**Price Louvered Modular Diffusers**

**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. Louvered Modular Diffusers
	1. **Related Requirements**
2. Section 01 30 00 – Administrative Requirements
3. Section 01 40 00 – Quality Requirements
4. Section 01 74 21 – Construction/Demolition Waste Management and Disposal
5. Section 01 78 00 – Closeout Submittals
6. Section 01 79 00 – Demonstration and Training
	1. **Reference Standards**
7. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
8. ASTM 610 – Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces.
9. ASTM 714 – Test Method for Evaluating Degree of Blistering of Paints.
10. ASTM D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
11. ASTM D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
12. ASTM D4752 – Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub.

**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 airflow, static pressure, and NC designation.
3. Shop Drawings: Indicate configuration, general assembly, and materials used in fabrication.
4. Certificates: Certify that air capacities, pressure drops, and selection procedures meet or exceed specified requirements.
5. Project Record Documents: Record actual locations of units and control components.
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 78 00 - Closeout Submittals, for additional warranty requirements.
2. Provide 12 month manufacturer warranty from date of shipment of diffusers.

**PART 2 – PRODUCTS**

**2.01 Manufacturer**

1. Basis of Design: Price Industries, Inc.
2. Modular Louvered Face Diffusers: Models SMD, AMD, AMDE, SMX, AMX, AMDEX, SMDA, AMDA, SMD-FR, SMDA-FR, SMX-FR
3. Light Commercial Directional Diffuser: Model LCMD
4. Louvered Combination Supply/Return Diffuser: Model CSRD

**2.02 Modular Louvered Face Diffusers**

1. Description:
	1. Furnish and install Price Models [SMD], [AMD], [AMDE], [SMX], [AMX], [AMDEX], [SMDA], [AMDA], [SMD-FR], [SMDA-FR], or [SMX-FR] modular louvered face ceiling diffusers of sizes, discharge patterns, and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Diffusers shall be (steel – SMD, SMX, SMDA, SMD-FR, SMDA-FR, SMX-FR), (aluminum – AMD, AMX, AMDA), or (extruded aluminum – AMDE, AMDEX) construction.
	2. The diffuser shall consist of:
		1. An outer frame assembly, which facilitates mounting in the application shown in the project plans.
		2. An integral collar that allows connection to the [square] or [rectangular] duct.
		3. An inner core assembly consisting of fixed louvers capable of producing the airflow discharge pattern as indicated on the project plans, and shall be fully removable from the installed diffuser frame for access to any dampers or other ductwork components located in or near the diffuser neck.
	3. The inner core assemblies shall be identically constructed so that directional core assemblies providing different airflow discharge patterns may be interchanged between frames if the frame duct connections are the same size.
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. Mounting Frame:
	1. The diffuser shall be supplied with a frame suitable for (**select one**):
		1. Surface mount with beveled frame.
		2. 15/16 inch wide flat T-bar.
		3. Snap-in T-bar.
		4. 9/16 wide tegular T-bar.
		5. Lay-in [steel] or [aluminum] panel.
5. Options (**select all that apply**):
	1. High Induction Vanes (**SMX, AMX, AMDEX models only**):
		1. The diffuser shall be supplied with internally mounted discharge vanes to create a high rate of induction to rapidly mix room and supply air.
	2. Adjustable pattern Deflectors (**SMDA, AMDA, SMDA-FR models only**):
		1. The diffuser shall be supplied with a set of pattern deflectors to allow field adjustment of the air pattern from horizontal to vertical airflow.
	3. Fire-Rated Construction (**SMD-FR, SMDA-FR, and SMX-FR only**):
		1. Diffusers shall be Fire-Rated Assemblies listed in the UL, Underwriters Laboratories Fire Resistance Directory and in the ULC, Underwriters Laboratories of Canada Equipment and Materials Directory.
		2. Diffusers shall meet UL time versus temperature test criteria and NFPA 90A requirements.
		3. This design is intended for use in an exposed grid suspended ceiling (T-bar Lay-in) with up to a three-hour rating and must be installed in accordance with the installation instructions.
		4. The diffuser shall be supplied with a galvanized steel, non-adjustable, butterfly-type ceiling radiation damper.
		5. The diffuser shall be externally wrapped with a non-asbestos thermal blanket.
		6. [**Optional**]: The diffuser shall be supplied with a steel volume control damper that is room side adjustable with an Allen key for balancing.
		7. [**Optional**]: The diffuser shall be supplied with a fusible link rated for (**select one**):
			1. 165 degrees Fahrenheit.
			2. 212 degrees Fahrenheit.
	4. Damper and Square to Round Adaptor:
		1. The diffuser shall be supplied with an aperture style volume flow damper. The damper shall be manually adjustable from the diffuser face.
		2. The diffuser shall be supplied with a square to round adaptor to connect to round duct.
		3. [**Optional**] The adaptor shall be optionally available with an opposed blade damper.
	5. Throw Reducing Vanes:
		1. The diffuser shall be supplied with throw reducing vanes to distribute the supply airflow in a pattern that will reduce throw.
	6. Insulation:
		1. R6 – The diffuser back pan shall be externally insulated with a molded heavy duty foil/scrim vapor barrier with an R-value of six. The insulation shall meet the requirements of UL181 and NFPA 90A.

**2.03 Light Commercial Directional Diffusers**

1. Description:
	1. Furnish and install Price [Model LCMD] light commercial directional ceiling diffusers of sizes, discharge patterns, and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Diffusers shall be extruded aluminum construction, including an extruded aluminum frame.
	2. The diffuser shall consist of:
		1. An outer frame assembly, which facilitates mounting in the application shown in the project plans.
		2. An integral collar that allows connection to the [square] or [rectangular] duct.
		3. An inner core assembly consisting of fixed louvers capable of producing the air flow discharge pattern as indicated on the project plans, and may be interchanged between frames if the frame duct connections are the same size.
	3. The diffuser louver pattern shall be [one-way], [two-way], [two-way corner], [three-way], or [four-way] horizontal airflow.
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. Mounting Frame:
	1. The diffuser shall be supplied with a frame suitable for (**select one**):
		1. Surface beveled frame.
		2. 15/16 inch wide flat T-bar.
		3. 24 x 24 inch Lay-in [steel] or [aluminum] panel (**maximum 18x18 inch inlet diffuser**).
5. Options (**select all that apply**):
	1. Damper and Square to Round Adaptor:
		1. The diffuser shall be supplied with an aperture style volume flow damper. The damper shall be manually adjustable from the diffuser face.
		2. The diffuser shall be supplied with a square to round adaptor to connect to round duct.
		3. [**Optional**] The adaptor shall be available with an opposed blade damper.
	2. Throw Reducing Vanes:
		1. The diffuser shall be supplied with throw reducing vanes to distribute the supply airflow in a pattern that will reduce throw.
	3. Insulation:
		1. R6 – The diffuser back pan shall be externally insulated with a molded heavy duty foil/scrim vapor barrier with an R-value of six. The insulation shall meet the requirements of UL 181 and NFPA 90A.

**2.04 Louvered Combination Supply/Return Diffusers**

1. Description:
	1. Furnish and install Price [Model CSRD] louvered combination supply/return ceiling diffusers of sizes, discharge patterns, and mounting types designated by the plans and air distribution schedule.
2. Construction:
	1. Diffusers shall be aluminum construction, including an aluminum frame.
	2. The diffuser shall consist of a flange outer frame sub-assembly for surface mounting, and a [removable] inner eggcrate core.
	3. The diffuser shall supply air with horizontal airflow through outer slots and shall return air through a center mounted 1/2 inch x 1/2 inch x 1/2 inch aluminum egg crate core. The supply section shall provide a ceiling blanketing airflow pattern when selected to match variable volume roof top unit capacities as per supplier cataloged performance.
	4. The inner core assembly shall consist of fixed louvers capable of producing the airflow discharge pattern indicated on the plans, and shall be fully removable from the installed diffuser frame. Louvered blades shall be spaced one inch apart.
	5. The diffuser louver pattern shall be [one-way], [two-way], [two-way corner], [three-way], or [four-way] horizontal airflow.
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. Mounting Frame:
	1. The diffuser shall be supplied with a frame suitable for surface mounting.

**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 diffusers.

**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.