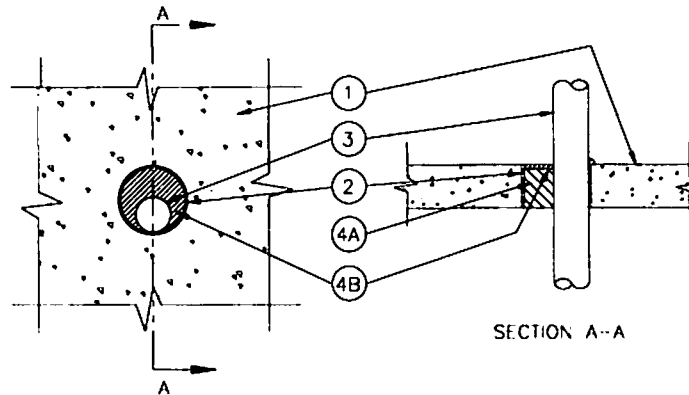




System No. C-AJ-1495
L Rating at Ambient – Less than 1 CFM/ sq. ft.
L Rating at 400° F – Less than 1 CFM/sq. ft.
F Rating – 3 Hr
T Rating – 1/4 Hr



1. **Floor or Wall Assembly** – Min 4-1/2 in. thick lightweight or normal weight concrete (100-150 pcf). Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 8 in.
See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Metallic Sleeve** – (Optional) – Sleeve to be cast or grouted into floor or wall assembly, flush with floor or both wall assembly. The following metallic sleeves may be used within the firestop system:
 - A. Nom 8 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve.
 - B. Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) sleeve.
3. **Through Penetrants** – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and sleeve or periphery of opening shall be min 0 in. (point contact) to max 3-1/2 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. **Steel Pipe** – Nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 4 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Conduit** – Nom 4 in. diam (or smaller) steel electrical metallic tubing or rigid steel conduit.
 - D. **Copper Tubing** – Nom 3 in. diam (or smaller) Type L (or heavier) copper tube.
 - E. **Copper Pipe** – Nom 3 in. diam (or smaller) Regular (or heavier) copper pipe.
4. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 4 in. or 4-1/4 in. thickness of min 4 pcf density mineral wool batt insulation for sealants B1 and B2, respectively, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 4B).
 - B1. **Fill Void or Cavity Material* – Sealant** – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. At point contact location between penetrant and sleeve or concrete, a 1/2 in. diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
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 - B2. **Fill Void or Cavity Material* – Sealant** – Min 1/4 in. thickness of fill material applied within annulus, flush with top surface of floor or min 1/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between penetrant and sleeve or concrete, a min 1/4 in. diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
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**Firestop Products & Systems
Submittal Documentation**

- Service Penetrations
- Construction Joints/Gaps

Project: _____

Contractor: _____

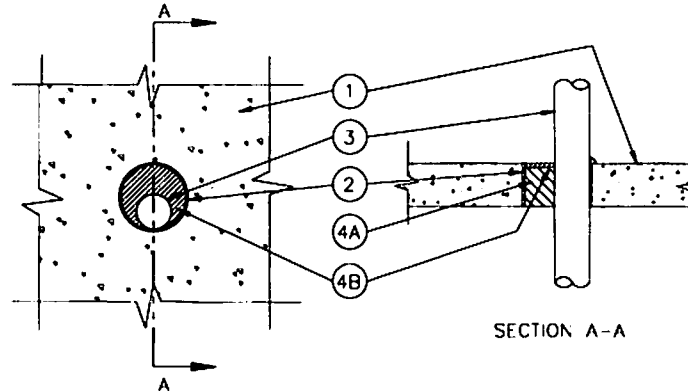
Installer: _____

Supplier: John Wagner & Associates dba
Grabber Construction Products
866-237-GRAB(4722)

Distributor: _____



System No. C-AJ-1495
L Rating at Ambient – Less than 1 CFM/ sq. ft.
L Rating at 400° F – Less than 1 CFM/sq. ft.
F Rating – 3 Hr
T Rating – 1/4 Hr



1. **Floor or Wall Assembly** – Min 4-1/2 in. thick lightweight or normal weight concrete (100-150 pcf). Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 8 in.
See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Metallic Sleeve** – (Optional) – Sleeve to be cast or grouted into floor or wall assembly, flush with floor or both wall assembly. The following metallic sleeves may be used within the firestop system:
 - A. Nom 8 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve.
 - B. Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) sleeve.
3. **Through Penetrants** – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and sleeve or periphery of opening shall be min 0 in. (point contact) to max 3-1/2 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. **Steel Pipe** – Nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 4 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Conduit** – Nom 4 in. diam (or smaller) steel electrical metallic tubing or rigid steel conduit.
 - D. **Copper Tubing** – Nom 3 in. diam (or smaller) Type L (or heavier) copper tube.
 - E. **Copper Pipe** – Nom 3 in. diam (or smaller) Regular (or heavier) copper pipe.
4. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 4 in. or 4-1/4 in. thickness of min 4 pcf density mineral wool batt insulation for sealants B1 and B2, respectively, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 4B).
 - B1. **Fill Void or Cavity Material* – Sealant** – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. At point contact location between penetrant and sleeve or concrete, a 1/2 in. diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
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 - B2. **Fill Void or Cavity Material* – Sealant** – Min 1/4 in. thickness of fill material applied within annulus, flush with top surface of floor or min 1/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between penetrant and sleeve or concrete, a min 1/4 in. diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
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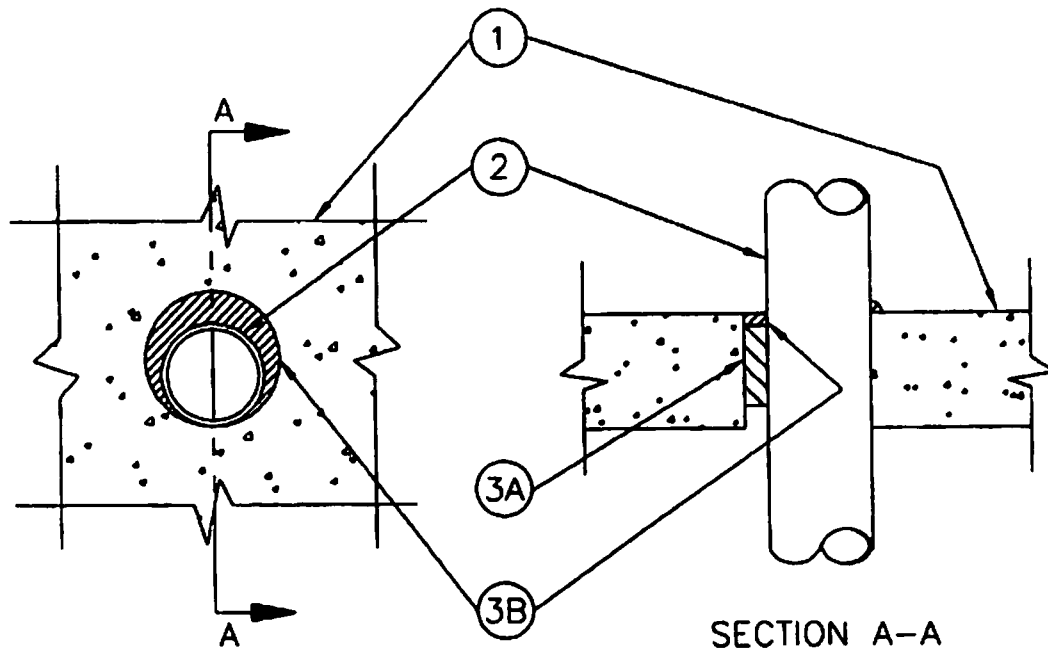
*Bearing the UL Classification Marking



System No. C-AJ-2465

F Rating - 2 Hr

T Rating - 2 Hr



1. **Floor or Wall Assembly** – Min 5 in. thick normal weight (150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 3-3/4 in. See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Nonmetallic Pipe** – Nom 2 in. diam (or smaller) SDR 11 chlorinated polyvinyl chloride (CPVC) pipe for use in closed (process or supply) piping systems. One pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe and periphery of opening shall be min 3/8 in. to max 1 in. Pipe to be rigidly supported on both sides of floor or wall assembly.
3. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 3-1/2 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 3B).
 - B. **Fill, Void or Cavity Material* – Sealant** – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall.

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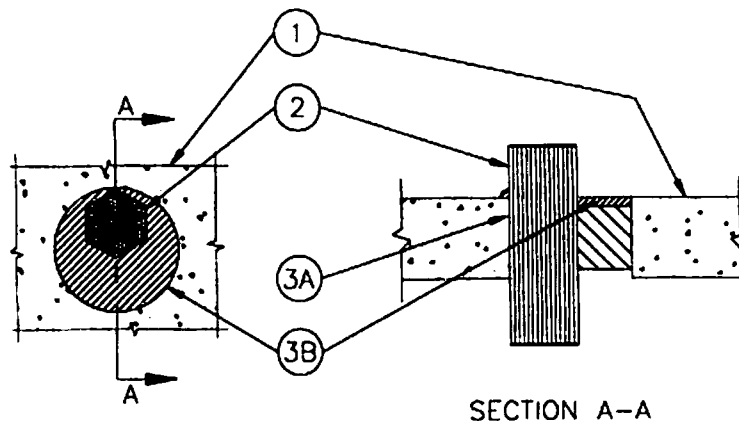
*Bearing the UL Classification Marking



System No. C-AJ-3230

F Rating - 3 Hr

T Rating - 1/2 Hr



1. **Floor or Wall Assembly** – Min 5 in. thick normal weight (150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 10-1/4 in.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Cables** – Aggregate cross-sectional area of cable in opening to be max 27 percent of the cross-sectional area of the opening. The annular space between cables and periphery shall be min 0 in. (point contact) to max 3-1/2 in. Cables to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
 - A. 1/C 750 kcmil (or smaller) copper conductor polyvinyl chloride (PVC) jacketed aluminum clad or steel clad TEK cable with cross-linked polyethylene (XLPE) insulation.
 - B. 3/C 350 kcmil (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TEK cable with XLPE insulation.
 - C. 4/C No. 14 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TEK cable with XLPE insulation.
 - D. Max 25 pair No. 20 AWG (and smaller) copper conductor PVC jacketed cable with PVC insulation.
 - E. 1/C 400 kcmil (or smaller) aluminum or copper conductor cable with XLPE insulation.
 - F. 4/C No. 6 AWG (or smaller) copper conductor PVC jacketed cable with XLPE insulation
 - G. **Through Penetration Product*** – Max 3/C No. 2 AWG (or smaller) aluminum or steel clad **Armored Cable** or aluminum or steel clad **Metal Clad Cable** with copper conductors.
3. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 3-1/2 in thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 3B).
 - B. **Fill, Void or Cavity Material* – Sealant** – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. Sealant to be forced into interstices of cable group to max extent possible.

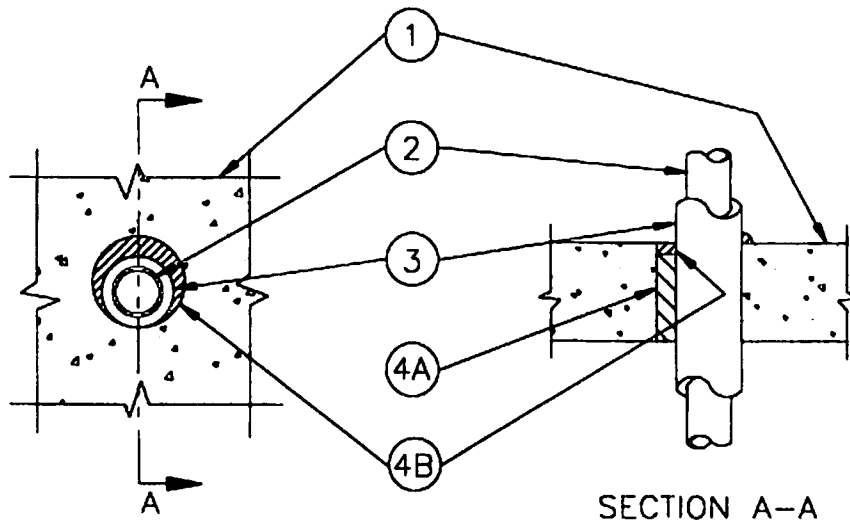
ALFEX CORP

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*Bearing the UL Classification Marking



System No. C-AJ-5261
F Rating - 2 Hr
T Rating - 3/4 & 1-1/4 Hr (See Item 2)



1. **Floor or Wall Assembly** – Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 4-1/2 in. See **Concrete Blocks (CAZT)** category in the Fire Resistance Directory for names of manufacturers.
2. **Through Penetrants** – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. **Steel Pipe** – Nom 2 in. diam (or smaller) Schedule ST 40 (or heavier) steel pipe.
 - B. **Iron Pipe** – Nom 2 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Tubing** – Nom 2 in. diam (or smaller) Type L (or heavier) copper tubing.
 - D. **Copper Pipe** – Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.**T Rating is 1-1/4 Hr for penetrants A, B. T Rating is 3/4 Hr for penetrants C and D.**
3. **Tube Insulation – Plastics+** – Nom 3/4 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated pipe and the edge of the through opening shall be min 0 in. (point contact) to max 7/8 in. See **Plastics+ (QMFZ2)** category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. **Firestop System** – The firestop system shall consist of the following:
 - A. **Packing Material** – Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Material* – Sealant** – Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.

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+Bearing the UL Recognized Component Mark

*Bearing the UL Classification Marking