**Price Egg Crate Grille**

**Division 23 – Heating, Ventilating, and Air Conditioning**

**Section 23 37 13 – Diffusers, Registers, and Grilles**

The following specification is for a defined application. Price would be pleased to assist in developing a specification for your specific need.

**PART 1 – GENERAL**

* 1. **Section includes**:
1. Egg Crate Grille.
	1. **Related Requirements**
2. Section 01 30 00 – Administrative Requirements
3. Section 01 40 00 – Quality Requirements
4. Section 01 60 00 – Product Requirements
5. Section 01 74 21 – Construction/Demolition Waste Management and Disposal
6. Section 01 78 00 – Closeout Submittals
7. Section 01 79 00 – Demonstration and Training
	1. **Reference Standards**
8. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
9. ASHRAE Standard 55 – Thermal Environmental Conditions for Human Occupancy
10. ASHRAE Standard 70 – Method of Testing the Performance of Air Outlets and Air Inlets
11. ASTM 610 – Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
12. ASTM 714 – Test Method for Evaluating Degree of Blistering of Paints
13. ASTM D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
14. ASTM D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
15. ASTM D4752 – Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub
16. NFPA 90A – Standard for the Installation of Air-Conditioning and Ventilating Systems
17. UL/ULC – Underwriters Laboratories Fire Resistance Directory/Underwriters Laboratories of Canada Equipment and Materials Directory

**1.04 Submittals**

1. See Section 01 30 00 – Administrative Requirements for submittal procedures.
2. Product Data: Provide data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings that indicate air flow, and NC designation.
3. Shop Drawings: Indicate configuration, general assembly, and materials used in fabrication.
4. Project Record Documents: Record actual locations of units and control components.
5. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions (if applicable), and maintenance and repair data.
6. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
7. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

**1.06 Quality Assurance**

1. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum ten years of documented experience.

**1.07 Warranty**

1. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
2. Provide 12 month manufacturer warranty from date of shipment of grilles and registers.

**PART 2 – PRODUCTS**

**2.01 Egg Crate Grilles**

1. Basis of Design: Price Industries, Inc.
2. Egg Crate Grille: Model 80, 81, 82
3. Egg Crate Face Filter Grille: Model 80FF
4. Egg Crate Face Filter Return Grille: Model 80FH
5. Fire-rated Egg Crate Grille: Model 80-FR
6. Fire-rated Egg Crate Face Filter Grille: Model 80FF-FR
7. General:
	1. The egg crate grille shall be supplied with a cubical grid core, used as a high capacity return or exhaust outlet with high free area and low sound and pressure drop.

**2.02 Egg Crate Grilles**

1. Description:
	1. Furnish and install Price Model [80], [81], [82] egg crate grilles and registers of sizes and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Grilles shall be aluminum construction, consisting of an extruded aluminum border and (**select one**):
		1. An aluminum ½ x ½ x ½ inch grid egg crate core. [Model 80]
		2. Two aluminum ½ x ½ x ½ inch grids stacked to make a ½ x ½ x 1 inch grid egg crate core. [Model 81]
		3. An aluminum ½ x ½ x 1 inch grid egg crate core, single piece option. [Model 81]
		4. An aluminum 1 x 1 x 1 inch grid egg crate core. [Model 82]
	2. The minimum grille size shall be six inches by four inches. The maximum one-piece grille size without a mullion shall be 48 inches x 24 inches. The maximum size grille size with a mullion is 96 x 48 inches.
3. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
4. Options:
	1. Opposed Blade Damper:
		1. The grille shall be supplied with [a coated steel (D)] or [an aluminum with mill finish (DAL)] opposed blade damper.
	2. Border Style:
		1. The grille shall be suitable for sidewall, exposed duct, or T-bar lay-in mounting, complete with a border in the following style (**select one**):
			1. 1-1/4 inch flat face border for surface mount applications.
			2. One inch narrow face border for surface mount applications.
			3. 1-1/4 inch curved face border for surface mount applications.
			4. 9/16 inch bolt slot or flat T-bar border.
			5. Narrow flat face border for 15/16 inch T-bar lay-in.
			6. Channel border (no flange) for 15/16 inch T-bar applications to maximize free area.
			7. Exposed duct border for mounting directly to exposed ducts.
			8. Core only (no border) for 15/16 inch T-bar applications.
			9. Panel mount border (15/16 or 9/16 inch T-bar mounting only). The maximum grille size shall equal the module size minus four inches. The panel module size shall be the following size (**select one**):
				1. 12 x 12 inches.
				2. 24 x 12 inches.
				3. 24 x 24 inches.
				4. 48 x 24 inches.
	3. Mounting Frames:
		1. The grille shall be supplied with a 3/8 inch flat border mounting frame.
	4. Fastening:
		1. The grille shall be supplied with the following fastening method (**select one**):
			1. Countersunk screw holes complete with oval-head screws.
			2. Concealed mounting bracket.
			3. Straight screw holes.
			4. No screw holes (**default for T-Bar frames**).
	5. Magnetic Resonance Imaging (MRI) Construction:
		1. The grille shall be supplied with an all-aluminum construction for MRI applications.
		2. The grille module shall be 24 x 24 inches with a [T-bar] **or** [Narrow member] frame style.
		3. The MRI option does not include a volume control damper
	6. Thin Line Return Dissipater (**Nominal 22 x 22 inch size and Flat Face Border T-bar frame only**):
		1. The grille shall be supplied with a Thin Line Return Dissipater (TLRD) to provide sound power insertion loss across the full range of frequencies, and shall be suitable for ceiling and wall applications.
		2. The manufacturer shall provide catalogued performance for insertion loss and transmission loss.
		3. The TLRD shall be a high-quality welded galvanized steel construction. Satin Coat paint shall be available as an option.
		4. The TLRD shall be factory-mounted to the grille and shipped as a one-piece construction to simplify field installation.

**2.03 Egg Crate Face Filter Frame Grilles**

1. Description:
	1. Furnish and install Price Model 80FF egg crate face filter grilles and registers of sizes and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Grilles shall consist of formed steel borders and mounting frames, and an aluminum ½ x ½ x ½ inch grid egg crate core.
	2. The minimum grille size shall be eight inches by four inches. The maximum one-piece grille size shall be 48 inches x 24.
3. Mounting Frames:
	1. The grille shall be supplied with a 3/8 inch flat border mounting frame.
	2. The mounting frame shall be designed to accept a standard [one inch] or [two inch] filter media (by others).
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
5. Options:
	1. Grille Fastening (**select one**):
		1. A hinge-tab mechanism shall allow hinging or removal of the grille from the filter frame to ease cleaning of the grille. Hinge tab orientation shall be (**select one**):
			1. Parallel to the long dimension.
			2. Parallel to the short dimension.
		2. The grille shall be fixed with quarter turn fasteners on all four sides for removal of the grille from the filter frame to ease cleaning of the grille.
	2. Border Style:
		1. The grille shall be suitable for [surface] or [15/16 inch T-bar lay-in] mounting.

**2.04 Egg Crate Hinge Face Filter Frame Return Grilles**

1. Description:
	1. Furnish and install Price Model 80FH egg crate face filter return grilles and registers of sizes and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Grilles shall consist of aluminum construction core, borders and mounting frames, with a ½ x ½ x ½ inch grid egg crate core.
	2. The minimum grille size shall be eight inches by four inches. The maximum one-piece grille size shall be 48 inches x 36 inches.
	3. A continuous aluminum hinge shall allow hinging of the grille from the filter frame to ease cleaning of the grille and access to the filter. The grille shall be complete with quarter turn quick-release fasteners. Hinge orientation shall be (**select one**):
		1. Parallel to the long dimension.
		2. Parallel to the short dimension.
	4. The grille shall be suitable for surface mounting.
3. Mounting Frames:
	1. The grille shall be supplied with a 3/8 inch flat border mounting frame.
	2. The mounting frame shall be designed to accept standard one inch filter media (by others).
4. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.

**2.05 Fire-Rated Egg Crate Grilles**

1. Description:
	1. Furnish and install Price Model 80-FR fire-rated egg crate grilles and registers of sizes and mounting types designated by the plans and air distribution schedule. Grilles shall be Fire-Rated Assemblies listed in the UL Fire Resistance Directory, and in the ULD Equipment and Materials Directory. The grilles shall meet UL time versus temperature test criteria and NFPA 90A requirements.
	2. This design is intended for use in an exposed grid suspended celling (T-bar lay-in) with up to a three-hour rating and must be installed in accordance with the installation instructions.
2. Construction:
	1. Grilles shall be formed steel border and filter frame construction, and an aluminum egg crate core. The egg crate core shall have (**select one**):
		1. An aluminum ½ x ½ x ½ inch grid. [Model 80-FR]
		2. Two stacked aluminum ½ x ½ x ½ inch grids to make a ½ x ½ x 1 inch grid. [Model 81-FR]
		3. An aluminum 1 x 1 x 1 inch grid. [Model 82-FR]
	2. The grille shall have a ceiling module size of (**select one**):
		1. 12 x 12 inches (300 x 300 millimeters).
		2. 24 x 12 inches (600 x 300 millimeters).
		3. 24 x 24 inches (600 x 600 millimeters).
3. Damper:
	1. The grille shall incorporate a non-adjustable, non-asbestos, curtain-type ceiling radiation damper.
4. Thermal Blanket:
	1. The diffuser shall be externally wrapped with a non-asbestos thermal blanket.
5. Fusible Link:
	1. The diffuser shall be supplied with a fusible link rated for (**select one**):
		1. 165 degrees Fahrenheit.
		2. 212 degrees Fahrenheit.
6. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
7. Options:
	1. Border Style:
		1. The grille shall be suitable T-bar lay-in mounting, complete with a border in the following style (**select one**):
			1. T-bar border.
			2. T-bar Panel mount border. The maximum grille size shall equal the module size minus four inches. The panel module size shall be the following size (**select one**):
				1. 12 x 12 inches.
				2. 24 x 12 inches.
				3. 24 x 24 inches.

**2.06 Fire-Rated Egg Crate Face Filter Frame Grilles**

1. Description:
	1. Furnish and install Price Model 80FF-FR fire-rated egg crate face filter return grilles and registers of sizes and mounting types designated by the plans and air distribution schedule. Grilles shall be Fire-Rated Assemblies listed in the UL Fire Resistance Directory, and in the ULD Equipment and Materials Directory. The grilles shall meet UL time versus temperature test criteria and NFPA 90A requirements.
	2. This design is intended for use in an exposed grid suspended celling (T-bar lay-in) with up to a three-hour rating and must be installed in accordance with the installation instructions.
2. Construction:
	1. Grilles shall consist of formed steel borders and mounting frames, and an aluminum ½ x ½ x ½ inch grid egg crate core.
	2. A hinge-tab mechanism shall allow hinging or removal of the grille from the filter frame to ease cleaning of the grille. Unit to be complete with quarter turn fasteners. Hinge tab orientation shall be (**select one**):
		1. Parallel to the long dimension.
		2. Parallel to the short dimension.
	3. The mounting frame shall be designed to accept a standard [one inch] or [two inch] filter media.
3. Damper:
	1. The grille shall incorporate a butterfly-type ceiling radiation damper.
4. Thermal Blanket:
	1. The diffuser shall be externally wrapped with a non-asbestos thermal blanket.
5. Fusible Link:
	1. The diffuser shall be supplied with a fusible link rated for (**select one**):
		1. 165 degrees Fahrenheit.
		2. 212 degrees Fahrenheit.
6. Paint Specification:
	1. Paint finish shall be (**select one**):
		1. Baked-on powder coat finish.
			1. The paint film thickness shall be a minimum of 2 mils.
			2. The finish shall have a hardness of 2H as tested in accordance with ASTM D3363.
			3. The finish shall pass an ASTM B117 Corrosive Environment Salt Spray Test for 1000 hours with no measurable creep, rusting or blistering as per ASTM D1654, D610 and D714.
			4. The finish shall pass an ASTM D870 Water Immersion test of a minimum of 500 hours with no measurable with no rusting or blistering as per ASTM D610 and D714.
			5. The finish shall have an impact resistance of 100 inch-pounds in accordance with ASTM D2794.
		2. All components shall have a custom finish in a color to match a customer supplied sample.
7. Options:
	1. Border Style:
		1. The grille shall be suitable T-bar lay-in mounting, complete with a border in the following style (**select one**):
			1. T-bar border.
			2. T-bar Panel mount border. The maximum grille size shall equal the module size minus four inches. The panel module size shall be the following size (**select one**):
				1. 12 x 12 inches.
				2. 24 x 12 inches.
				3. 24 x 24 inches.
	2. Volume Controller:
		1. The grille shall be supplied with a steel volume controller that is room side adjustable with an allen key for balancing.

**PART 3 – EXECUTION**

**3.01 Examination**

1. Verify that conditions are suitable for installation.
2. Verify that field measurements are as shown on the drawings.

**3.02 Installation**

1. Install in accordance with manufacturer’s instructions.
2. See drawings for the size(s) and locations of grilles and registers.

**3.03 Field Quality Control**

1. See Section 01 40 00 – Quality Requirements for additional requirements.

**3.05 Cleaning**

1. See Section 01 74 19 – Construction Waste Management and Disposal for additional requirements.

**3.06 Closeout Activities**

1. See Section 01 78 00 – Closeout Submittals for closeout documentation requirements.
2. See Section 01 79 00 – Demonstration and Training for additional requirements.