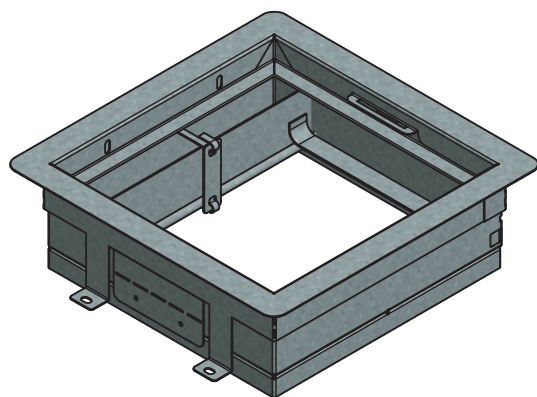
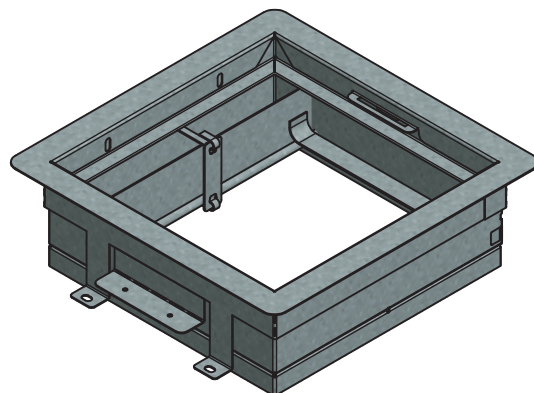


## Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.



**CRD-300WT WITH INSTALLATION BRACKET  
(-AP FANS ONLY)**



**CRD-300WT WITH MOUNTING ANGLE  
(-LP OR OPTIONAL METHOD FOR -AP FANS)**

### Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 100°F (38°C).

### Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

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This manual is the property of the owner and is required for future maintenance.

Please leave it with the owner when the jobs is complete.

## General Information

**“UL CLASSIFIED (see complete marking on product)”**

**“UL CLASSIFIED to Canadian safety standards (see complete marking on product)”**

Standard 555C (Listing #R13446)

These installation instructions show recommended installation procedures. These or other installation methods may be followed subject to the approval of the authority having jurisdiction.

The CRD-300WT series dampers are classified to function as a heat barrier in air handling penetrations through fire resistive membrane ceilings. They are intended to maintain the fire resistive integrity of the ceiling. They can only be installed in conjunction with the fan models shown and cannot be installed alone.

**NOTE:** Motors for fan models used in conjunction with CRD shall be equipped with thermal cut-off fuse control.

## Damper Installation Overview

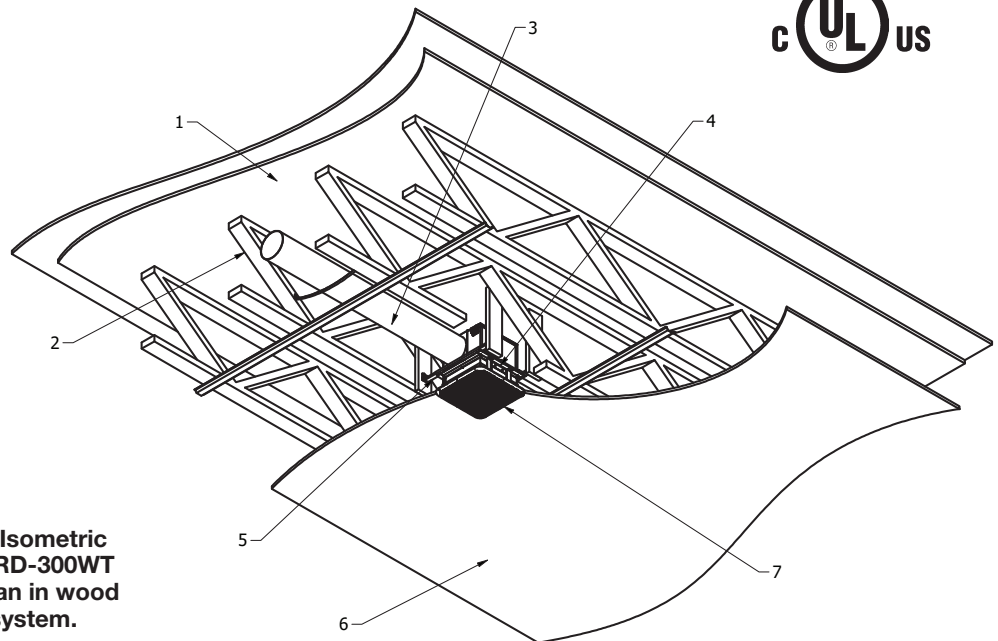
- 1. General:** The fan/damper assemblies described in these instructions, when installed as shown, provide appropriate protection for approved floor/ceiling designs rated up to one hour.
- 2. System Components:** All system components (ducts, duct drops, hanger wires, sleeves, and diffuser pan) must be constructed of steel. The diffuser core may be non-ferrous. Grilles may be non-metallic. Flexible duct (if used) must be Class 1 or Class 0 type, bearing the UL listing mark. Maximum length of flex duct shall not exceed 14 feet. The installations and air devices shown in these instructions illustrate general arrangement only. Installations must also incorporate any specific requirements in the FRD (UL Fire Resistance Directory). Note that both “Design Information - General” and individual ceiling/floor or ceiling/roof design listings apply.
- 3. Ceiling Penetrations:** Ceiling penetration should be located within ceiling tiles, panels, or gypsum without necessitating cuts in the ceiling suspension main runners, cross tees, or trusses. If required, a maximum of one runner or cross tee may be cut to enable proper damper location and installation. Each cut end shall be supported by a minimum 12 SWG vertical hanger wire. a ½ in. clearance must be maintained between the air inlet/outlet and the cut end of the runner or cross tee. Cutting of wood trusses in combustible ceiling designs is not permitted.

Fan Size	CRD Model		
	UL Classified	Width (in.)	Height (in.)
	1 Hour Com-bustible		
-AP0511W -AP0511WL -AP0511W-1 -AP0511WL-1 -LP0511 -LP0511L -LP0511-1 -LP0511L-1 -LP0511H -LP0511HL -LP0810W -LP0810WL	CRD-300WT	10⅝	10⅝

# UL/cUL Installation - 1 Hour Combustible Floor/Ceiling Assemblies -AP Fan



Number	Description
1	Flooring System
2	Wood Truss
3	Air Duct
4	CRD-300WT assembly
5	Installation Bracket
6	Gypsum Board
7	Grille
8	Finishing System (not shown)



**Figure 1: Isometric view of CRD-300WT with -AP fan in wood truss system.**

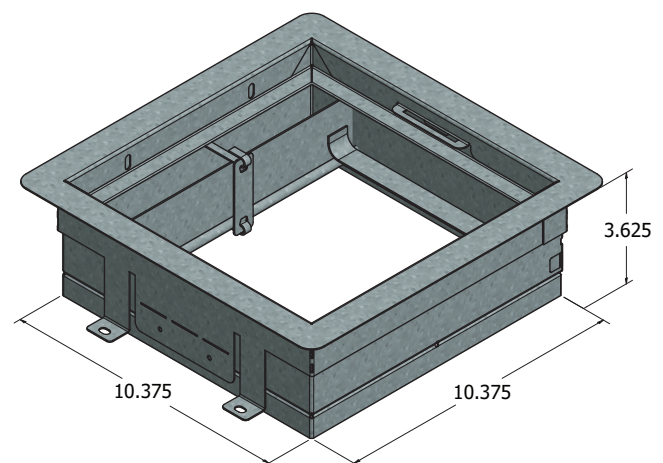
## Equipment Needed:

### Fan/CRD Parts

- (1) -AP Fan
- (1) -AP Installation Bracket or optional field supplied 1" x 1" x16GA mounting angle
- (1) Ceiling Radiation Damper (CRD-300WT)
- (1) Plaster Flange
- (1) Sleeve

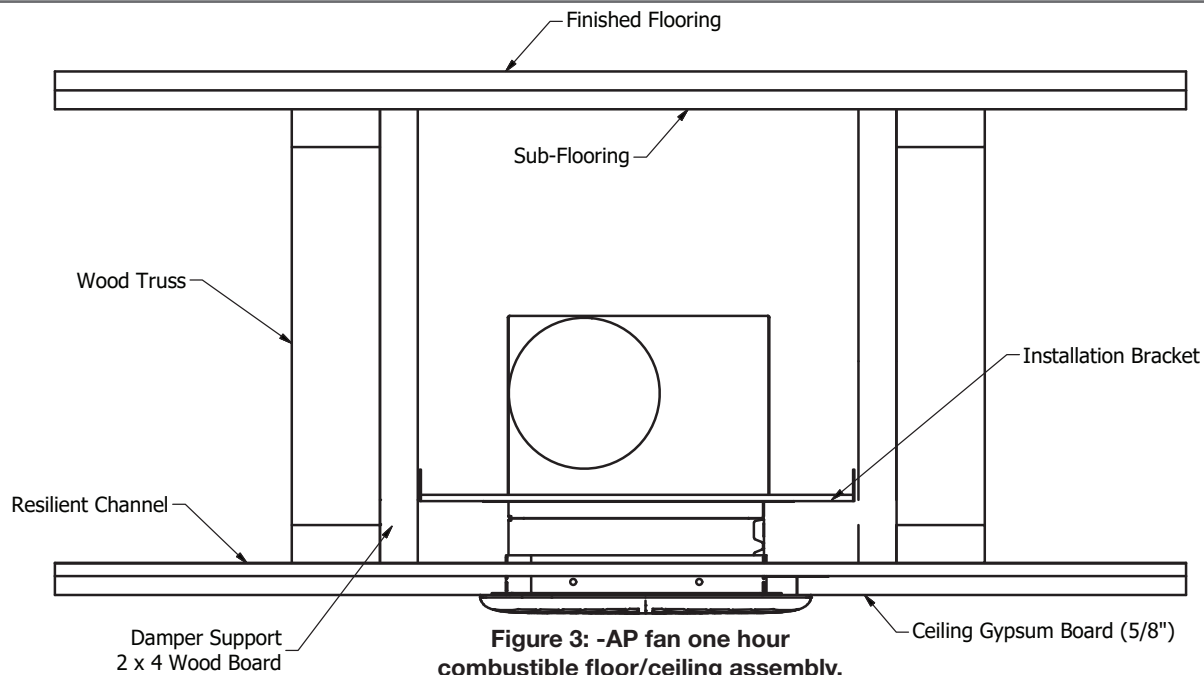
### Parts Kit:

- (1) Wire retaining bracket
- (5) Self-tapping, Philips head, 1.25in screws (taped to backdraft damper of fan)
- (4) Machine screw, hex head, #10-32 x 0.5in
- (4) Lock Nuts, #10-32
- (4) Self-tapping, hex head, 0.5in screws
- (1) Self-tapping, hex head, 0.5in screw (for wire retaining bracket)
- (4) Tinnermann U-Clips
- (1) CRD-300WT IOM



**Figure 2: Isometric view of a CRD-300WT damper with installation bracket.**

## UL/cUL Installation - 1 Hour Combustible Floor/Ceiling Assemblies -AP Fan



**Figure 3: -AP fan one hour combustible floor/ceiling assembly.**

### Ceiling Exhaust Fan Installation

1. Open package containing Ceiling Radiation Damper (CRD), plaster flange and sleeve. Ensure tabs on sleeve are folded over damper frame.
2. Using the (4) Tinnerman U-Clips provided, secure the CRD to the sleeve aligning the Tinnerman clips with the 0.25" holes on the sleeve. Position each Tinnerman U-Clip such that the retaining side is located on the exterior of the damper frame.
3. Position the CRD-300WT on the -AP Fan Assembly so that the wire chase on the CRD is located to the right of the fan's junction box.
4. Install CRD-300WT onto the -AP Fan Assembly using the (4) screws & lock nuts supplied. Locate screw heads on the same side as the damper.

### Using the -AP Installation Bracket:

(If using the optional Field Supplied 1" x 1" x 16GA Mounting Angle, please follow steps 1-4 and then refer to figure 6 and steps 5-12 on page 6 to complete the installation.)

5. Next, install (4) 2" x 4" wood boards vertically to the Truss Assembly 12" OC for mounting the -AP fan assembly.
6. Using the height dimension of 3.625" (distance from bottom edge of installation bracket to edge of CRD to be flush drywall, see figure 2), measure and mark the 2" x 4" wood boards where bottom edge of the installation bracket is to be installed.
7. Secure one side of the -AP Installation bracket assembly by fastening (2) captured self-tapping screws to the 2" x 4" woods boards referencing the mark made in step 6.
8. Extend the -AP Installation Bracket to the required distance referencing marks made in Step 6. Secure using (2) captured self-tapping screws.

9. Mount adapter to the expandable mounting bracket using (2) self-tapping screws provided tapped to duct adapter.
10. Push Fan/CRD Assembly into the mounting bracket/adapter until it engages into the duct adapter. Secure the fan body by using the three remaining (1.25") self-tapping screws provided tapped to duct adapter.
11. Refer to the fan IOM for wiring.
12. Cut a 10.5" square hole in the gypsum board for the fan/CRD assembly. Install ceiling gypsum board.
13. Secure the plaster flange onto the fan/CRD assembly by fastening the (4) self-tapping screws provided into the Tinnerman clips installed in step 2.
14. Mount one side of the grille by inserting the grille springs into the slot on the plaster flange located on the wiring side of the fan.
15. Install the wire retaining bracket with the remaining (1) self-tapping screw.
  - a. When using a grille without light or motion sensor align the flat of the wire retaining bracket with the wire chase.
  - b. If using a lighted grille and/or motion sensor, plug in the Light and/or motion sensor into receptacle(s) in the fan housing. Install the wire retaining bracket around the wires aligned with the wire chase.

### CAUTION

Ensure all wires are clear of the damper operation.

16. Insert the other grille spring into the slot on the plaster flange opposite the one previously installed. Push grille into place tight to the gypsum board.

# UL/cUL Installation - 1 Hour Combustible Floor/Ceiling Assemblies -LP Fan



Number	Description
1	Flooring System
2	Wood Truss
3	Air Duct
4	CRD-300WT assembly
5	Mounting Angle
6	Gypsum Board
7	Grille
8	Finishing System (not shown)

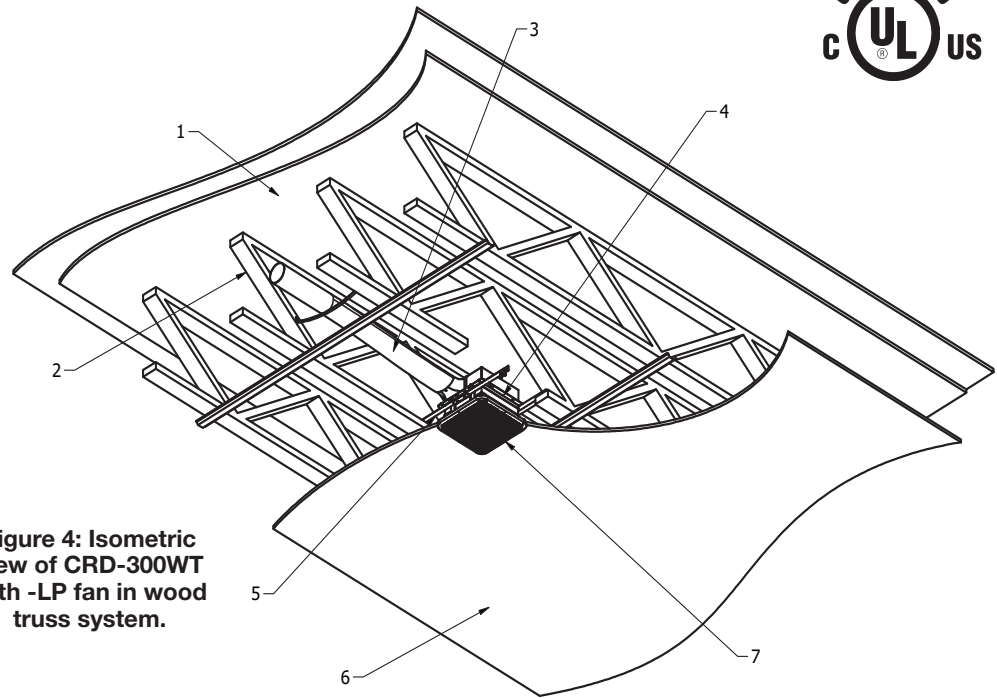


Figure 4: Isometric view of CRD-300WT with -LP fan in wood truss system.

## Equipment Needed:

### Fan/CRD Parts

- (1) -LP Fan
- (1) Field supplied 1" x 1" x 16GA mounting angle
- (1) Ceiling Radiation Damper (CRD-300WT)
- (1) Plaster Flange
- (1) Sleeve

### Parts Kit:

- (1) Wire retaining bracket
- (4) Self-tapping, Philips head, 1.25in screws (taped to backdraft damper of fan)
- (4) Machine screw, hex head, #10-32 x 0.5in (1 extra included)
- (4) Lock Nuts, #10-32 (1 extra included)
- (4) Self-tapping, hex head, 0.5in screws
- (1) Self-tapping, hex head, 0.5in screw (for wire retaining bracket)
- (4) Tinnermann U-Clips
- (1) CRD-300WT IOM

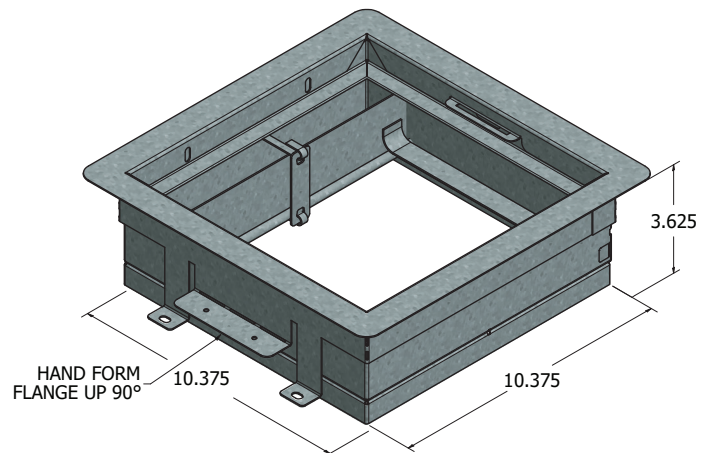
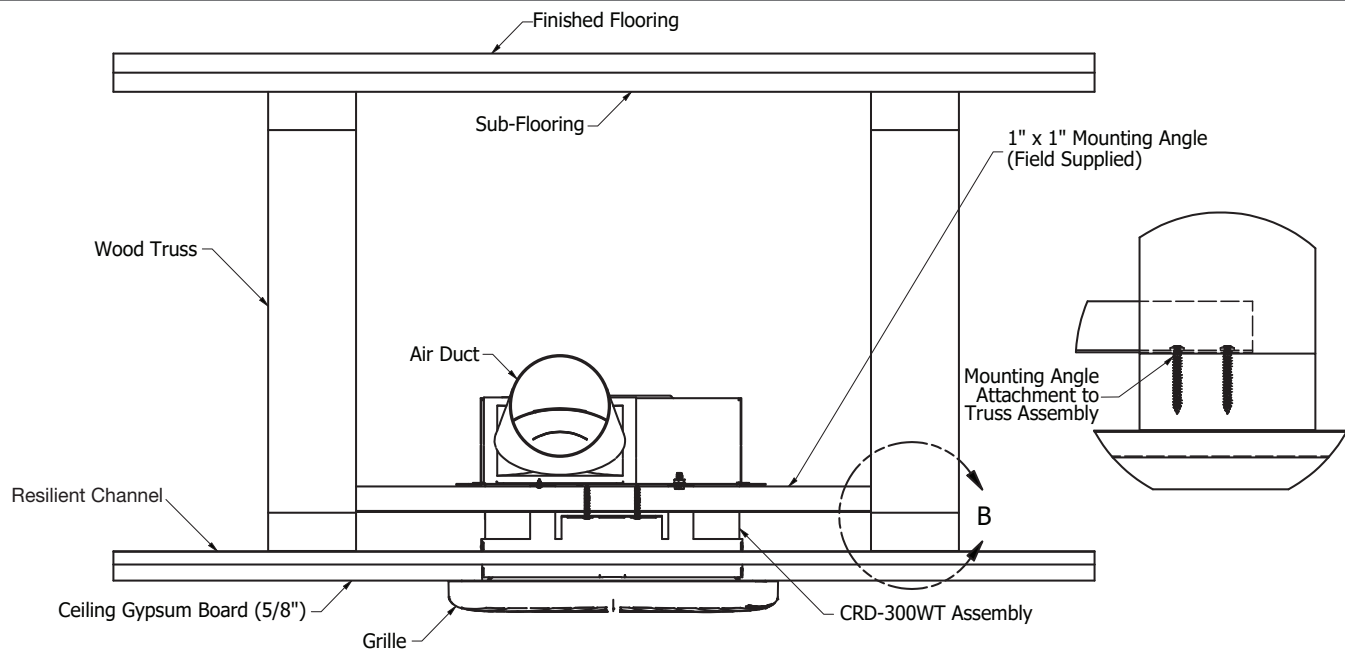


Figure 5: Isometric view of a CRD-300WT damper with mounting angle.



# UL/cUL Installation - 1 Hour Combustible Floor/Ceiling Assemblies -LP Fan



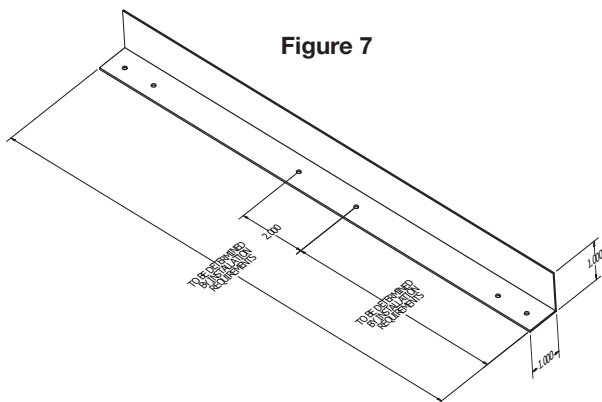
**Figure 6: -LP (or -AP with optional mounting angle) fan one hour combustible floor/ceiling assembly.**

## Ceiling Exhaust Fan Installation

1. Open package containing Ceiling Radiation Damper (CRD), plaster flange and sleeve. Ensure tabs on sleeve are folded over damper frame.
2. Using the (4) Tinnerman U-Clips provided, secure the CRD to the sleeve aligning the Tinnerman clips with the 0.25" holes on the sleeve. Position each Tinnerman U-Clip such that the retaining side is located on the exterior of the damper frame.
3. Position the CRD-300WT on the -LP Fan Assembly so that the wire chase on the CRD is located to the left of the fan's junction box.
4. Install CRD-300WT onto the -LP Fan Assembly using three (3) screws / lock nuts and one (1) duct connector screw supplied. Locate screw heads on the same side as the damper.
5. Next, hand form the mounting flange on the sleeve up 90 degrees. Install (2) 1" x 1" x 16GA mounting angles (figure 7, field supplied) by securing with (4) self-tapping screws provided with -LP fan assembly. Distance between wood trusses determines length of mounting angles.
6. Install the fan/damper assembly, with attached mounting angles, between the trusses as shown in Figure 4 and attach mounting angles to the trusses using 4 - 11/4 in. long steel screws per mounting angle.
7. Refer to the fan IOM for wiring.
8. Cut a 10.5" square hole in the gypsum board for the fan/CRD assembly. Install ceiling gypsum board.
9. Secure the plaster flange onto the fan/CRD assembly by fastening the (4) self-tapping screws provided into the Tinnerman clips installed in step 2.
10. Mount one side of the grille by inserting the grille springs into the slot on the plaster flange located on the wiring side of the fan.
11. Install the wire retaining bracket with the remaining (1) self-tapping screw.
  - a. When using a grille without light or motion sensor align the flat of the wire retaining bracket with the wire chase.
  - b. If using a lighted grille and/or motion sensor, plug in the Light and/or motion sensor into receptacle(s) in the fan housing. Install the wire retaining bracket around the wires aligned with the wire chase.
12. Insert the other grille spring into the slot on the plaster flange opposite the one previously installed. Push grille into place tight to the gypsum board.

## CAUTION

Ensure all wires are clear of the damper operation.



**Figure 7**

## UL CRD Design Numbers

These instructions describe the installation of a CRD designs: L528, L546, L558, L562, L574, L576, L581, L583, L585, L592, M501, M503, M508, P533, P538, P545, P547, P548, P554, and P580 as detailed in the UL Fire Resistance Directory.

GA File No.	UL Design No.
FC 5012	M508
FC 5078	L558
FC 5101	L574, M508
FC 5119	L592
FC 5121	L528, L546, L574, M508
FC 5514.4	L585
FC 5515	L528
FC 5515.3	M503
FC 5516	L528
FC 5519	L574
FC 5521	L562
FC 5528	L528
RC 2603	P533
RC 2604	P554
RC 2606	P545
RC 2609	P538
RC 2612	P545, P554
GA = Gypsum Association Fire Resistance Manual 22 <sup>nd</sup> Edition	

## Damper Maintenance

Dampers do not typically require maintenance as long as they are kept dry and clean. If cleaning is necessary, use mild detergents or solvents. If lubrication is desired for components such as axle bearings, jackshaft bearings and jamb seals, do not use oil-based lubricants or any other lubricants that attract contaminants such as dust.

## Damper Troubleshooting

The following is a possible cause and correction list for common concerns with the dampers.

Symptom	Possible Cause	Corrective Action
Damper does not fully open and/or close	Frame is 'racked' causing blades to bind on jamb seals	Adjust frame such that it is square and plumb
	Screws in damper linkage	Damper installed too far into wall. Move out to line as designated on damper label
	Contaminants on damper	Clean with a non-oil based solvent (see Damper Maintenance)
Link separated	Heat	Replace link

## Reference

### Maintenance Log

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## Our Commitment

*As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.*

Product warranties can be found online at [Greenheck.com](http://Greenheck.com), either on the specific product page or in the literature section of the website at [Greenheck.com/Resources/Library/Literature](http://Greenheck.com/Resources/Library/Literature).

