, and after installation.
 - 2. Verify that substrate is level to within 1/8" (3mm) in 10 feet (3m).
- B. Do not commence installation of access flooring until subfloor is clean and dry, temperature controlled, and protected from the weather.

3.02 Installation

- A. Pedestal locations shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal locations.
- B. Installer is to coordinate with other trades to maintain the integrity of the installed access flooring. All traffic on access floor shall be controlled by the installer only. No traffic other than the access floor installation crew shall be permitted on any floor area for 48 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 by an authorized factory trained installation company with a minimum of five (5) years experience.
- 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. Installer shall keep the subfloor broom clean as installation progresses.
- F. Install floor diffusers if required as indicated on Mechanical Plans.
- G. Finished installation shall be level within +/- 0.060" (2mm) in 10 feet (3m) and +/- 0.100" (3mm) for the entire floor area.
- H. Replace damaged materials prior to the application of field applied surfaces.
- I. The General Contractor or Subcontractor shall assure compatibility between the concrete sealer and the pedestal adhesive provided by the access floor manufacturer.

3.04 Acceptance

- A. General Contractor or Owner shall accept completed access floor in whole or in part, prior to allowing other trades to perform work which affects the installed access floor.
- B. General Contractor shall suitably protect the accepted access floor and accessories from damage, contamination or overloading.
- C. The General Contractor shall be responsible for the final underfloor cleaning.

END OF SECTION