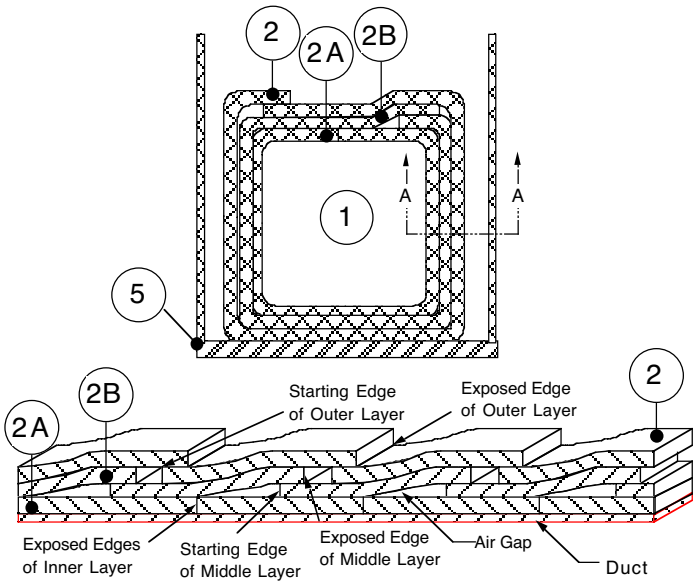
Design No. GD 522 F

GREASE DUCT PROTECTION

ICBO ES AC101

Section 5.4 Pass



SECTION A-A
Three Layer - Sloped Single End Overlap

1. GREASE DUCT: A continuously welded, liquidtight L-shaped duct system with horizontal and vertical shafts constructed of 16 GA sheet steel with outside dimensions of max. 24-in. high x 48-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 NFPA 96 requirements designed to carry the weight of the grease duct assembly covered with insulation under a fire load equivalent to AC101 exposure. Duct to be rigidly supported in accordance with IMC or NFPA 96 requirements and as specified in Item 5.

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, single faced, or unfaced. Wrap the steel duct with three layers of duct wrap. Expose the faced side of fully encapsulated or single faced blanket to view on outer layer. When desired, use unfaced blanket for the inner (2A) and middle layers (2B) only. Install insulation with zero clearance at any point. Wrap middle layer around the duct so that each exposed edge of the middle layer is butted tightly against the exposed edge of the preceding inner layer. Wrap middle layer around the duct so that each exposed edge of the middle layer is overlapped onto the starting edge of the preceding inner layer a min 3 in. This technique creates an air gap between the inner layer and middle layer (2B) (reference Section A-A). Space the starting edge of the outer layer band a max. 3 in. from the exposed edge of the middle layer (2B). Overlap the exposed edge of the outer layer onto the exposed edge of the middle layer (2B) and a min. 3 in. onto the starting edge of the preceding outer layer. The result is that the ends of outer layer overlaps (not shown) occur on the topside of the horizontal section of the duct or the rear face of the vertical section of the duct, alternating nom. 8-in. on either side

© Omega Point Laboratories, Inc.

of the longitudinal centerline with each successive wrap. Overall nom. thickness of 6 in. at overlaps when covered by the outer layer in field of insulation and 7-1/2 in. at overlaps at end of outer layer bands around duct. Reference Product Section of this Directory for more details.

Listed Manufacturer:

Johns Manville Corporation --

Applied Fireproofing

Mineral Fiber Fireproofing

Firetemp® Wrap

3. PINS: Not shown. Weld min. 12 GA, min. 9-in. long, stainless steel insulation pins to the duct. No pins are required on the sides, other than in the transition area. On all sides of duct at the transition only, space pins in rows max. 8-in. apart and the pins in the rows are max. 8-in. O.C. Locate pins max. 2 in. from the edges of the duct. Locate pins on front and back of vertical rise and on bottom of duct, space pins in rows max. 10-1/2-in. apart and the pins in the rows are max. 12-in. O.C. Locate pins max. 12 in. from the edges of the duct. All overlaps are a min. 3 in. for overlaps going around the duct and for overlaps following the length of the duct. Locate pins in the middle of the overlap. Secure blanket to pins with1-1/2 in. square or round galvanized steel speed clips. Turn down or cut off insulation pins that extend beyond the outer blanket wrap layer.

4. ACCESS DOOR: (Not shown) When required, mark and cut a clean-out access opening into the duct at mid-height along the horizontal section of the duct after the duct is insulated. Cut a 12 x 12-in opening in the insulation system (2). Cut a 10 in. x 10 in. opening into the side of the duct so that a 1-in clearance in maintained around the perimeter of the opening and the Firetemp™ Wrap system. Weld four 4 x 1/4-in all-thread rods to the duct, one at each corner of the duct so that they are 11-in O.C. Cut a 13 x13-in 16 GA plate to be used as a door. Drill holes in the door to match the rod pattern and seal the duct by overlapping the opening by 1-1/2-in. on all sides. Place the door over the threaded rods. Place a min. 1/2-in. thick ceramic fiber gasketing between the door and the opening. Weld four 9-in long, 12 GA stainless steel insulation pins to the access door corners so that the pins are 9-in O.C. Apply four layers of insulation over the access door. Cut the first layer into a 13 x 13-in square and install it over the pins and covering the door. Cut the second layer into a 15 x 15-in square and install it over the pins and covering the first layer so that a 1-in overlap exists. Cut the third layer into a 17 x 17-in square and install it over the pins and covering the first layer so that a 1-in overlap exists. Cut the fourth layer into a 19 x 19-in square and install it over the pins and covering the first layer so that a 1-in overlap exists. Secure blanket to pins with1-1/2 in. square or round galvanized steel speed clips. Turn down or cut off insulation pins that extend beyond the outer blanket wrap layer. Secure the access door assembly by placing steel tubing over the threaded rod, then apply washers and wing nuts over the threaded rod.

5. STRAPPING: (Not Shown) Use min. 1/2-in. wide nom. 0.015-in. thick stainless steel bands. When needed, use filament tape as a temporary holding method for the insulation prior to banding to ease installation. Place bands max. 1.5 in. from each blanket edge and max. 10-1/2-in O.C. Tension the banding material to hold the insulation (2) in place without causing any cutting or damage to the insulation or duct.

6. SUPPORTS: (Not shown) 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) Horizontal supports a max. 96-in. O.C., starting at the center of the vertical rise portion. Use min. 1/2-in. all-thread rod bolted to 2 x 2 x 1/4-in. steel angle to assemble the trapeze supports. Space the all-thread rods a max. 12 in. away from the edge of the insulated duct with 1/2 in. clearance holes drilled 2 in. from each end. (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

© Omega Point Laboratories, Inc.

secured with 5/8-in hex nuts to min. 2-1/2 x 2-1/2 x 1/4-in. steel angle for an insulated duct span of max. 64 in. (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 maximum insulated duct span of max. 49 in. (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.

© Omega Point Laboratories, Inc.