



## SECTION 09 69 33.70 – LOW-PROFILE FIXED HEIGHT ACCESS FLOORING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Low-profile fixed height access floor system consisting of a series of modular, removable, interchangeable steel base units, corner plates, channel plates, border units and accessories that form an accessible under floor cavity to accommodate electrical, voice and data services.
2. System shall be gravity held on a structural subfloor system designed to support all loads required by the IBC or local code requirements, whichever is the more stringent.
3. Flooring system structural components shall be steel.
4. Maximum height from subfloor to top of access flooring system shall not exceed 2.75-inches (70mm).
5. Floor units shall be removable by one person without the need for tools or special lifting devices.
6. Low-profile access floor system is not a duct, plenum or air handling space. Non-plenum rated cabling is permitted under the low-profile access floor.

##### B. Related Requirements:

1. Section 00 25 13.01 – Pre-bid Meeting for Adaptive Cabling Distribution
2. Section 01 33 00—Submittal Procedures.
3. Section 01 33 23 – Shop Drawings, Product Data and Samples.
4. Section 01 62 00—Product Options.
5. Section 01 63 00—Product Substitution Procedures.
6. Section 01 66 00—Product Storage and Handling Requirements.
7. Section 01 77 00—Closeout Procedures.
8. Section 01 78 00—Closeout Submittals.
9. Section 03 30 00 – Cast-in-Place Concrete.
10. Division 26 – For electrical requirements.

#### 1.2 REFERENCE STANDARDS

##### A. American Society of Civil Engineers (ASCE):

1. 7-10 – Minimum Design Loads for Buildings and Other Structures.

##### B. American Society for Testing and Materials (ASTM):

1. E-84 - Surface Burning Characteristics of Building Materials.



2. E-136 - Behavior of Materials in a Vertical Tube Furnace at 750° C
  3. A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  4. E1155 – Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
- C. Underwriters Laboratory (UL): 514A - Standard for Metallic Outlet Boxes
- D. International Building Code (IBC): Chapter 16 Structural Design.
- E. International Code Council - Evaluation Services (ICC-ES).
1. AC 151 - Fixed-height, Low-Profile, Raised Floor Systems

### 1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Schedule pre-installation conference between manufacturer's representative, installer, contractor's representative and any applicable trade representatives to review:
1. Floor starting location.
  2. Schedule.
  3. Availability of materials.
  4. Installation personnel.
  5. Equipment and facilities needed to make progress and avoid delays.
  6. Connections with mechanical and electrical systems.

### 1.4 SUBMITTALS

- A. Product Data: Manufacturer's Literature and Data.
- B. Shop Drawings:
1. Floor panel layout[, **including ramp locations**].
  2. Detail components of assembly and edge details.
- C. Samples: Low-profile access floor base unit, channel plate and corner plate.

### 1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish the following extra materials identical to products installed, packaged for storage with protective coverings, and labeled describing contents:
1. Base Units: 2 percent.
  2. Corner Plates: 2 percent.



3. Channel Plates: 2 percent.

## 1.6 QUALITY ASSURANCE

- A. Installers: An entity consisting of installers who have been trained and experienced in installation of the low-profile access floor system or under supervision of access-flooring manufacturer's authorized representative.
- B. Testing Agency: Product tests shall be witnessed or performed by an independent ISO-17025 / ISO-17020 engineering and testing laboratory based in the U.S. with specific accreditation in AC-151, AC-175, or AC-300 and a minimum of two years of experience inspecting and testing access floor components.
- C. Wiring/cabling installed under the floor must conform to the applicable sections of the National Electrical Code in effect. The low-profile access floor is not part of the grounding system and not intended to enclose splices or other types of wiring that are required to be enclosed in raceway as defined in the National Electrical Code, Article 100.
- D. Mockups: Build mockup to demonstrate quality standards of materials and ease of accessibility. Use mockup to familiarize trades with adaptive cabling installation procedures.
  1. Build mockup where shown on Drawings. Size to be a nominal area of 3- by 3-feet consisting of two base units in length by two base units in width with connecting channel and corner plates.

## 1.7 COUNTRY OF ORIGIN & PRODUCT MARKING

- A. Provide materials in compliance with provisions outlined in Federal Acquisition Regulation Subpart 25.2 "Buy American Act" - Construction Materials.
- B. Low-profile access floor base units shall be marked with country-of-origin.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Receive and store floor components in enclosures maintained at ambient temperature between 35- to 95-degrees Fahrenheit and relative humidity level between 20- and 80-percent.
- B. Store floor components at least 24 hours before installation begins at ambient temperature between 50- to 90- degrees Fahrenheit.
- C. Installation areas: Enclose and maintain ambient temperature between 50- to 90-degrees Fahrenheit and at relative humidity level between 20- to 80-percent throughout construction to substantial completion.



## PART 2 - PRODUCTS

### 2.1 MANUFACTURER

- A. Manufacturers: Subject to compliance with requirements, provide products by the manufacturer(s) specified.
1. FreeAxez Manufacturing LLC; 1805 Underwood Boulevard, Delran, NJ 08075; Phone (856) 764-0400, Fax (856) 764-0700 fax.
  2. No substitutions.

### 2.2 COMPONENTS

- A. System Designation: Gridd70 - 2.75-inches (70mm) fixed height.
1. Gridd70 Standard Components: Provide adaptive cabling distribution flooring assembly consisting of base units, corner plates, channel plates, and undersheet.
    - a. Module Size: One Base Unit, 2 Channel Plates and 1 Corner Plate consist of the assembly's modular size of 19.625- by 19.625-inches (500 by 500mm).
    - b. All steel construction.
  2. Gridd70 Border Components: Provide border components to infill all gaps between the standard components and edges of field penetrations and boundary walls.
  3. Gridd70 Optional Components
    - a. Ramps: Manufacturer's standard ramp construction of slope indicated. Provide internal and external angle slopes as indicated on drawings.
      - 1) Slope 1:12, 33-inches in length.
      - 2) Slope 1:20, 55-inches in length.
      - 3) Slope Custom **[1:30, 83-inches in length] [1:40, 110-inches in length] [1:50, 138-inches in length] [1:<Insert number greater than 12>, <Insert>-inches in length]**.
    - b. Fascia Closures: Where edge of ramps or underfloor cavities do not abut other fixed construction provide **[No. 4 finished stainless steel] [steel primed for field painting]** channel frames with factory-formed corners and end caps.
    - c. Floor Boxes: Coordinate electrical requirements of Division 26.
      - 1) Power, Voice, Data: Provide manufacturer's floor box with standard device plates to accommodate the following
        - a) Size: 9- by **[9-inches] [13-inches]**, by 1.6-inches deep.
        - b) Number of Power Receptacles: **[4] [6] [8]**.



- c) Number of Low Voltage jacks: To be determined.

## 2.3 MODULAR POWER

- A. Power Components: Power feed modules, tracks, floor boxes, and whips in accordance with approved power plan. Provide MC cable from electrical panel to feed modules in accordance with approved power plan.

## 2.4 PERFORMANCE CRITERIA

- A. Provide access flooring systems capable of withstanding uniform and concentrated loads as set forth in Table 1607.1 of the IBC or local code requirements, whichever is the more stringent, as determined by testing manufacturer's products.
- B. Standard Base Units / Channel Plates / Corner Plates
  - 1. Concentrated Live Load Performance Over an Area of 6.25 square feet (2.5- by 2.5-feet): Minimum concentrated live-load capacity of low-profile access floor system, in pounds (lbs), when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but with a factor of safety of 5 shall not be less than:
    - a. 2,000 lbs .
  - 2. Concentrated Live Load Performance Over an Area of 1 square inch (1- by 1-inch): Minimum concentrated live-load capacity of low-profile access floor system, in pounds per square inch (psi), when applied uniformly over this area and located so as to produce the maximum load effects in the structural member, shall conform to the IBC or local code requirements, whichever is the more stringent, but at 0.1-inch deflection and 0.06-inch set and a factor of safety of 2 shall not be not less than:
    - a. 200 psi.
  - 3. Uniform Live Load Performance over Entire Floor Area: Minimum uniformly-distributed-live load capacity of low-profile access floor system, in pounds per square foot (psf), shall conform to the IBC or local code requirements, whichever is the more stringent, but at maximum defection of L/240 or 0.15-inch and 0.06-inch set, shall not be less than:
    - a. 100 psf.
- C. All Base Units / Channel Plates / Corner Plates:
  - 1. Floor assembly: Floor assembly to be rigid, free of vibration, rocking parts, and squeaks.



2. Seismic Performance: Adaptive cabling distribution access flooring shall withstand the effects of earthquake motions determined according to ASCE/SEI 7, Chapter 13.
  - a. To resist design seismic loads, anchor each load carrying storage unit and other heavy equipment directly to existing structure.
3. Flame Spread Rating: Flame spread and smoke development rating of low-profile access floor system when tested per ASTM E-84, shall conform to the IBC or local code requirements, whichever is the more stringent, but shall not be less than:
  - a. Class A Rating: Flame Spread less than 25; Smoke Development less than 75.
4. Combustible Rating: When tested in accordance with ASTM E-136, conform to the IBC or local code requirements, whichever is the more stringent, but at a minimum classified as:
  - a. Non-Combustible.
5. Corrosion Resistance: Galvanizing thickness rating of metallic outlet boxes and base units, corner plates, channel plates and border units when tested per UL514A, shall conform to the IBC or local code requirements, whichever is the more stringent, but not less than:
  - a. Galvanized Coating – G40 Minimum (Per ASTM A-653)

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Prior to installation, provide subfloors that are dry and free of any surface irregularities that could reasonably be anticipated to adversely affect access flooring system appearance or performance.
- B. Confirm minimum subfloor flatness (FF=25) and subfloor levelness (FL=20) is achieved in accordance with specified overall values (SOV) of ASTM E1155.
- C. Provide clear access to subfloor area free of construction debris and other trades throughout installation of access floor system.

#### **3.2 PREPARATION**

- A. Verify dimensions on contract drawings, including level of abutting floors, ledges and doorsill interfaces.



- B. Before beginning installation complete necessary subfloor preparations. Vacuum clean subfloor to remove dust, dirt, and construction debris.
- C. Commencement of work by installer is acceptance of subfloor.

### 3.3 INSTALLATION

- A. Perform installation in accordance with the manufacturer's installation instructions.
- B. Individual parts shall be easily placed and removed, without disturbing adjacent assembly, by one person with no special tools.
- C. Electrical boxes and openings shall be established so that work does not interfere with the integrity of the flooring system.
- D. Coordinate installation with tradesmen to maintain the integrity of the installed system.
- E. Manage schedule to ensure work by trades requiring wheeled traffic exceeding floor capacity is completed prior to installation of low-profile access floor.
- F. During installation, all traffic on access floor shall be controlled such that the floor capacity is never exceeded.
- G. Keep the subfloor broom clean as installation progresses.
- H. Place under-sheet without wrinkles.
- I. Layout according to manufacturer's installation instructions.
- J. Secure ramps according to manufacturer's installation instructions.

### 3.4 PROTECTION

- A. Control traffic on low-profile access floor after installation. Do not allow traffic that exceeds the published floor capacity.
- B. Before construction or delivery traffic is permitted travel on the access floor provide minimum 3/4-inch plywood sheathing over partially or fully-completed floors per manufacturer's requirements.

END OF SECTION