Design No. VAD 528 F

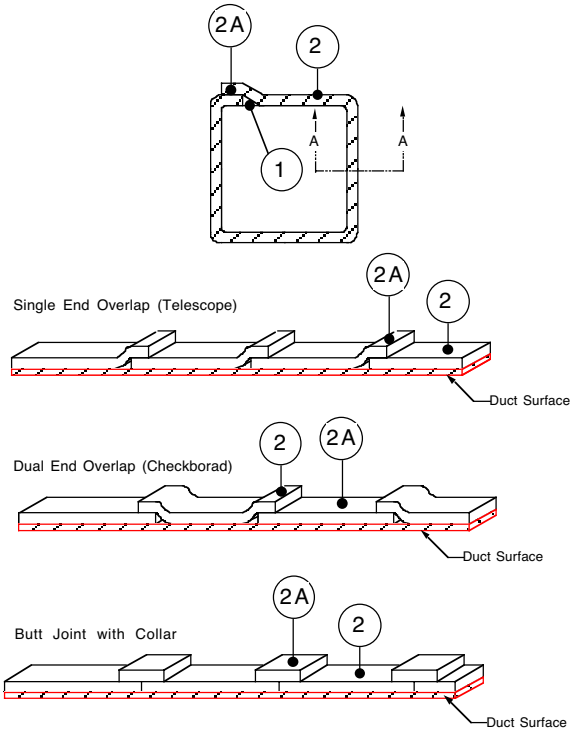
VENTILATION DUCT PROTECTION

Type - Duct A

Stability - 1 hr

Insulation - 1 hr

Integrity - 1 hr



1. VENTILATION DUCT: An airtight duct system with horizontal shafts constructed of min. 22 GA (0.028 in.) sheet steel with a max. 1296-in. area and a max. 54-in. width (max. 24-in. high x max. 54-in. wide). Construct the duct using sections affixed to each other with seams. Reinforce the duct to IMC or SMACNA requirements designed for a 2-in. WC underpressure and to carry the weight of the ventilation duct assembly covered with insulation under a fire load equivalent to ISO 834 time-temperature curve. Rigidly support the duct in accordance with IMC or SMACNA requirements and as specified in Item 5. Protect the annular space around the duct passing through a fire rated barrier with the penetration firestop system as detailed in Design FS 564 W.

2. INSULATION: Use nom. 1-1/2-in. thick, 8-pcf blanket made of soluble amorphous wool fibers or calcium magnesium silicate fibers. Use blanket that is fully encapsulated or single faced. Wrap the steel duct with one layer of duct wrap with 3-in. min. overlaps at all joints with a nom. thickness of 3 in. at the overlap. Make the longitudinal overlaps of adjacent blankets (2A) using one of the following three methods as depicted in the drawings:

* 3-in. overlap telescoping method where each adjacent blanket has one edge exposed and one edge covered by the next blanket,

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* 3-in. overlap checkerboard pattern where both edges of each alternating blanket are covered by each adjacent blanket whose edges are exposed, or
* butt splice with collar method where the blankets are butted together and a 6-in. wide collar of blanket is centered over the butt splice overlapping each adjacent blanket 3-in..
* Seal all joints and exposed fiber with min. 4-in. wide, pressure-sensitive aluminum foil tape. Secure the outer layer with stainless steel banding or pins (3). Reference Product Section of this Directory for more details.

Listed Manufacturer:

Johns Manville Corporation -

Applied Fireproofing

Ceramic Blanket

Firetemp® Wrap

3. FASTENERS: Prior to installing the insulation, weld with 6-in. long, 12 GA. copper coated mild steel impaling pins to duct. After placing insulation (Item 2) over pins, secure blanket to pins with 1-1/2 in. square or round galvanized steel speed clips. Turn down or cut off insulation pins that extend beyond the outer blanket wrap layer. To provide adequate support, place pins on bottom of duct and on largest side of a vertical duct. Place pins in rows across the duct a minimum of 6 in. from the edge and spaced max. 12 in. O.C. Repeat rows of pins max. 10-1/2 in. O.C. At changes in directions, such as going from horizontal to vertical, locate pins to facilitate attachment of insulation (2) to duct. Locate pins 1-1/2 to 2 in. from duct edge and spaced in rows or spans max. 10-1/2 in. O.C. Locate pins to attach blanket at overlaps, which cannot be readily banded.
4. STRAPPING: After insulation (2) and pins (3) installed, use min. 1/2-in. wide by 0.015 in. thick stainless steel banding. Place banding 1-1/2 (1/2 in. from each transverse overlap and located mid point between the overlapped joints, max. 12 in. O.C. Tighten the banding but do not cut into the insulation. Then crimp steel clips over the ends of the banding to secure it.
5. SUPPORTS: After the installation of the insulation system is complete, add a typical trapeze support system. Center insulated duct on trapeze hangers so that min. 1-in. space exists between insulated duct and rods. Support hanger systems do not need to be wrapped. Attach threaded rods through concrete ceiling and secure using appropriate size washers and nuts or secure threaded rods using appropriate size steel drop in expansion type masonry anchors. Extend trapeze support at least 2-in. on each side of insulated duct and rods. When supporting smaller ducts, shorter length angles are permitted as long as other requirements are met. Options: (1) Space supports a max. 54-in o. c. in straight runs and max. 61-in O.C. in transition areas. Use min. 3/4-in. solid rods threaded at min. 2-in at ends and secured with 3/4-in hex nuts to min. 3 x 3 x 3/8-in. steel angles a max. 70 in. long for trapeze supports. Space rods max. 66-in O.C. with max. 2 in. from the end of the steel angle and nom. 1 in. from the insulation. (2) Space supports O.C. so that the load does not exceed 350 lbs between supports. Trapeze supports use min. 5/8-in. all-thread rods and secured with 5/8-in hex nuts to min. 2-1/2 x 2-1/2 x 1/4-in. steel angles a max. 68 in. long. Rods spaced max. 64-in O.C. with max. 2 in. from the end of the steel angle. (3) Space supports O.C. so that the load does not exceed 240 lbs between supports. Trapeze supports use min. 1/2-in. all-thread rods and secured with 1/2-in hex nuts to min. 2 x 2 x 1/4-in. steel angles a max. 53 in. long. Rods spaced max. 49-in O.C. with max. 2 in. from the end of the steel angle. (4) Space supports O.C. so that the load does not exceed 220 lbs between supports. Trapeze supports use min. 1/2-in. all-thread rods and secured with 1/2-in hex nuts to min. 2 x 2 x 1/4-in. steel angles a max. 55 in. long. Rods spaced max. 51-in O.C. with max. 2 in. from the end of the steel angle. (5) Space supports O.C. so that the load does not exceed 250 lbs between supports. Trapeze supports use min. 5/8-in. all-thread rods and secured with 5/8-in hex nuts to min. 2-1/2 x 2-1/2 x 1/4-in. steel angles a max. 70 in. long. Rods spaced max. 66-in O.C. with max. 2 in. from the end of the steel angle.

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