

SECTION 09 69 13

LOW PROFILE CABLE MANAGEMENT ACCESS FLOORING
11/15

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM E84 (2018a) Standard Test Method for Surface Burning Characteristics of Building Materials

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2017; ERTA 1-2 2017; TIA 17-1; TIA 17-2; TIA 17-3; TIA 17-4; TIA 17-5; TIA 17-6; TIA 17-7; TIA 17-8; TIA 17-9; TIA 17-10; TIA 17-11; TIA 17-12; TIA 17-13; TIA 17-14) National Electrical Code

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191 Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detailed Installation Drawings; G
Fabrication Drawings; G

SD-03 Product Data

Access Flooring System; G

SD-04 Samples

Floor Panels; G

SD-06 Test Reports

Factory Tests

Concentrated Load

Uniform Live Load

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

Recycled Content of Access Flooring System; S

1.3 SPARE PARTS

Provide extra carpet tile from same dye lot consisting of uncut tiles for future maintenance. Provide a minimum of ten percent of total square yards of each carpet type, pattern, and color. Furnish ten percent extra of total adhesive tabs and ten percent extra of total components required for installing carpet tile.

1.4 QUALITY CONTROL

1.4.1 Qualification of Manufacturer

Access flooring manufacturer must have at least 5 years experience in manufacturing access flooring systems. Certify that the manufacturer of the access flooring system meets requirements specified under paragraph entitled QUALIFICATION OF MANUFACTURER.

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Delivery

Deliver materials to site in undamaged condition, in original containers or packages, complete with accessories and instructions. Label packages with manufacturer's name and brand designations. Package materials covered by specific references bearing specification number, type and class as applicable.

1.5.2 Storage

Store all materials in original protective packaging in a safe, dry, and clean location. Store panels at temperatures between 40 and 90 degrees F, and between 20 and 70 percent humidity. Replace defective or damaged materials.

1.5.3 Handling

Handle and protect materials in a manner to prevent damage during the entire construction period.

1.5.4 Coordination

- a. Coordinate location of electrical work and low-voltage (LV) cabling work in underfloor wire management channels.

- b. Coordinate floor covering finish with adaptive cabling distribution access flooring.

1.5.5 Preinstallation Meeting

- a. Preinstallation Conference: Conduct conference at Project site with CO.
 - 1. Review connections between adaptive cabling distribution access flooring, and electrical, voice, data, and LV systems.
- b. Sequencing: Install access flooring when ceiling work is complete, and interior walls are constructed and finish painted.

PART 2 PRODUCTS

2.1 PRODUCT SUSTAINABILITY CRITERIA

For products in this section, Where applicable and to the extent allowed by performance criteria, provide and document the following:

2.1.1 Recycled Content of Access Flooring System

Provide Access Flooring System with a minimum recycled contents of 20 percent and provide documentation in accordance with Section 01 33 39 SUSTAINABILITY REPORTING, paragraph Recycled Content.

2.2 SYSTEM DESCRIPTION

- a. Provide for self-alignment of floor panel.
- b. Lateral stability of the low profile cable management access floor support system is dependent on the concrete floor substrate. Provide a finished assembly that is rigid and free of vibration, noises, and rocking panels. The system shall accommodate electrical floor penetrations in any location of the panel.
- c. Submit manufacturer's product data for [access flooring system](#) consisting of descriptive data, catalog cuts, and installation instructions. Include in the data information about any design and production techniques, total system including all accessories and finish coatings of under-floor components, procedures and policies used to conserve energy, reduce material, improve waste management or incorporate green building/recycled products into the manufacturer of their components or products. Include cleaning and maintenance instructions.

- d. Adaptive Cabling Distribution Access Flooring: Manufacturer's standard, modular, steel components, designed to interconnect and provide channels for installation of wiring; with manufacturer's standard factory-applied finish.
 - 1. Product: Subject to compliance with requirements, provide access flooring min 2.75-Inch Finished-Floor Height.
 - 2. Module: Adaptive cabling distribution access flooring with nominal module size of 19.625 by 19.625 inches (500 by 500 mm).
 - 3. Height: Adaptive cabling distribution access flooring with min. nominal height of 2.75 inches (70 mm).

- e. Service Outlets and Wiring: Standard UL-listed and -labeled assemblies, for recessed mounting flush with top of floor panels; for power, communication, and signal services; and complying with the following requirements:
 - 1. Structural Performance: Cover capable of supporting a 300-lbf (1334-N) concentrated load.
 - 2. Cover and Box Type: Hinged steel cover with opening for passage of cables when cover is closed and including frame and steel box or formed-steel plate for mounting electrical receptacles
- f. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 75 or less.

2.2.1 Design Requirements

When tested as specified, make all deflection and deformation measurements at the point of load application on the top surface of the panel. Floor panels must be capable of supporting the following loads:

- a. Concentrated load of 200 pounds on one square inch.
- b. Uniform live load of 100 psf.

2.3 FLOOR PANELS

2.3.1 Floor System Drawings And Planer Quality

- a. Submit Fabrication Drawings for elevated floor systems consisting of fabrication and assembly details to be performed in the factory.
- b. Indicate on Location Drawings exact location of pedestals, ventilation openings, cable cutouts, and the panel installation pattern.
- c. Provide Detail Drawings showing details of the pedestals, pedestal-floor interlocks, floor panels, panel edging, floor openings, floor opening edging, floor registers, floor grilles, cable cutout treatment, perimeter base, expansion, ramp and peripheral support facilities.
- d. Design and workmanship of the floor, as installed, must be completely planar within plus or minus 0.060 inch in 10 feet, 0.100 inch for the entire floor, and 0.030 inch across panel joints.

2.3.2 Detailed Installation Drawings

Submit Detailed Installation Drawings that as a minimum indicate the following:

- a. Location of panels
- b. Layout of panels and cutout locations

- c. Ramp framing
- d. Sizes and details of components
- e. Details at floor perimeter and height above structural floor
- f. Typical cutout details
- g. Location of connection to building grounding electrode for metal low profile cable management access flooring

2.3.3 Panel Construction

- a. Base access floor system on a module providing minimum of 2.75 inches and maximum of 3 inches clearance between structural floor the top surface of floor panels. Fabricate so accurate job cutting and fitting may be done using standard sizes for perimeters and around columns. Low profile cable management access flooring system shall comply with ASTM E84 and NFPA 70 as it pertains to accommodating conventional conduit raceway and conductor wiring distribution.
- b. Provide cutouts and cutout closures to accommodate utility systems and equipment intercabling. Reinforce cutouts to meet design load requirements. Provide extra support pedestals at each corner of cutout for cutout panels that do not meet specified design load requirements.
- c. Machine square floor panels to within plus or minus 0.015 inch with edge straightness plus or minus 0.0025 inch.

2.3.3.1 Panel System Material

Provide low profile cable management access panel system of polypropylene, polycarbonate, steel, aluminum or similar base material.

2.3.4 Floor Covering

Surface floor panels with carpet tile installed in the files as scheduled in the Interior Design drawings.

2.3.5 Resilient Base

Install rubber base as scheduled in the Interior Design drawings.

2.3.6 Adaptive Cabling Distribution Access Flooring

Manufacturer's standard, modular, steel components, designed to interconnect and provide channels for installation of wiring; with manufacturer's standard factory-applied finish.

- a. Product: Subject to compliance with requirements, (2.75-Inch Finished-Floor Height).
- b. Module: Adaptive cabling distribution access flooring with nominal module size of 19.625 by 19.625 inches (500 by 500 mm).
- c. Height: Adaptive cabling distribution access flooring with nominal height of 2.75 inches (70 mm).

2.4 FASCIA

Provide aluminum or steel fascia plates at open ends of floor, at sides of ramps and steps, and elsewhere as required to enclose the free area under the raised floor. Steel plates must have a factory applied baked enamel finish. Finish on aluminum plates must be standard with the floor system manufacturer. Fascia plates must be reinforced on the back, and supported using the manufacturer's standard **installation provisions**. Provide trim, angles, and fasteners as required.

2.5 RAMPS

Securely fasten steps and ramps to the **access flooring system** and to the structural floor. Include in the construction standard floor system components and custom components as required, and all supports, fasteners, and trim necessary for a finished installation. **Threshold** strips and floor bevel strips must be cast or extruded aluminum with non-slip traffic surfaces.

2.5.1 Ramps

Slope of ramps must comply with applicable codes and **36 CFR 1191** Americans with Disabilities Act (ADA). Design ramps to support the same loads as specified for floor panels. Surface ramps with **field installed carpet tile as scheduled in the Interior Design drawings**.

2.6 FACTORY TESTS

Factory test access flooring, using an independent laboratory, at the same position and maximum design elevation and in the same arrangement as shown on the drawings for installation so as to duplicate service conditions as much as possible.

2.6.1 Load Tests

Conduct floor panel **and support** to determine deformation and permanent set of panels and system due to concentrated **and uniform loading**.

2.7 CUT OUTS

Provide cable **and receptacle** cutouts finished with rigid polyvinylchloride or molded polypropylene edging to conform to the appearance level of the floor surface and to cover raw edges of the cutout panel.

- a. When size of cutout reduces the performance requirement of panel, provide intermediate **support** adjacent to cutouts.

2.8 EDGE CLOSURE

Provide **1/16 inch** aluminum closure plate and extruded aluminum nosing at exposed edge of floor. Back up the closure plates with aluminum or steel framing braced diagonally, or anchor at bottom to continuous angle.

2.9 UNDERSHEET

Use Manufacturer's standard undersheet.

PART 3 EXECUTION

3.1 INSTALLATION

Install access flooring at the location and elevation and in the arrangement shown in the Instruments of Service. The floor system must be low-profile access floor system consisting of a series of modular removable, interchangeable units, complete with all supplemental items, and be the standard product of a manufacturer specializing in access flooring systems.

Install the floor system in accordance with the manufacturer's instructions. Open ends of the floor, where the floor system does not abut wall or other construction, must have positive anchorage and rigid support. Maintain areas to receive access flooring between 60 and 90 degrees F, and between 20 and 70 percent humidity for 24 hours prior to and during installation.

Examine substrates, with Installer and manufacturer's authorized representative present, for compliance with requirements for installation tolerances, surface irregularities, and other conditions affecting performance of the Work. Proceed with installation only after unsatisfactory conditions have been corrected.

- a. Verify that substrates comply with tolerances, dimensioned clearances, and other requirements specified in other Sections and that substrates are clean, dry, and free of conditions and deleterious substances that might interfere with system installation.
- b. Verify substrates comply with minimum subfloor flatness (FF) of 25 and subfloor levelness (FL) of 20.
- c. Verify electrical boxes and openings are installed in accordance with Drawings, and approved Shop Drawings.

3.1.1 Preparation for Installation

Clear out all debris in the area in which the floor system is to be installed. Thoroughly clean structural floor surfaces and remove all dust. Install floor coatings, required for dust or vapor control, prior to installation. Unroll undersheet under access floor system Work area. Ensure sheets are contiguous, without wrinkles, and edges butted.

- a. Install adaptive cabling distribution access flooring and accessories in accordance with approved Shop Drawings and under supervision of adaptive cabling distribution access-flooring manufacturer's authorized representative to produce an installation that complies with performance requirements and is free of instability, rocking, rattles, and squeaks.
- b. Install flooring and ramps securely in place and properly seated. Do not force components into place. Anchor ramps to concrete through each predrilled hole with appropriate screw anchors or comparable product.
- c. Install border components to provide a close fit with adjoining construction, with voids between 1/2 and 3/4 inch (13 and 19 mm) where panels abut vertical surfaces.

3.1.2 Auxiliary Framing

Provide auxiliary framing or pedestals around columns and other permanent construction, at sides of ramps, at open ends of the floor, and beneath panels that are substantially cut to accommodate utility systems. Use special framing for additional lateral support as shown on the approved detailed installation drawings. Provide additional pedestals and stringers designed to specific heights and lengths to meet structural irregularities and design loads. Connect auxiliary framing to floor panels.

3.1.3 Panels

Interlock panels with supports in a manner that will preclude lateral movement. Fasten perimeter panels, cutout panels, and panels adjoining columns, stairs, and ramps to the supporting components to form a rigid boundary for the interior panels. Level floors within the specified tolerances. Cut edges of panels must be finished as recommended by panel manufacturer.

3.1.4 Fascia Plates

Cover exposed floor ends and exposed openings of ramps and stairs with prefinished aluminum or steel closures.

3.2 CLEANING AND PROTECTION

3.2.1 Cleaning

Keep the space below the completed floor free of all debris. Before any traffic or other work on the completed raised floor is started, clean the completed floor in accordance with the floor covering manufacturer's instructions.

3.2.2 Surplus Material Removal

Clean surfaces of the work, and adjacent surfaces soiled as a result of the work. Remove all installation equipment, surplus materials, and rubbish from the work site.

3.3 OPERATION AND MAINTENANCE MANUALS

Submit maintenance instructions for proper care of the floor panel surface. When conductive flooring is specified, also submit maintenance instructions to identify special cleaning and maintenance requirements to maintain "conductivity" properties of the panel finish.

-- End of Section --