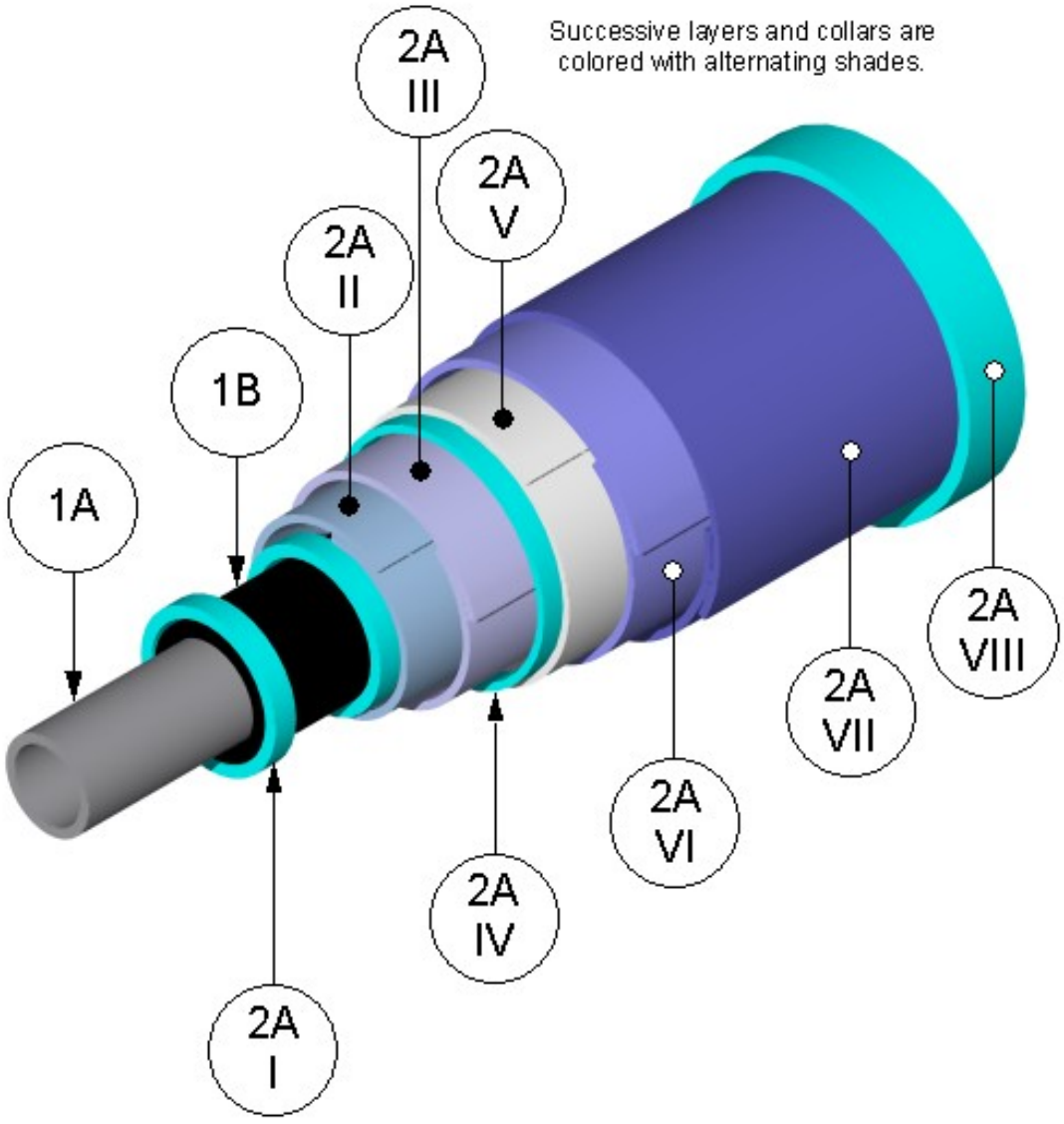
Design Number 3MU/PPI 120-01
(Former OPL Design Number FPE 501)
FIRE-RESISTIVE BARRIER SYSTEM
3M Company
3M Fire Barrier™ Interam™ E54-A Mat
3M Fire Barrier™ Interam™ E-5A-4 Mat
ASTM E1725 (ASTM E119 Exposure)
Fire-Resistive Engulfment Rating – 2 Hours



1. CONDUIT ASSEMBLY ASSEMBLY: Dual-walled conduit assembly constructed of the following materials:

   A. Inner Supply Pipe: Minimum 6 in. diameter Schedule 40 or heavier steel supply pipe. Concentrically positioned inside the outer pipe (Item 1B).

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B. Outer Pipe: Minimum 8 in. diameter Schedule 10 or heavier steel pipe.

2. FIRE-RESISTIVE BARRIER SYSTEM: Use the following fire-resistive barrier system materials: foil faced flexible endothermic mat, aluminum foil tape and endothermic caulking. Prior to installation, verify that the conduit assembly is clean and free of debris and all flammable residue.

A. CERTIFIED MANUFACTURER: 3M Company

CERTIFIED PRODUCT: 3M Fire Barrier™ Interam™ E-5 Series Mat

MODELS: Interam™ E54-A Mat or Interam™ E-5A-4 Mat

MAT MATERIAL: Apply a total of five layers of mat material. After cutting the mat material to the appropriate size, hold it in place with tape, which is used as an installation aid and has no minimum installation requirements. Install the tape as a spiral wrap, for the length of the material, or as individual circumferential pieces. Use enough tape so that the mat material conforms to the required circumference. The assembly details are as follows:

I. First Stand-offs: Cut 1-1/2 in. wide strips of mat material to match the circumference of the conduit assembly (Item 1). Apply these strips 15 in. on center (oc)

II. Layer 1: Install mat material (Item 2A) using its width or length. Add 4 in. to the circumference of the stand-offs (Item 2AI) and cut a piece of mat material (Item 2A). Install the mat material (Item 2A) with the foil face away from the conduit assembly (Item 1) being protected. Overlap the end of the mat material (Item 2A) over its starting edge a minimum of 4 in.. Install the tape as a spiral wrap, for the length of the material, or as individual pieces. Taping the layer 1 of the mat material (Item 2A) to the conduit assembly (Item 1) as a means of restricting slippage is helpful but is not required. Layer 1 creates air pockets between the stand-offs (Item 2AI).

III. Layer 2: Install mat material (Item 2A) using its width or length. Add 4 in. to the circumference of layer 1 (Item 2AII) and cut a piece of mat material (Item 2A). Install the mat material (Item 2A) with the foil face away from the conduit assembly (Item 1) being protected. Overlap the starting edge of layer 2 a minimum of 4 in. over the exposed edge of layer 1 (Item 2AII). Overlap the end of the layer 2 of the mat material (Item 2A) over its starting edge a minimum of 4 in.. Tape the layer 2 of the mat material (Item 2A) to layer 1 (Item 2AII) as a means of restricting slippage is helpful but is not required.

IV. Second Stand-offs: Cut 1-1/2 in. wide strips of mat material (Item 2A) to match the circumference of the conduit assembly (Item 1) wrapped with the layer 1 (Item 2AII) and layer 2 (Item 2AIII). Apply these strips 15 in. oc

V. Layer 3: Install mat material (Item 2A) using its width or length. Add 4 in. to the circumference of the second stand-offs (Item 2AIV) and cut a piece of mat material (Item 2A). Install the mat material (Item 2A) with the foil face away from the conduit assembly (Item 1) being protected. Overlap the end of the mat material (Item 2A) over its starting edge a minimum of 4 inches. Tape the layer 3 of the mat material (Item 2A) to the layer 2 (Item 2AIII) as a means of restricting slippage is helpful but is not required. Layer 3 creates air pockets between the second stand-offs (Item 2AIV).

VI. Layer 4: Install mat material (Item 2A) using its width or length. Add 4 in. to the circumference of layer 3 (Item 2AV) and cut a piece of mat material (Item 2A). Install the mat material (Item 2) with the foil face away from the conduit assembly (Item 1) being protected. Overlap the starting edge of layer 4 a minimum of 4 in. over the exposed edge of layer 3 (Item 2AV). Overlap the end of the layer 4 of the mat material (Item 2A) over its starting edge a minimum of 4 in.. Taping the layer 4 of the mat material

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(Item 2A) to layer 3 (Item 2AV) as a means of restricting slippage; is helpful but is not required.

VII. Layer 5: Install mat material (Item 2A) using its width or length. Add 4 in. to the circumference of layer 4 (Item 2AVI) and cut a piece of mat material (Item 2A). Install the mat material (Item 2A) with the foil face away from the conduit assembly (Item 1) being protected. Overlap the starting edge of layer 5 a minimum of 4 in. over the exposed edge of layer 4 (Item 2AVI). Overlap the end of the layer 5 of the mat material (Item 2A) over its starting edge a minimum of 4 in.. Taping the layer 5 of the mat material (Item 2A) to layer 4 (Item 2AVI) as a means of restricting slippage is helpful but is not required.

VIII. Collars: Cut minimum 4 in. wide strips of mat material (Item 2A) to match the circumference of the conduit assembly (Item 1) wrapped with the layer 5 (Item 2AVII). Apply these collars over all butt jonts and all adjacent sections of Layer 5 (Item 2AVII).

B. CERTIFIED MANUFACTURER: 3M Company

CERTIFIED PRODUCT: 3M Fire Barrier™ Sealants

MODELS: Interam™ FireDam 150 Caulk or Fire Barrier CP 25WB+ Caulk

SEALANT (not shown): Apply to fill circumferential butt joints between adjacent sections of mat material (Item 2A) in all layers. Fill all gaps or voids present along seams greater than 1/8 in. wide.

C. ALUMINUM FOIL TAPE: (Not Shown) Apply aluminum foil tape to layer 5 (Item 2AVII) as follows. Install tape over all exposed sealant (Item 2B) and joints in layer 5 (Item 2AVII). Tape any tears or defects to the outer foil of the mat material (Item 2A) of layer 5 (Item 22AVII).

D. STEEL BANDING: (Not Shown) Apply minimum ½ in. wide x 0.020 in. thick stainless steel bands. Space steel banding maximum 12 in. oc and within 1 in. of edge of all collars.

Note: The test basis for this conduit assembly was ASTM E1725, which was used to determine the expected temperature rise of the conduit assembly's protected unexposed surface. This fire engulfment application was evaluated in accordance with exposure to furnace conditions in accordance with the ASTM E119 standard time-temperature curve, which is used for numerous model building code related applications of this certified product. This application has not been evaluated relative to applications that are susceptible to the ASTM E1529 time-temperature curve.

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