

SYSTEM N° C-AJ-2574
XHEZ.C-AJ-2574
THROUGH-PENETRATION FIRESTOP SYSTEMS

DESIGN/SYSTEM/CONSTRUCTION/ASSEMBLY USAGE DISCLAIMER:

- AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED IN ALL CASES AS TO THE PARTICULAR REQUIREMENTS COVERING THE INSTALLATION AND USE OF UL CERTIFIED PRODUCTS, EQUIPMENT, SYSTEM, DEVICES, AND MATERIALS.
- AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED BEFORE CONSTRUCTION.
- FIRE RESISTANCE ASSEMBLIES AND PRODUCTS ARE DEVELOPED BY THE DESIGN SUBMITTER AND HAVE BEEN INVESTIGATED BY UL FOR COMPLIANCE WITH APPLICABLE REQUIREMENTS. THE PUBLISHED INFORMATION CANNOT ALWAYS ADDRESS EVERY CONSTRUCTION NUANCE ENCOUNTERED IN THE FIELD.
- WHEN FIELD ISSUES ARISE, IT IS RECOMMENDED THE FIRST CONTACT FOR ASSISTANCE BE THE TECHNICAL SERVICE STAFF PROVIDED BY THE PRODUCT MANUFACTURER NOTED FOR THE DESIGN. USERS OF FIRE RESISTANCE ASSEMBLIES ARE ADVISED TO CONSULT THE GENERAL GUIDE INFORMATION FOR EACH PRODUCT CATEGORY AND EACH GROUP OF ASSEMBLIES. THE GUIDE INFORMATION INCLUDES SPECIFICS CONCERNING ALTERNATE MATERIALS AND ALTERNATE METHODS OF CONSTRUCTION.
- ONLY PRODUCTS WHICH BEAR UL'S MARK ARE CONSIDERED CERTIFIED.

SYSTEM N° C-AJ-2574
F RATING 2 HR
T RATING 0 HR
L RATING AT AMBIENT LESS THAN 1 CFM/SQ FT
L RATING AT 400 F LESS THAN 1 CFM/SQ FT
W RATING CLASS 1 (SEE ITEM 4B)

SECTION A-A

1. FLOOR OR WALL ASSEMBLY – MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. SEE TABLE UNDER ITEM 3B FOR MAX DIAM OF OPENING.

2. STEEL SLEEVE – (OPTIONAL) – MIN SLEEVE DAM NOT TO EXCEED MAX OPENING SIZE SPECIFIED UNDER ITEM 3B. SLEEVE SHALL BE SCHEDULE 10 (OR HEAVIER) STEEL PIPE OR MIN NO. 28 OR (0.022 IN. OR 0.56 MM THICK) SHEET STEEL SLEEVE WITH SQUARE ANCHOR FLANGE SPOT WELDED TO THE SLEEVE AT APPROX MID-HEIGHT. STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES.

3. THROUGH PENETRANTS – ONE NONMETALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE TUBING AND THE EDGE OF THE OPENING SHALL BE MIN 1/8 IN. TO (3.2 MM) MAX 1/4 IN. (6 MM) PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES OF PIPE OR CONDUIT MAY BE USED:

- A) POLYVINYL CHLORIDE (PVC) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- B) CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SDR17 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- C) RIGID NONMETALLIC CONDUIT+ – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NECA NO. 70).
- D) ELECTRICAL NONMETALLIC CONDUIT + – NOM 4 IN. (102 MM) DIA (OR SMALLER) PVC TUBING INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NECA NO. 70).

4. FIRESTOP SYSTEM – THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A) FILL, VOID OR CAVITY MATERIAL+ – WRAP STRIP – SEE TABLE UNDER ITEM 3B FOR MIN SIZE OF INTUMESCENT WRAP STRIP. THE WRAP STRIP IS CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE PIPE ONCE AND SLD INTO THE ANNULAR SPACE AND HELD IN PLACE WITH A LAYER OF ALUMINUM FOIL TAPE. THE BOTTOM EDGE OF THE WRAP STRIP SHALL BE RECESSED MAX 1/2 IN. (13 MM) FROM THE BOTTOM SURFACE OF THE CONCRETE FLOOR. IN WALLS, THE WRAP STRIP SHALL BE INSTALLED ON BOTH SIDES OF THE WALL SUCH THAT THE EXPOSED EDGE OF THE WRAP STRIP IS RECESSED 1/4 IN. (6 MM) FROM EACH SIDE OF THE WALL.

SPECIFIED TECHNOLOGIES INC – SPECIAL SERIES SSW125, SSW250, OR SSW375 WRAP STRIP.

B) FILL, VOID OR CAVITY MATERIAL+ – SEALANT – MIN 1/4 IN. (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.

SPECIFIED TECHNOLOGIES INC – SPECIAL SERIES SSC SEALANT, SPECIAL LD SEALANT, PENSL 300 SEALANT OR SPECIAL SERIES SL300 SEALANT FOR FLOORS OR WALLS AND PENSL 300 S/L SEALANT OR SPECIAL SERIES SL300S SEALANT FOR FLOORS ONLY.

W RATING APPLIES ONLY WHEN PENSL 300, SPECIAL SERIES SL300, PENSL 300 S/L OR SPECIAL SERIES SL300S SEALANTS ARE USED.

NOM PIPE DIA, IN (MM)	WRAP STRIP	WRAP STRIP SIZE, THICK, X WIDTH, IN. (MM)	MAX DIA OF OPENING, IN. (MM)	ANNULAR SPACE IN. (MM)	
				MIN	MAX
2 (51)	SSW125	1/8 x 1-1/2 (3 x 38)	3 (76)	1/8 (3)	1/2 (13)
3 (76)	SSW250	1/4 x 1-1/2 (6 x 38)	5 (127)	3/8 (10)	1-1/8 (29)
4 (102)	SSW375	3/8 x 1-1/2 (9.6 x 38)	6 (152)	3/8 (10)	1-1/8 (29)

* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

SYSTEM N° C-AJ-2207
XHEZ.C-AJ-2207
THROUGH-PENETRATION FIRESTOP SYSTEMS

DESIGN/SYSTEM/CONSTRUCTION/ASSEMBLY USAGE DISCLAIMER:

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- AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED BEFORE CONSTRUCTION.
- FIRE RESISTANCE ASSEMBLIES AND PRODUCTS ARE DEVELOPED BY THE DESIGN SUBMITTER AND HAVE BEEN INVESTIGATED BY UL FOR COMPLIANCE WITH APPLICABLE REQUIREMENTS. THE PUBLISHED INFORMATION CANNOT ALWAYS ADDRESS EVERY CONSTRUCTION NUANCE ENCOUNTERED IN THE FIELD.
- WHEN FIELD ISSUES ARISE, IT IS RECOMMENDED THE FIRST CONTACT FOR ASSISTANCE BE THE TECHNICAL SERVICE STAFF PROVIDED BY THE PRODUCT MANUFACTURER NOTED FOR THE DESIGN. USERS OF FIRE RESISTANCE ASSEMBLIES ARE ADVISED TO CONSULT THE GENERAL GUIDE INFORMATION FOR EACH PRODUCT CATEGORY AND EACH GROUP OF ASSEMBLIES. THE GUIDE INFORMATION INCLUDES SPECIFICS CONCERNING ALTERNATE MATERIALS AND ALTERNATE METHODS OF CONSTRUCTION.
- ONLY PRODUCTS WHICH BEAR UL'S MARK ARE CONSIDERED CERTIFIED.

SYSTEM N° C-AJ-2207
F RATING 2 AND 3 HR (SEE ITEM 2)
T RATINGS 1/4, 2 AND 3 HR (SEE ITEM 2)
L RATING AT AMBIENT LESS THAN 1 CFM/SQ FT
L RATING AT 400 F 3 CFM/SQ FT

SECTION A-A

1. FLOOR OR WALL ASSEMBLY – MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIA OF OPENING IS 5 IN.

2. THROUGH PENETRANTS – ONE NONMETALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE TUBING AND THE EDGE OF THE OPENING SHALL BE MIN 1/8 IN. TO (3.2 MM) MAX 1/4 IN. (6 MM). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES OF PIPE OR CONDUIT MAY BE USED:

- A) POLYVINYL CHLORIDE (PVC) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
- B) CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SDR17 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- C) RIGID NONMETALLIC CONDUIT+ – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NECA NO. 70).
- D) ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- E) FIRE RETARDANT POLYPROPYLENE (FRPP) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 FRPP PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- F) POLYVINYL CHLORIDE-XFR (PVC-XFR) PIPE – NOM 4 IN. (102 MM) DIA (OR SMALLER) SCHEDULE 40 SOLID CORE PVC-XFR PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- G) CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE – NOM 3 IN. (76 MM) DIA (OR SMALLER) SDR11 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.

IFEX INC AQUARISE

F AND T RATINGS ARE 2 HR FOR PVC-XFR PIPES. T RATING FOR ITEM G IS 1/4 HR.

3. FIRESTOP SYSTEM – THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A) FILL, VOID OR CAVITY MATERIAL+ – SEALANT – MIN 1/4 IN. (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH THE TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL ASSEMBLY.

NUCO INC SELF SEAL GG-200, SELF SEAL GG-266

B) FIRESTOP DEVICE – COLLAR – COLLAR TO BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. COLLAR TO BE INSTALLED AND LATCHED AROUND PIPE AND SECURED TO BOTH SIDES OF WALL WITH MIN 1/4 IN. (6 MM) DIA BY MIN 1-1/4 IN. (32 MM) LONG STEEL CONCRETE ANCHORS IN CONJUNCTION WITH STEEL WASHERS AND MIN 1-1/4 IN. (32 MM) DIAM STEEL FENDER WASHERS. MIN OF TWO, THREE OR FOUR ANCHOR BOLTS, SYMMETRICALLY LOCATED, FOR NOM 1-1/2 AND 2 IN. (38 AND 51 MM) DIA, NOM 3 IN. (76 MM) DIA AND NOM 4 IN. (102 MM) DIA PIPES, RESPECTIVELY.

NUCO INC SELF SEAL SSC COLLAR.

*Bearing the UL Classification Marking
*Bearing the UL Listing Mark

SYSTEM N° C-AJ-2104
XHEZ.C-AJ-2104
THROUGH-PENETRATION FIRESTOP SYSTEMS

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- AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED BEFORE CONSTRUCTION.
- FIRE RESISTANCE ASSEMBLIES AND PRODUCTS ARE DEVELOPED BY THE DESIGN SUBMITTER AND HAVE BEEN INVESTIGATED BY UL FOR COMPLIANCE WITH APPLICABLE REQUIREMENTS. THE PUBLISHED INFORMATION CANNOT ALWAYS ADDRESS EVERY CONSTRUCTION NUANCE ENCOUNTERED IN THE FIELD.
- WHEN FIELD ISSUES ARISE, IT IS RECOMMENDED THE FIRST CONTACT FOR ASSISTANCE BE THE TECHNICAL SERVICE STAFF PROVIDED BY THE PRODUCT MANUFACTURER NOTED FOR THE DESIGN. USERS OF FIRE RESISTANCE ASSEMBLIES ARE ADVISED TO CONSULT THE GENERAL GUIDE INFORMATION FOR EACH PRODUCT CATEGORY AND EACH GROUP OF ASSEMBLIES. THE GUIDE INFORMATION INCLUDES SPECIFICS CONCERNING ALTERNATE MATERIALS AND ALTERNATE METHODS OF CONSTRUCTION.
- ONLY PRODUCTS WHICH BEAR UL'S MARK ARE CONSIDERED CERTIFIED.

SYSTEM N° C-AJ-2104
F RATING 2 HR
T RATING 0 HR
L RATING AT AMBIENT LESS THAN 1 CFM/SQ FT
L RATING AT 400 F LESS THAN 1 CFM/SQ FT
W RATING CLASS 1 (SEE ITEM 3B)

SECTION A-A

1. FLOOR OR WALL ASSEMBLY – MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE FLOOR OR MIN 5 IN. (127 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. THROUGH PENETRANTS – ONE NONMETALLIC PIPE TO BE COVERED WITHIN THE FIRESTOP SYSTEM. A MIN ANNULAR SPACE OF 1/8 IN. (3 MM) TO 11/16 IN. (17 MM) IS REQUIRED WITHIN THE FIRESTOP SYSTEM (SEE ITEM 4). PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES MAY BE USED:

- A) POLYVINYL CHLORIDE (PVC) PIPE – NOM 8 IN. (203 MM) DIA (OR SMALLER) SCHEDULE 40 PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- B) FRAM REINFORCED POLYPROPYLENE (FRPP) PIPE – NOM 8 IN. (203 MM) DIA (OR SMALLER) SCHEDULE 40 FRPP PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- C) CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE – NOM 8 IN. (203 MM) DIA (OR SMALLER) SDR 13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.
- D) RIGID NONMETALLIC CONDUIT+ – NOM 6 IN. (152 MM) DIA (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NECA NO. 70).

3. FIRESTOP SYSTEM – THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

- A) FLOORING MATERIAL – MIN 4 IN. (102 MM) THICKNESS OF 4 PPT (64 KG/M2) MINERAL WOOL FIBER PACKED INTO OPENING AS A PERMANENT FIRM PACKING MATERIAL. TO BE RECESSED FROM TOP SURFACE OF FLOOR OR 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. (13 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL.

SPECIFIED TECHNOLOGIES INC – SPECIAL SERIES SSS SEALANT, SPECIAL LD SEALANT, PENSL 300 SEALANT OR SPECIAL SERIES SL 300 SEALANT FOR FLOORS AND WALLS AND PENSL 300 S/L SEALANT OR SPECIAL SERIES SL 300S SEALANT FOR FLOORS ONLY.

W RATING APPLIES ONLY WHEN PENSL 300, SPECIAL SERIES SL 300, PENSL 300 S/L OR SPECIAL SERIES SL 300S SEALANTS ARE USED.

C) ALUMINUM FOIL TAPE – (NOT SHOWN) – NOM 3 IN. (76 MM) THICK PRESSURE SENSITIVE ALUMINUM FOIL TAPE WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE THROUGH PENETRANT WITH 4 IN. (102 MM) WIDE OVERLAP ALONG ITS PERIMETER. DUCT TAPE SHALL BE APPLIED AGAINST THE BOTTOM SURFACE OF THE CONCRETE FLOOR OR BOTH SURFACES OF THE WALL AND EXTEND A MIN 5 IN. (127 MM) BELOW THE BOTTOM SURFACE OF THE CONCRETE FLOOR OR BOTH SURFACES OF THE WALL.- D) FILL, VOID OR CAVITY MATERIAL+ – WRAP STRIP – NOM 1/8 IN. (3.2 MM) OR 3/16 IN. (4.8 MM) THICK INTUMESCENT MATERIAL FACED ON BOTH SIDES WITH A PLASTIC FILM SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. IN FLOOR ASSEMBLIES, TWO STACKS OF WRAP STRIPS ARE INDIVIDUALLY WRAPPED AROUND THE THROUGH PENETRANT WITH THE ENDS BUTTED AND HELD IN PLACE WITH WIGGING TAPE. BUTTED ENDS IN SUCCESSIVE LAYERS MAY BE ALIGNED OR OFFSET. THE EDGE OF THE WRAP STRIPS SHALL ABUT THE SURFACE OF THE CONCRETE FLOOR OR WALL. IN FLOOR ASSEMBLIES, THE TWO STACKS OF WRAP STRIPS ARE INSTALLED ON THE BOTTOM SIDE OF THE CONCRETE FLOOR. IN WALL ASSEMBLIES, THE TWO STACKS OF WRAP STRIPS ARE INSTALLED ON EACH SIDE OF THE CONCRETE WALL. THE NUMBER OF LAYERS OF WRAP STRIPS PER STACK IS DEPENDENT UPON THE DIA. OF THE THROUGH-PENETRANT AS TABULATED BELOW.

DIAM OF THROUGH PENETRANT, IN (MM)	LAYERS OF WRAPS STRIP PER STACK
6 (152)	3
8 (203)	4

SPECIFIED TECHNOLOGIES INC – Specified Bulb Wrap Strip or Specified BulbZ Wrap Strip

C) STEEL COLLAR – COLLAR FABRICATED FROM COILS OF F1922 0.020 IN. (0.7 MM) THICK (NO. 22 MSG) GALV SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. COLLAR SHALL BE NOM 4 IN. (102 MM) DEEP WITH MIN 3/4 IN. (19 MM) DIA AND BE 2 IN. (51 MM) LONG AND HAS TABS FOR ATTACHMENT TO THE CONCRETE FLOOR OR WALL. RETENER TABS, 3/4 IN. (19 MM) WIDE EXTENDING DOWN TO 3/8 IN. (9.5 MM) WIDE AND LOCATED OPPOSITE THE ANCHOR TABS ARE FOLDED 90 DEGREES TOWARD THE THROUGH PENETRANT SURFACE TO MAINTAIN THE ANNULAR SPACE AROUND THE PIPE AND TO RETAIN THE WRAP STRIPS. STEEL COLLAR WRAPPED AROUND WRAP STRIPS AND THROUGH PENETRANT WITH A 1 IN. (25 MM) WIDE OVERLAP ALONG ITS PERIMETER. COLLAR STEEL TAPPED AROUND WRAP STRIPS AND THROUGH PENETRANT USING MIN 1/2 IN. (13 MM) WIDE BY 10.00 IN. (254 MM) THICK STAINLESS STEEL HOSE CLAMP SPACED 2 IN. (51 MM) OR COLLAR SEALED TO CONCRETE SURFACE WITH 1/4 IN. (6 MM) DIA BY MIN 1-1/4 IN. (32 MM) LONG STEEL CONCRETE SCREWS IN CONJUNCTION WITH MIN 1 IN. (25 MM) DIA STEEL FENDER WASHERS. AS AN ALTERNATE TO THE STEEL CONCRETE SCREWS, NOM 1-1/4 IN. (32 MM) LONG STEEL POWDER ACTUATED FASTENERS PROVIDED WITH 3/4 IN. (19 MM) DIA STEEL WASHERS MAY BE USED TO SECURE DEVICE.

4. FIRESTOP DEVICE – (NOT SHOWN) AS AN OPTION TO THE WRAP STRIP AND THE STEEL COLLAR (ITEM NO. 3D AND 3E), A FIRESTOP DEVICE CONSISTING OF STEEL COLLAR LINED WITH AN INTUMESCENT MATERIAL SEALED TO THE SPECIFIC DIA. OF THE THROUGH PENETRANT MAY BE USED FOR NONMETALLIC THROUGH PENETRANTS HAVING A NOM DIA OF 6 IN. (152 MM) OR LESS. DEVICE SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. IN FLOORS, THE DEVICE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE CONCRETE FLOOR. IN WALL ASSEMBLIES, THE DEVICE SHALL BE INSTALLED ON EACH SIDE OF THE CONCRETE WALL. DEVICE SHALL BE SEALED TO CONCRETE SURFACE WITH 1/8 IN. (3 MM) DIA BY MIN 2-1/2 IN. (64 MM) DIA PIPE OR CONDUIT AND SHALL BE MAX 1/4 IN. (6 MM) FOR PIPE OR CONDUIT UNDER THAN 2-1/2 IN. (64 MM) DIA.

SPECIFIED TECHNOLOGIES INC – SPECIAL FIRESTOP COLLAR, SPECIAL LD COLLAR OR SPECIAL SSC COLLAR. WHEN SPECIAL LD COLLAR OR SPECIAL SSC COLLAR ARE USED, THE MIN ANNULAR SPACE SHALL BE 1/8 IN. (3 MM) FOR MAX 2-1/2 IN. (64 MM) DIA PIPE OR CONDUIT AND SHALL BE MAX 1/4 IN. (6 MM) FOR PIPE OR CONDUIT UNDER THAN 2-1/2 IN. (64 MM) DIA.

* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

SYSTEM N° C-AJ-2104
F RATING 2 HR
T RATING 0 HR
L RATING AT AMBIENT LESS THAN 1 CFM/SQ FT
L RATING AT 400 F LESS THAN 1 CFM/SQ FT
W RATING CLASS 1 (SEE ITEM 3B)

SECTION A-A

1. Floor or Wall Assembly – Min 4-1/2 in. (114 mm) 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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A) Steel Pipe – Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B) Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

(Note: L Ratings apply only when FS-ONE Sealant is used).

*Bearing the UL Classification Marking

HILTI
FIRESTOP SYSTEMS

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CLASSIFIED
UL
US

SYSTEM NO. C-AJ-1149
F RATING – 2 Hr
T Rating – 0 Hr
L Rating At Ambient – Less Than 1 CFM/sq ft
L Rating At 400 F – 4 CFM/sq ft

SECTION A-A

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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A) Steel Pipe – Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B) Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

(Note: L Ratings apply only when FS-ONE Sealant is used).

*Bearing the UL Classification Marking

HILTI
FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 20, 2004

CLASSIFIED
UL
US

SYSTEM NO. C-AJ-7023
JANUARY 06, 1999
F RATING – 2 Hr
T RATING – 0 Hr

SECTION A-A

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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A) Steel Pipe – Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B) Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

(Note: L Ratings apply only when FS-ONE Sealant is used).

*Bearing the UL Classification Marking

HILTI
FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 20, 2004

CLASSIFIED
UL
US

SYSTEM NO. C-AJ-2488
F Rating – 2 Hr
T Rating – 0 Hr

SECTION A-A

1. Floor or Wall Assembly – Min 2-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks *. See Table under Item 3B for max diam of opening. See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through-Penetrants – One nonmetallic pipe or conduit installed within the firestop system. See Table under Item 3B for annular space required in the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes may be used:

- A) Polyvinyl Chloride (PVC) Pipe – Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
- B) Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 4 in. diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
- C) Acrylonitrile Butadiene Styrene (ABS) Pipe – Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

3. Firestop System – The firestop system shall consist of the following:

A) Fill, Void or Cavity Material+ Wrap Strip – See Table under Item 3B for min size of intumescent wrap strip. The wrap strip is continuously wrapped around the outer circumference of the pipe once and slid into the annular space and held in place with integral fastening tape. The top edge of the wrap strip shall be recessed 1/4 in. from the top surface of the concrete floor. In walls, the wrap shall be installed on both surfaces of the wall such that the exposed edge of the wrap strip is flush with each side of the wall.

Norm Pipe Diam, in.	Wrap Strip	Wrap Strip Size Thick. x width, in.	Max Diam of Opening, in.	ANNULAR SPACE MINIMUM	ANNULAR SPACE MAXIMUM
1-1/2	CP 648S – 1.5 US	3/16 x 1	3"	3/16"	3/4"
2	CP 648S – 2 US	3/16 x 1	3-1/2"	3/16"	15/16"
3	CP 648S – 3 US	4	4"	3/16"	5/16"
4	CP 648S – 4 US	6	6"	3/8"	1-1/8"

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HILTI
FIRESTOP SYSTEMS

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CLASSIFIED
UL
US

SYSTEM NO. C-AJ-1149
F Rating – 2 Hr
T Rating – 0 Hr
L Rating At Ambient – Less Than 1 CFM/sq ft
L Rating At 400 F – 4 CFM/sq ft

SECTION A-A

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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A) Steel Pipe – Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B) Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

(Note: L Ratings apply only when FS-ONE Sealant is used).

*Bearing the UL Classification Marking

HILTI
FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 20, 2004

CLASSIFIED
UL
US

SYSTEM NO. C-AJ-7023
JANUARY 06, 1999
F RATING – 2 Hr
T RATING – 0 Hr

SECTION A-A

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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A) Steel Pipe – Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
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- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

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HILTI
FIRESTOP SYSTEMS

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CLASSIFIED
UL
US

SYSTEM NO. C-AJ-7023
JANUARY 06, 1999
F RATING – 2 Hr
T RATING – 0 Hr

SECTION A-A

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 12 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 within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be 0 in (point contact) to max 1-1/4 in. The following types and sizes of metallic pipes, conduits or tubing may be used:

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- C) Copper Tubing – Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
- D) Copper Pipe – Nom 4 in. dia. diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Min 3 in. thickness of min 4 pcf mineral wool batt insulation for nom 4 in. diam (or smaller) pipes, conduits or tubings and a min 4 in. thickness of min 4 pcf mineral wool batt insulation for pipe greater than nom 4 in. diam, 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.

4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

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CLASSIFIED
UL
US

SYSTEM NO. C-AJ-7023
JANUARY 06, 1999
F RATING – 2 Hr
T RATING – 0 Hr

SECTION A-A

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4. Fill, Void or Cavity Material+ – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with the top surface of floor or both surfaces of wall. At the point of contact location between pipe and concrete, a min 1/2 in. diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606 or FS-ONE Sealant.

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CLASSIFIED
UL
US

SYSTEM NO. C-AJ-7023
JANUARY 06, 1999
F RATING – 2 Hr
T RATING – 0 Hr