Design No. VAD 518 F

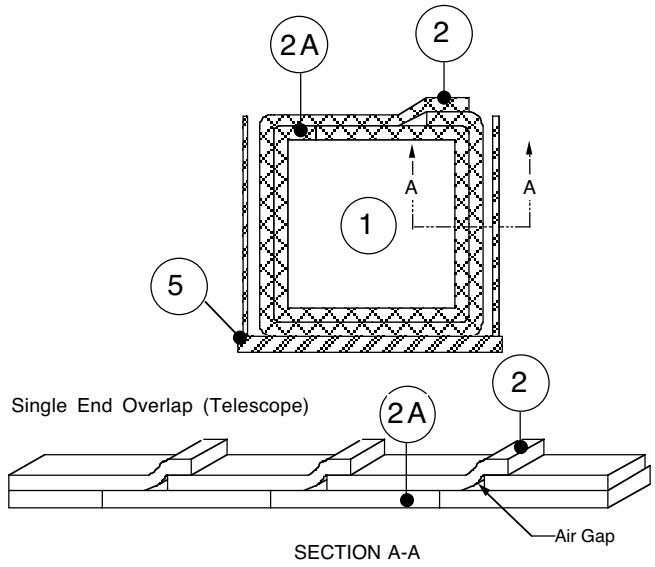
VENTILATION DUCT PROTECTION

Type - Duct A

Stability - 2 hr

Insulation - 2 hr

Integrity - 2 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). When required, equip the duct with a field fabricated access door. 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 550 F.

2. INSULATION: Use two layers of nom. 1-1/2-in. thick nom. 8-pcf blanket made of soluble amorphous wool fibers or calcium magnesium silicate fibers. Wrap the steel duct with two layers of duct wrap installed with 3-in. min. overlaps at all joints. Use blanket that is fully encapsulated, single faced, or unfaced. Expose the faced side of fully encapsulated or single faced blanket to view on outer layer. When desired, use unfaced blanket for the inner layer only. (2A). All joints on the first layer of blanket were compressed and butt joined (2a). All joints on the second layer were overlapped a min of 3 in. Stagger the first and second layer overlaps half the distance from the edge of the first layer or nom. 12 in. All cut edges on both layers were covered with nom. 4-in. wide pressure-sensitive aluminum foil tape. Reference Product Section of this Directory for more details.

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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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