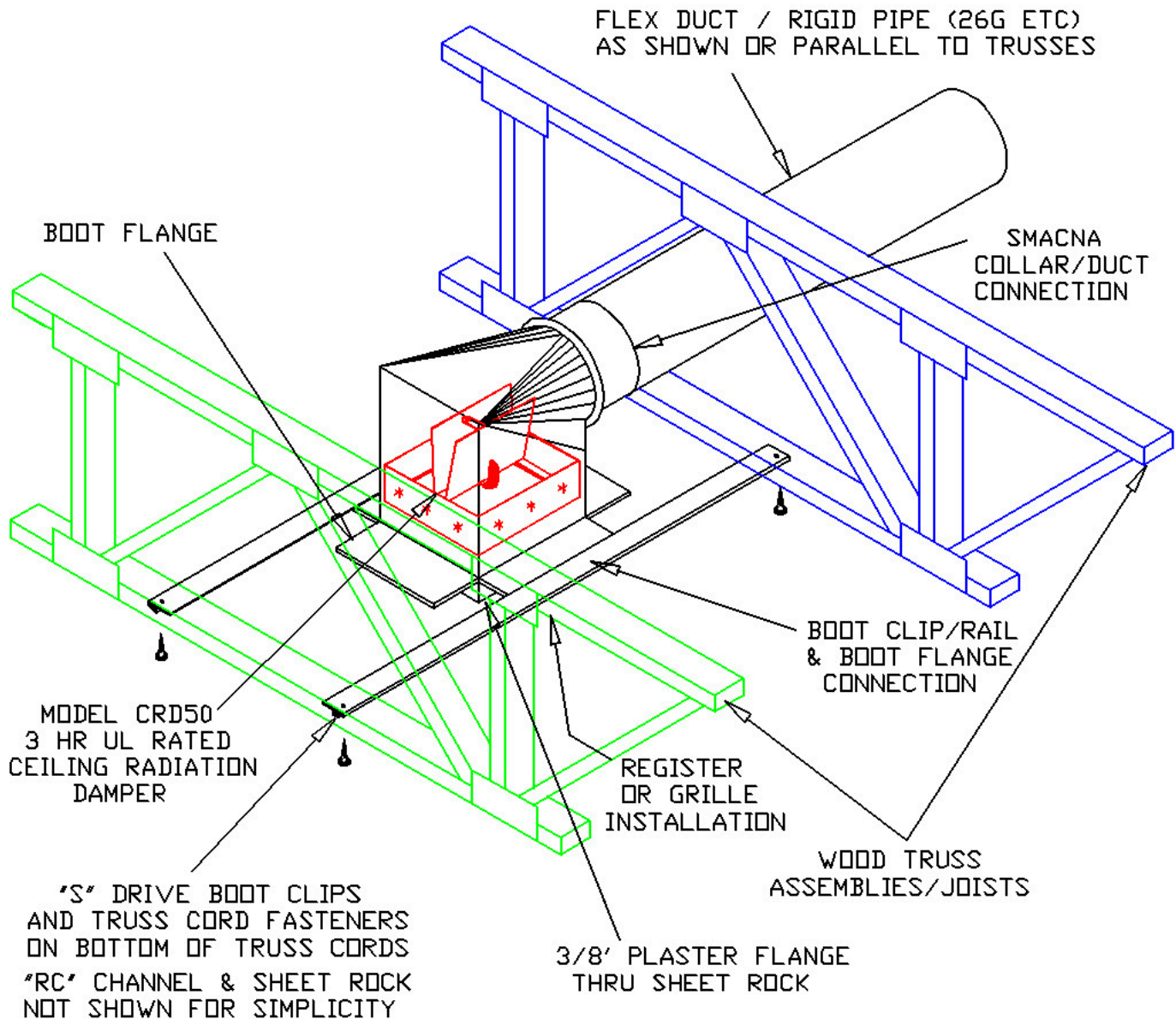




## BOOT CLIP INSTALLATION INSTRUCTION

**General Installation Instructions for Model:  
CRD50-NI-BT & CRD-50-NI-EA  
CRD50-95-NI-BT & CRD50-95-NI-BT-EA**



Please visit [firedamper.com](http://firedamper.com) for a video installation instruction.

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## BOOT CLIP INSTALLATION INSTRUCTION

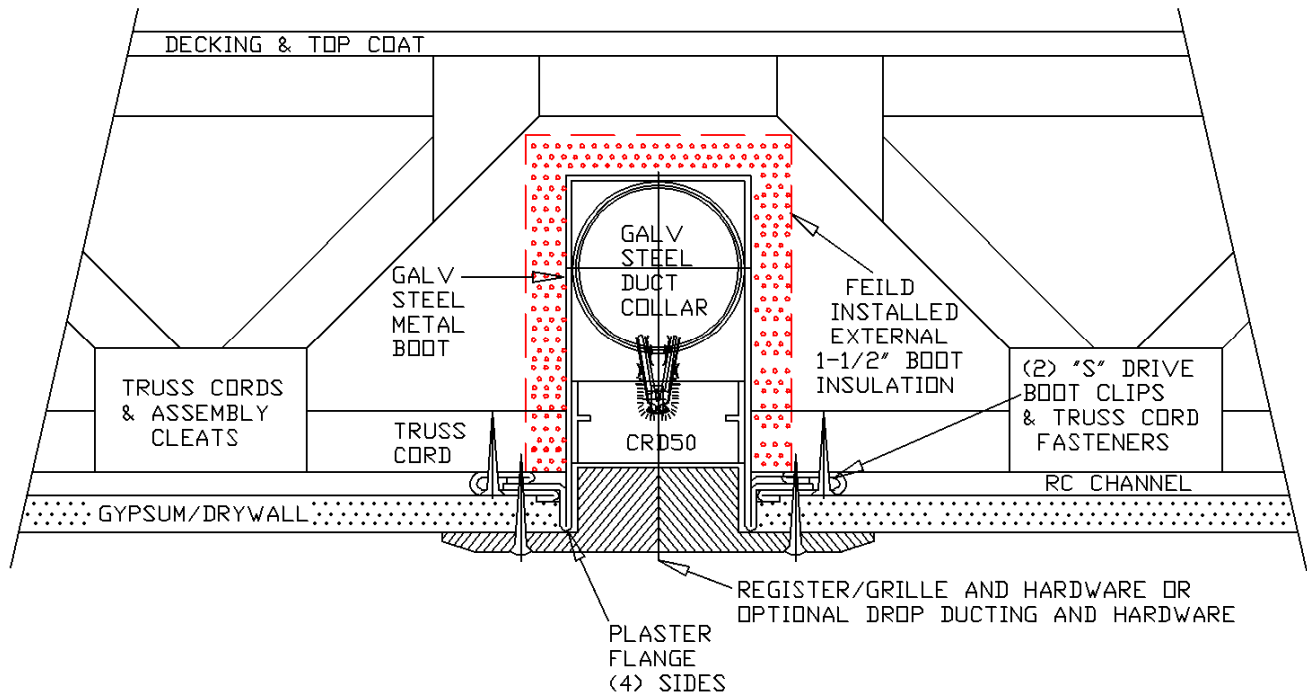
Model: CRD50-NI-BT & CRD50-NI-BT-EA

Model: CRD95-NI-BT & CRD95-NI-BT-EA

For 1 hour Fire Rated wood truss floor/ceiling & roof/ceiling partitions

UL L-563 & P-544 Rated wood truss partition types

For full truss type list see the Lloyd Industries truss comparison sheet



1. Before installing the damper, CRD Model 50 (rectangle), and CRD Model 50-EA (rectangle) open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For CRD Model 50-EA (Easy Access Fusible Link Attachment) flex the spring wire and secure the link.
2. Install (2) "S" Drive Boot Clips parallel & centered on the galvanized steel boot flanges.
3. Raise the CRD/Boot Assembly to the ceiling positioning the assembly boot clips under (2) truss cords. (Shim if required)
4. Fastened boot clips to the truss cords/joists or other structural members with a minimum of (1) fastener for each mounting point (4 places minimum) using #8-#12 drywall or wood screws X 1-1/4" long minimum.
5. Verify the plenum box location & height adjusting for "RC" channel depth as required to insure plaster flange penetration.
6. Verify the damper blade closure & function prior to assembly of gypsum or ceiling materials.
7. Install duct work and duct fasteners as per SMACNA Standards.
8. Note: These assemblies will be provided with 1" or 1-1/2" fiberglass insulated boots/plenum boxes.
9. Install gypsum materials. Note: Insure that the space between the gypsum ceiling material and damper/box at final assembly does not exceed 1/8" maximum on the sides of the box. (1/16"/side)
10. After ceiling materials have been installed & inspected, install and fasten the register/grille using a minimum of (2) #8-#10 x 3" long sheet metal, or drywall screws fastening through the ceiling material and into the CRD boot galvanized steel flanges.  
Note: For Drop Ducting connect drop ducting as per SMACNA Standards.

**Special Note:**

11. Check the damper function upon completion.



INSTALLATION INSTRUCTIONS  
AND THE PRODUCTS SPECIFIED, ARE  
IN CONFORMANCE TO ALL OF  
UNDERWRITERS LABORATORIES  
REQUIREMENTS 555C



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for a video installation  
instruction.

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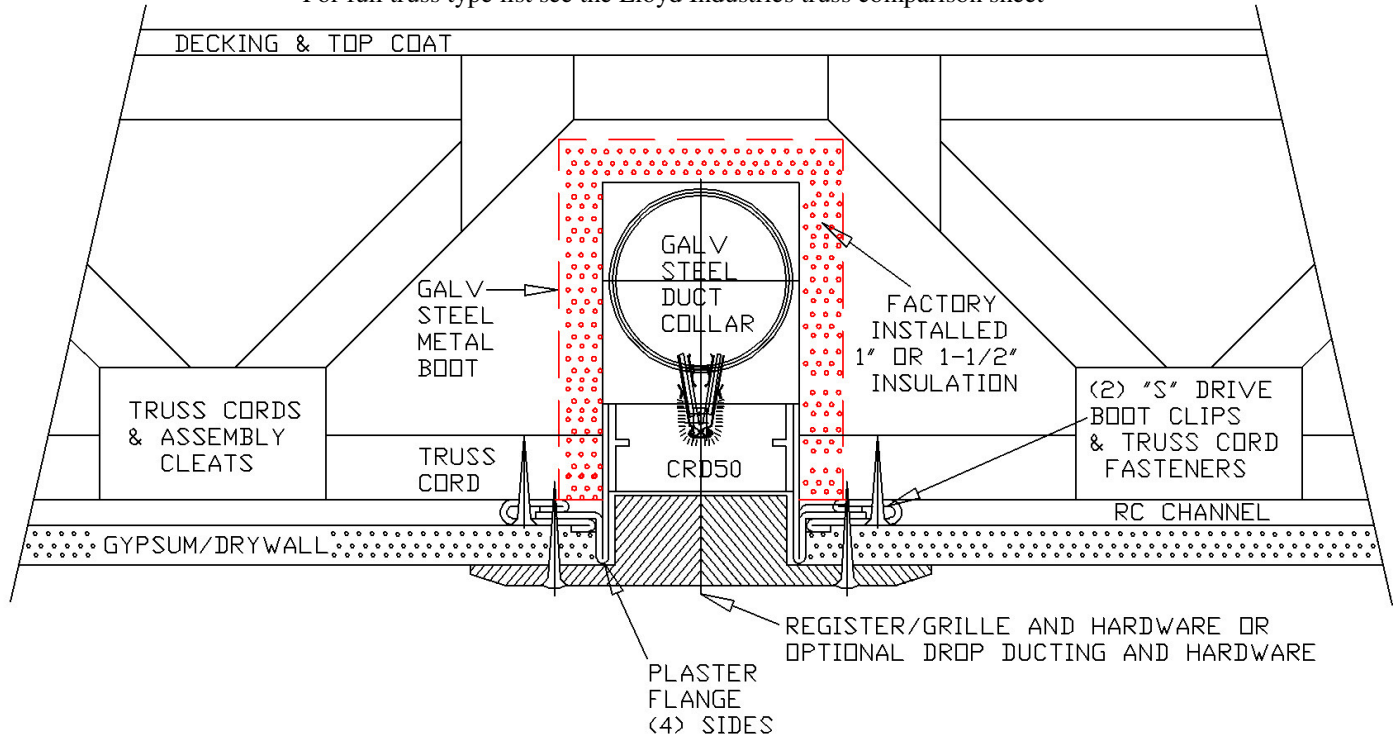
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# BOOT CLIP INSTALLATION INSTRUCTION

Insulated Model: CRD50-BT-4.2 & CRD50-BT-EA-4.2  
 Insulated Model: CRD50-BT-6.0 & CRD50-BT-EA-6.0  
 For 1 hour Fire Rated wood truss floor/ceiling & roof/ceiling partitions  
 UL L-563 & P-544 Rated wood truss partition types  
 For full truss type list see the Lloyd Industries truss comparison sheet



1. Before installing the damper, CRD Model 50 (rectangle), and CRD Model 50-EA (rectangle) open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For CRD Model 50-EA (Easy Access Fusible Link Attachment) flex the spring wire and secure the link.
2. Install (2) "S" Drive Boot Clips parallel & centered on the galvanized steel boot flanges.
3. Raise the CRD/Boot Assembly to the ceiling positioning the assembly boot clips under (2) truss cords. (Shim if required)
4. Fastened boot clips to the truss cords/joists or other structural members with a minimum of (1) fastener for each mounting point (4 places minimum) using #8-#12 drywall or wood screws X 1-1/4" long minimum.
5. Verify the plenum box location & height adjusting for "RC" channel depth as required to insure plaster flange penetration.
6. Verify the damper blade closure & function prior to assembly of gypsum or ceiling materials.
7. Install duct work and duct fasteners as per SMACNA Standards.
8. Insulate the boot box using 1-1/2" fiberglass insulation batts, or other, fastening with zip ties & 2" wide aluminum tape.
9. Install gypsum materials. Note: Insure that the space between the gypsum ceiling material and damper/box at final assembly does not exceed 1/8" maximum on the sides of the box. (1/16"/side)
10. After ceiling materials have been installed & inspected, install and fasten the register/grille using a minimum of (2) #8-#10 x 3" long sheet metal, or drywall screws fastening through the ceiling material and into the CRD boot galvanized steel flanges.

**Special Note:**

11. Check the damper function upon completion.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C



Please visit [firedamper.com](http://firedamper.com) for a video installation instruction.

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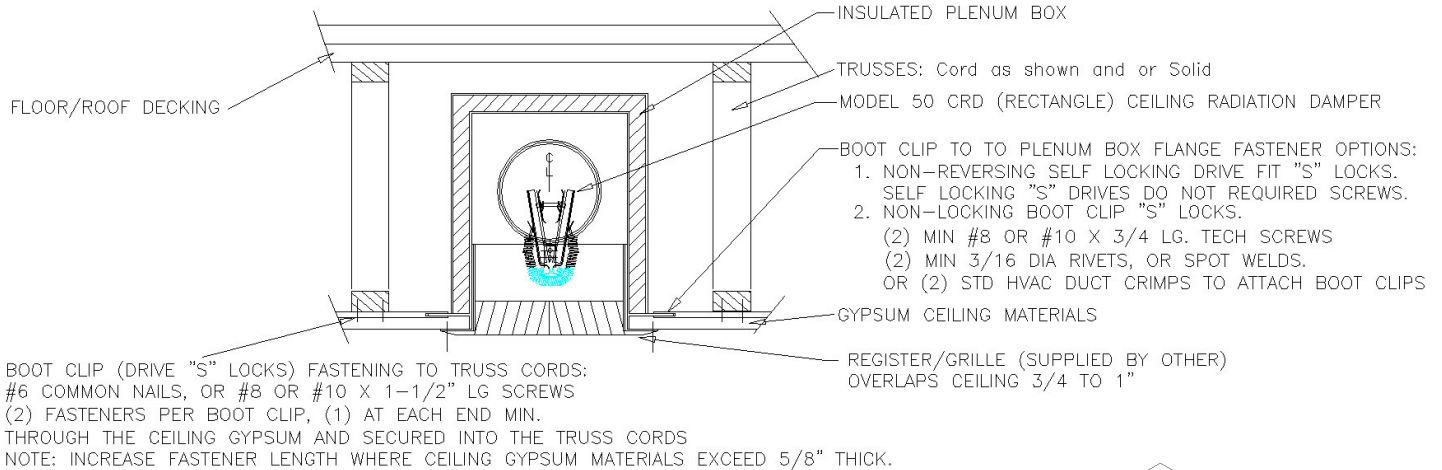


# BOOT CLIP INSTALLATION INSTRUCTION

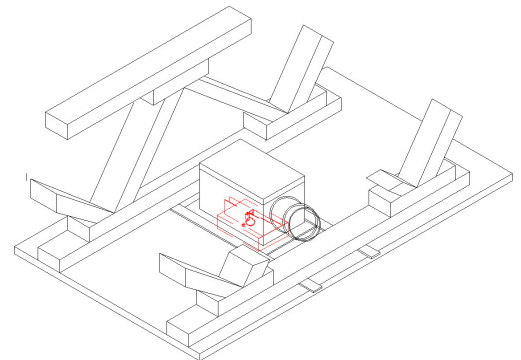
Model: CRD50-FGPB-4.2 & CRD50-EA-FGPB-4.2 (SIDE OUTLET) with F/G Box ASM.  
Model: CRD50-FGPB-4.2-CP & CRD50-EA-FGPB-4.2-CP (SIDE OUTLET) with F/G Box ASM.  
Model: CRD50-FGPB-6.0 & CRD50-EA-FGPB-6.0 (SIDE OUTLET) with F/G Box ASM.

For Register/Grille and Ducted Application

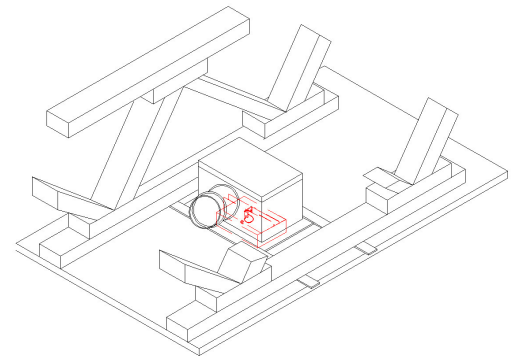
For 1 hour Rated Assemblies for use in UL rated wood truss type partitions  
UL L-563 rated Floor/ceiling, P-544 rated Roof/ceiling, Truss/gypsum constructions



1. Before installing the damper, Model CRD-50-FGPB (rectangle), and Model CRD-50-EA-FGPB (rectangle) open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For Model CRD-50-EA-FGPB flex the spring wire and secure the link.
2. Measure the actual truss centers and add approx. 6" to determine boot clip lengths. ((2) required per box)
3. Drive (2) Self Locking "S" Boot Clips to the plenum box flange centering the plenum a box as required. Where required to insure permanent attachment, fasten boot clips to the plenum box using the fasteners listed below. **Note: When Non-Drive boot clips are used, fasten boot clips to the plenum box flange using a minimum of (2) #8 or #10 x 3/4" Lg sheet metal screws, (2) 3/16" diameter rivets, or (2) spot welds, for each boot clip.**
4. Boot Clips are fastened to joists or other structural members with a minimum of two fasteners for each mounting point using #6 common nails or #8/#10 x 1-1/2" min. lg screws. **Note: Increase fastener length where gypsum/drywall ceiling materials exceed 5/8" thick.**
5. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
6. Steel or Aluminum grille or diffuser to be attached to the duct drop or ceiling damper using #8 by 1/2 inch long sheet metal screws at 6 inches o.c. and a minimum of (3) places.



SIDE OUTLET THRU TRUSS CORD



SIDE OUTLET PARALLEL TO TRUSSES

### IMPORTANT NOTES:

**REGISTER BOX/DROP DUCT INSTALLATIONS MUST BE INSULATED AND CONFORM TO LOCAL AUTHORITY REQUIREMENTS FASTENERS MUST NOT INTERFERE WITH THE DAMPER BLADES OPERATION.**



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C



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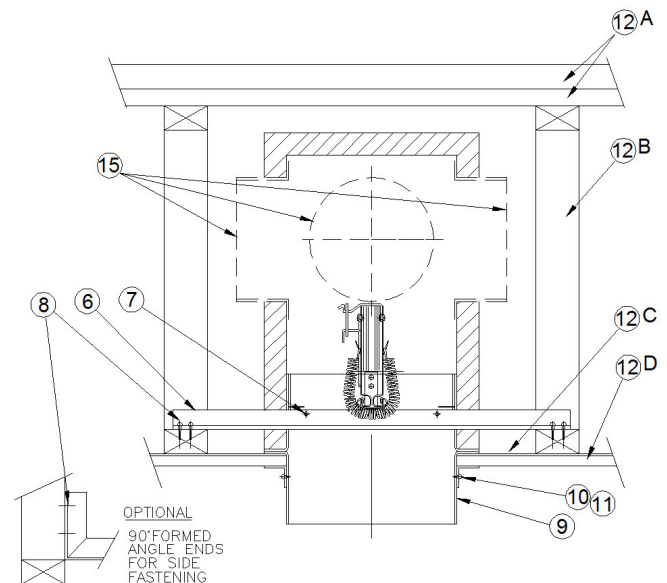
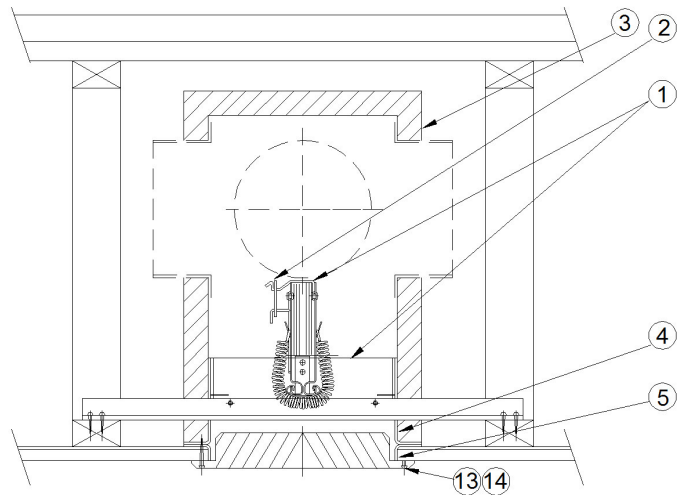
## INSTALLATION INSTRUCTION

Model:

- CRD 50-FGPB-4.2-NI & CRD 50-EA-FGPB-4.2-NI for register & grille installations
- CRD 50-FGPB-4.2-NI & CRD 50-EA-FGPB-4.2-NI for drop thru duct installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for register & grille installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for drop thru duct installations

- (1) Lloyd Industries UL 555-C listed ceiling radiation damper
- (2) Easy access or standard fusible link (165°F std)(212°F optional)
- (3) Fiberglass ductboard plenum box (ul rated 181 class 1)(see note)
- (4) Damper sleeve: flanged for plenum insulation support (22 Ga. galvanized steel)
- (5) Register/grille sleeve 22 Ga. galvanized steel. (for 5/8" thick gypsum)
- (6) Support angles (2) per unit: factory installed or supplied separately
  - A. std. (16 Ga. galvanized steel 3/4" x 3/4" x 26" lg)
  - B. optional (22 Ga. galvanized 1-1/2" x 1-1/2" x 26" lg)
- (7) Support angle fasteners (fastens support angles to damper) #8 x 3/4" lg steel sheet metal screws, 3/16 diameter steel rivets, or spot welds. (2) places on each support angle minimum. when the (4) adjustable angle brackets are used, use fasteners above and secure support angles to adjustable brackets with a minimum of (1) fastener for each bracket.
- (8) Support angle fasteners (angles to truss cords) #8 or #10 x 1-1/2" lg steel sheet metal or drywall screws or #6 common nails (8) plcs.
- (9) Drop duct sleeve 22 Ga. galvanized steel
- (10) Drop duct mounting angles (4) 22 Ga. x 1" x 1" galvanized steel
- (11) Drop duct angle fasteners (angles to sleeve) #8 or #10 x 3/4" lg steel sheet metal screws or 3/16" steel pop rivets (8) plcs.
- (12) Ref: design I-563 wood truss ASM:
  - A. deck/roof materials
  - B. truss wood cords
  - C. RC channel
  - D. gypsum board 5/8" thick minimum
- (13) Register/grille (26 ga steel min)(.55 mm) (provided by other)
- (14) Register/grille steel mounting screws (2) #8 x 2" lg minimum. (provided by other)
- (15) Flexible duct and duct connectors: UL Classified class 0 or class 1 (provided and installed by other)
- (16) Boot clip installation permitted using (2) #8 or #10 steel sheet metal screws. use a min of (2) #8 "s" type steel screws to fasten to truss cords at each mounting point. use (2) crimp connections or hardware above to fasten non-locking boot clips to

These damper assemblies have been tested and approved for installation in 1 Hour roof/ceiling, floor/ceiling design numbers: UL-L-563 and UL-P-544



INSTALLATION INSTRUCTIONS  
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REQUIREMENTS 555C

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## INSTALLATION INSTRUCTION

Model:

CRD 50-FGPB-4.2-NI & CRD 50-EA-FGPB-4.2-NI for register & grille installations  
 CRD 50-FGPB-4.2-NI & CRD 50-EA-FGPB-4.2-NI for drop thru duct installations  
 CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for register & grille installations  
 CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for drop thru duct installations

1. **These Assemblies Must Be Insulated As Specified By The Additional Lloyd Ind. Fabrication Sheets To Maintain 1-hr Fire Resistance Ratings. Prior To Installation, Cut, Fabricate, & Install Fiberglass Plenum Boxes Using Only UL Approved Ductboard And Aluminum Tape As Specified In The Applicable Lloyd Industries Fiberglass Plenum Box Fabrication Sheet #10515.**
2. Before installing the damper assembly, open the ceiling radiation damper blades and secure the blades open with the easy access wire catch and the temperature rated fusible link.
3. Ceiling penetrations should be located between adjacent trusses and RC Channels using a s a minimum of 1-3/4" from the truss to the outside of the plenum box as shown. If required (1) RC Channel may be cut to allow installation. The clearance between the damper/sleeve and the gypsum ceiling material must not exceed 1/16" per side and 1/8" total max.
4. Installation:
  - A. If support angles have been provided pre-assembled to the units by the factory, center dampers between trusses and locate support angle rails on top of the lower truss cords. Fasten using a minimum of (2) #8, or #10 wood or drywall steel screws X 1-1/2" lg or #6 common nails at each mounting point.
  - B. Support angles may be cut and formed 90° for truss side mounting inside truss cords as shown.
  - C. If support angles have been provided separate from the unit, establish the dimension for the gypsum flange location to the top of the lower truss cord and fasten (2) support angles to units using (2) #8 x 3/4" lg steel sheet metal screws or (2) 3/16" diameter steel rivets for each angle. **NOTE: Insure that fasteners do not interfere with the ceiling radiation damper operation.**
5. The Fiberglass insulation plenum box permits cutting and installing a maximum of (3) collars for class 1 or class 0 flexible ducting. Use UL 181 Class 1 reinforced 2" wide aluminum Tape where required for assembly and box/duct sealing. **NOTE: Duct and collar installation must not interfere with damper operation inside the fiberglass ductboard plenum box.**
6. Registers/grilles of steel construction with 26 Ga. (.55 mm) minimum are to be attached to the ceiling radiation damper gypsum flange using (2) #8 x 2" lg steel sheet metal screws minimum. (1) at each end of the grille/register minimum.
7. Drop duct installations require 22 Ga. 1" x 1" retaining angles on all (4) sides fastened to the steel drop duct sleeve using (2) #8 x 3/4" lg steel sheet metal or 3/16" diameter steel rivets on each side as shown.



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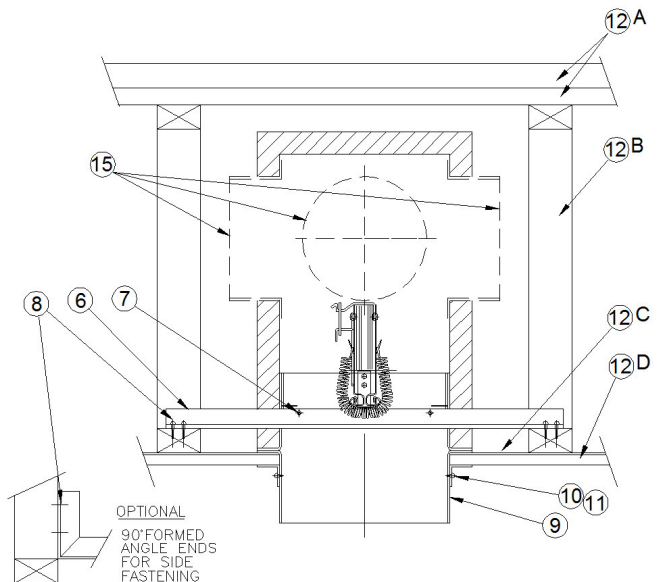
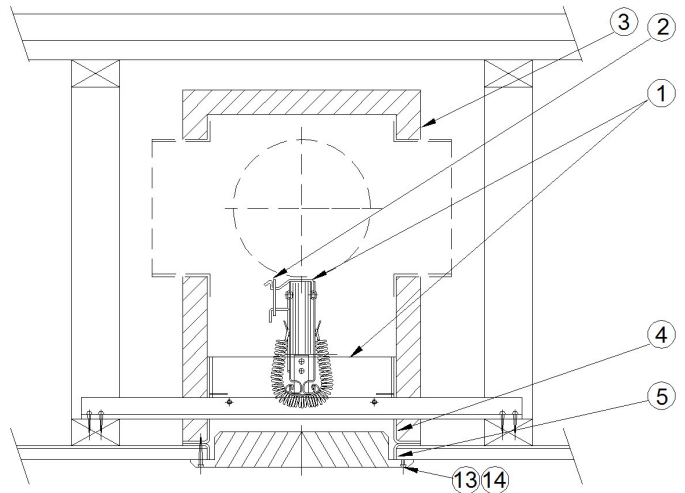
# INSTALLATION INSTRUCTION

Model:

- CRD 50-FGPB-4.2 & CRD 50-EA-FGPB-4.2 for register & grille installations
- CRD 50-FGPB-4.2 & CRD 50-EA-FGPB-4.2 for drop thru duct installations
- CRD 50-FGPB-4.2-CP & CRD 50-EA-FGPB-4.2-CP for register & grille installations
- CRD 50-FGPB-4.2-CP & CRD 50-EA-FGPB-4.2-CP for drop thru duct installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for register & grille installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for drop thru duct installations

- (1) Lloyd Industries UL 555-C listed ceiling radiation damper
- (2) Easy access or std fusible link (165°F std)(212°F optional)
- (3) Fiberglass ductboard plenum box (UL rated 181 class 1)(see note)
- (4) Damper sleeve: flanged for plenum insulation support (22 Ga. galvanized steel)
- (5) Register/grille sleeve 22 Ga. galvanized steel. (for 5/8" thick gypsum)
- (6) Support angles (2) per unit: factory installed or supplied separately
  - A. std. (16 Ga. galvanized steel 3/4" x 3/4" x 26" lg)
  - B. optional (22 Ga. galvanized 1-1/2" x 1-1/2" x 26" lg)
- (7) Support angle fasteners (fastens support angles to damper) #8 x 3/4" lg steel sheet metal screws, 3/16 diameter steel rivets, or spot welds. (2) places on each support angle minimum. when the (4) adjustable angle brackets are used, use fasteners above and secure support angles to adjustable brackets with a minimum of (1) fastener for each bracket.
- (8) Support angle fasteners (angles to truss cords) #8 or #10 x 1-1/2" lg steel sheet metal or drywall screws or #6 common nails (8) plcs.
- (9) Drop duct sleeve 22 Ga. galvanized steel
- (10) Drop duct mounting angles (4) 22 Ga. x 1" x 1" galvanized steel
- (11) Drop duct angle fasteners (angles to sleeve) #8 or #10 x 3/4" lg steel sheet metal screws or 3/16" steel pop rivets (8) plcs.
- (12) Ref: design I-563 wood truss ASM:
  - A. deck/roof materials
  - B. truss wood cords
  - C. RC channel
  - D. gypsum board 5/8" thick minimum
- (13) Register/grille (26 ga steel min)(.55 mm) (provided by other)
- (14) Register/grille steel mounting screws (2) #8 x 2" lg minimum. (provided by other)
- (15) Flexible duct and duct connectors: UL Classified class 0 or class 1 (provided and installed by other)
- (16) Boot clip installation permitted using (2) #8 or #10 steel sheet metal screws. use a min of (2) #8 "s" type steel screws to fasten to truss cords at each mounting point. use (2) crimp connections or hardware above to fasten non-locking boot clips to

These Damper Assemblies Have Been Tested And Approved For Installation In 1 Hour Roof/ceiling, Floor/ceiling Design Numbers: UL-L558, L562, L563, LL574,L585, P533, P544, P545 and P547



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

All installations are subject to local authority approval prior to ordering and installing dampers





## INSTALLATION INSTRUCTION

Model:

- CRD 50-FGPB-4.2 & CRD 50-EA-FGPB-4.2 for register & grille installations
- CRD 50-FGPB-4.2 & CRD 50-EA-FGPB-4.2 for drop thru duct installations
- CRD 50-FGPB-4.2-CP & CRD 50-EA-FGPB-4.2-CP for register & grille installations
- CRD 50-FGPB-4.2-CP & CRD 50-EA-FGPB-4.2-CP for drop thru duct installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for register & grille installations
- CRD 50-FGPB-6.0-NI & CRD 50-EA-FGPB-6.0-NI for drop thru duct installations

1. Before installing the damper assembly, open the ceiling radiation damper blades and secure the blades open with the easy access wire catch and the temperature rated fusible link.
2. Ceiling penetrations should be located between adjacent trusses and RC Channels using a s a minimum of 1-3/4" from the truss to the outside of the plenum box as shown. If required (1) RC Channel may be cut to allow installation. The clearance between the damper/sleeve and the gypsum ceiling material must not exceed 1/16" per side and 1/8" total max.
3. Installation:
  - A. If support angles have been provided pre-assembled to the units by the factory, center dampers between trusses and locate support angle rails on top of the lower truss cords. Fasten using a minimum of (2) #8, or #10 wood or drywall steel screws X 1-1/2" lg or #6 common nails at each mounting point.
  - B. Support angles may be cut and formed 90° for truss side mounting inside truss cords as shown.
  - C. If support angles have been provided separate from the unit, establish the dimension for the gypsum flange location to the top of the lower truss cord and fasten (2) support angles to units using (2) #8 x 3/4" lg steel sheet metal screws or (2) 3/16" diameter steel rivets for each angle. **NOTE: Insure that fasteners do not interfere with the ceiling radiation damper operation.**
5. The Fiberglass insulation plenum box permits cutting and installing a maximum of (3) collars for class 1 or class 0 flexible ducting. Use UL 181 Class 1 reinforced 2" wide aluminum Tape where required for assembly and box/duct sealing. **NOTE: Duct and collar installation must not interfere with damper operation inside the fiberglass ductboard plenum box.**
6. Registers/grilles of steel construction with 26 Ga. (.55 mm) minimum are to be attached to the ceiling radiation damper gypsum flange using (2) #8 x 2" lg steel sheet metal screws minimum. (1) at each end of the grille/register minimum.
7. Drop duct installations require 22 Ga. 1" x 1" retaining angles on all (4) sides fastened to the steel drop duct sleeve using (2) #8 x 3/4" lg steel sheet metal or 3/16" diameter steel rivets on each side as shown.



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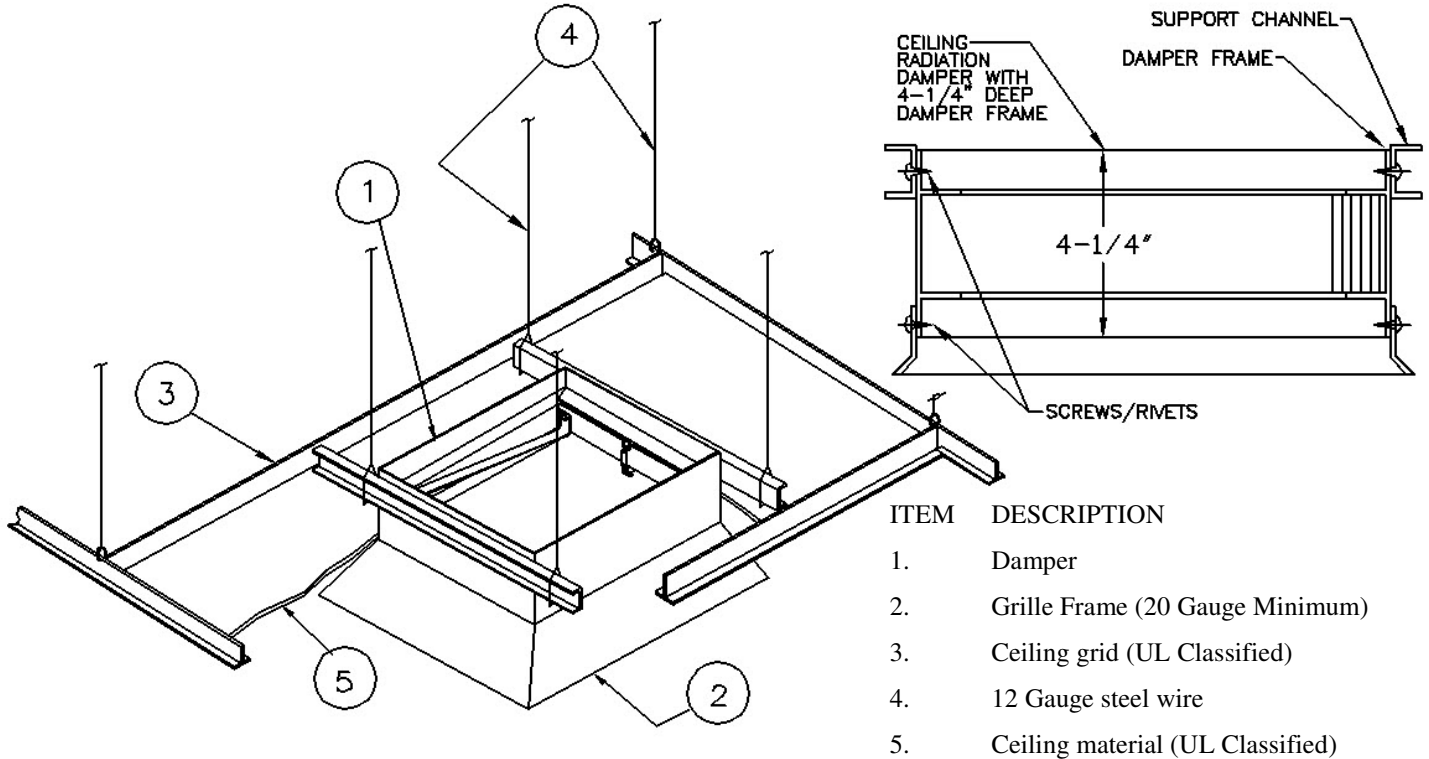






# DROP CEILING INSTALLATION INSTRUCTION

## DROP CEILING INSTALLATION SHEET MODEL CRD-45-LT STANDARD CRD (RECTANGULAR) (HORIZONTAL)



- | ITEM | DESCRIPTION                      |
|------|----------------------------------|
| 1.   | Damper                           |
| 2.   | Grille Frame (20 Gauge Minimum)  |
| 3.   | Ceiling grid (UL Classified)     |
| 4.   | 12 Gauge steel wire              |
| 5.   | Ceiling material (UL Classified) |

These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling assemblies (including wood construction) which are rated 3 hours or less. The damper/surface mounted diffuser shall be installed as shown on installation sheet. The damper on the opposite sides shall be connected to support channels (16 MSG by 1-1/2 or 2 inch channel) with 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches OC minimum 3 per side.

The damper assembly shall be hung with 12 SWG minimum hanger wires at each of the channel ends. All hanger wires shall be supported directly from the structural members of the floor or roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal). The flange on the surface mounted diffuser at the ceiling membrane level shall provide a minimum 1 inch. Support for the ceiling panels. Size of hole cut in the panel for passage of the duct drop shall be more than 1/8 inch. Larger than opening for the damper.

When cutting of a main runner or cross tee is needed, a 1/2 inch clearance must be maintained between the cut end of the main runner or cross tee and the damper. A 12 SWG hanger wire shall be installed near each end of the cut main runner or cross tee. No more than one main runner or cross tee may be cut when penetrating the ceiling membrane.

The steel diffusers shall be attached to the damper with No. 8 sheet metal screws, 3/16" tubular steel rivets, 3/16 inch diameter by half inch long steel bolts, or 1/4" tack welds.

### Rectangular ceiling damper size limitations

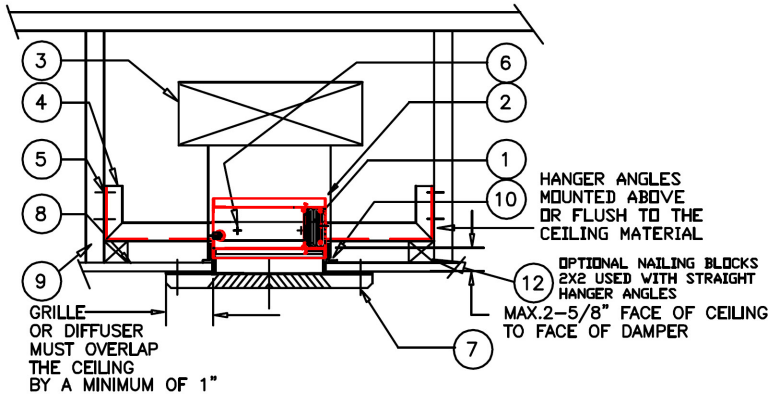
Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"





# CEILING INSTALLATION INSTRUCTION

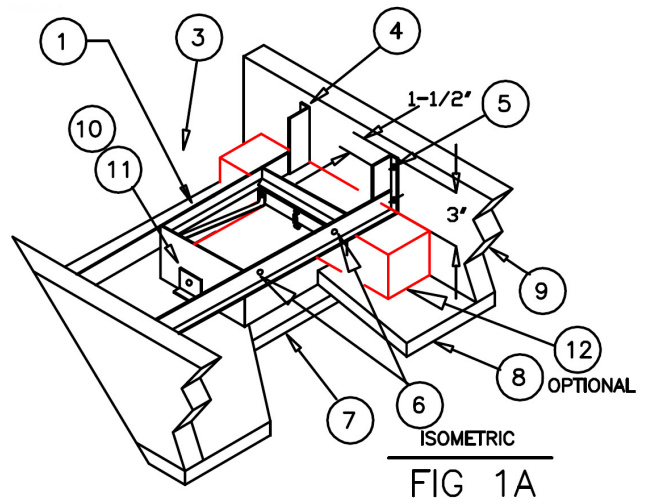
## General Installation Instructions Model 45-LT



These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or Roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling or roof-ceiling assemblies which are rated 3 hours or less.

### ITEM DESCRIPTION

1. Ceiling Radiation damper
2. Steel Duct Drop (Less #3 Plenum Permitted)
3. Branch Plenum, or Plenum Boot
4. Hanger Angles (2) 1-1/2x1-1/2x16 gauge
5. #6 Common Nails or #8 x1-1/4 Screws
6. Mounting Fasteners (Bolts, Screws, Rivets)
7. Steel Grille, Diffuser, or Drop Ducting
8. Ceiling: Gypsum Wallboard Acoustical Tile or Acoustical Panel (Lay-In)
9. Joists, Trusses, Beams
10. Stabilizing Angles (2) 1/2x1-1/2x16Ga.x3"
11. Mounting Fasteners (Bolts, Screws, Rivets)
12. Optional Nailing Blocks 2x2 used with Straight Hanger Angles





## CEILING INSTALLATION INSTRUCTION

General Installation Instructions

Model 45-LT

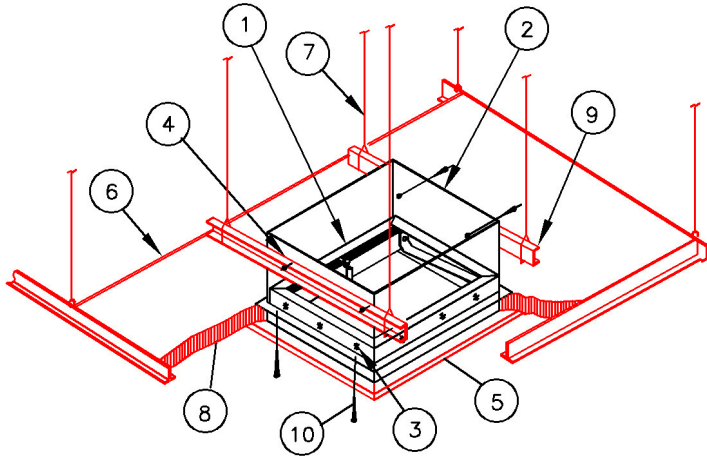
### INSTALLATION INSTRUCTIONS:

1. Before installing the damper, Model 45 LT open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position.
2. Measure the actual spacing between the joists or other structural members. Allowing for a 3.00" flange at each mounting point. Cut and bend the angles on both ends to 90 degrees. or the appropriate angle required. Mounting angles are fastened to joists or other structural members with a minimum of two fasteners for each mounting point using #6 common nails or #8 x 1-1/4" long screws.
3. Model 45 LT are connected to the mounting angles with sheet metal screws, rivets, or bolts. Two connections on each angle as a minimum. Note: fastener positions must not interfere with the damper blade operation.
4. Model 45 LT connected to the stabilizing angles with sheet metal screws, rivets, or bolts. One connection on each angle as a minimum. The stabilizing angles are to be mounted with one face of the angle flush to the ceiling material. Note: fastener positions must not interfere with the damper blade operation.
5. The installation mounting position of the closed damper blade face must not exceed 2-5/8" from the face of the rated barrier.
6. Install the ceiling damper in the duct drop using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches o.c. and a minimum of (3) places. For flexible ducting; connect with draw clamps, #16 SWG wire, or cable ties as per SMACMA Standards requirements.
7. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
8. The maximum size of Model 45 LT (rectangle) is 14" W x 14" H.
9. Steel/Alum. grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch lg.sheet metal screws.



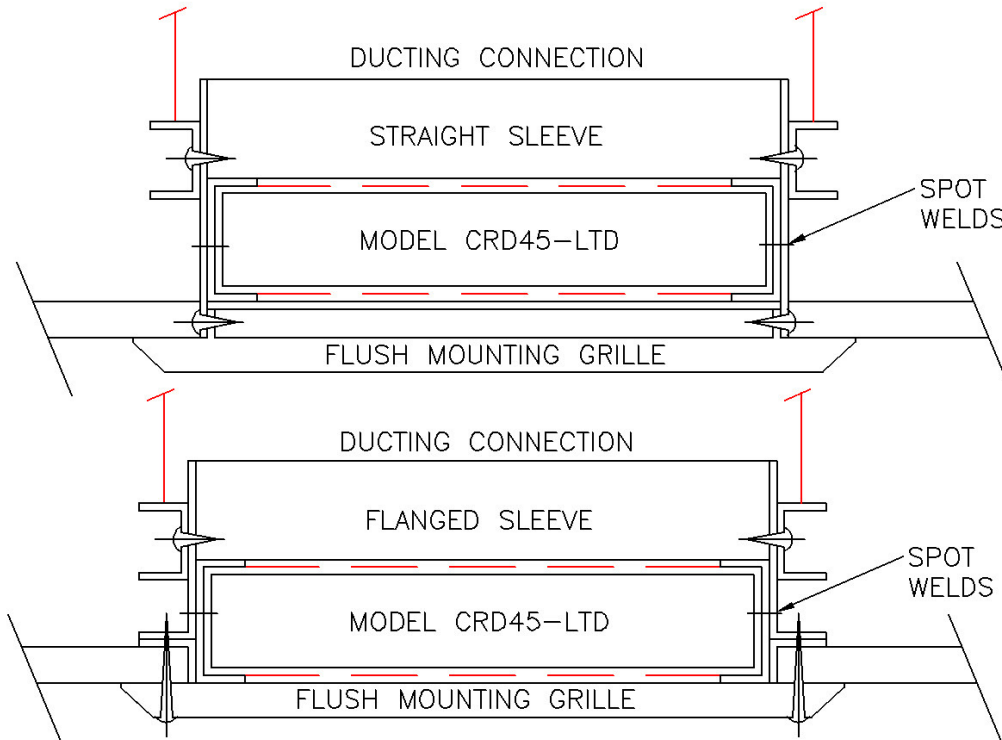
## DROP CEILING INSTALLATION INSTRUCTION

Model: CRD45-LTD Thin Line (Rectangular and Horizontal)  
For Flush Mount Grilles



**ITEM DESCRIPTION**

- 1. Ceiling Radiation damper (Flush Mount)
- 2. Flanged sleeve (22 Ga. Min.)
- 3. (8) Factory spot welds (8) Min.
- 4. Channel Fasteners (2 each side min.)
- 5. Flush mount grille (20 gauge steel min.)
- 6. Ceiling grid (UL Classified)
- 7. 12 gauge steel wire
- 8. Ceiling material (UL classified)
- 9. Support channel (2 required min.)
- 10. Flush mount grille fasteners (4 PLCS)



Note: fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

**Rectangular ceiling damper size limitations**

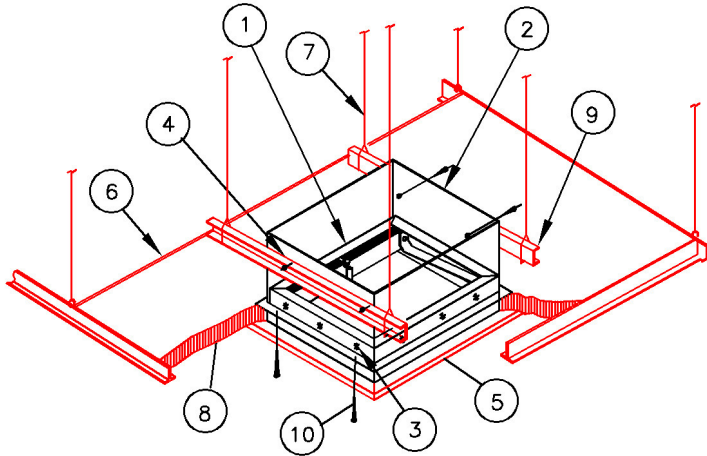
Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"





## DROP CEILING INSTALLATION INSTRUCTION

Model: CRD45-LTD Thin Line (Rectangular and Horizontal)  
For Flush Mount Grilles



- | ITEM | DESCRIPTION                              |
|------|--|
| 1.   | Ceiling Radiation damper (Flush Mount)   |
| 2.   | Flanged sleeve (22 Ga. Min.)             |
| 3.   | (8) Factory spot welds (8) Min.          |
| 4.   | Channel Fasteners (2 each side min.)     |
| 5.   | Flush mount grille (20 gauge steel min.) |
| 6.   | Ceiling grid (UL Classified)             |
| 7.   | 12 gauge steel wire                      |
| 8.   | Ceiling material (UL classified)         |
| 9.   | Support channel (2 required min.)        |
| 10.  | Flush mount grille fasteners (4 PLCS)    |

These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the CRD-45-LTD 2" "thinline" damper and spot welded flanged sleeve provide for flush mounting ceiling grilles. Fasten the damper sleeve to support channels made of 16 MSG by 1-1/2" channel using 3/16" Dia x 1/2" lg steel bolts, #8 x 1/2" lg steel sheet metal screws, or 3/16" Dia steel rivets. Use 2 fasteners on each channel. Fasten support channels to the damper sleeve and not through the ceiling radiation damper frame.

The damper assembly shall be hung with 12 SWG minimum hanger wires at each of the support channel ends. All hanger wires shall be supported directly from the structural members of the floor or roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal). The flange on the surface mounted diffuser at the ceiling membrane level shall provide a minimum 1 inch support for the ceiling panels. Size of hole cut in the panel for passage of the duct drop shall be no more than 1/8 inch. larger than opening for the damper.

When cutting of a main runner or cross tee is needed, a 1/2 inch clearance must be maintained between the cut end of the main runner or cross tee and the damper. A 12 SWG hanger wire shall be installed near each end of the cut main runner or cross tee. No more than one main runner or cross tee may be cut.

The surface mounted grille shall be attached to the damper sleeve flange, not through the damper frame.

The steel diffusers shall be attached to the damper sleeve with No. 8 sheet metal screws, 3/16" diameter steel rivets, or 3/16 inch diameter by half inch long steel bolts.

Note: Fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

### Rectangular ceiling damper size limitations

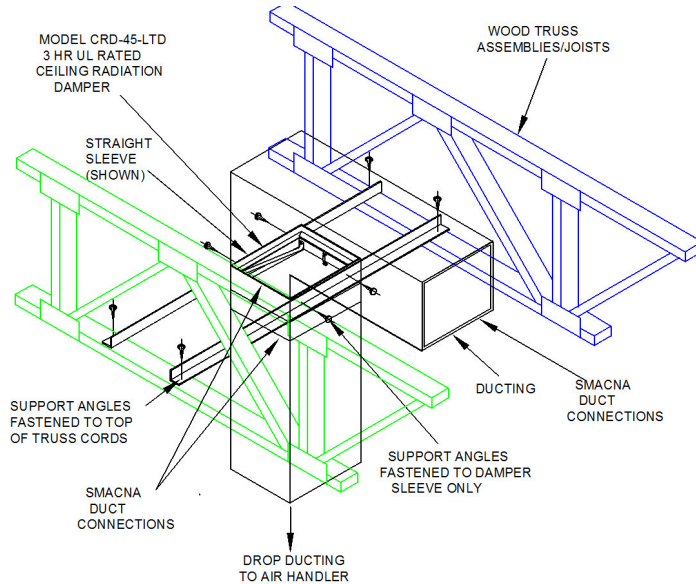
Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"





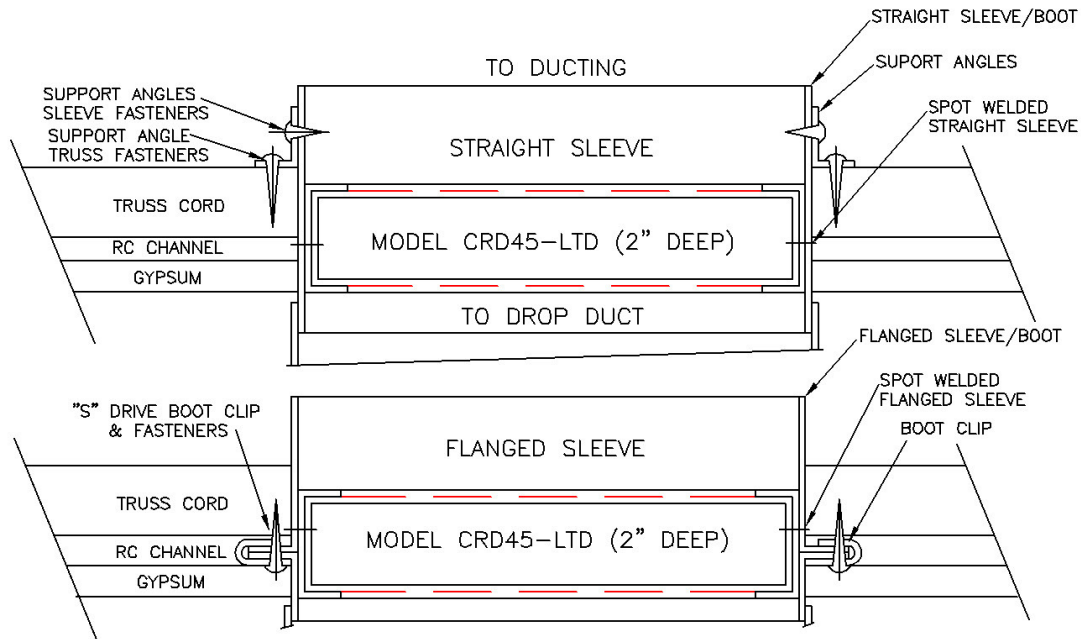
## DUCT DROP CEILING INSTALLATION INSTRUCTION

Model: CRD45-LTD Thin Line (Rectangular and Horizontal)  
For Drop Duct



**ITEM DESCRIPTION**

1. Ceiling Radiation damper
2. Straight sleeve (22 Ga.) (Shown)  
Optional: Flanged sleeve (see below)
3. Factory spot welds (sleeve to damper) (8) Min.
4. Support angles (2) min.  
Optional: "S" drive boot clips (2) Min.  
Use with flanged sleeves.
5. Fasteners: support angles to sleeves
6. Fasteners: support angles to truss cords  
Optional: Boot clips to truss cords
7. Wood trusses/ joists
8. Ceiling materials: Gypsum/RC channel
9. Drop ducting



Note: Fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

**Rectangular ceiling damper size limitations**

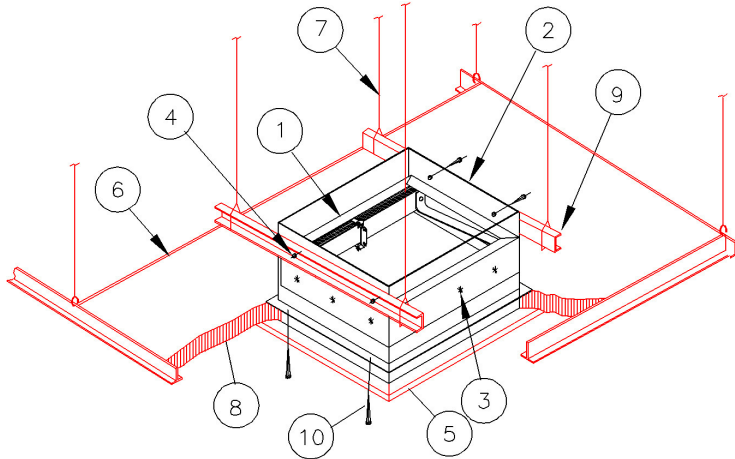
Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"



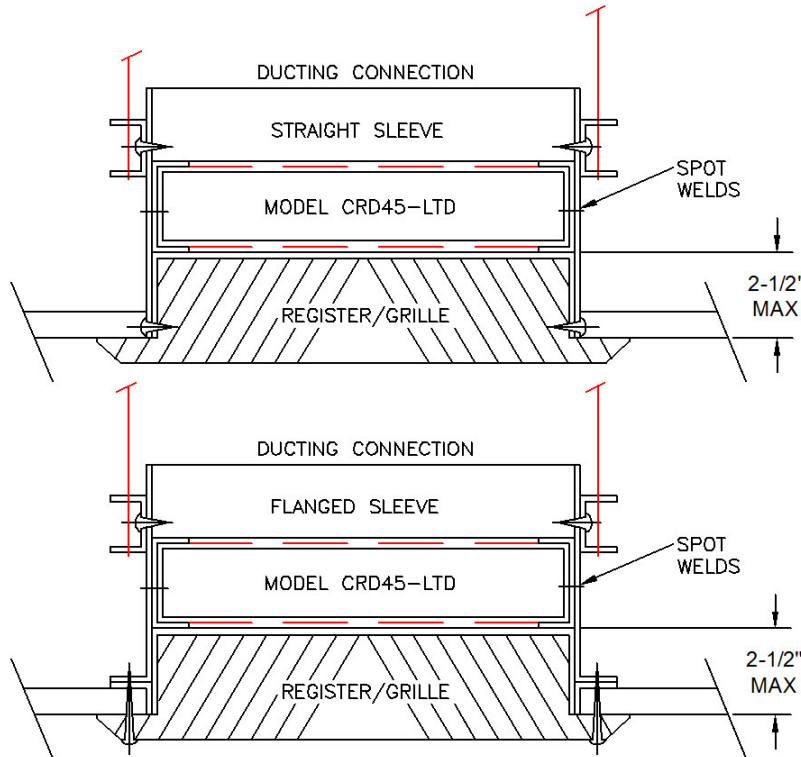


## DROP CEILING INSTALLATION INSTRUCTION

Model: CRD45-LTD Thin Line (Rectangular and Horizontal)  
For Registers & Grilles



- | ITEM | DESCRIPTION                           |
|------|---------------------------------------|
| 1.   | Ceiling Radiation damper (Register)   |
| 2.   | Flanged sleeve (22 Ga. Min.)          |
| 3.   | (8) Factory spot welds (8) Min.       |
| 4.   | Channel Fasteners (2 each side min.)  |
| 5.   | Register/Grille (20 gauge steel min.) |
| 6.   | Ceiling grid (UL Classified)          |
| 7.   | 12 gauge steel wire                   |
| 8.   | Ceiling material (UL classified)      |
| 9.   | Support channel (2 required min.)     |
| 10.  | Flush mount grille fasteners (4 PLCS) |



Note: fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

**Rectangular ceiling damper size limitations**

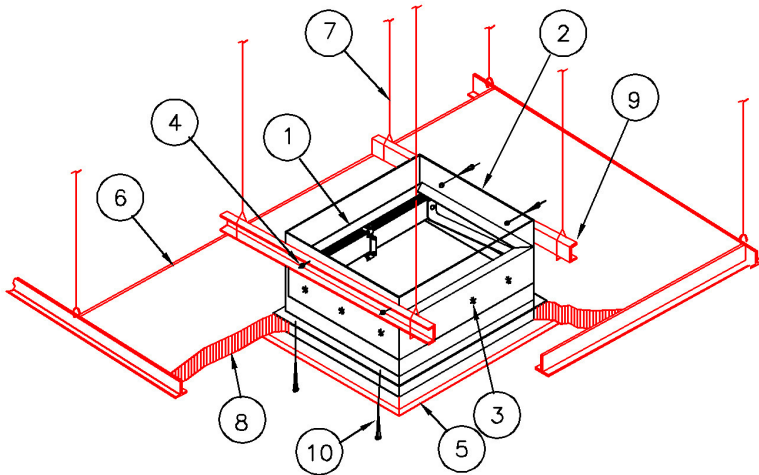
Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"





# DROP CEILING INSTALLATION INSTRUCTION

Model: CRD45-LTD Thin Line (Rectangular and Horizontal)  
For Registers & Grills



- | ITEM | DESCRIPTION                            |
|------|--|
| 1.   | Ceiling Radiation damper (Registers)   |
| 2.   | Flanged sleeve (22 Ga. Min.)           |
| 3.   | (8) Factory spot welds (8) Min.        |
| 4.   | Channel Fasteners (2 each side min.)   |
| 5.   | Register/ Grille (20 gauge steel min.) |
| 6.   | Ceiling grid (UL Classified)           |
| 7.   | 12 gauge steel wire                    |
| 8.   | Ceiling material (UL classified)       |
| 9.   | Support channel (2 required min.)      |
| 10.  | Register/Grille fasteners (4 PLCS)     |

These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the CRD-45-LTD 2" "thinline" damper and spot welded flanged sleeve provide for flush mounting ceiling grilles. Fasten the damper sleeve to support channels made of 16 MSG by 1-1/2 channel using 3/16" Dia x 1/2" lg steel bolts, #8 x 1/2" lg steel sheet metal screws, or 3/16" Dia steel rivets. Use 2 fasteners on each channel. Fasten support channels to the damper sleeve and not through the ceiling radiation damper frame.

The damper assembly shall be hung with 12 SWG minimum hanger wires at each of the support channel ends. All hanger wires shall be supported directly from the structural members of the floor or roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal). The flange on the surface mounted diffuser at the ceiling membrane level shall provide a minimum 1 inch support for the ceiling panels. Size of hole cut in the panel for passage of the duct drop shall be no more than 1/8 inch. larger than opening for the damper. When cutting of a main runner or cross tee is needed, a 1/2 inch clearance must be maintained between the cut end of the main runner or cross tee and the damper. A 12 SWG hanger wire shall be installed near each end of the cut main runner or cross tee. No more than one main runner or cross tee may be cut.

The surface mounted grille shall be attached to the damper sleeve flange, and not through the damper frame. The steel diffusers shall be attached to the damper sleeve with No. 8 sheet metal screws, 3/16" diameter steel rivets, or 3/16 inch diameter by half inch long steel bolts.

Note: fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

### Rectangular ceiling damper size limitations

Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
196 SQ.IN.	14"	14"	4"	4"

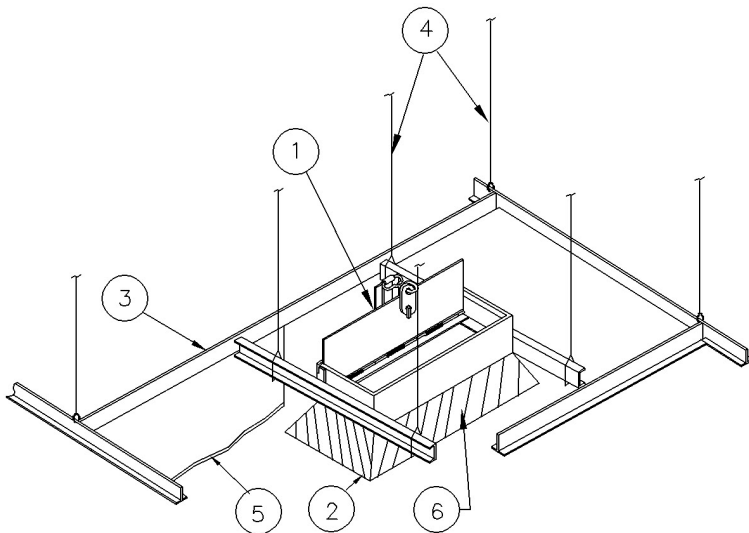
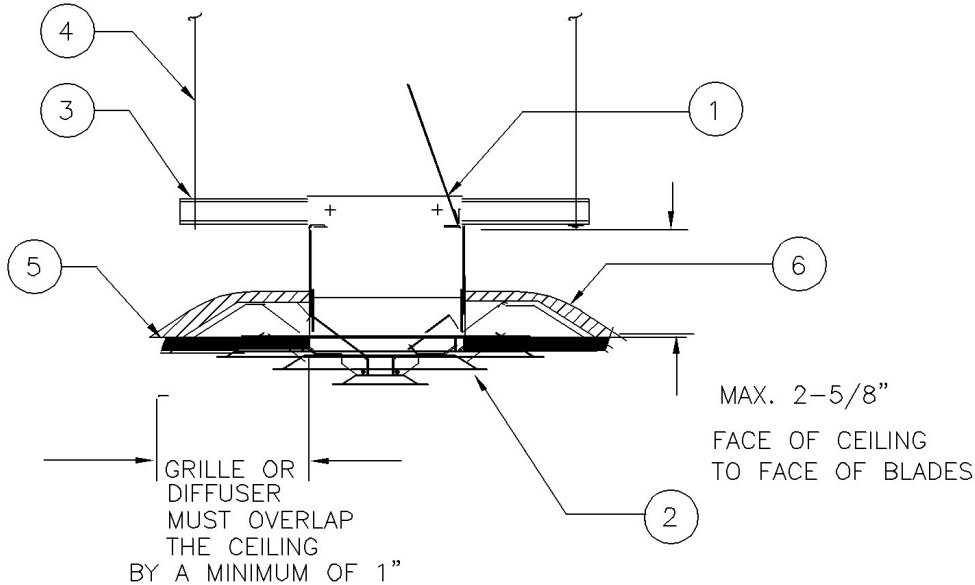






# INSTALLATION INSTRUCTION

Model: CRD50-4X & CRD50-6X (Rectangular)  
Partition ratings of 3 hours or less  
Ducted Supply or Return



### ITEM DESCRIPTION

- 1. 3 hour rated model CRD50-4X & CRD50-6X (Rectangular) ceiling radiation damper
- 2. Steel duct drop sleeve (less #3 plenum permitted)
- 3. Branch duct plenum
- 4. 12 SWG hanger wires (4) MIN Reqd.
- 5. Steel support channels
- 6. Thermal blanket

Note: fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

### Rectangular ceiling damper size limitations (Maximum 288 SQ./IN.)

Model	Maximum width	Maximum length	Minimum width	Minimum length
CRD50-4X	4"	24"	4"	4"
CRD50-6X	6"	24"	6"	6"





## INSTALLATION INSTRUCTION

Model: CRD50-4X & CRD50-6X (Rectangular)

Partition ratings of 3 hours or less

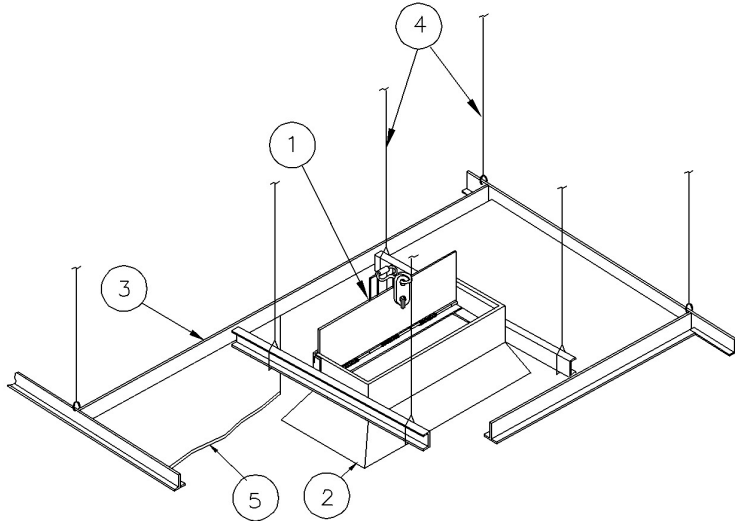
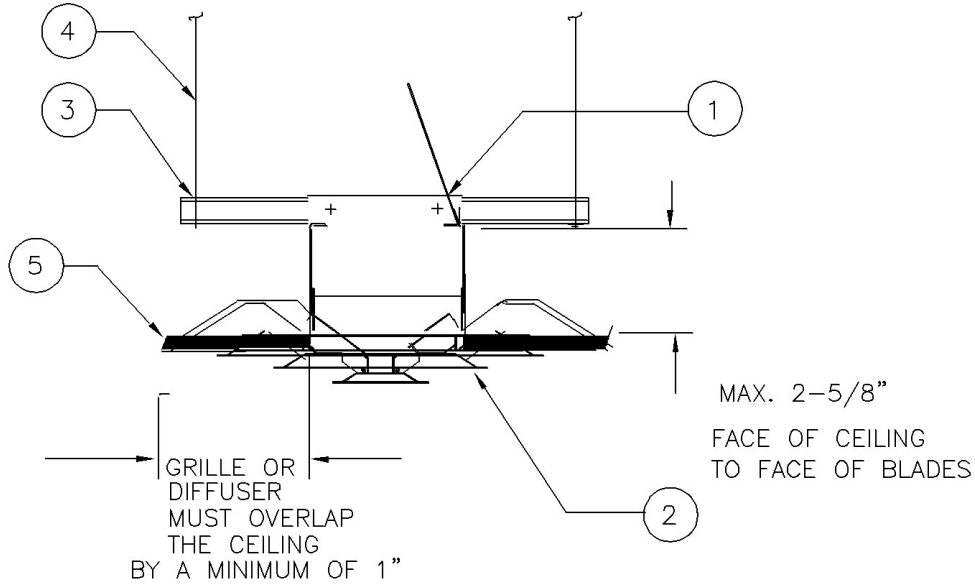
Ducted Supply or Return

1. Before installing dampers:  
Model CRD50-4X & CRD50-6X (rectangular), open blade and hook the fusible link over the "S" hook bracket and the fusible link blade hook.
2. Support the damper with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the top of the damper adjacent to both sides of the damper. Use 12 SWG galvanized steel hanger wire to independently support channels on each end, from the structural members of the floor or roof above. Use fasteners specified in line item #3 to secure channel to damper. Refer to line item #7 for locations. All hanger wires shall be supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).
3. Fasten the ceiling damper to channels using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws, 3/16 inch diameter steel rivets or spot welds at 6 inches on center maximum and a minimum of (3) places. Pre-assembly of ceiling radiation dampers to channels is permitted using the listed fastening methods.
4. The clearance between each side of the ceiling damper and lay-in panel shall be 1/8 inch maximum.
5. Damper outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each cut end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.
6. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch long sheet metal screws, 3/16 tubular rivets, or 1/4 tack welds .
7. Fastener positions must not interfere with damper blade operation.



# INSTALLATION INSTRUCTION

Model: CRD50-4X & CRD50-6X (Rectangular)  
Partition ratings of 3 hours or less  
Non-Ducted Supply or Return



ITEM DESCRIPTION

- 1. 3 hour rated model CRD50-4X & CRD50-6X
- 2. Mounted steel grille or diffuser
- 3. Steel support channels
- 4. 12 SWG hanger wires (4) MIN Reqd.
- 5. Ceiling: Acoustical Panel/Tile (lay-In)

Note: fasteners & other hardware must not interfere with dampers .  
Verify damper operation & complete damper closure after installations.

**Rectangular ceiling damper size limitations (Maximum 288 SQ./IN.)**

Model	Maximum width	Maximum length	Minimum width	Minimum length
CRD50-4X	4"	24"	4"	4"
CRD50-6X	6"	24"	6"	6"





## INSTALLATION INSTRUCTION

Model: CRD50-4X & CRD50-6X (Rectangular)

Partition ratings of 3 hours or less

Non-Ducted Supply or Return

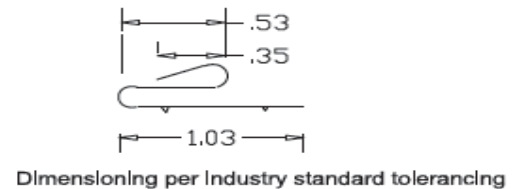
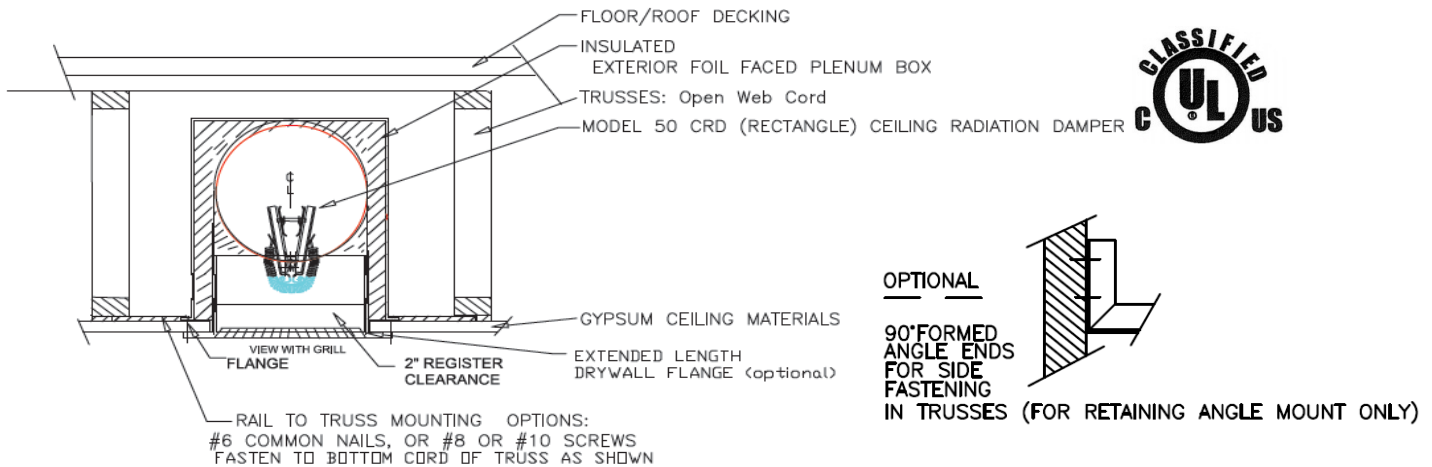
1. Before installing dampers:  
Model CRD50-4X & CRD50-6X (rectangular), open blade and hook the fusible link over the "S" hook bracket and the fusible link blade hook.
2. Support the damper with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the top of the damper adjacent to both sides of the damper. Use 12 SWG galvanized steel hanger wire to independently support channels on each end, from the structural members of the floor or roof above. Use fasteners specified in line item #3 to secure channel to damper. Refer to line item #7 for locations. All hanger wires shall be supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).
3. Fasten the ceiling damper to channels using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws, 3/16 inch diameter steel rivets or spot welds at 6 inches on center maximum and a minimum of (3) places. Pre-assembly of ceiling radiation dampers to channels is permitted using the listed fastening methods.
4. The clearance between each side of the ceiling damper and lay-in panel shall be 1/8 inch maximum.
5. Damper outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each cut end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.
6. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch long sheet metal screws, 3/16 tubular rivets, or 1/4 tack welds .
7. Fastener positions must not interfere with damper blade operation.

# CEILING RADIATION DAMPER ASSEMBLY WITH BOOT AND COLLAR

## TRUSS/GYPSUM INSTALLATION INSTRUCTIONS

MODEL CRD 50-BT & CRD 50-EA-BT: RECTANGLE CRD / SIDE OR TOP OUTLET RECTANGULAR BOOT/ ASM.FOR REGISTERS  
 MODEL CRD 50-BT & CRD 50-EA-BT: RECTANGLE CRD / SIDE OR TOP OUTLET RECTANGULAR BOOT/ ASM. FOR DROP DUCT  
 MODEL CRD 50-95-BT & CRD 50-EA-95-BT/RECTANGLE CRD / 90° BOOT/ FOR REGISTERS  
 MODEL CRD 50-95-BT & CRD 50-EA-95-BT/RECTANGLE CRD / 90° BOOT/ FOR DROP DUCT  
 MODEL 45-CRD-LT-BT & MODEL 45-CRD-LTD-BT / 90° BOOT/ FOR DROP DUCT & REGISTERS

1 HOUR RATED REGISTER GRILL ASSEMBLY CRD/PLENUM BOX ASSEMBLY FOR  
 FLOOR/CEILING, ROOF/CEILING: WOOD TRUSS ASSEMBLIES  
 UL DESIGN L528, L588, L562, L563, L574, L585, P533, P544, P545 and P547 types.



As an alternate to Hanger Angles, two standard 28 GA min. steel boot rails shown above are snapped onto opposite sides of damper box flange. (see note 2 and 4)

### NOTES:

- Before installing the damper assembly, CRD50-BT, CRD50-EA-BT, CRD50-95-BT, and CRD50-EA-95-BT, open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For CRD Model 50-95EA-BT flex the spring wire and secure the link.
- Measure the actual truss centers and add approx. 6" to determine straight rail lengths. (2 required per box) For Angle Mount only. When using the optional formed Boot Rail allow for adequate flanges at each mounting, and span the truss cavity to overlap face of truss bottom cords min. of 2-1/2 in.
- Establish the location of the gypsum flange and snap the (2) hanger rails to the plenum box.
- Mounting rails are fastened to trusses with a minimum of two fasteners for each mounting point using #6 common nails or #8 or #10 wood screws.
- The clearance between each side of the ceiling damper and the duct drop shall be 1/16 in. for a total of 1/8 inch maximum.
- Steel grille to be attached to the ceiling damper using No.8 by 2 inch long sheet metal screws at each end of grill for a total of 2 screws.

**\*Important: Fasteners must not interfere with the damper blades operation.**

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 Tel: 215-412-4445 Fax: 215-412-4409  
 Email: lloydind@firedamper.com

138 Industrial Loop West, Orange Park, FL 32073  
 Tel: 904-541-1655 Fax: 904-541-1657  
 Email: lloydind1@firedamper.com

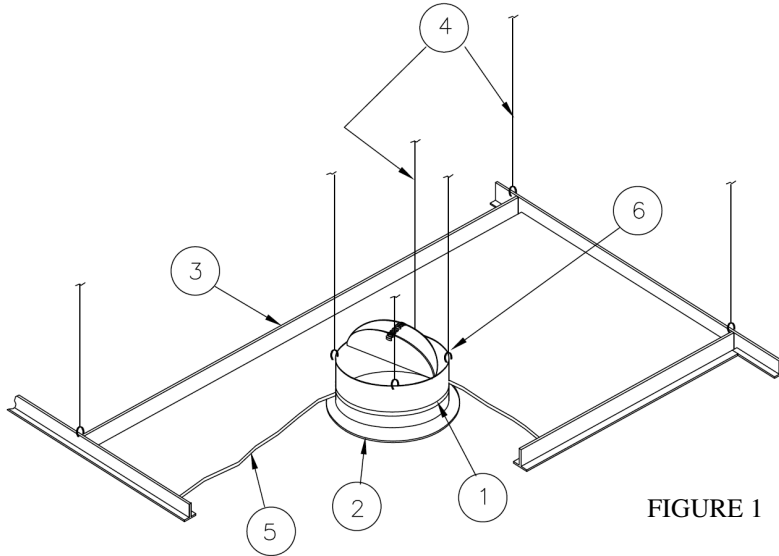
B1, 4/F., Luen Ming Hing Factory Building  
 36 Mok Cheong St.,  
 To Kwa Wan, Kowloon, H. K.  
 Tel: 852-2760-4188 Fax: 852-2760-4177  
 Email: tatanlexyim@lloydasia.com



## CEILING RADIATION DAMPERS

### APPLICATION SHEET

#### MODEL CRD-55 and CRD-55-EA (ROUND)



**NOTE:**

Figure 1– Application sheet shows ceiling plenum with non-ducted supply or return. See installation instructions (Figure 1A) for support channel method of installation used for ducted supply or return.

**ITEM**

1. DAMPER
2. GRILLE FRAME (20 GAUGE MINIMUM)
3. CEILING GRID (UL CLASSIFIED)
4. 12 GAUGE STEEL WIRE
5. CEILING MATERIAL (UL CLASSIFIED)
6. HANGER STRAP



FIGURE 1

These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling or roof ceiling assemblies which are rated 3 hours or less.

The damper/surface mounted diffuser shall be installed as shown on the installation sheet. The damper shall be installed as shown on the installation sheet. 12 SWG hanger wires, minimum of 3 wires are to be used to support the round ceiling dampers.

Optional support method. The ceiling damper/ surface mounted diffuser assembly uses two #16 gauge cold-rolled steel support channels. The two 1-1/2 inch or 2 inch, No.16 gauge cold-rolled steel channels with 1/2 inch flanges, are to be attached to the top of the damper frame with 3/16" bolts of 3/8 inch minimum length. A minimum of two bolts per damper are required. Each channel is to be supported at each end by 12 SWG wire attached to the structural members.

All hanger wires shall be supported directly from the structural members of the floor or roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).

The flange on the surface mounted diffuser at the ceiling membrane level shall provide a minimal 1 inch. Support for the ceiling panels. Size of hole cut in the panel for passage of the duct drop shall be no more than 1/8 inch larger than opening for the damper.

When cutting of a main runner or cross tee is needed, a 1/2 inch clearance must be maintained between the cut end of the main runner or cross tee and the damper. A 12 SWG hanger wire shall be installed near each end of the cut main runner or cross tee. No more than one main runner or cross tee may be cut when penetrating the ceiling membrane.

The steel diffusers shall be attached to the damper with No. 8 sheet metal screws, 3/16" tubular steel rivets, 3/16" diameter by 1/2 inch long steel bolts, or 1/4" tack welds. Minimum of three connections, 6 inches OC. A steel clamp or No. 16 SWG minimum steel wire shall fasten the flex air duct to the damper when flex air ducts are used to connect the main duct to the damper/diffuser assembly. The flex air duct shall be Class 0 or 1 and bear the UL listing Mark- refer to the UL "Gas and oil Equipment Directory". Maximum length of flexible air duct shall not exceed 14 ft- 0 in. length. The flexible air duct shall not rest on the back surface of the ceiling grid or panels and provide a min. of 4" clearance. The flexible air duct shall not interfere with the closing of the damper.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

#### ROUND CEILING DAMPER SIZE LIMITATION

Maximum Size	Maximum Diameter	Minimum Diameter
452 SQ.IN.	24"	4"

231 Commerce Dr. Montgomeryville, PA 18936  
Tel: 215-412-4445 Fax: 215-412-4409  
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B1, 4/F., Luen Ming Hing Factory Building  
36 Mok Cheong St.,  
To Kwa Wan, Kowloon, H. K.  
Tel: 852-2760-4188 Fax: 852-2760-4177  
Email: tatanlexyim@lloydasia.com

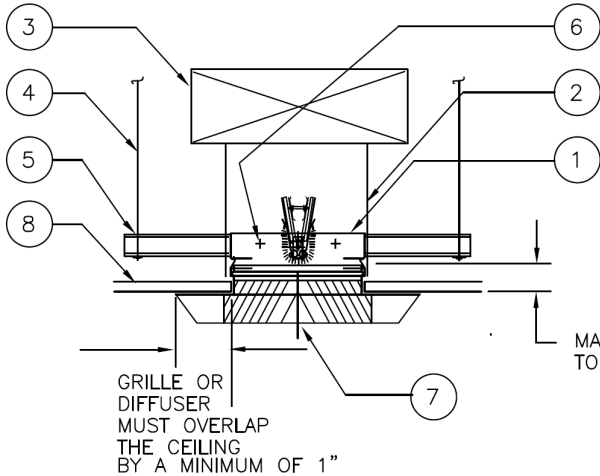




# CEILING RADIATION DAMPERS

## INSTALLATION INSTRUCTIONS

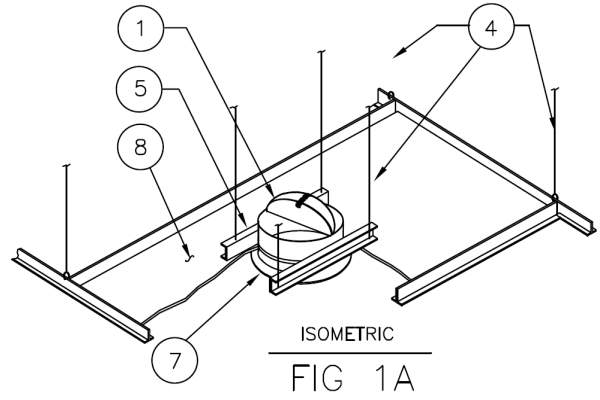
### MODEL CRD-55 and CRD-55-EA (ROUND)



ITEM

1. MODEL 55 CRD (ROUND) CEILING RADIATION DAMPER
2. STEEL DUCT DROP
3. BRANCH DUCT
4. 12 SWG HANGER WIRES (4) MIN REQUIRED
5. STEEL SUPPORT CHANNELS
6. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
7. SURFACE MOUNTED STEEL GRILLE OR DIFFUSER
8. CEILING : ACOUSTICAL PANEL (LAY-IN) ACOUSTICAL TILE OR GYPSUM WALLBOARD

MAX. 2-5/8" FACE OF CEILING TO FACE OF BLADES



These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor / ceiling or Roof / ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling or roof-ceiling assemblies which are rated 3 hours or less.

**Notes:**

1. Before installing damper, Model 55 CRD (round), open blades and hook fusible link over link catch on opposite blade. Bend down link catch to secure link in position.
2. Support the duct with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the bottom of the duct adjacent to both sides of the duct drop. Use 12 SWG galvanized steel hanger wire to independently support channels from the structural members of the floor or roof above. All hanger wires shall supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).
3. Install the ceiling damper in the duct drop using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches o.c. and a minimum of (3) places.
4. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
5. Maximum size of Model 55 CRD (round) is 24 inches in diameter.
6. Duct outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each cut end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.
7. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1/2 inch long sheet metal screws at 6 inches o.c. and a minimum of (3) places.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

**ROUND CEILING DAMPER SIZE LIMITATION**

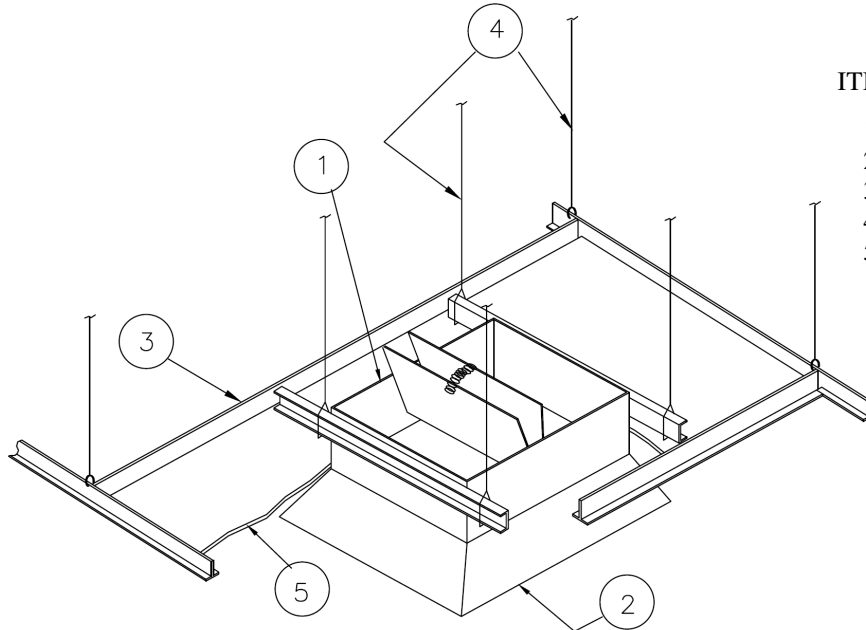
Maximum Size	Maximum Diameter	Minimum Diameter
452 SQ.IN.	24"	4"



## CEILING RADIATION DAMPERS

### APPLICATION SHEET

#### MODEL CRD-50 and CRD-50-EA (RECTANGULAR)



#### ITEM

1. DAMPER
2. GRILLE FRAME (20 GAUGE MINIMUM)
3. CEILING GRID (UL CLASSIFIED)
4. 12 GAUGE STEEL WIRE
5. CEILING MATERIAL (UL CLASSIFIED)



INSTALLATION INSTRUCTIONS  
AND THE PRODUCTS SPECIFIED,  
ARE IN CONFORMANCE TO ALL OF  
UNDERWRITERS LABORATORIES  
REQUIREMENTS 555C

These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling or roof-ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling assemblies which are rated 3 hours or less.

The damper/surface mounted diffuser shall be installed as shown on installation sheet. The damper on the opposite sides shall be connected to support channels (16 MSG by 1-1/2 or 2 inch channel) with 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches OC minimum 3 per side.

The damper assembly shall be hung with 12 SWG minimum hanger wires at each of the channel ends. All hanger wires shall be supported directly from the structural members of the floor or roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).

The flange on the surface mounted diffuser at the ceiling membranes level shall provide a minimum 1 inch. Support for the ceiling panels. Size of hole cut in the panel for passage of the duct drop shall be more than 1/8 inch. Larger than opening for the damper.

When cutting of a main runner or cross tee is needed, a 1/2 inch clearance must be maintained between the cut end of the main runner or cross tee and the damper. A 12 SWG hanger wire shall be installed near each end of the cut main runner or cross tee. No more than one main runner or cross tee may be cut when penetrating the ceiling membrane.

The steel diffusers shall be attached to the damper with No. 8 sheet metal screws, 3/16" tubular steel rivets, 3/16 inch diameter by half inch long steel bolts, or 1/4" tack welds. Minimum of three connections, 6 inches OC.

#### RECTANGULAR CEILING DAMPER SIZE LIMITATION

Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
576 SQ.IN.	24"	24"	4"	4"

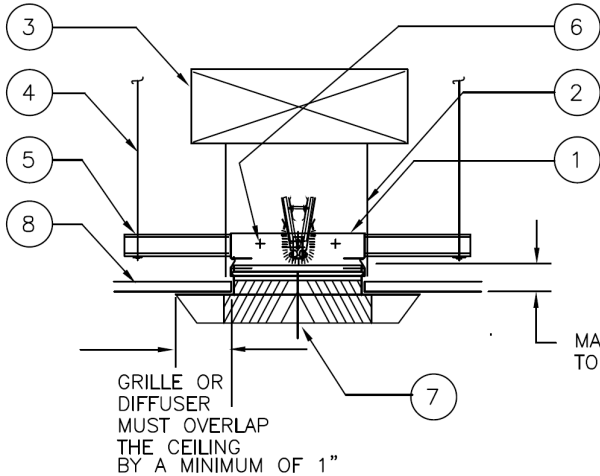




# CEILING RADIATION DAMPERS

## INSTALLATION INSTRUCTIONS

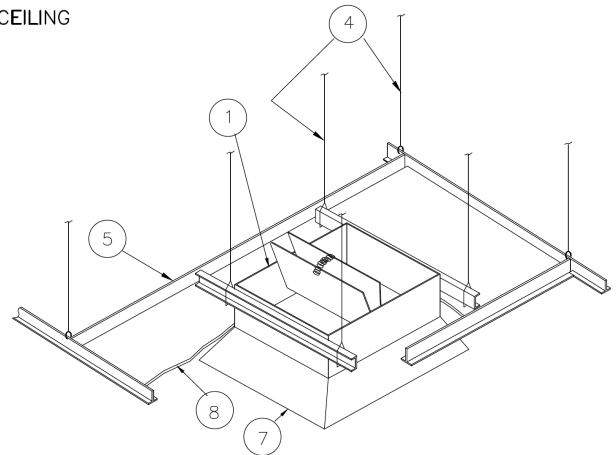
### MODEL CRD-50 and CRD-50-EA (RECTANGULAR)



ITEM

1. MODEL 50 CRD (RECTANGULAR) CEILING RADIATION DAMPER
2. STEEL DUCT DROP
3. BRANCH DUCT
4. 12 SWG HANGER WIRES (4) MIN REQUIRED
5. STEEL SUPPORT CHANNELS
6. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
7. SURFACE MOUNTED STEEL GRILLE OR DIFFUSER
8. CEILING : ACOUSTICAL PANEL (LAY-IN) ACOUSTICAL TILE OR GYPSUM WALLBOARD

MAX. 2-5/8" FACE OF CEILING TO FACE OF BLADES



These ceiling dampers are Classified by Underwriters Laboratories, Inc. as to heat barriers in the Fire Resistance Directory under the category of Ceiling Dampers (CABS). Refer to the Classification information in the back of the Fire Resistance Directory regarding the use of these dampers in the various floor / ceiling or Roof / ceiling assemblies. Ceiling dampers and the associated components (surface mounted diffusers or grilles, ducts, etc.) which are to be constructed of steel, are installed in the ceiling to maintain the hourly ratings of the floor-ceiling or roof-ceiling assemblies which are rated 3 hours or less.

**Notes:**

1. Before installing damper, Model 50 CRD (rectangular), open blades and hook fusible link over link catch on opposite blade. Bend down link catch to secure link in position.
2. Support the duct with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the bottom of the duct adjacent to both sides of the duct drop. Use 12 SWG galvanized steel hanger wire to independently support channels from the structural members of the floor or roof above. All hanger wires shall supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).
3. Install the ceiling damper in the duct drop using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches o.c. and a minimum of (3) places.
4. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
5. Maximum size of Model 50 CRD (rectangular) is 24 inches x 24 inches.
6. Duct outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each cut end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.
7. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1/2 inch long sheet metal screws at 6 inches o.c. and a minimum of (3) places.

### RECTANGULAR CEILING DAMPER SIZE LIMITATION

Maximum Size	Maximum width	Maximum length	Minimum width	Minimum length
576 SQ.IN.	24"	24"	4"	4"



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

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 Email: tatanlexyim@lloydasia.com



Website: www.firedamper.com

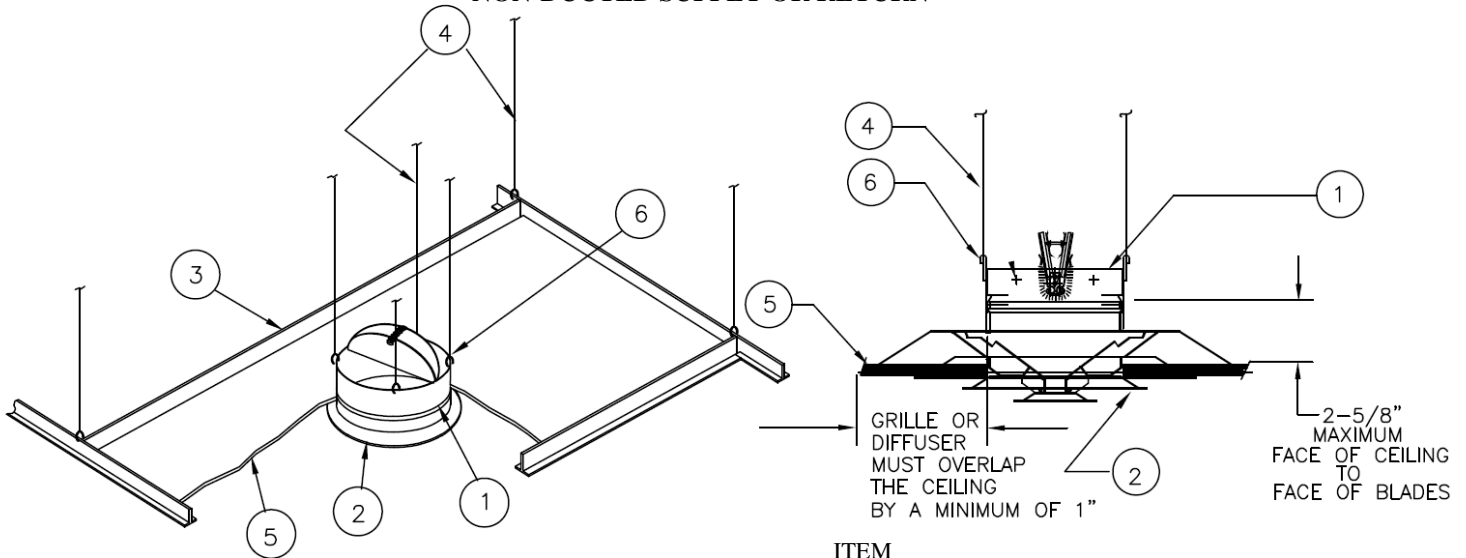


CEILING RADIATION DAMPERS

INSTALLATION INSTRUCTIONS

MODEL CRD-55 and CRD-55-EA (ROUND)

PARTITION RATINGS OF 3-HOURS OR LESS  
NON-DUCTED SUPPLY OR RETURN



ROUND CEILING DAMPER SIZE LIMITATION  
Max. Size: 452 SQ. IN.

Model	Maximum Diameter	Minimum Diameter
CRD-55	24"	4"
CRD-55-EA	24"	5"

ITEM

1. 3 HOUR RATED MODEL 55CRD and 55CRD-EA (ROUND) CEILING RADIATION DAMPER
2. MOUNTED GRILLE OR REGISTER
3. CEILING GRID
4. 12 GAUGE STEEL HANGER WIRES (4) MIN REQD.
5. CEILING MATERIAL: ACOUSTICAL PANEL/TILE (LAY-IN) OR GYPSUM WALLBOARD
6. HANGER STRAPS

1. Before installing dampers:

- Model 55CRD (round), open blades and hook fusible link over link catch on opposite blade.
- Bend down link catch to secure link in position.
- Model 55CRD-EA (round easy access) flex the spring wire and secure the link.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

2. Support the damper with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the top of the damper adjacent to both sides of the damper. Use 12 SWG galvanized steel hanger wire to independently support channels on each end, from the structural members of the floor or roof above. Use fasteners specified in line item #3 to secure channel to damper. Refer to line item #7 for locations. All hanger wires shall be supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).

3. Fasten the ceiling damper to channels using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws, 3/16 inch diameter steel rivets or spot welds at 6 inches on center maximum and a minimum of (3) places. Pre-assembly of ceiling radiation dampers to channels is permitted using the listed fastening methods.

4. The clearance between each side of the ceiling damper and lay-in panel shall be 1/8 inch maximum.

5. Damper outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.

6. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch long sheet metal screws, 3/16 tubular rivets, or 1/4 tack welds .

7. Fastener positions must not interfere with damper blade operation.



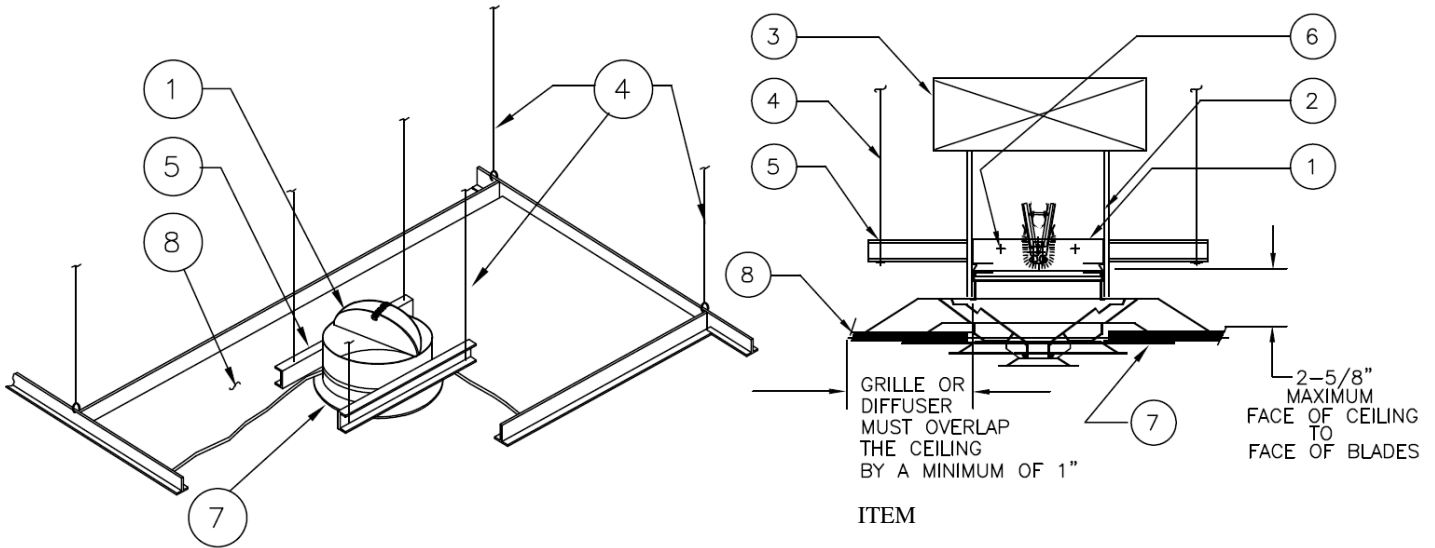


CEILING RADIATION DAMPERS

INSTALLATION INSTRUCTIONS

MODEL CRD-55 and CRD-55-EA (ROUND)

PARTITION RATINGS OF 3-HOURS OR LESS  
DUCTED SUPPLY OR RETURN



ROUND CEILING DAMPER SIZE LIMITATIONS  
Max. Size: 452 SQ. IN.

Model	Maximum Diameter	Minimum Diameter
CRD-55	24"	4"
CRD-55-EA	24"	5"

ITEM

- 3-HOUR RATED MODEL CRD 55 and CRD 55-EA (ROUND) CEILING RADIATION DAMPER
- STEEL DUCT DROP, SLEEVE (LESS #3 PLENUM PERMITTED)
- BRANCH DUCT
- 12 SWG HANGER WIRES (4) MIN REQD
- STEEL SUPPORT CHANNELS
- MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
- MOUNTED STEEL, GRILLE, DIFFUSER, OR DROP DUCTING
- CEILING : ACOUSTICAL PANEL (LAY-IN) ACOUSTICAL TILE OR GYPSUM WALLBOARD

1. Before installing dampers:

- Model CRD 55 (round), open blades and hook fusible link over link catch on opposite blade.
- Bend down link catch to secure link in position.
- Model CRD 55-EA (round easy access) flex the spring wire and secure the link.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

2. Support the damper with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the top of the damper adjacent to both sides of the damper. Use 12 SWG galvanized steel hanger wire to independently support channels on each end, from the structural members of the floor or roof above. Use fasteners specified in line item #3 to secure channel to damper. Refer to line item #7 for locations. All hanger wires shall be supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).

3. Fasten the ceiling damper to channels using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws, 3/16 inch diameter steel rivets or spot welds at 6 inches on center maximum and a minimum of (3) places. Pre-assembly of ceiling radiation dampers to channels is permitted using the listed fastening methods.

4. The clearance between each side of the ceiling damper and lay-in panel shall be 1/8 inch maximum.

5. Damper outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each cut end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.

6. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch long sheet metal screws, 3/16 tubular rivets, or 1/4 tack welds .

7. Fastener positions must not interfere with damper blade operation.



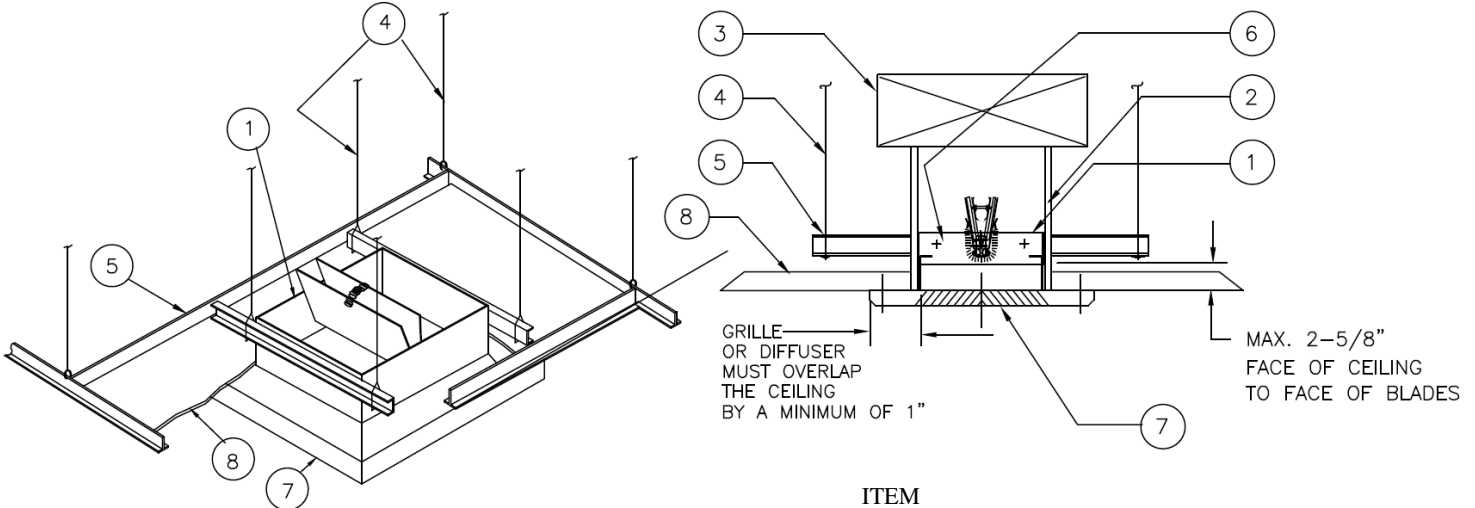


# CEILING RADIATION DAMPERS

## INSTALLATION INSTRUCTIONS

### MODEL CRD-50 and CRD-50-EA (RECTANGULAR)

#### PARTITION RATINGS OF 3-HOURS OR LESS DUCTED SUPPLY OR RETURN



### RECTANGULAR CEILING DAMPER SIZE LIMITATIONS Max. Size: 576 SQ. IN.

Model	Max. Width	Max. Length	Min. Width	Min. Length
CRD-50	24"	24"	4"	4"
CRD-50-EA	24"	24"	6"	6"

#### ITEM

- 3-HOUR RATED MODEL CRD 50 and CRD 50-EA (RECTANGULAR) CEILING RADIATION DAMPER
- STEEL DUCT DROP, SLEEVE (LESS #3 PLENUM PERMITTED)
- BRANCH DUCT, PLENUM
- 12 SWG HANGER WIRES (4) MIN REQD
- STEEL SUPPORT CHANNELS
- MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
- MOUNTED STEEL, GRILLE, DIFFUSER, OR DROP DUCTING
- CEILING : ACOUSTICAL PANEL (LAY-IN) ACOUSTICAL TILE OR GYPSUM WALLBOARD

#### 1. Before installing dampers:

- Model CRD 50 (rectangular), open blades and hook fusible link over link catch on opposite blade.
- Bend down link catch to secure link in position.
- Model CRD 50-EA (rectangular easy access) flex the spring wire and secure the link.



INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C

2. Support the damper with (2) 16 Ga. cold-rolled steel support channels, 1-1/2 or 2 inches deep with 1/2 inch flanges. Place the support channels at the top of the damper adjacent to both sides of the damper. Use 12 SWG galvanized steel hanger wire to independently support channels on each end, from the structural members of the floor or roof above. Use fasteners specified in line item #3 to secure channel to damper. Refer to line item #7 for locations. All hanger wires shall be supported directly from the structural members of the floor or the roof by vertical (not diagonal) hanger wires. Cold-rolled channels shall be used as required to insure that the grid and damper are supported from the structural members by vertical hanger wires (not diagonal).

3. Fasten the ceiling damper to channels using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws, 3/16 inch diameter steel rivets or spot welds at 6 inches on center maximum and a minimum of (3) places. Pre-assembly of ceiling radiation dampers to channels is permitted using the listed fastening methods.

4. The clearance between each side of the ceiling damper and lay-in panel shall be 1/8 inch maximum.

5. Damper outlets in lay-in ceilings should be field located in an acoustical ceiling panel or tile. Where it is necessary to cut a main runner or cross tee, each end shall be supported by a vertical 12 gauge hanger wire. A 1/2 inch clearance shall be maintained between the duct outlet and each cut end of main runner or cross tee. The duct outlet shall be located so that no more than one main runner or cross tee is cut when penetrating the ceiling membrane.

6. Steel grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch long sheet metal screws, 3/16 tubular rivets, or 1/4 tack welds .

7. Fastener positions must not interfere with damper blade operation.



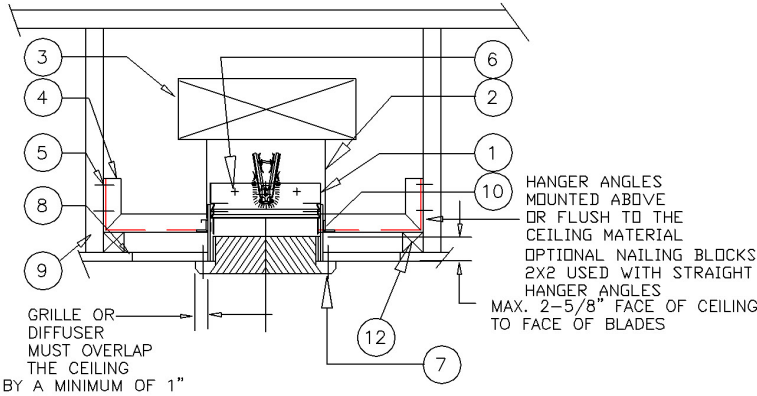


**CEILING RADIATION DAMPERS**

**GENERAL INSTALLATION INSTRUCTIONS  
MODEL CRD-50 and CRD-50-EA (RECTANGLE)  
3 HOUR OR LESS RATED PARTITIONS**

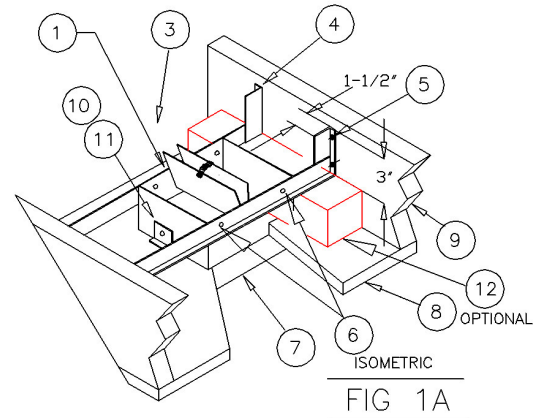
**ITEM**

1. MODEL 50 CRD (RECTANGLE) CEILING RADIATION DAMPER
2. STEEL DUCT DROP(LESS #3 PLENUM PERMITTED)
3. BRANCH PLENUM, OR PLENUM BOOT
4. HANGER ANGLES (2) 1-1/2 X 1-1/2 X 16 GAUGE
5. #6 COMMON NAILS OR #8 X 1-1/4 SCREWS
6. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
7. STEEL GRILLE, DIFFUSER, OR DROP DUCTING
8. CEILING : GYPSUM WALLBOARD  
ACOUSTICAL TILE OR ACOUSTICAL PANEL (LAY-IN)
9. JOISTS, TRUSSES, BEAMS
10. STABILIZING ANGLES (2) 1/2 X 1-1/2 X 16 GA. X 3"
11. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)



Model CRD50 and CRD50-EA Ceiling Radiation Dampers are Classified to UL 555C as 3 HR or less heat barriers illustrated in the UL Fire Resistance Directory. Refer to the partition classification information in the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling and roof-ceiling assemblies. Ceiling dampers and the associated components (diffusers, grilles, ducts, etc. which are to be constructed of steel are installed in the ceiling to maintain the hourly ratings of these rated floor-ceiling, roof-ceiling, assemblies. The combination of damper, partition, and installation establish this 3 HR or less Underwriters Laboratory Fire Rating.

Lloyd Industries MODEL CRD50 and CRD50-EA are laboratory approved for installation in all 3 hr. or less rated fire barriers listed in the Underwriters Laboratory Fire Resistance Directory, where fire barriers are shown with partition penetrations. Fire barriers without penetrations, and fire barriers not listed in the UL Fire Resistance Directory are not approved for installations and require the use of "Special" Assemblies such as CRD50-BT, and CRD55-BT Laboratory Approved Assemblies, or approval of local authorities. (See spec sheets for CRD-BT Assemblies)



**Notes:**

1. Before installing the damper, CRD Model 50 (rectangle), and CRD Model 50-EA (rectangle) open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For CRD Model 50-EA flex the spring wire and secure the link.
2. Measure the actual spacing between the joists or other structural members. Allowing for a 3.00" flange at each mounting point. Cut and bend the angles on both ends to 90 degrees. or the appropriate angle required. Mounting angles are fastened to joists or other structural members with a minimum of two fasteners for each mounting point using #6 common nails or #8 x 1-1/4" long screws.
3. CRD Model 50 and CRD Model 50-EA are connected to the mounting angles with sheet metal screws, rivets, or bolts. Two connections on each angle as a minimum. Note: fastener positions must not interfere with the damper blade operation.
4. CRD Models 50 and CRD Model 50-EA are connected to the stabilizing angles with sheet metal screws, rivets, or bolts. One connection on each angle as a minimum. The stabilizing angles are to be mounted with one face of the angle flush to the ceiling material. Note: fastener positions must not interfere with the damper blade operation.
5. The installation mounting position of the closed damper blade face must not exceed 2-5/8" from the face of the rated barrier.
6. Install the ceiling damper in the duct drop using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches o.c. and a minimum of (3) places. For flexible ducting; connect with draw clamps, #16 SWG wire, or cable ties as per SMACMA Standards requirements.
7. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
8. The maximum size of CRD Model 50 (rectangle) and CRD Model 50-EA (rectangle) is 24" W x 24" H.
9. Steel/Alum. grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch lg.sheet metal

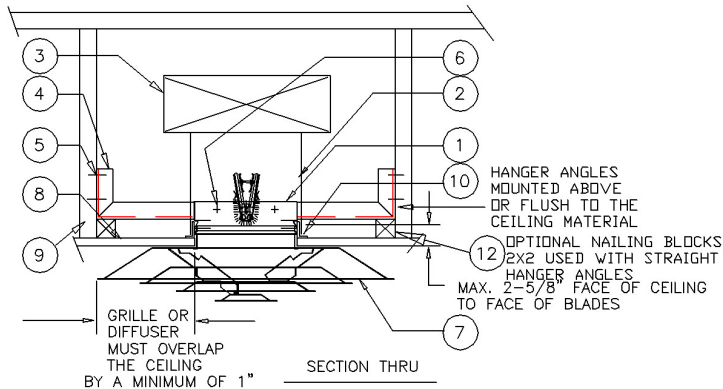


INSTALLATION INSTRUCTIONS AND THE PRODUCTS SPECIFIED, ARE IN CONFORMANCE TO ALL OF UNDERWRITERS LABORATORIES REQUIREMENTS 555C



## CEILING RADIATION DAMPERS

### GENERAL INSTALLATION INSTRUCTIONS MODEL CRD-55 and CRD-55-EA (ROUND) 3 HOUR OR LESS RATED PARTITIONS

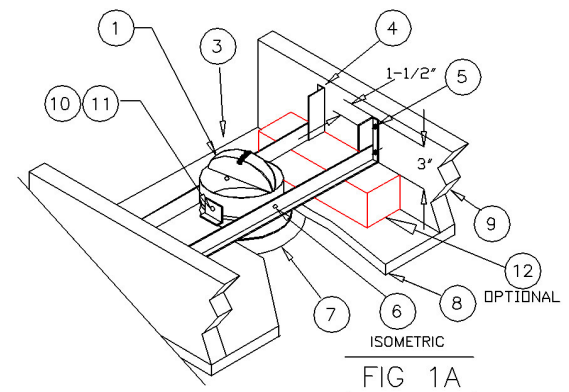


#### ITEM

1. MODEL 55 CRD (ROUND) CEILING RADIATION DAMPER
2. STEEL DUCT DROP(LESS #3 PLENUM PERMITTED)
3. BRANCH PLENUM, OR PLENUM BOOT
4. HANGER ANGLES (2) 1-1/2 X 1-1/2 X 16 GAUGE
5. #6 COMMON NAILS OR #8 X 1-1/4 SCREWS
6. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)
7. STEEL GRILLE, DIFFUSER, OR DROP DUCTING
8. CEILING : GYPSUM WALLBOARD  
ACOUSTICAL TILE OR ACOUSTICAL PANEL (LAY-IN)
9. JOISTS, TRUSSES, BEAMS
10. STABILIZING ANGLES (2) 1/2 X 1-1/2 X 16 GA. X 3"
11. MOUNTING FASTENERS (BOLTS, SCREWS, RIVETS)

Model CRD55 and CRD55-EA Ceiling Radiation Dampers are Classified to UL 555C as 3 HR or less heat barriers illustrated in the UL Fire Resistance Directory. Refer to the partition classification information in the Fire Resistance Directory regarding the use of these dampers in the various floor-ceiling and roof-ceiling assemblies. Ceiling dampers and the associated components (diffusers, grilles, ducts, etc. which are to be constructed of steel are installed in the ceiling to maintain the hourly ratings of these rated floor-ceiling, roof-ceiling, assemblies. The combination of damper, partition, and installation establish this 3 HR or less Underwriters Laboratory Fire Rating.

Lloyd Industries MODEL CRD55 and CRD55-EA are laboratory approved for installation in all 3 hr. or less rated fire barriers listed in the Underwriters Laboratory Fire Resistance Directory, where fire barriers are shown with partition penetrations. Fire barriers without penetrations, and fire barriers not listed in the UL Fire Resistance Directory are not approved for installations and require the use of "Special" Assemblies such as CRD50-BT, and CRD55-BT Laboratory Approved Assemblies, or approval of local authorities. (See spec sheets for CRD-BT Assemblies)



#### Notes:

1. Before installing the damper, CRD Model 55 (round), and CRD Model 55-EA (round) open the blades and hook the fusible link over the link catch on the opposite blade. Bend down the link catch to secure the link in position. For CRD Model 55-EA flex the spring wire and secure the link.
2. Measure the actual spacing between the joists or other structural members. Allowing for a 3.00" flange at each mounting point. Cut and bend the angles on both ends to 90 degrees. or the appropriate angle required. Mounting angles are fastened to joists or other structural members with a minimum of two fasteners for each mounting point using #6 common nails or #8 x 1-1/4" long screws.
3. CRD Model 55 and CRD Model 55-EA are connected to the mounting angles with sheet metal screws, rivets, or bolts. Two connections on each angle as a minimum. Note: fastener positions must not interfere with the damper blade operation.
4. CRD Models 55 and CRD Model 55-EA are connected to the stabilizing angles with sheet metal screws, rivets, or bolts. One connection on each angle as a minimum. The stabilizing angles are to be mounted with one face of the angle flush to the ceiling material. Note: fastener positions must not interfere with the damper blade operation.
5. The installation mounting position of the closed damper blade face must not exceed 2-5/8" from the face of the rated barrier.
6. Install the ceiling damper in the duct drop using 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter by 1/2 inch long steel bolts, No. 8 by 1/2 inch steel sheet metal screws or 3/16 inch diameter steel rivets at 6 inches o.c. and a minimum of (3) places. For flexible ducting; connect with draw clamps, #16 SWG wire, or cable ties as per SMACMA Standards requirements.
7. The clearance between each side of the ceiling damper and the duct drop shall be 1/8 inch maximum.
8. The maximum size of CRD Model 55 (round) and CRD Model 55-EA (round) is 24" diameter.
9. Steel/Alum. grille or diffuser to be attached to the duct drop or ceiling damper using No. 8 by 1-1/2 inch lg.sheet metal



INSTALLATION INSTRUCTIONS  
AND THE PRODUCTS SPECIFIED,  
ARE IN CONFORMANCE TO ALL OF  
UNDERWRITERS LABORATORIES  
REQUIREMENTS 555C