

SECTION 07 84 13.16
THROUGH-PENETRATION FIRESTOP SYSTEMS

1.1 GENERAL

1.01 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2023a.
- C. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems; 2020a.
- D. UL 1479 - Standard for Fire Tests of Penetration Firestops; Current Edition, Including All Revisions.

DESCRIPTION OF WORK:

1. THIS SPECIFICATION COVERS THE FURNISHING AND INSTALLATION OF MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS. PRODUCTS SHALL BE AS FOLLOWS OR AS DIRECTED BY THE OWNER. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE PRODUCT MANUFACTURER'S RECOMMENDATIONS. DEMOLITION AND REMOVAL OF MATERIALS SHALL BE AS REQUIRED TO SUPPORT THE WORK.

SUMMARY

1. THIS SECTION INCLUDES THROUGH-PENETRATION FIRESTOP SYSTEMS FOR PENETRATIONS THROUGH FIRE RESISTANCE-RATED CONSTRUCTIONS, INCLUDING BOTH EMPTY OPENINGS AND OPENINGS CONTAINING PENETRATING ITEMS.

PERFORMANCE REQUIREMENTS

GENERAL: FOR PENETRATIONS THROUGH FIRE-RESISTANCE-RATED CONSTRUCTIONS, INCLUDING BOTH EMPTY OPENINGS AND OPENINGS CONTAINING PENETRATING ITEMS, PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS THAT ARE PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO REQUIREMENTS INDICATED, RESIST PASSAGE OF SMOKE AND OTHER GASES, AND MAINTAIN ORIGINAL FIRE-RESISTANCE RATING OF CONSTRUCTION PENETRATED.

RATED SYSTEMS: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS WITH THE FOLLOWING RATINGS DETERMINED PER ASTM E814 OR UL 1479:

F-RATED SYSTEMS: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS WITH F-RATINGS INDICATED, BUT NOT LESS THAN THAT EQUALING OR EXCEEDING FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED.

T-RATED SYSTEMS: FOR THE FOLLOWING CONDITIONS, PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS WITH T-RATINGS INDICATED, AS WELL AS F-RATINGS, WHERE SYSTEMS PROTECT PENETRATING ITEMS EXPOSED TO POTENTIAL CONTACT WITH ADJACENT MATERIALS IN OCCUPIABLE FLOOR AREAS:

PENETRATIONS LOCATED OUTSIDE WALL CAVITIES.

PENETRATIONS LOCATED OUTSIDE FIRE-RESISTANCE-RATED SHAFT ENCLOSURES.

C. L-RATED SYSTEMS: WHERE THROUGH-PENETRATION FIRESTOP SYSTEMS ARE INDICATED IN SMOKE BARRIERS, PROVIDE OR PROVIDE, AS DIRECTED, THROUGH-PENETRATION FIRESTOP SYSTEMS WITH L RATINGS INDICATED OR OF NOT MORE THAN, AS DIRECTED, 3.0 CFM/SQ. FT (0.01524CU. M/S X SQ. M) AT BOTH AMBIENT TEMPERATURES AND 400 DEGREES FAHRENHEIT.

3. FOR THROUGH-PENETRATION FIRESTOP SYSTEMS EXPOSED TO VIEW, TRAFFIC, MOISTURE, AND PHYSICAL DAMAGE, PROVIDE PRODUCTS THAT, AFTER CURING, DO NOT DETERIORATE WHEN EXPOSED TO THESE CONDITIONS BOTH DURING AND AFTER CONSTRUCTION.

FOR PIPING PENETRATIONS FOR PLUMBING AND WET-PIPE SPRINKLER SYSTEMS, PROVIDE MOISTURE RESISTANT THROUGH-PENETRATION FIRESTOP SYSTEMS.

FOR FLOOR PENETRATIONS WITH ANNULAR SPACES EXCEEDING 4 INCHES IN WIDTH AND EXPOSED TO POSSIBLE LOADING AND TRAFFIC, PROVIDE FIRESTOP SYSTEMS CAPABLE OF SUPPORTING FLOOR LOADS INVOLVED, EITHER BY INSTALLING FLOOR PLATES OR BY OTHER MEANS.

FOR PENETRATIONS INVOLVING INSULATED PIPING, PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS NOT REQUIRING REMOVAL OF INSULATION.

4. FOR THROUGH-PENETRATION FIRESTOP SYSTEMS EXPOSED TO VIEW, PROVIDE PRODUCTS WITH FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES OF LESS THAN 25 AND 450, RESPECTIVELY, AS DETERMINED PER ASTM E84.

SUBMITTALS

PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

SHOP DRAWINGS: FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM, SUBMIT DOCUMENTATION, INCLUDING ILLUSTRATIONS, FROM A QUALIFIED TESTING AND INSPECTING AGENCY, SHOWING EACH TYPE OF CONSTRUCTION CONDITION PENETRATED, RELATIONSHIPS TO ADJOINING CONSTRUCTION, AND TYPE OF PENETRATING ITEM.

A. WHERE PROJECT CONDITIONS REQUIRE MODIFICATION TO A QUALIFIED TESTING AND INSPECTING AGENCY'S ILLUSTRATION FOR A PARTICULAR THROUGH-PENETRATION FIRESTOP CONDITION, SUBMIT ILLUSTRATION, WITH MODIFICATIONS MARKED, APPROVED BY THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER'S FIRE-PROTECTION ENGINEER AS AN ENGINEERING JUDGMENT OR EQUIVALENT FIRE-RESISTANCE-RATED ASSEMBLY.

QUALITY ASSURANCE

INSTALLATION RESPONSIBILITY: ASSIGN INSTALLATION OF THROUGH-PENETRATION FIRESTOP SYSTEMS AND FIRE RESISTIVE JOINT SYSTEMS IN PROJECT TO A SINGLE QUALIFIED INSTALLER.

FIRE-TEST-RESPONSE CHARACTERISTICS: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS THAT COMPLY WITH THE FOLLOWING REQUIREMENTS AND THOSE SPECIFIED IN PART 1.1 "PERFORMANCE REQUIREMENTS"

ARTICLE:

FIRESTOPPING TESTS ARE PERFORMED BY A QUALIFIED TESTING AND INSPECTING AGENCY. A QUALIFIED TESTING AND INSPECTING AGENCY IS UL OR OPL OR ITS, AS DIRECTED, OR ANOTHER AGENCY PERFORMING TESTING AND FOLLOW-UP INSPECTION SERVICES FOR FIRESTOP SYSTEMS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

THROUGH-PENETRATION FIRESTOP SYSTEMS ARE IDENTICAL TO THOSE TESTED PER TESTING STANDARD REFERENCED IN "PART 1.1 PERFORMANCE REQUIREMENTS" ARTICLE. PROVIDE RATED SYSTEMS BEARING CLASSIFICATION MARKING OF QUALIFIED TESTING AND INSPECTING AGENCY.

COORDINATE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS TO ENSURE THAT THROUGH-PENETRATION FIRESTOP SYSTEMS ARE INSTALLED ACCORDING TO SPECIFIED REQUIREMENTS.

DO NOT COVER UP THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATIONS THAT WILL BECOME CONCEALED BEHIND OTHER CONSTRUCTION UNTIL EACH INSTALLATION HAS BEEN EXAMINED BY THE OWNER'S INSPECTING AGENCY AND BUILDING INSPECTOR, IF REQUIRED BY AUTHORITIES HAVING JURISDICTION.

DELIVERY, STORAGE, AND HANDLING

DELIVER THROUGH-PENETRATION FIRESTOP SYSTEM PRODUCTS TO PROJECT SITE IN ORIGINAL, UNOPENED CONTAINERS OR PACKAGES WITH INTACT AND LEGIBLE MANUFACTURERS' LABELS IDENTIFYING PRODUCT AND MANUFACTURER, DATE OF MANUFACTURE, LOT NUMBER, SHELF LIFE IF APPLICABLE, QUALIFIED TESTING AND INSPECTING AGENCY'S CLASSIFICATION MARKING APPLICABLE TO PROJECT, CURING TIME, AND MIXING INSTRUCTIONS FOR MULTICOMPONENT MATERIALS.

STORE AND HANDLE MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS TO PREVENT THEIR DETERIORATION OR DAMAGE DUE TO MOISTURE, TEMPERATURE CHANGES, CONTAMINANTS, OR OTHER CAUSES.

1.2 PRODUCTS

FIRESTOPPING

COMPATIBILITY: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS THAT ARE COMPATIBLE WITH ONE ANOTHER; WITH THE SUBSTRATES FORMING OPENINGS; AND WITH THE ITEMS, IF ANY, PENETRATING THROUGH-PENETRATION FIRESTOP SYSTEMS, UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY THROUGH PENETRATION FIRESTOP SYSTEM MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.

ACCESSORIES: PROVIDE COMPONENTS FOR EACH THROUGH-PENETRATION FIRESTOP SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIALS AND TO COMPLY WITH PART 1.1 "PERFORMANCE REQUIREMENTS" ARTICLE. USE ONLY COMPONENTS SPECIFIED BY THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER AND APPROVED BY QUALIFIED TESTING AND INSPECTING AGENCY FOR FIRESTOP SYSTEMS INDICATED. ACCESSORIES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING ITEMS:

A. PERMANENT FORMING/DAMMING/BACKING MATERIALS, INCLUDING THE FOLLOWING:

SLAG-/ROCK-WOOL-FIBER INSULATION.

SEALANTS USED IN COMBINATION WITH OTHER FORMING/DAMMING/BACKING MATERIALS TO PREVENT LEAKAGE OF FILL MATERIALS IN LIQUID STATE.

FIRE-RATED FORM BOARD.

FILLERS FOR SEALANTS.

TEMPORARY FORMING MATERIALS.

SUBSTRATE PRIMERS.

COLLARS.

STEEL SLEEVES.

FILL MATERIALS

GENERAL: PROVIDE THROUGH-PENETRATION FIRESTOP SYSTEMS CONTAINING THE TYPES OF FILL MATERIALS INDICATED IN THE THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE AT THE END OF PART 1.3 BY REFERENCING THE TYPES OF MATERIALS DESCRIBED IN THIS ARTICLE. FILL MATERIALS ARE THOSE REFERRED TO IN DIRECTORIES OF REFERENCED TESTING AND INSPECTING AGENCIES AS "FILL," "VOID," OR "CAVITY" MATERIALS.

CAST-IN-PLACE FIRESTOP DEVICES: FACTORY-ASSEMBLED DEVICES FOR USE IN CAST-IN-PLACE CONCRETE FLOORS AND CONSISTING OF AN OUTER METALLIC SLEEVE LINED WITH AN INTUMESCENT STRIP, A RADIAL EXTENDED FLANGE ATTACHED TO ONE END OF THE SLEEVE FOR FASTENING TO CONCRETE FORMWORK, AND A NEOPRENE GASKET.

LATEX SEALANTS: SINGLE-COMPONENT LATEX FORMULATIONS THAT AFTER CURE DO NOT RE-EMULSIFY DURING EXPOSURE TO MOISTURE.

FIRESTOP DEVICES: FACTORY-ASSEMBLED COLLARS FORMED FROM GALVANIZED STEEL AND LINED WITH INTUMESCENT MATERIAL SIZED TO FIT SPECIFIC DIAMETER OF PENETRANT.

INTUMESCENT COMPOSITE SHEETS: RIGID PANELS CONSISTING OF ALUMINUM-FOIL-FACED ELASTOMERIC SHEET BONDED TO GALVANIZED STEEL SHEET.

INTUMESCENT PUTTIES: NONHARDENING DIELECTRIC, WATER-RESISTANT PUTTIES CONTAINING NO SOLVENTS, INORGANIC FIBERS, OR SILICONE COMPOUNDS.

INTUMESCENT WRAP STRIPS: SINGLE-COMPONENT INTUMESCENT ELASTOMERIC SHEETS WITH ALUMINUM FOIL ON ONE SIDE.

MORTARS: PREPACKAGED DRY MIXES CONSISTING OF A BLEND OF INORGANIC BINDERS, HYDRAULIC CEMENT, FILLERS, AND LIGHTWEIGHT AGGREGATE FORMULATED FOR MIXING WITH WATER AT PROJECT SITE TO FORM A NONSHRINKING, HOMOGENEOUS MORTAR.

PILLOWS/BAGS: REUSABLE HEAT-EXPANDING PILLOWS/BAGS CONSISTING OF GLASS-FIBER CLOTH CASES FILLED WITH A COMBINATION OF MINERAL-FIBER, WATER-INSOLUBLE EXPANSION AGENTS, AND FIRE-RETARDANT ADDITIVES.

SILICONE FOAMS: MULTICOMPONENT, SILICONE-BASED LIQUID ELASTOMERS THAT, WHEN MIXED, EXPAND AND CURE IN PLACE TO PRODUCE A FLEXIBLE, NONSHRINKING FOAM.

SILICONE SEALANTS: SINGLE-COMPONENT, SILICONE-BASED, NEUTRAL-CURING ELASTOMERIC SEALANTS OF GRADE INDICATED BELOW:

GRADE: POURABLE (SELF-LEVELING) FORMULATION FOR OPENINGS IN FLOORS AND OTHER HORIZONTAL SURFACES, AND NONSAG FORMULATION FOR OPENINGS IN VERTICAL AND OTHER SURFACES REQUIRING A NONSLUMPING, GUNNABLE SEALANT, UNLESS INDICATED FIRESTOP SYSTEM LIMITS USE TO NONSAG GRADE FOR BOTH OPENING CONDITIONS.

GRADE FOR HORIZONTAL SURFACES: POURABLE (SELF-LEVELING) FORMULATION FOR OPENINGS IN FLOORS AND OTHER HORIZONTAL SURFACES.

GRADE FOR VERTICAL SURFACES: NONSAG FORMULATION FOR OPENINGS IN VERTICAL AND OTHER SURFACES.

MIXING: FOR THOSE PRODUCTS REQUIRING MIXING BEFORE APPLICATION, COMPLY WITH THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS FOR ACCURATE PROPORTIONING OF MATERIALS, WATER (IF REQUIRED), TYPE OF MIXING EQUIPMENT, SELECTION OF MIXER SPEEDS, MIXING CONTAINERS, MIXING TIME, AND OTHER ITEMS OR PROCEDURES NEEDED TO PRODUCE PRODUCTS OF UNIFORM QUALITY WITH OPTIMUM PERFORMANCE CHARACTERISTICS FOR APPLICATION INDICATED.

1.3 EXECUTION

THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

GENERAL: INSTALL THROUGH-PENETRATION FIRESTOP SYSTEMS TO COMPLY WITH PART 1.1 "PERFORMANCE REQUIREMENTS" ARTICLE AND WITH FIRESTOP SYSTEM MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND APPLICATIONS INDICATED.

INSTALL FORMING/DAMMING/BACKING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.

A. AFTER INSTALLING FILL MATERIALS AND ALLOWING THEM TO FULLY CURE, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOP SYSTEMS.

3. INSTALL FILL MATERIALS FOR FIRESTOP SYSTEMS BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:

FILL VOIDS AND CAVITIES FORMED BY OPENINGS, FORMING MATERIALS, ACCESSORIES, AND PENETRATING ITEMS AS REQUIRED TO ACHIEVE FIRE-RESISTANCE RATINGS INDICATED.

APPLY MATERIALS SO THEY CONTACT AND ADHERE TO SUBSTRATES FORMED BY OPENINGS AND PENETRATING ITEMS.

FOR FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING WORK, FINISH TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.

4. IDENTIFICATION: IDENTIFY THROUGH-PENETRATION FIRESTOP SYSTEMS WITH PREPRINTED METAL OR PLASTIC LABELS. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF EDGE OF THE FIRESTOP SYSTEMS SO THAT LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE PENETRATING ITEMS OR FIRESTOP SYSTEMS. USE MECHANICAL FASTENERS FOR METAL LABELS. INCLUDE THE FOLLOWING INFORMATION ON LABELS:

THE WORDS "WARNING - THROUGH-PENETRATION FIRESTOP SYSTEM - DO NOT DISTURB. NOTIFY

BUILDING MANAGEMENT OF ANY DAMAGE."

CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER.

THROUGH-PENETRATION FIRESTOP SYSTEM DESIGNATION OF APPLICABLE TESTING AND INSPECTING AGENCY.

DATE OF INSTALLATION.

THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER'S NAME.

INSTALLER'S NAME.

FIELD QUALITY CONTROL

INSPECTING AGENCY: ENGAGE AN INDEPENDENT INSPECTING AGENCY TO INSPECT THROUGH-PENETRATION FIRESTOPS. INDEPENDENT INSPECTING AGENCY SHALL COMPLY WITH ASTM E2174 REQUIREMENTS INCLUDING THOSE RELATED TO QUALIFICATIONS, CONDUCTING INSPECTIONS, AND PREPARING TEST REPORTS.

WHERE DEFICIENCIES ARE FOUND, REPAIR OR REPLACE THROUGH-PENETRATION FIRESTOP SYSTEMS SO THEY COMPLY WITH REQUIREMENTS.

PROCEED WITH ENCLOSING THROUGH-PENETRATION FIRESTOP SYSTEMS WITH OTHER CONSTRUCTION ONLY AFTER INSPECTION REPORTS ARE ISSUED AND FIRESTOP INSTALLATIONS COMPLY WITH REQUIREMENTS.

CLEANING AND PROTECTING

CLEAN OFF EXCESS FILL MATERIALS ADJACENT TO OPENINGS AS WORK PROGRESSES BY METHODS AND WITH CLEANING MATERIALS THAT ARE APPROVED IN WRITING BY THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURERS AND THAT DO NOT DAMAGE MATERIALS IN WHICH OPENINGS OCCUR.

PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS DURING AND AFTER INSTALLATION THAT ENSURE THAT THROUGH-PENETRATION FIRESTOP SYSTEMS ARE WITHOUT DAMAGE OR DETERIORATION AT TIME OF FINAL COMPLETION. IF, DESPITE SUCH PROTECTION, DAMAGE OR DETERIORATION OCCURS, CUT OUT AND REMOVE DAMAGED OR DETERIORATED THROUGH-PENETRATION FIRESTOP SYSTEMS IMMEDIATELY AND INSTALL NEW MATERIALS TO PRODUCE SYSTEMS COMPLYING WITH SPECIFIED REQUIREMENTS.

THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

CHOICES IN THE FOLLOWING PARAGRAPHS WHICH ARE CONTAINED WITHIN BRACKETS SHALL BE AS REQUIRED TO SATISFY BUILDING AND LOCAL CODE REQUIREMENTS.

WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO ALPHA-ALPHA-NUMERIC DESIGNATIONS LISTED IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

WHERE OPL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO ALPHA-NUMERIC DESIGN NUMBERS IN OPL'S "DIRECTORY OF LISTED BUILDING PRODUCTS, MATERIALS, & ASSEMBLIES."

WHERE ITS-LISTED SYSTEMS ARE INDICATED, THEY REFER TO DESIGN NUMBERS LISTED IN ITS'S "DIRECTORY OF LISTED PRODUCTS," "FIRESTOP SYSTEMS" SECTION.

FIRESTOP SYSTEMS WITH NO PENETRATING ITEMS:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 0001-0999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE G.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

SILICONE SEALANT.

INTUMESCENT PUTTY.

MORTAR.

FIRESTOP SYSTEMS FOR METALLIC PIPES, CONDUIT, OR TUBING:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 1001-1999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE A.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

SILICONE SEALANT.

INTUMESCENT PUTTY.

MORTAR.

FIRESTOP SYSTEMS FOR NONMETALLIC PIPE, CONDUIT, OR TUBING:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 2001-2999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE B.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

SILICONE SEALANT.

INTUMESCENT PUTTY.

INTUMESCENT WRAP STRIPS.

FIRESTOP DEVICE.

FIRESTOP SYSTEMS FOR ELECTRICAL CABLES:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 3001-3999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE D.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

SILICONE SEALANT.

INTUMESCENT PUTTY.

SILICONE FOAM.

PILLOWS/BAGS.

FIRESTOP SYSTEMS FOR CABLE TRAYS:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 4001-4999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE D.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

INTUMESCENT PUTTY.

SILICONE FOAM.

PILLOWS/BAGS.

MORTAR.

FIRESTOP SYSTEMS FOR INSULATED PIPES:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOURDIGIT NUMBERS??? 5001-5999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE C.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

INTUMESCENT PUTTY.

SILICONE FOAM.

INTUMESCENT WRAP STRIPS.

FIRESTOP SYSTEMS FOR MISCELLANEOUS ELECTRICAL PENETRANTS:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 6001-6999.

OPL-CLASSIFIED SYSTEMS: FS???INSERT ONE OR MORE OPL DESIGN NUMBERS??? F, PENETRATING ITEM TYPE E.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

INTUMESCENT PUTTY.

MORTAR.

FIRESTOP SYSTEMS FOR MISCELLANEOUS MECHANICAL PENETRANTS:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR-DIGIT NUMBERS??? 7001-7999.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR BOTH OF THE FOLLOWING:

LATEX SEALANT.

MORTAR.

FIRESTOP SYSTEMS FOR GROUPINGS OF PENETRANTS:

UL-CLASSIFIED SYSTEMS: C-AJ-???INSERT ONE OR MORE FOUR DIGIT NUMBERS??? 8001-8999.

ITS-LISTED SYSTEMS: ???INSERT ITS DESIGN NUMBER(S).???

TYPE OF FILL MATERIALS: ONE OR MORE OF THE FOLLOWING:

LATEX SEALANT.

MORTAR.
INTUMESCENT WRAP STRIPS.
FIRESTOP DEVICE.
INTUMESCENT COMPOSITE SHEET.

END OF SECTION 07 84 13.16