**3-Part CSI MasterFormat Specification**

**SECTION 12 4816**

**Entrance Flooring Grilles and Frames**

Rev 06/23

1. GENERAL
	* + 1. SUMMARY
				1. Section includes recessed floor grilles and frames
			2. Related Requirements
				1. Section 124813 "Entrance Floor Mats and Frames" for flexible floor mats and frames
				2. Division 03 - Cast-In-Place Concrete: For concrete floor slab recess, and grouting frames into recess.
				3. Division 07 - Damp-proofing.
				4. Section 124813 "Entrance Floor Mats and Frames" for flexible floor mats and frames
				5. Division 23 - Sanitary Waste and Vent Piping: For floor drain if applicable.
			3. REFERENCES
				1. ASTM B 221-93 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
				2. ASTM A 276-92 Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
				3. AAMA 606.1 Voluntary Guide Specifications and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum
				4. AAMA 607.1 Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
				5. Comply with applicable provisions in **[the DOJ's "2010 ADA Standards for Accessible Design"] [and] [ICC A117.1] <Insert regulation>.**
			4. COORDINATION
				1. Coordinate size and location of recesses in concrete to receive floor grilles and frames.
			5. ACTION SUBMITTALS
				1. Shop Drawings: Indicate configuration and dimensions, show components, adjacent construction, required clearances and tolerance and other affected work.
				2. Product Data: Manufacturer’s technical data for each type of floor door, including setting drawings and finish requirements
				3. Samples: For the following products, in manufacturer's standard sizes
				4. Floor Grille: Assembled section of floor grille.
				5. Frame Members: Sample of each type and color
			6. INFORMATIONAL SUBMITTALS
				1. Provide manufacturer's standard warranty
				2. Sustainable Design Submittals:

Building Product Disclosure Requirements: To encourage the use of building products that are working to minimize their environmental and health impacts, provide the following information when available:

Material Ingredients Documentation demonstrating the chemical inventory of the product

EQ Credit: Enhanced Indoor Air Quality Strategies

Strategy 1. Entryway Systems Install permanent entryway systems at least 10 feet (3 meters) long in the primary direction of travel to capture dirt and particulates entering the building at regularly used exterior entrances. Acceptable entryway systems include permanently installed grates, grilles, slotted systems that allow for cleaning underneath, rollout mats, and any other materials manufactured as entryway systems with equivalent or better performance. Maintain all on a weekly basis.

* + - 1. CLOSEOUT SUBMITTALS
				1. Manufacturer's Installation Instructions and Operation & Maintenance: Indicate installation, operation and maintenance requirements and rough-in dimensions.
			2. MAINTENANCE MATERIAL SUBMITTALS
				1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. PRODUCTS
	* + 1. MANUFACTURER
				1. Nystrom

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* + - * 1. Rigid Floor Grille: Extruded aluminum tread rails 1.5 inches (38.1 mm) (38.1 mm) on-center by 1-3/4 inches (44.5 mm) (44.5 mm) high, sitting on continuous vinyl cushions.

Basis-of-Design Product: Nystrom; GRATEdesign®

Rolling Load: 1500 lb (680 kg) per wheel.

Tread Inserts:

Premium Carpet with 3700 denier, solution-dyed, woven nylon fibers; and shall include a minimum of 100, 10-mil monofilament fibers per inch. Each carpet fiber and monofilament shall be fusion-bonded to a rigid, two-ply backing to prevent fraying and supplied in continuous spliced-free lengths. Fibers shall be treated with anti-stain and anti-static additives.

Rugged Scrub: Crimped, solution-dyed, 600 denier polypropylene fibers tufted into a woven double backing and mechanically secured to tread rails.

Brush: Brush made with rigid nylon bristles, 9 tufts per inch, each tuft containing 80 bristles.

Vinyl: Ribbed-design-surface, resilient vinyl.

Serrated Aluminum: Plain serrated aluminum treads.

Ecotread Recycled Rubber: Recycled rubber with an SC of 90, manufactured with recycled rubber and EPDM backing.

Ribbed Rubber: TPV, dual-durameter rubber insert with convex and continuous serrations.

Vinyl Abrasive Insert: Mineral abrasive particles bonded to vinyl.

Colors, Textures, and Patterns of Inserts: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from full range of industry colors].**

Rail Color: **[Mill finish] [Clear] [Light bronze] [Medium bronze] [Dark bronze] [Black].**

Grill Size**: [As indicated] <Insert size>.**

Frame:

Level Bed (LBM): Mechanically attached **[stainless-steel] [aluminum]** frame.

Level Bed (LBC): Cast-in-place **[stainless-steel] [aluminum]** frame.

Deep Pit, Adjustable (DAM): Mechanically attached, stainless-steel frame, adjustable from 3-inch- (76.2-mm-) to 7-inch- (177.8-mm-) deep with 1/8-inch (3.2-mm) exposed surface.

Deep Pit: Cast-in-place aluminum frame, **[3-inch- (76.2-mm-)] [4.5-inch- (114.3-mm-)] [2-inch- (50.8-mm-)]** deep with 1/2-inch (13-mm) exposed surface

* + - * 1. Rigid Floor Grille: 100 percent recycled, nylon-reinforced, buffed-rubber tread strips, alternating with aluminum divider-bars, assembled, and galvanized steel wire, 1.5 inches (38.1 mm) on-center**, [0.6875 inches (17.5 mm)] [0.47 inches (11.9 mm)]**high.

Basis-of-Design Product: Nystrom; EnvIRONtread® II

Rolling Load: 1000 lb (453 kg) per wheel.

Tread Inserts: 100 percent recycled, nylon-reinforced buffed rubber with minimum 59 percent postconsumer and 22 percent pre-consumer recycled content, mechanically secured to tread rails.

Models:

Single tread insert, closed construction, **[15/32 inch (24 mm)] [11/16 inch (17.5 mm)]** overall depth.

Model: Double tread insert, closed construction, **[15/32 inch (24 mm)] [11/16 inch (17.5 mm)]** overall depth.

Model: Single tread insert, open construction, **[15/32 inch (24 mm)] [11/16 inch (17.5 mm)]** overall depth.

Model: Double tread insert, open construction**[15/32 inch (24 mm)] [11/16 inch (17.5 mm)]** overall depth.

Colors, Textures, and Patterns of Inserts: **[Black] [Gray].**

Rail Color**: [Mill finish] [Clear] [Light bronze] [Medium bronze] [Dark bronze] [Black].**

Frame:

Level Bed (LBM): Mechanically attached **[stainless-steel] [aluminum]** frame.

Level Bed (LBC): Cast-in-place **[stainless-steel] [aluminum]** frame.

Surface Mounted (SAM): Mechanically attached aluminum frame

* + - * 1. Rigid Floor Grille: Extruded-aluminum tread rails, 0.6875 inch (17.5 mm) on-center by 1 inch (25.4 mm) high.

Basis-of-Design Product: Nystrom; alumaGRIL™:

Grate Sections: Each section shall be no greater than 48 inches (1220 mm) by 48 inches (1220 mm). Supply sections with individual, prefabricated, factory-assembled frames.

Choose one of five options below.

Rigid grille with rectangular tread.

Treads: T-shaped, 1/2 inch (12.7 mm) by 1 inch (25.4 mm). Spacing between treads not to exceed 3/16 inch (4.8 mm). Rail surface to be striated to create rectangular grid pattern.

Rail Spacers: 1/2-inch (12.7 mm) aluminum tube

Rigid grille with waffle tread.

Treads: T-shaped, 1/2 inch (12.7 mm) by 1 inch (25.4 mm). Spacing between treads not to exceed 3/16 inch (4.8 mm). Rail surface to be striated to create square grid pattern for multi-directional traffic.

Rail Spacers: 1/2-inch (12.7-mm) aluminum tube.

Rigid grille with plank tread.

Treads: T-shaped, 1/2 inch (12.7 mm) by 1 inch (25.4 mm)

Rail Spacers: 1/2-inch (12.7-mm) aluminum tube

Rigid grille with serrated tread.

Treads: T-shaped serrated, 1/2 inch (12.7 mm) by 1 inch (25.4 mm)

Rail Spacers: 1/2-inch (12.7-mm) aluminum tube.

Rigid grill with bar tread.

Treads: T-shaped serrated, 3/16 inch (4.7 mm) by 1 inch (25.4 mm).

Rail Spacers: 1/4-inch (6.3 mm) aluminum tube.

Rigid grill with dual plank and serrated treads.

Treads: T-shaped serrated alternating with T shaped plank, 1/2 inch (12.7 mm) by 1 inch (25.4 mm).

Rail Spacers: 1/2-inch (12.7-mm) aluminum tube.

Frame: **[Level Bed (LBC): Cast-in-place aluminum frame] [Level Bed (LBM): Mechanically fastened aluminum frame].**

* + - * 1. Rigid Floor Grille: Stainless-steel tread wires 0.090-inch (2.3-mm) by 0.150-inch (3.8-mm), spaced 0.235-inch (6 mm) on-center **[0.375-inches (9.5 mm) high with 0.118-inch (3-mm) support bars] [0.625-inches (15.9-mm****] high with 0.070-inch (1.8-mm) support bars] [1.125-inches (28.6-mm) high with 0.070-inch (1.8-mm) support bars]** Supports spaced 1-inch (25.4 mm) on-center. Tread wires shall be resistance welded at each joint

Basis-of-Design Product: Nystrom.; eleGRIL®

Rolling Load: 1000 lb (453 kg) per wheel.

Choose one of two options below.

Rigid grille with 0.093-inch (2.4-mm) by 0.156-inch (4-mm) V-wire.

Rigid grille with 0.093-inch (2.4-mm) by 0.156-inch (4-mm) V-wire and premium carpet tread inserts.

Frames for 0.375-inch- (9.5-mm-) deep product.

Surface Mounted (SAM): Mechanically attached, aluminum frame.

Level Bed (LBM): Mechanically attached [stainless-steel] [aluminum] frame.

Level Bed (LBC): Cast-in-place [stainless-steel] [aluminum] frame.

Frames for 0.625-inch (15.9-mm) deep product.

Level Bed (LBM): Mechanically attached **[stainless-steel] [aluminum]** frame.

Level Bed (LBC): Cast-in-place **[stainless-steel] [aluminum]** frame.

Frames for 1.125-inch (28.6-mm) deep product.

Level Bed (LBM): Mechanically attached **[stainless-steel] [aluminum]** frame.

Level Bed (LBC): Cast-in-place **[stainless-steel] [aluminum]** frame.

Deep Pit, Adjustable (DAM): Mechanically attached stainless-steel frame, adjustable from 3-inch (76.2-mm) to 7-inch (177.8-mm) deep with 1/8-inch (3.2-mm) exposed surface.

* + - * 1. Rigid Floor Grille: Stainless-steel tread wires spaced 0.3275 inches (8.3 mm) on-center by **[1.125-inches (28.6-mm)] [0.75-inch (19.1-mm)]** high. 0.187-inch (4.7-mm) by 0.375-inch (9.5-mm) profile wires mechanically interlocked with U-clip supports and spaced 0.187-inch (4.75-mm) apart.

Basis-of-Design Product: Nystrom; proGRIL™

Stainless-steel rigid grill with 0.187-inch (4.7-mm) profile straight wire.

Treads: Straight wire treads by **[1.125-inches (28.6-mm)] [0.75-inch (19.1-mm)]** deep support rails.

Stainless-steel rigid grill with . 0.187-inch (4.7-mm) profile curved wire.

Treads: Curved wire treads with **[1.125-inches (28.6-mm)] [0.75-inch (19.1-mm)]** deep support rails.

Frame, Level Bed (LBM): Mechanically attached [**stainless-steel] [aluminum]** frame.

* + - * 1. DRAIN PANS

Provide manufacturer's standard 0.060-inch (1.52-mm) thick**, [aluminum, mill finish] [aluminum, primer coat finish] [stainless-steel]** sheet drain pan with NPS 2 (DN 50) drain outlet for each floor-grille unit. Coat bottom of pan with protective coating recommended by manufacturer.

1. EXECUTION
2. EXAMINATION
3. Products must be placed on a flat and level substrate. Substrate shall meet tolerance of 1/8" over 10 feet in accordance with ACI 302.
4. Examine areas and conditions under which Work is to be performed and identify conditions detrimental to proper or timely completion.
	* + 1. Do not proceed until unsatisfactory conditions have been corrected.
5. INSTALLATION
6. Install products in accordance with manufacturer’s instructions, at locations shown and with top of products level with adjoining finished flooring where applicable.
7. Coordinate top of product surfaces with swinging doors to provide under-door clearance.

1. Provide necessary shims, spacers, and anchorages for proper location and secure attachment of frames to concrete.

2. For installation in terrazzo flooring, contact manufacturer.

1. ADJUSTING AND CLEANING

A. Adjust top surface of assembly to be flush with adjacent finishes.

B. Coordinate top of surfaces with doors that swing across surface to provide adequate under door clearance.

C. Clean dirt and debris from frame recess before installing floor system.

1. PROTECTION
2. Upon completion of frame installations, provide temporary filler of plywood or fiberboard in grille recesses, and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and Project is near time of Substantial Completion.
3. Install product when no further wheeled construction traffic will occur and wet type operations including painting and decorating are complete.

END OF SECTION