

# LOW PROFILE ACCESS FLOOR & MODULAR WIRING SYSTEM

## PART 1 - GENERAL

### 1.1 Section Includes

- A. Work of this section includes, but is not limited to the following:
  - i) High performance low profile access floor system.
  - ii) Modular plug and play wiring for 120 volt power distribution system..
  - v) Factory applied hard finishes such as a high pressure laminate and vinyl
  - vi) Factory cutouts electrical boxes

### 1.2 Related Sections

- A. Concrete sealer (by Division 3) shall be compatible with pedestal adhesive.
- B. Electrical contractor (Division 16) shall provide necessary material and labor to electrically connect the access floor to the building ground in equipment rooms.
- C. Carpet ( by Division 9)
- D. Home run feeds from electrical rooms to power distribution zone boxes (by Division 16)

### 1.3 Environmental Conditions for Storage and Installation

- A. Area to receive the access floor shall be enclosed and maintained at ambient temperature between 55° to 85° F, and at humidity level between 20% to 70% relative, and shall remain within these environmental limits throughout installation and occupancy. All floor panels shall be stored and maintained within these limits upon delivery to storage sites.

### 1.4 References

- A. CISCA (Ceilings & Interior Systems Construction Association) - “Recommended Test Procedures for Access Floors” shall be used when presenting load performance product information.

### Performance Certification

- A. Product tests shall be witnessed and certified by independent engineering and testing laboratory with a minimum of five years experience testing access floor components in accordance with CISCA “Recommended Test Procedures for Access Floors”. Access floor supplier shall carry a cash allowance of \$1200.00 for Concentrated Load testing (1.8.2A) and Rolling Load testing (1.8.2D) to be carried out by Intertek Testing Services Ltd. Panels shall be randomly selected from job site.
- B. Provide access flooring capable of withstanding lateral seismic forces to requirements of latest edition and amendments of National Building Code and Local Building By- Laws. Submit data on earthquake resistance in the form of structural computations that have been signed and sealed by an independent professional engineer. Include structural computations, material properties and other information required for structural analysis and verifications that access flooring system will withstand loads indicated.

### 1.6 Quality Assurance

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- A. 2.2.1 Install access floor system using manufacturer's own forces or an accredited franchiser installer under the control and responsibility of the system manufacturer. Have a senior, qualified field representative on Site to direct the Work at all working times.
- B. 2.2.2 Access floor panels, cementitious core and understructure shall be stamped and fabricated by a manufacturing facility that has demonstrated a successful 10-year track record of local installations of similar size and complexity.

## 1.7 Mock Up

- A. 2.3.1 Before installation of entire access floor system, provide a 2.4 m x 2.4 m (8' x 8') mock up of the floor system determined by Architect/Construction Manager which serves as the minimum standard for the remaining access floor system delivered to, and installed at the Site. Build such mock up where directed by Architect/Construction Manager. The mock up will be installed prior to issuing a contract to enable the owner and consultants to conduct a comparative review of products.

## 1.8 Performance Requirements

### 1.8.1 Pedestals:

- A. **Axial Load:** Pedestal assembly shall provide a minimum 2272 kg (5000 lb.) axial load without permanent deformation.
- B. **Overturning Moment:** Pedestal assembly shall provide an average overturning moment of 112.98 Nm (1000 in-lbs.) when glued to a clean, sound, uncoated concrete surface. Structural calculations shall be required attesting to the lateral stability of the system under seismic conditions. Provide independent seismic certification from a Professional Engineer registered in the State or Province where the project is located.

### 1.8.2 Floor Panels:

- A. **Concentrated Load:** Panel shall be capable of supporting a minimum concentrated load of 5.5 KN (1250 lbs./sq.in.) (using a round or square indenter) at any location on the panel (weakest point) with a maximum deflection of 2.5 mm (0.100 inches.) Panel shall not exceed a permanent set of .25 mm (0.010 inches), after the load is removed.
- B. **Uniform Load:** Panel shall be capable of supporting a minimum uniform load of 14 kPa (300 lbs./sq.ft.) at any location on the panel with a maximum top surface deflection of 1.0 mm (0.040 inches). Panel shall not exceed a permanent set of .25 mm (0.010 inches), after the load is removed.
- C. **Ultimate Load:** Panel shall be capable of withstanding a minimum concentrated load of 11 KN (2500 lbs./sq.in.) (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.
- 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	Load: 543 kg (1200 lbs.)	Passes: 10
Wheel 2:	Size: 6" dia x 2" wide	Load: 364 kg (800 lbs.)	Passes: 10,000

- E. **Impact Load:** Panel and supporting understructure shall be capable of supporting an impact load of 57 kg (125 lbs.) dropped from a height of 1 meter (36 inches) onto a 25mm x 25mm area (1 sq. inch)

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at any location on the panel.

- F. **Flammability:** The floor panel shall be non-combustible as when tested in accordance with U.L.C. S114 and S135 as outlined in the National Building Code. System (not including floor covering) shall meet the following flammability requirements when tested in accordance with ULC S102.1. Provide independent test reports as part of submittal.

Flame Spread: 0                      Smoke Development: Less than 5                      Fuel Contribution: 0

- G. **Moisture Resistance:** Panel shall be constructed with moisture resistant cementitious core. Integrity of the panels and core shall not be affected by water resulting from sprinkler activation. Particleboard panels are unacceptable.

- H. **Environmental/LEED Certification:** Floor panels shall be certified, by an independent testing lab using LEED test procedures, to qualify for the LEED credit for Low VOC emitting materials. Only non-toxic "green" adhesives shall be used for fabrication and installation

## 1.9 Design Requirements:

- A. Access floor system, where indicated on the design documents, shall consist of modular and removable steel clad panels with cementitious core supported by adjustable height pedestal assemblies.
- 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.

### 1.9.1 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, certified by an independent testing laboratory with a minimum of five years experience testing access floor components in accordance CISCA Recommended Test Procedures, certifying that component parts perform as specified.

### 1.9.2 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 Support Components

#### Pedestals:

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- A. Pedestal assemblies shall be corrosive resistant, all steel welded construction, and shall provide an adjustment to accommodate existing slab tolerance.
- 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. Pedestal head shall be designed with locating tabs and integral shape to interface with the panel for positive lateral retention and positioning without fasteners. Pedestal head shall be fabricated with integral sound deadening gasket.
- D. Hot dip 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.
- E. 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).
- F. Hot dip galvanized pedestal base assembly shall consist of a formed steel plate with no less than 16 square inches of bearing area, welded to a 7/8" square steel tube and shall be designed to engage the head assembly.

## 2.2 Panel Components

### Floor Panels:

- A. Panels shall consist of a galvanized steel sheet die formed to encase a lightweight cementitious core material to meet load performance and fire rating performance criteria outlined in 1.8.2
- B. Panel shall have a durable non-corrosive finish treatment to steel surfaces.
- C. Corner of panel shall have a locating tab and integral shape design to interface with the pedestal head for positive lateral retention and positioning with or without fasteners.
- D. Fastening of panels to pedestal heads shall be accomplished by the use of 4 machine screws per panel.

## 2.3 Acceptable manufacturers:

Camino Modular Systems Inc. 416-675-2400

## 2.4 Accessories

### 2.4.1 Modular Wiring:

#### A. Work Stations, Meeting Rooms, and Private Offices:

CSA approved Power, Voice & Data (PVD) Servicers shall be provided in locations as detailed on the contract drawings. High capacity 8 inch square Servicers shall be capable of accommodating duplex receptacles, knockouts for standard voice/data faceplates and integral modular plug and play connectors. The service outlet box shall be a drop-in design having a hinged steel lid with optional carpet insert.

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## B. Grommet For Electrified Furniture:

Provide grommets, 3" dia. to accommodate base feeds from electrified furniture system.

## C. Power Distribution Zone Box:

CSA approved Power Distribution Zone Box ( PDZB) with 4 or 6 modular connector, 8 wire power out ports to provide general purpose and/or isolated ground, 120 volt power. The PDZB shall be constructed of cold rolled steel with painted powder coat finish and bolt on steel lid. Each PDZB shall have a label indicating the circuit number and electrical panel at each power out connector. Home run feeds from electrical panel to PDZB shall be by Division 16.

## D. Plug and Play Cable Sets:

CSA approved modular cable sets shall be provided to connect flush mount PVD Servicenters to Power Distribution Zone Boxes. Metallic flex cable set to be manufactured with modular 8 wire connectors on each end and be CSA approved for plenum applications. Length to be 8 meters ( 25 ft) unless otherwise shown on drawings.

## E. Acceptable Modular Wiring manufacturers:

Camino Modular Systems Inc. 416-675-2400

### 2.4.2 Miscellaneous Accessories:

- A. Provide factory cutouts in access floor panels for all PVD Service centers, grommets and all diffusers.
- B. Provide \_\_\_\_\_ spare floor panels, \_\_\_\_\_ spare pedestals and \_\_\_\_\_ spare screws used in the project for maintenance stock. Deliver to project in manufacture's standard packaging clearly marked with the contents.
- C. Provide \_\_\_\_\_ panel lifting devices.

### 2.5 Factory Applied Finishes

- A. Finish the surface of floor panels with factory applied floor covering material as indicated on the contract drawings. The type, color and pattern shall be selected from manufacturer's standard. Provide bolted stringer understructure with air seal/gasket for any exposed concrete, vinyl or static dissipative laminate finishes.

### 2.6 Fabrication Tolerances

- A. Floor panel flatness measured on a diagonal: +/- 0.030"
- B. Floor panel flatness measured along edges: +/- 0.025"
- C. Floor panel width or length of required size: +/- 0.010"
- D. Floor panel squareness tolerance: +/- 0.015"

## PART 3 - EXECUTION

### 3.1 Preparation

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- 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/Construction Manager shall provide clear access, dry clean 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 55° to 85° F and a humidity range of 20% to 70% relative. 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.
- 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. A clean subfloor shall be turned over to the access floor installer prior to commencement of the access floor installation. Access floor installer shall keep the subfloor clean as the installation progresses.
- 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" in 10 feet or 0.125" overall.
- J. Acceptance: General Contractor/Construction Manager shall accept floor in whole or in part prior to allowing use by other trades.