

INSTALLATION &
OPERATION MANUAL



Fire Rated Diffusers

PAR-FR / PAS-FR / TMS-FR
TMSA-FR / TDC-FR / TDCA-FR
TDB-FR / TBDR-FR / TBDI-FR

General Installation

The four intersections of the cross-tees and main runners at the corners of the grid module containing the diffuser, or the midpoint of the crosstees adjacent to the diffuser, shall be directly supported from the structural members of the floor or roof by 12 SWG minimum vertical hanger wires. When the duct extends over the intersections of the grid members, minimum No. 16 gauge, cold-rolled steel channels shall be used to ensure that the grid is supported from structural members by 12 SWG minimum hanger wires. All UL Classified ceiling assemblies require lay-in ceiling panels be cut to fill the remainder of the 24" x 48" module and shall provide a minimum of 3/8" bearing on the ceiling grid members.

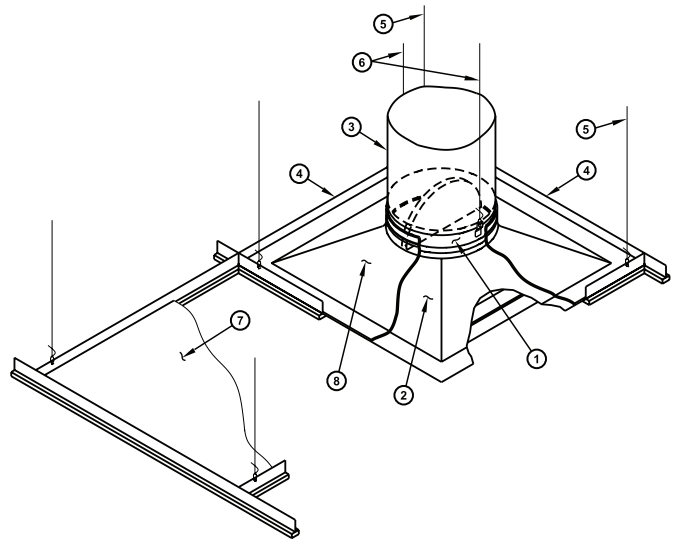
A steel clamp of No. 16 SWG minimum steel wire shall fasten the flex air duct to the damper when flex air duct is used to connect the main duct to the damper. The flex air duct shall be Class 0 or Class 1 and bear the UL Listing Mark. Refer to the UL Fire Resistance Directory "Design Information Section — General" for installation requirements.

IMPORTANT: Screws, bolts, rivets, etc. used in connection of the damper **MUST NOT INTERFERE WITH DAMPER BLADE OPERATION**. Hanger wires must be vertical and not splayed.

The damper must be fastened to the diffuser neck or grille frame in installations 1, 2, 3, 4, and 5. The damper must also be fastened to the duct drop in installation 2.

ITEM DESCRIPTION

1. Damper
2. Diffuser 24 Gauge Minimum
3. Flex Air Duct
4. Ceiling grid (UL Classified)
5. 12 Gauge Steel Wire
6. 16 Gauge Steel Wire
7. Ceiling Material (UL Classified)
8. Thermal Blanket Insulation Mineral Fiber or Ceramic Fiber



General Installation (continued)

APPLICATION

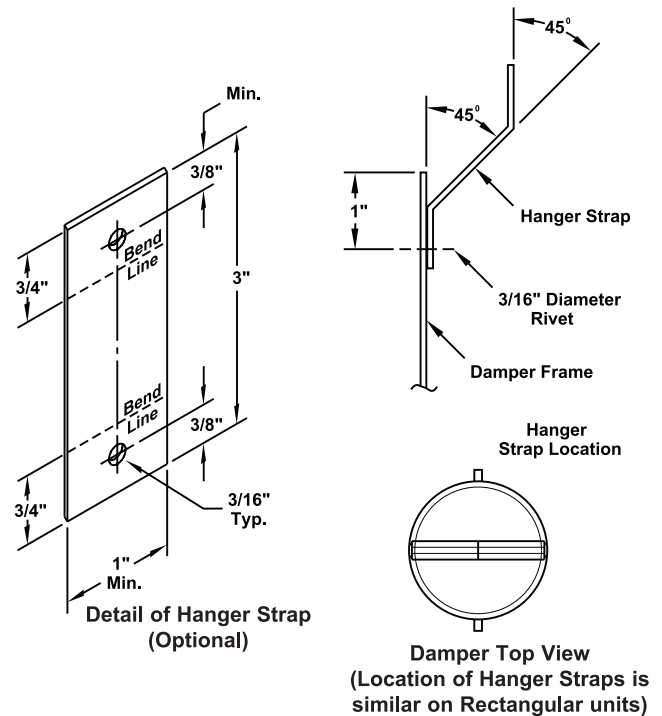
Fire Resistance Classified Ceiling Air Diffusers are for use in lieu of hinged-blade sheet metal dampers in steel ducts as specified in the “Design Information Section — General” and in individual floor/ceiling or roof/ceiling designs used as illustrated and described in the UL Fire Resistance Directory (FRD). When installed as shown and as described herein, these ceiling air diffusers provide appropriate protection to ceiling penetrations in any fire rated floor/ceiling or roof/ceiling assemblies with ratings of three hours or less as described in the FRD.

A maximum size ceiling penetration of 576 square inches can be protected using the thermal insulating blanket furnished with the ceiling air diffuser. The thermal insulating blanket protects the exposed portions of the ceiling diffuser and the ceiling damper protects the neck or inlet of the ceiling diffuser.

All system components (ducts, duct drops, sleeves, diffuser pan, or grille frames) must be constructed of steel. The installations and diffusers shown in these instructions illustrate general arrangement only. Installations must also incorporate any specific requirements included in the FRD. Note that both “Design Information Section — General” and individual floor/ceiling or roof/ceiling design listings apply.

An adjustable damper must be installed in closed position with clearance between the diffuser and adjustment mechanism. Cycle the damper open

after the diffuser and damper have been completely assembled and clearance verified.



General Installation (continued)

UNIT DESCRIPTION

(Installations 1, 2, and 3)

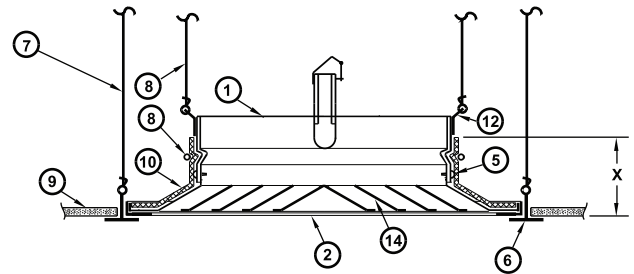
1. Damper
2. Diffuser 24 Gauge Minimum
3. Duct
4. Duct Drop
5. #8 Sheet Metal Screw (see text)
6. Ceiling Grid (UL Classified)
7. No. 12 Gauge Steel Wire
8. No. 16 Gauge Steel Wire
9. Ceiling Material (UL Classified)
10. Thermal Blanket Insulation, Mineral Fiber or Ceramic Fiber
11. Thermal Blanket Extension (3" wide), Mineral Fiber or Ceramic Fiber
12. Hanger Strap
13. No. 16 MSG, 1 1/2" Cold-Rolled Steel Channel
14. Diffuser Core (Metallic or Non-Metallic)

Note:

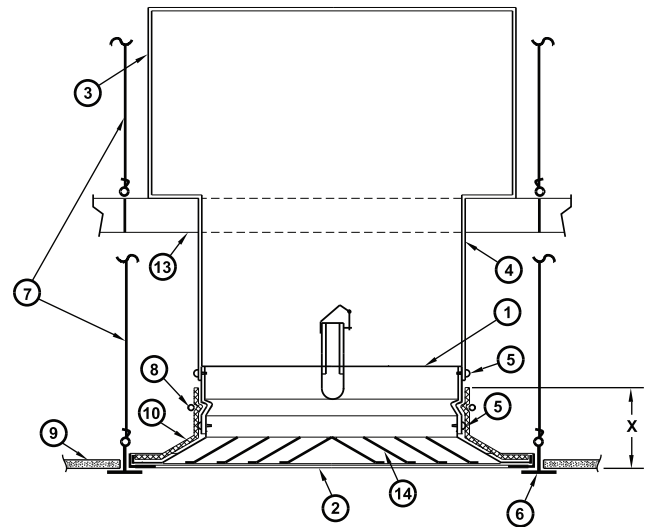
X Dimension 4" maximum with 12" diameter (113 sq. in.) damper and smaller.

2 3/4" maximum with damper larger than 12" diameter (113 sq. in.)

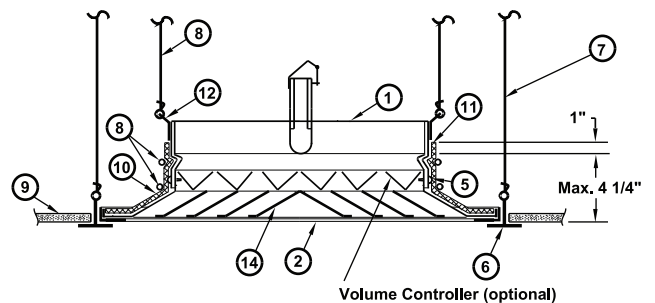
When extended height is required, see Installation 3.



Installation 1
Ductless return or flex duct supply with
two support straps required



Installation 2
With steel duct for any size unit



Installation 3
For extended height assemblies

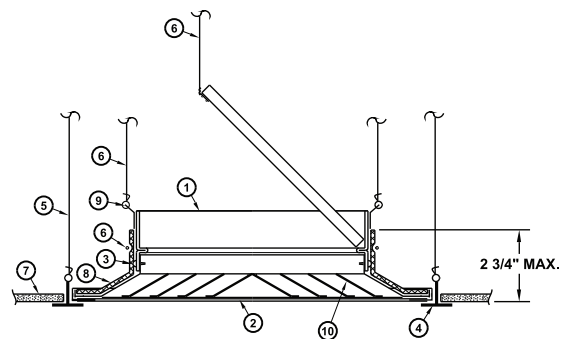
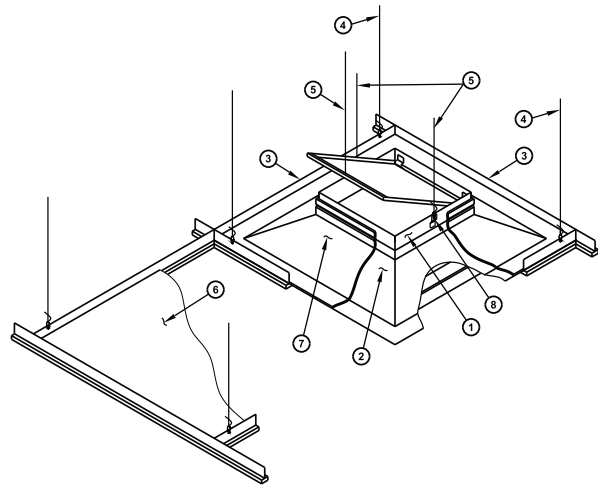
General Installation (continued)

INSTALLATION 5

Four thermal insulating blanket strips are supplied. The strips are to be laid between adjacent tee bars and the collar as depicted. No retaining wire is required. All fasteners must be No. 8 sheet metal steel screws, 3/16" tubular steel rivets, or 1/4" minimum tack welds. Use a minimum of two connections per side for rectangular or square dampers and three equally spaced connections for round dampers. Space fasteners a maximum of 6" apart. A maximum of 1/8" (1/4" total) clearance must exist between the ceiling damper and diffuser or duct drop.

In each installation, all screw or rivet attachments shall be placed a minimum of 3/16" from the edge of the damper frame, duct drop, or diffuser frame. All dampers must be supported by No. 16 SWG, 1 1/2" cold-rolled steel channels adjacent to both sides of the duct drop with a No. 12 SWG vertical (not splayed) hanger wire at each end. As an alternate, two hanger straps may be used with a No. 12 SWG hanger wire support from each strap to structural members.

Hanger straps may be factory supplied (optional) or may be field fabricated from 1" wide x 3" long strips of No. 20 gauge galvanized steel. Form as shown in Hanger Strap Detail. Fasten hanger strap to damper frame using 3/16" tubular steel rivets. Rivets must not interfere with operation of the damper blades.



Installation 4
Any Size Unit with
18 x 18 Neck Size and Smaller

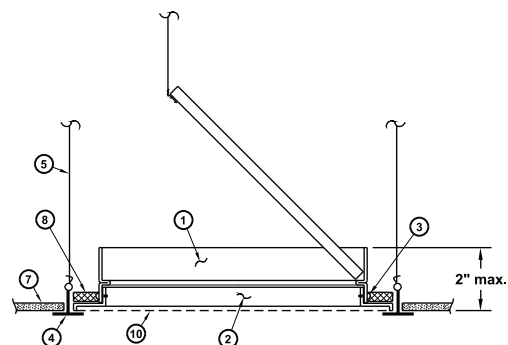
UNIT DESCRIPTION

1. Damper
2. Diffuser (No. 24 Gauge Minimum)
3. Ceiling Grid (UL Classified)
4. No. 12 Gauge Steel Wire
5. No. 16 Gauge Steel Wire
6. Ceiling Material (UL Classified)
7. Thermal Insulating Blanket
8. Hanger Strap

UNIT DESCRIPTION

(Installations 4 and 5)

1. Damper
2. Diffuser Frame (No. 24 Gauge Minimum)
3. #8 Sheet Metal Steel Screw (see text)
4. Ceiling Grid (UL Classified)
5. No. 12 Gauge Steel Wire
6. No. 16 Gauge Steel Wire
7. Ceiling Material (UL Classified)
8. Thermal Blanket Insulation
9. Hanger Strap
10. Diffuser (Metallic or Non-Metallic)



Installation 5

Notes

Notes



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