Design Number TC/BI 120-01
FIRE RESISTANT GREASE DUCT
Thermal Ceramics, Inc.
FireMaster® FastWrap®+, FireMaster® FastWrap®XL, or Pyroscat® XL
UL 1978 (January 21, 2005) – Pass at zero clearance to combustibles

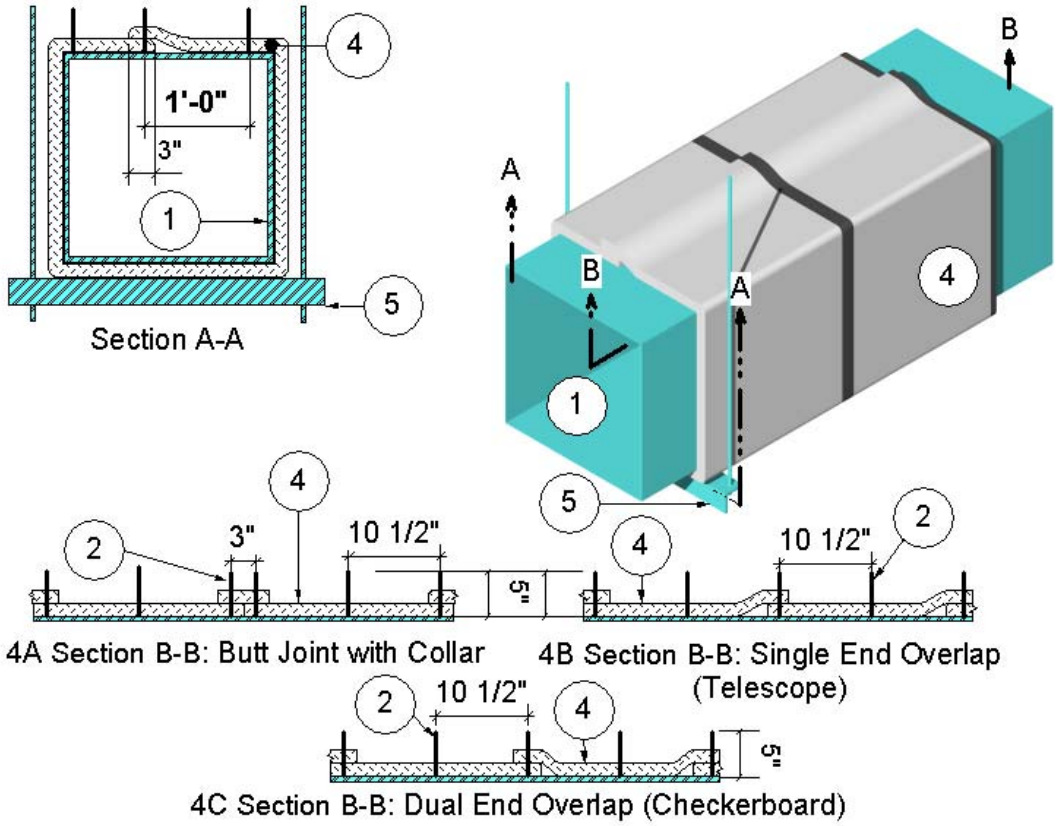

Figure 1

1. GREASE DUCT: Use a continuously-welded, liquid-tight duct system with horizontal and vertical shafts constructed of 16-GA sheet steel with a maximum 2401-inch^2 area and a maximum 49-inch dimension.

   A. Construct the grease duct using sections affixed to each other with welded joints.

   B. Reinforce the grease duct to IMC or NFPA 96 requirements designed to carry the weight of the grease duct assembly covered with one layer of insulation (Item 4) under a fire load equivalent to the ASTM E 119 time-temperature curve.

   C. Support the grease duct (Item 1) as specified in Item 5, or in accordance with IMC or NFPA 96 requirements when those requirements are greater.

   D. Protect the annular space around the grease duct (Item 1) passing through a fire-rated assembly with a penetration firestop system that has the same fire rating as the penetrated assembly, that is not voided by the grease duct, and that is acceptable to the authority having jurisdiction. An

example of such a penetration firestop system is described in Intertek Design Listing TC/PHV 120-03.

E. Install grease duct only in locations protected from environmental elements.

2. INSULATION PINS: Weld minimum 12-GA, 5-inch long, copper-coated, steel insulation pins to the grease duct (Item 1). Locate pins at all blanket overlaps, on all sides of the grease duct (Item 1), and meet the following requirements.

   A. Space pins maximum 12 inches apart in rows across the width of grease duct (Item 1). Locate pins maximum 1 inch from the edges of the grease duct (Item 1). Locate pins maximum 1 inch from any corner (edge of a 90° bend) of the grease duct (Item 1). Refer to section view A-A.

   B. Space the rows of pins a maximum of 10-1/2 inches o.c. along the length of the grease duct (Item 1). Refer to Item 4B section view B-B.

   C. Locate pins in the middle of each overlap and spaced a maximum of 6 inches apart along the overlap.

   D. After insulation (Item 4) is installed, place minimum 2-1/2 x 2-1/2-inch square, galvanized steel, self-locking washer clips onto all insulation pins or use cup head pins.

   E. After clips are installed, cut off or bend flush with insulation (Item 4) the pins that are too long.

3. BANDING: Not Shown. As an alternative to the use of only insulation pins (Item 2), for duct sizes less than or equal to 24-inches by 48-inches, attach the insulation (Item 4) using nominal 1/2-inch wide and 0.015-inch thick stainless or carbon steel bands. If required, use filament tape as a temporary holding method for the insulation (Item 4) prior to banding to ease installation. Place the bands a maximum of 1-1/2 inches from all insulation (Item 4) edges and midway between insulation (Item 4) edges. Tension the banding material to hold the insulation (Item 4) in place without any cutting or damage to the insulation (Item 4) or grease duct (Item 1). Locate insulation pins (Item 2) in the middle of each overlap and space a maximum of 6 inches apart along the overlap.

4. CERTIFIED MANUFACTURER:
   Thermal Ceramics, Inc.

   CERTIFIED PRODUCT:
   FireMaster® or Pyroscat®

   MODEL:
   FireMaster® FastWrap®+,
   FireMaster® FastWrap® XL,
   or Pyroscat® XL

   INSULATION: Use FireMaster® FastWrap®+, FireMaster® FastWrap® XL, or Pyroscat® XL, all of which are nominal 1-1/2-inch thick, nominal 6-pcf density thermal insulation blankets made of calcium-magnesium-silicate wool and all of which are totally encapsulated with polypropylene/scrim/foil. Apply the insulation in a single layer using one of the following installation methods:

   A. Butt Joint with Collar: Refer to Item 4A section view B-B. Wrap the grease duct (Item 1) with one layer of insulation installed with butt joints at all circumferential joints and minimum 3-inch overlaps at the longitudinal joints. Apply a 6-inch wide collar of insulation blanket centered over the butt joint such that it overlaps 3 inches on each side of the butt joint and overlaps minimum 3 inches onto itself.

   B. Single End Overlap (Telescope): Refer to Item 4B section view B-B. Wrap the grease duct (Item 1) with one layer of insulation installed with 3-inch minimum overlaps at all longitudinal joints. Overlap each adjacent insulation edge with the edge of the next piece of insulation a minimum of 3 inches. Locate the circumferential overlaps of adjacent pieces of insulation on opposite sides of the grease duct (Item 1) on the top side, 3 inches away from the edges of the grease duct (Item 1).

C. Dual End Overlap (Checkerboard): Refer to Item 4C section view B-B. Wrap the grease duct (Item 1) with one layer of insulation installed with 3-inch minimum overlaps at all longitudinal joints. Alternate between a piece of installation that is flush against the surface of the grease duct (Item 1) and a piece of insulation that forms a "gull wing" (V) shape due to the overlap pattern. Overlap a minimum of 3 inches onto each insulation edge that is installed flush with the edge of the "gull wing" (V) shaped piece of insulation. Locate the circumferential overlaps of adjacent pieces of insulation on opposite sides of the grease duct (Item 1) on the top side, 3 inches away from the edges of the grease duct (Item 1).

5. SUPPORTS: Support the grease duct (Item 1) complete with insulation (Item 4) using an un-insulated "trapeze" system composed of a minimum 2 x 2 x 1/4-inch steel angle as the trapeze cross-member and two (2), minimum 3/8-inch diameter, threaded steel rods connected using nuts and washers. Connect the all-thread steel rods to the bottom of the floor assembly using an attachment method designed to carry the weight of the grease duct (Item 1) with insulation (Item 4). Place one (1) threaded steel rod at each end of trapeze cross-member. Center grease duct (Item 1) with insulation (Item 4) on trapeze cross-member. Space threaded steel rods maximum 6 inches from surface of the insulated grease duct. Drill 3/8-inch clearance holes into the steel angle at the threaded steel rod locations. Extend trapeze cross-member at least 2-1/2 inches past each threaded steel rod. Space trapeze supports a maximum 60 inches on center.

6. MANUFACTURER:
DUCTMATE® Industries, Inc.

CERTIFIED PRODUCT: Ductmate

MODELS: Ductmate UL*timate* Door™

ACCESS DOOR ASSEMBLY: Please note that the installation of the access door assembly at reduced clearance to combustibles is not considered under the requirements of UL 1978. When required, install an access door and insulated cover plate as described:

A. PRE-FABRICATED ACCESS DOOR: Mark a clean-out access opening location at the mid-height of the grease duct (Item 1) along the horizontal section. Cut an opening (maximum 10 x 10 inches) in the insulation (Item 4) at the marked location. Remove the cut insulation (Item 4). Cut an opening (maximum 10 x 10 inches) into the side of the grease duct (Item 1) according to the manufacturer's instructions for the size of the pre-fabricated access door to be installed. Install and tightly secure the pre-fabricated access door in accordance with the manufacturer's instructions to the grease duct (Item 1).

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ACCESS INSULATION: Remove the four (4), corner-thumb bolts and replace them with four (4), threaded steel rods of the same diameter extending from pre-fabricated access door (Item 6A). Cut a piece of insulation (Item 4) to match the size of the section of insulation (Item 4) previously removed from over the access door (Item 6A). Place the piece of insulation (Item 4) over the access door (Item 6A) impaling it onto the threaded rod such that it sits in the recess and on the access door (Item 6A). Cut a second piece of insulation (Item 4) to measure 6 inches wider and taller than the previously cut

opening in the insulation (Item 4) which was located over the access door (Item 6A) opening. Impale the second piece of insulation (Item 4) over the access door impaling it onto the threaded rod such that it sits on the first piece of access insulation and overlaps 3 inches onto the insulation (Item 4) on the grease duct (Item 1) around the entire perimeter of the previously cut opening.

C. COVER PLATE: Cut a cover plate to the same dimensions as the second piece of access insulation (Item 6B) using a minimum 16-GA steel sheet. Drill holes in the cover plate that match the location of the four (4), threaded steel rods and locate the holes so that the cover plate is squared to the second piece of access insulation (Item 6B). After the second piece of access insulation (Item 6B) is impaled over the four (4), threaded steel rods install the cover plate. Pass the four threaded steel rods through the cover plate. Place washers and wing nuts onto each of the four threaded steel rods. Secure the cover plate by tightening wing nuts.

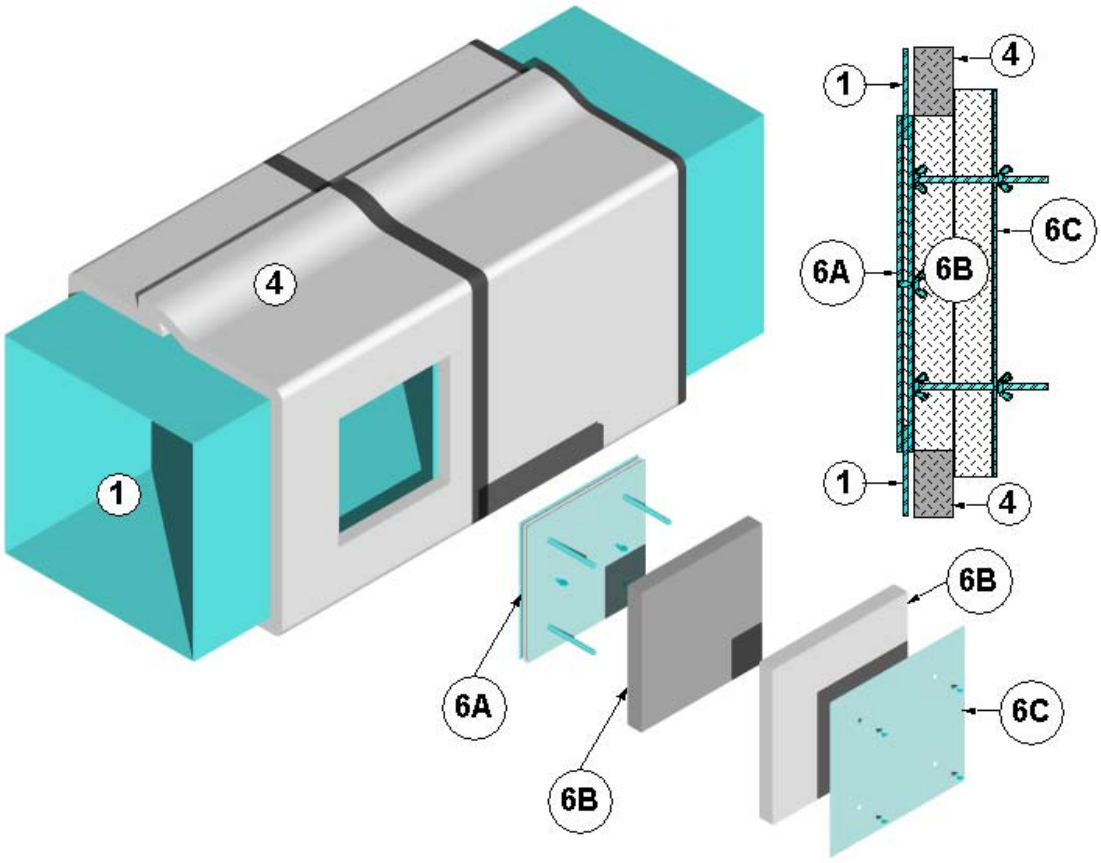

Figure 2 – Pre-fabricated Access Door