

Laminar Flow Diffuser: TLF

SECTION 233713 – DIFFUSERS

PART 1 – GENERAL

* 1. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division \*\* Specifications Sections, apply to this section
   1. SUMMARY
2. Sections Includes:
   1. Laminar Flow Diffuser
3. Related Sections:
   1. CODES AND STANDARDS
4. ASHRAE Standard 70, Method of Testing the Performance of Air Outlets and Air Inlets, 2006
5. ASHRAE Standard 170, Ventilation of Health Care Facilities, 2017
6. ASTM Standard E84, Standard Test Method for Surface Burning Characteristics of Building Materials, 2016
   1. SUBMITTALS
7. Product Data: For each type of produce indicated, include the following:
   1. Data Sheet: Indicate materials of construction, finish and mounting details and performance data including throw vertical and horizontal, static pressure, sound ratings.
   2. Source quality-control reports.

PART 2 - PRODUCTS

2.1 DIFFUSERS

1. Laminar Flow Diffuser
2. Manufacturers: Subject to compliance with requirements and performance listed in section 2.2 Source Quality Control, products by one of following manufacturer is acceptable
   1. Titus (Basis of Design)
   2. Tuttle and Baily
   3. Krueger
3. Diffuser shall be Group E Non-Aspirating Diffuser per ASHRAE Standard 170-2017.
4. Diffuser plenum shall be constructed of a single sheet of 20 gauge galvanized steel and welded at all seams and corners. Plenum shall be attached to the mounting frame with rivets. Inlet collar shall be sealed to the top of the plenum. Integral internal baffle for evenly distributing air over the entire face of the diffuser shall be mounted in the inlet of the diffuser. Integral baffle shall be constructed from stainless steel.
5. The face of the diffuser shall be 13 percent free area perforated 22 gauge galvanized steel. The face shall be secured in place by quarter-turn fasteners for quick removal and sanitizing. Differs shall be provided with two stainless steel safety cables for ease of installation/removal and to prevent accidental dropping and of the diffuser face.

*Optional Diffuser Construction*

1. (Optional) Diffusers shall be supplied with ½” foil-faced natural fiber external insulation. Insulation shall have a flamespread index of 0-25 and a smoke developed index of 0-50 (25/50 rating) when tested in accordance with ASTM E84.
2. Finish: shall be one of the following:
   1. #26 White.
      1. The finish shall be a powder coat paint, baked at 425°F.
      2. The paint thickness shall be 2.0 – 3.0 mils, gloss at 60° per ASTM D523-89 of 60 – 70%
      3. The paint shall have a pencil hardness per ASTM D3363-92A of H – 2H,
      4. The paint shall have crosshatch adhesion per ASTM D3359-83 of 5B
      5. The paint must pass a salt spray test per ASTM B117-9048 of 1000 hours,
      6. The paint must pass a humidity test per ASTM D2247-92 of 1000 hours
      7. The paint must pass a conical mandrel per ASTM D522 of 1/8” conical bend, no cracking shown.
   2. #26A Antimicrobial White
      1. The finish shall be a powder coat paint, baked at 425°F.
      2. The paint thickness shall be 2.0 – 3.0 mils, gloss at 60° per ASTM D523-89 of 60 – 70%
      3. The paint shall have a pencil hardness per ASTM D3363-92A of H – 2H,
      4. The paint shall have crosshatch adhesion per ASTM D3359-83 of 5B
      5. The paint must pass a salt spray test per ASTM B117-9048 of 1000 hours,
      6. The paint must pass a humidity test per ASTM D2247-92 of 1000 hours
      7. The paint must pass a conical mandrel per ASTM D522 of 1/8” conical bend, no cracking shown.
   3. Stainless Steel with mill finish
   4. Source Quality Control
3. The manufacturer shall provide published performance data for rated for the filtered radial throw diffuser
   1. The diffuser shall be tested in accordance with ANSI/ASHRAE Standard 70-2006

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install Diffusers level and plumb.
2. Verify diffuser air patterns are as indicated on drawings during installation.
3. Ceiling-Mounted Outlets: Drawings indicate general arrangement of ducts, fittings and accessories. Air Outlet and locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. Where architectural features or other items conflict with installation, notify Engineer for determination of final location.
4. Install diffusers with airtight connections to ducts and to allow service and maintenance of dampers, air extractors and fire dampers.

3.3 ADJUSTING

1. After installation, verify diffusers air patterns is as indicated on drawings, or as directed before starting air balance.

END OF SECTION 233713