

Royal Metal Products, Inc.

Design No. RMP/DA 60-02

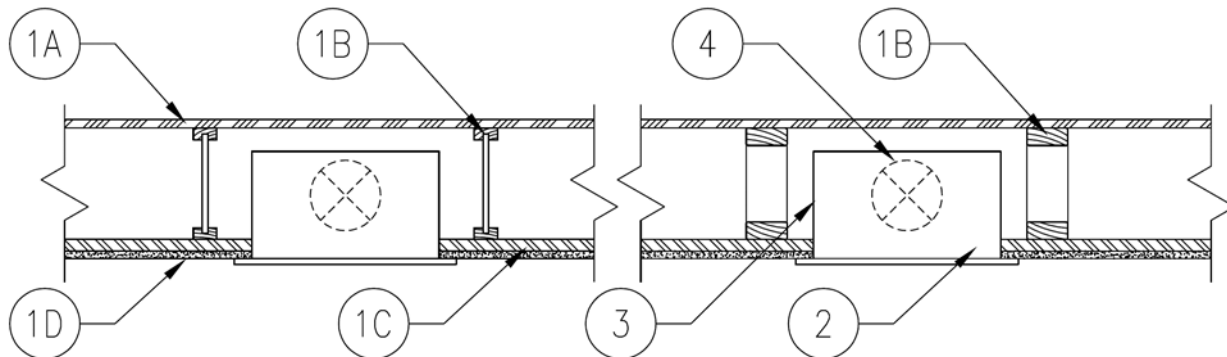
Floor/Ceiling Assembly

Ceiling Damper

CRDD, CRDS, AND CRDR

ASTM E119 and UL 263

Fire Resistance Rating: 1 Hour



# 1. FLOOR/CEILING AND ROOF/CEILING

**ASSEMBLY:** Use a one-hour fire-rated floor/ceiling or roof/ceiling assembly constructed in accordance with material and construction specifications of UL Design No. L521, L528, L546, L550, L558, L562, L563, L570, L574, L576, L579, L585, L586, M503, P522, P531, P533 P538, P545, P547, P548, P552, or P580, and with min. requirements as specified below:

Floor/Ceiling Assemblies; refer to the designs for additional details and options – Design Nos. L521, L528, L546, L550, L558, L562, L563, L570, L574, L576, L579, L585, L586 and M503:

- A. FLOORING SYSTEM – Use minimum. 23/32 in. thick tongue and groove wood structural panels.
- B. WOOD TRUSSES – Use parallel chord wood trusses, spaced max. 24 in. on center (oc), manufactured from nominal 2 x 4 lumber, and min. truss depth of 18 in.

WOOD JOISTS – Use min. 14 in. deep engineered wood I-joist, spaced max. 24 in. oc.

- C. CHANNELS – Use min. 25 GA galvanized steel furring channels or min. 26 MSG galvanized steel resilient channels spaced a max. of 16 in. oc. Secure channels to bottom chord of wood trusses (Item 1B) using approved fasteners and methods.
- D. GYPSUM BOARD – Min. one layer of approved 5/8 in. thick gypsum board (see UL Designs) attached to channels (Item 1C) and with long dimension perpendicular to channels using approved fasteners and methods.
- E. LOAD RESTRICTIONS – Apply any load restrictions as noted in the referenced design listing.

Roof/Ceiling Assemblies; refer to the designs for additional details and options – Design Nos. P522, P531, P533, P538, P544, P545, P547, P548, P552, and P580:



- A. ROOF SYSTEM – Use min. 15/32 in. thick structural panels with a Class A, B, or C roofing system per ASTM E108.
- B. WOOD TRUSSES – Use pitched or parallel chord wood trusses, spaced max. 24 in. oc, manufactured from nominal 2 x 4 lumber, oriented horizontally or vertically. A min. truss depth of 5-1/4 in., min. roof slope of 3/12, and min. 21 ft.<sup>2</sup> plane of truss area shall be used where the truss intersects with the interior face of the exterior walls.
- C. CHANNELS – Use min. 25 GA galvanized steel furring channels or min. 26 MSG galvanized steel resilient channels spaced a max. of 16 in. oc. Secure channels to bottom chord of wood trusses (Item 1B) using approved fasteners and methods.
- D. GYPSUM BOARD – Min. one layer of approved 5/8 in. thick gypsum board (see UL Designs) attached to channels (Item 1C) and with long dimension perpendicular to channels using approved fasteners and methods.
- E. LOAD RESTRICTIONS – Apply any load restrictions as noted in the referenced design listing.

**2. CERTIFIED MANUFACTURER:** Royal Metal Products, Inc.

**CERTIFIED PRODUCT:** Ceiling Radiation Damper

**CERTIFIED MODEL:** CRDD, CRDS, or CRDR

**CEILING DAMPER:** CRDD – Rectangular butterfly style damper. Max. damper size shall be 256 in.<sup>2</sup> with a max. dimension of 16 in. Max. aggregate area of installed ceiling dampers shall be 256 in.<sup>2</sup> per 180 ft.<sup>2</sup> of ceiling area. For use with plenum box models 241FRD, 241RD, 243FRD, 243RD, 556RD, 556RDD, 557RD, and 557RDD.

CRDS – Rectangular single-blade damper. Max. damper size shall be 144 in.<sup>2</sup> with a max. dimension of 14 in. Max. aggregate area of installed ceiling dampers shall be 144 in.<sup>2</sup> per 180 ft.<sup>2</sup> of ceiling area. For use with plenum box model 241FRD, 241RD, 243FRD, 243RD, 509RD, 556RD, 556RDD, 557RD, and 557RDD.

CRDR – Round butterfly style damper for installation in plenum collar. Max. damper size shall be 9 in. diameter. Max. grille/register size shall be 144 in.<sup>2</sup> with a max. dimension of 14 in. Max. aggregate area of installed grille/register size shall be 144 in.<sup>2</sup> per 180 ft.<sup>2</sup> of ceiling area. For use with plenum box models 505RD and 507RD.

**3. PLENUM BOX:** Install ceiling damper into plenum box.

Model 241FRD, 241RD, 243FRD, 243RD, 505RD, 507RD, 509RD, 556RD, or 556RDD, per the manufacturer's installation instructions, install a 24 GA max. to 28 GA min. thickness steel plenum box. Min. 4 in. clearance to combustibles. Plenum can be insulated as an option. Steel plenums for use on dampers up to 144 in.<sup>2</sup> with a max. dimension of 14 in. Duct-board plenums as described for models 557RD and 557RDD can be used with CRDD and CRDS dampers up to 256 in.<sup>2</sup> with a max. dimension of 16 in.

Model 557RD and 557RDD, per the manufacturer's installation instructions, install plenum constructed of duct board, with min. thickness 1 in. duct board with a min. R-value of 4.

**4. DUCT:** Any UL 181 class 0 or class 1 flexible air duct installed onto the outlet of the plenum box in accordance with the installation instructions



Division 23 – Heating, Ventilating, and Air Conditioning (HVAC)

23 33 00 Air Duct Accessories

23 33 13 Dampers

of the ceiling damper manufacturer. Duct shall  
be listed and labeled.