OUTLET PUTTY PADS SPECIFICATIONS

SECTION 07840 - FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes:

Through penetration firestops and smoke-stops for all fire-rated bearing and non-bearing wall and floor assemblies, both blank (empty) and those accommodating penetrating items such as cables, conduits, pipes, ducts, etc. not covered in Division 15 and 16 Sections.

Membrane penetration protection for fire-rated walls.

Architectural/Construction joint firestops within walls, floors, or the intersection of floors to exterior walls, or the intersection of top of walls to ceilings.

Top of wall firestopping in all fire-rated partitions.

Top of wall and construction joint smoke-stopping in all smoke partitions.

B. Related Sections include the following:

Division 15 Sections specifying duct and pipe penetrations and firestopping for those penetrations.

Division 16 Sections specifying cable and conduit penetrations and firestopping for those penetrations.

1.3 REFERENCES:

A. American Society For Testing and Materials Standards (ASTM):

ASTM E84: Standard Test Method For Surface Burning Characteristics of Building Materials.

ASTM E814: Standard Test Method For Fire Tests of Through-Penetration

Firestops.

ASTM E1966: Test Method For Resistance of Building Joint Systems.

ASTM E1399: Test Method for Cyclic Movement and Measuring Minimum and Maximum Joint Width.

ASTM E119: Methods of Fire Tests of Building Construction and Materials.

B. Underwriters Laboratories Inc.:

UL 263: Fire Tests of Building Construction and Materials.

UL 723: Surface Burning Characteristics of Building Materials.

UL 1479: Fire Tests of Through-Penetration Firestops.

UL 2079: Standard for Fire Tests of Joint Systems.

C. UL Fire Resistance Directory:

Through-penetration Firestop Devices (XHJI)

Fire Resistive Ratings (BXUV)

Through Penetration Firestop Systems (XHEZ)

Fill, Void, or Cavity Material (XHHW)

1.4 DEFINITIONS

A. Firestopping: The use of a material or combination of materials in a fire-rated structure (wall or floor) where it has been breached, so as to restore the integrity of the fire rating on that wall or floor.

B. System: The use of a specific firestop material or combination of materials in conjunction with a specific wall or flow construction type and a specific penetrant(s), constitutes a “System”.

C. Barrier: Any bearing or non-bearing wall or floor that has an hourly fire and smoke rating.

D. Through-penetration: Any penetration of a fire-rated wall or floor that completely breaches the barrier.

E. Membrane-penetration: Any penetration in a fire-rated wall that breaches only one side of the barrier.

F. Construction Gaps: Any gap, joint, or opening, whether static or dynamic, where the top of a wall may meet a floor; wall to wall applications; edge to edge floor configurations; floor to exterior wall; or any linear breach in a rated barrier. Where movement is required, the firestopping system must comply with E 1399, E 1966, or UL 2079 for dynamic joints.

1.5 PERFORMANCE REQUIREMENTS

A. General: For the following constructions, 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 assembly penetrated.

Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.

Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.

Fire-resistance-rated floor assemblies.

Fire-resistance-rated roof assemblies.

B. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in “Performance Requirements” Article:

Firestopping materials shall conform to both Flame (F) and Temperature (T) ratings as required by local building codes and as tested by nationally accepted test agencies per ASTM E814 or UL 1479 fire tests in a configuration that is representative of field conditions.

C. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E814, but not less than one (1) hour or the fire resistance rating of the assembly being penetrated.

D. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E814, 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-resistive shaft enclosures.

Penetrations located in construction containing fire-protection-rated openings.

Penetrating items larger than 4-inch (100-mm-) diameter nominal pipe or 16 sq. in. (100 sq. cm) in overall cross-sectional area.

E. 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 (100 mm) in width

and exposed to possible loading and traffic, provide restop 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.

F. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less that 450, as determined per ASTM E 84.

G. Firestopping for joints must meet or exceed the requirements for ASTM E1966/ E1399 or UL2079 with movement capabilities equal to those of the anticipated conditions.

1.6 SUBMITTALS

A. Product Data: For each type of through-penetration firestop system product indicated.

B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.

Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.

Where Project conditions require modification of qualified testing and inspecting agencyís illustration, with modifications marked, approved by through-penetration firestop system manufacturerís fire-protection engineer.

C. Qualification Data: For firms and persons specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Submit document from manufacturer wherein manufacturer recognizes the installer as qualified.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: An experienced installer who is qualified by having the necessary experience, staff, and training to install manufacturerís products per specified requirements. A manufacturerís willingness to sell its through-penetration firestop system products to Contractor or to an installer engaged by Contractor does not in itself confer qualification on buyer.

2. Source Limitations: Obtain through-penetration firestop systems, for each king of

penetration and construction conditions indicated, from a single manufacturer.

3. Firestopping materials & systems must be capable of closing or filling through-openings created by:

1.) The burning or melting of combustible pipes, cable jacketing, or pipe insulation materials

2.) Deflection of sheet metal due to thermal expansion (electrical & mechanical duct work).

4. Firestopping material shall be asbestos and lead free and shall not incorporate nor require the use of hazardous solvents.

5. Firestopping sealants must be flexible, allowing for normal pipe movement.

6. Firestopping materials shall not shrink upon drying as evidenced by cracking or pulling back from contact surfaces.

7. Firestopping materials shall be moisture resistant, and may not dissolve in water after curing.

8. All firestopping materials shall be manufactured by one manufacturer (to the maximum extent or approved by the firestop manufacturer.

9. Installation of firestopping systems shall be performed by a contractor (or contractors) trained or approved by the firestop manufacturer.

10. Material used shall be in accordance with the manufacturerís written installation instructions.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact an legible manufacturerís labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agencyís classification marking applicable to Project; curing time; and mixing instructions for multi-component materials.

B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

C. All firestop materials shall be installed prior to expiration of shelf life.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilate through-penetration firestop systems per the manufacturerís written instructions by natural means or, where this is inadequate, forced-air circulation.

C. Verify the condition of the substrates before starting work.

D. Care should be taken to ensure that firestopping materials are installed so as not to contaminate adjacent surfaces.

1.10 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.

C. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until building inspector, if required by authorities having jurisdiction, have examined each installation.

D. Schedule firestopping after installation of penetrants but prior to concealing the openings.

E. Firestopping shall precede gypsum board finishing.

PART 2 - PRODUCTS

2.1 FIRESTOPPING, GENERAL

A. 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.

B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with “Performance Requirements” Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to the following items:

C. 1. Permanent forming/damming/backing materials, including the following:

a. Slag-rock-wool-fiber insulation.

b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.

c. Fire-rated form board.

d. Poly-Ethylene/Poly-Urethane backer rod.

2. Temporary forming materials.

3. Substrate primers.

4. Collars/Devices

5. Steel Sleeves

D. All firestop products and systems shall be designed and installed so that the basic sealing system will allow the full restoration of the thermal and fire resistance properties of the barrier being penetrated with minimal repair if penetrants are subsequently removed.

E. For applications where combustible penetrants are involved, i.e. insulated and plastic pipe, a suitable intumescent material must be used.

2.2 FILL MATERIALS

A. General: Provide through-penetration firestop systems containing the types of fill materials required by the manufacturer. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.

B. Cast-in-Place Firestop Device: A metallic sleeve lined with an intumescent material sized to fit a specific diameter for non-metallic penetrants.

C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.

D. Firestop Devices: Factory-assembled or field assembled collars or sleeves formed from galvanized steel and lined with intumescent material sized to fit the specific diameter of a non-metallic penetrant.

E. Intumescent Putties: Non-hardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric strips with polyethylene on both sides.

G. 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 an expanding homogeneous mortar.

H. 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.

2.3 MIXING

A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturerís 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.

2.4 MANUFACTURERS

A. Subject to compliance with the requirements, provide products by one of the following:

Specified Technologies, Inc.

200 Evans Way, Somerville, NJ 08876

Product Information : 1-908-526-8000

2.5 MATERIALS

A. Firestop Putty:

Outlet Putty Pads

PART 3 - EXECUTION

3.1 CONDITIONS REQUIRING FIRESTOPPING

A. General: Provide firestopping for conditions specified.

B. Through-Penetrations: Firestopping shall be installed in all open penetrations and in the annular space in all penetrations in any bearing or non-rated barrier.

C. Membrane-Penetrations: Where required by code, all membrane-penetrations in rated walls shall be protected with firestopping products that meet the requirements of third party time/temperature testing.

D. Construction Joints/Gaps: Firestopping shall be provided:

Between the edges of floor slabs and exterior walls

Between the tops of walls and the underside of floors/roof decks.

In the control joint in masonry walls and floors.

In expansion joints.

E. Smoke-Stopping: As required by the other Sections, Smoke-Stops shall be provided for Through-Penetrations, Membrane-Penetrations, and Construction Gaps with a material approved and tested for such application.

3.2 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Verify that all pipes, conduits, cables, and/or other items which penetrate fire-rated construction have been permanently installed prior to installation of firestops.

3.3 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:

Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.

Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.

Remove laitance and form-release agents from concrete.

3.4 THROUGH-PENETRATION FIRESTOP SYSTEM

A. General: Install through-penetration firestop systems to comply with “Performance Requirements” Article and firestop system manufacturerís written installation instructions and published drawings for products and applications indicated.

Installation of firestopping shall be performed by an applicator/installer qualified and trained by the manufacturer.

Apply firestopping in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturerís recommendations.

Unless specified and approved, all insulation used in conjunction with through-penetrants shall remain intact and undamaged and may not be removed.

Seal holes and penetrations to ensure an effective smoke seal.

In areas of high traffic, protect firestopping materials from damage. If the opening

is large, install firestopping materials capable of supporting the weight of a human.

Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.

All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.

B. 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.

After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems. Noncombustible damming materials may be left as a permanent component of the firestop system.

C. 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.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: The building inspector, if required by authorities having jurisdiction, shall be allowed to inspect through-penetration firestop systems. All areas of work must be accessible until inspection by the applicable Code Authorities.

B. Proceed with enclosing through-penetration firestop systems with other construction only after inspections are complete.

C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

3.6 CLEANING AND PROTECTION

A. 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. Leave finished work in neat, clean condition with no evidence of spillovers or damage to adjacent surfaces.

B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial 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 through-penetration firestop systems complying with specified requirements.