

SECTION 07200 - BUILDING INSULATION

PART 1 - SCOPE

- A. This Section includes all labor, materials, equipment and related items required to complete the work of building insulation as shown on the drawings and as specified.

PART 2 - SUBMITTALS

- A. Certificates of Compliance with applicable Federal Specifications shall be submitted to the architect for approval prior to delivery of any building insulation to the project. "R" values of insulation proposed to be furnished shall be included in certifications.
- B. Samples in duplicate of each type of building insulation shall be submitted to the architect for approval if requested.

PART 3 - MATERIALS

- A. Batt insulation shall be semi-rigid, spun glass fiber blankets, R-19.
 - 1. Non-exposed blankets shall be enclosed on one side with strong asphalted paper vapor barrier. Blankets shall be as wide as required to fit into stud, by longest available lengths.
 - 2. Exposed blankets for installation in exterior wall space shall be nominal 6" thick, Fiberglass batt faced (FSK-25)(Class A), having minimum material thermal resistance (R) of 19.
- B. Sound attenuation blankets for areas where noted shall comply with requirements of ASTM C665-84, Type I. Same shall be 3" "Thermofiber", as manufactured by United States Gypsum; 3" "Thermal-Acoustical Batts", as manufactured by Johns-Manville; 3½" "Noise Barrier Batt Insulation", as manufactured by Owens/Corning; or an approved equal.

PART 4 - INSTALLATION

- A. Batt insulation shall be installed in stud, in strict accordance with manufacturer's installation instructions, securely fastened to framing members by nailing or stapling, with paper vapor barriers to inside face of stud. Insulation shall have full coverage in spaces involved, with tightly fitted butt joints where necessary and free from voids.
 - 1. Install insulation to the outside of any water piping occurring in exterior walls. In these cases, no insulation shall occur between water piping and wall finish.

- B. Install Vapor Retarder (DuPont Tyvek[®] stucco wrap water-resistant barrier or approved equal) on the outside face of the exterior gypsum sheathing.

END OF SECTION

SECTION 07270 - FIRESTOPPING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide all material, labor, equipment and services necessary to provide firestopping as follows:
 - 1. Through-penetration firestopping in fire rated construction.
 - 2. Construction-gas firestopping at connections in the same or different materials in fire rated construction.
 - 3. Construction-gap firestopping occurring within fire rated wall, floor or floor-ceiling assemblies.
 - 4. Construction-gap firestopping occurring at the top of fire rated walls.
 - 5. Through-penetration smoke-stopping in smoke partitions.
 - 6. Construction-gap smoke-stopping in smoke partitions.
- B. Firestopping specified in other Sections of these specifications:
 - 1. Plumbing Penetrations: Section 15
 - 2. Fire dampers and manufactured devices: Section 15
 - 3. Raceway seals and manufactured electrical devices: Section 16
- C. Alternates: Refer to "Description of Alternates" pages for description of alternates affecting work of this Section.

1.02 REFERENCES

- A. Underwriters Laboratories
 - 1. U.L. Fire Resistant Directory
 - a. Through-penetration firestop devices (XHCR)
 - b. Fire resistance ratings (BXUV)
 - c. Through-penetration firestop systems (XHEZ)
 - d. Fill, void or cavity material (XHHW)
- B. American Society for Testing and Materials Standards:
 - 1. ASTM E814-88: Standard Test Method for Fire Tests of Through-Penetration Firestops.

1.03 DEFINITIONS

- A. Assembly: Particular arrangement of materials specific to given type of construction described or detailed in referenced documents.
- B. Barriers: Time rated fire walls, smoke barrier walls, time rated ceiling/floor assemblies and structural floors.
- C. Firestopping: Methods and materials applied in penetrations and unprotected openings to limit spread of heat, fire, gasses and smoke.
- D. Penetration: Opening or foreign material passing through or into barrier or structural floor such that full thickness of rated materials is not obtained.
- E. Construction Gaps: Gaps between adjacent sections of walls, exterior walls, at wall tops between top of wall and ceiling, and structural floors or roof decks; and gaps between adjacent sections of structural floors.
- F. System: Specific products and applications, classified and numbered by Underwriters Laboratories, Inc., to close specific barrier penetrations.
- G. Sleeve: Metal fabrication or pipe section extending through thickness of barrier and used to permanently guard penetration. Sleeves are described as part of penetrating system in other sections and may or may not be required.

1.04 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Fire-rated construction: Maintain barrier and structural floor fire resistance ratings including resistance to cold smoke at all penetrations, connections with other surfaces or types of -construction, at separations required to permit building movement and sound or vibration absorption, and at other construction gaps.
 - 2. Smoke barrier construction: Maintain barrier and structural floor resistance to cold smoke at all penetrations, connections with other surfaces and types of construction and at all separations required to permit building movement and sound or vibration absorption, and at other construction gaps.

1.05 SUBMITTALS

- A. Comply with all requirement of Section 01300, Submittals.

1.06 QUALITY ASSURANCE

- A. Installer's qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this Project, plus the following:
 - 1. Acceptable to or licensed by manufacturer, State or local authority where applicable.

2. At least two (2) years experience with systems.
 3. Successfully completed at least five (5) comparable scale projects using this system.
- B. Local and State regulatory requirements: Submit forms or acceptance for proposed assemblies not conforming to specific UL Firestop System numbers, or UL classified devices.
- C. Materials shall have been tested to provide fire rating at least equal to that of the construction.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Packing and shipping:
1. Deliver products in original unopened packaging with legible manufacturer's identification.
 2. Coordinate delivery with scheduled installation date, allow minimum storage at site.
- B. Storage and protection: Store materials in a clean, dry, ventilated location. Protect from soiling, abuse, moisture and freezing when required. Follow manufacturer's instructions.

1.08 PROJECT CONDITIONS

- A. Existing conditions:
1. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
 2. Proceed with installation only after penetrations of the substrate and supporting brackets have been installed.
- B. Environmental requirements:
1. Furnish adequate ventilation if using solvent.
 2. Furnish forced air ventilation during installation if required by manufacturer.
 3. Keep flammable materials away from sparks or flame.
 4. Provide masking and drop cloths to prevent contamination of adjacent surfaces by firestopping materials.
 5. Comply with manufacturing recommendations for temperature and humidity conditions before, during and after installation of firestopping.

1.09 GUARANTEE

- A. Submit copies of written guarantee agreeing to repair or replace joint sealers which fail in joint adhesions, co-adhesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. The guarantee period shall be one (1) year from date of substantial completion.

PART 2 - PRODUCTS

2.01 THROUGH-PENETRATION STOPPING OF FIRE-RATED CONSTRUCTION

- A. Systems or devices listed in the U.L. Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that it conforms to the construction type, penetrant type, annual space requirements and fire rating involved in each separate instance, and that the system is symmetrical for wall applications. Systems or devices must be asbestos-free.
 - 1. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the U.L. system or device, and designed to perform this function.
 - 2. Acceptable manufacturers and products: Those listed in the U.L. Fire Resistance directory for the U.L. System involved and as further defined in the Systems And Applications Schedule.
 - 3. All firestopping products must be from a single manufacturer. All Trades shall use products from the same manufacturer.

2.02 CONSTRUCTION-GAP FIRESTOPPING OF FIRE-RATED CONSTRUCTION

- A. Firestopping at construction gaps between edges of floor slabs and exterior wall construction.
- B. Firestopping at construction gaps between tops of partitions and underside of structural systems.
- C. Firestopping at construction gaps between tops of partitions and underside of ceiling or ceiling assembly.
- D. Firestopping of control joints in fire-rated masonry partitions.
- E. Firestopping expansion joints.
- F. Acceptable manufacturers and products: Those listed in the U.L. Fire Resistance Directory for the U.L. System involved and as further defined in the Systems and Applications Schedule.

2.03 SMOKE-STOPPING AT SMOKE PARTITIONS

- A. Through-penetration smoke-stopping: Any system complying with the requirements for through-penetration Firestopping in fire-rated construction, as specified in The Systems and Applications Schedule is acceptable, provided that the system includes the specified smoke seal or will provide a smoke seal. The length of time of the fire resistance may be disregarded.
- B. Construction-gap smoke-stopping: Any system complying with the requirements for construction-gap Firestopping in fire-rated construction, as specified in the Systems and Applications Schedule is acceptable, provided that the system includes the specified smoke seal or will provide a smoke seal. The length of time of the fire resistance may be disregarded.

2.04 ACCESSORIES

- A. Fill, void or cavity materials: As classified under category XHHW in the U.L. Fire Resistance Directory.
- B. Forming materials: As classified under category XHKU in the U.L. Fire Resistance Directory.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
 - 1. Verify barrier penetrations are properly sized and in suitable condition for application of materials.
 - 2. Do not proceed until unsatisfactory conditions have been corrected.

3.02 CLEANING SURFACES

- A. Clean surfaces to be in contact with penetration seal materials, of dirt, grease, oil, loose materials, rust or other substances that may affect proper fitting, adhesion or the required fire resistance.

3.03 INSTALLATION

- A. Install penetration seal materials in accordance with printed instructions of the U.L. Fire Resistance Directory and in accordance with manufacturer's instructions.
- B. Seal holes or voids made by penetrations to ensure an effective smoke barrier.
- C. Where floor openings without penetrating items are more than 4" in width and subject to traffic or loading, install firestopping materials capable of supporting same loading as floor.

- D. Protect materials from damage on surfaces subject top traffic.
- E. Place firestopping in annular space around fire dampers before installation of damper's anchoring flanges which are installed in accordance with fire damper manufacturer's recommendations.
- F. Where large openings are created in walls or floors to permit installation of pipes, ducts, cable tray, bus duct or other items, close unused portions of opening with firestopping material tested for the application. See U.L. Fire Resistance Directory.
- G. Install smoke stopping as specified for firestopping.
- H. Where rated walls are constructed with horizontally continuous air space, double width masonry, or double stud frame construction, provide vertical, 12" wide fiber dams for full thickness and height of air cavity at maximum 15' intervals.

3.04 FIELD QUALITY CONTROL

- A. Examine penetration sealed areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Perform under this Section, patching and repairing of firestopping cause by cutting or penetration by other Trades.

3.05 ADJUSTING AND CLEANING

- A. Clean up spills of liquid components.
- B. Neatly cut and trim materials as required.
- C. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

END OF SECTION

SECTION 07900 - JOINT SEALERS

PART 1 - SCOPE

- A. This Section includes all labor, materials, equipment, and related items required for the work of caulking as shown on the Drawings and as specified herein. Work under this Section includes but is not necessarily restricted to the following:
 - 1. Caulking of exterior or interior expansion or control joints in concrete or masonry.
 - 2. Other joints, exterior or interior, in the building construction shown, specified, or required to be caulked.

PART 2 - SUBMITTAL

- A. Contractor shall submit to the Architect, in duplicate, for approval the following items prior to furnishing any materials at the job site.
 - 1. Sample cards of all exposed caulking and sealant for color approval. Unless otherwise directed, apply samples in minimum 3" runs on cards.
 - 2. One lineal foot of each type of backer material proposed.

PART 3 - PRODUCT HANDLING

- A. Deliver caulking, and related accessories to the job site in factory sealed, unopened containers bearing manufacturer's name and product designation.
- B. Store materials in unopened containers, following manufacturer's recommendations for storage temperature and shelf life.
- C. Follow manufacturer's recommendation for handling products containing toxic substances. Keep flammable materials away from heat, sparks, and open flames. Use recommended solvents and cleaning agents for cleaning tools and equipment.

PART 4 - ENVIRONMENTAL CONDITIONS

- A. Schedule caulking operations so that working joints are most likely to be normal size. Apply materials within manufacturer's recommended surface and ambient temperature range.

PART 5 - PROTECTION

- A. Use masking tape where practicable to control lap of materials onto adjacent surfaces or to facilitate tooling. Remove tape immediately after caulking operation.

PART 6 - MATERIALS

- A. General. All caulking, primers, and accessories shall be non-staining to adjacent exposed materials. Products having similar application and usage shall be of the same manufacturer and type. Unless otherwise specified, colors shall be selected from approved manufacturer's standard color sections. Use gun consistency compounds unless otherwise required by job conditions.
- B. Exterior caulking shall be a one or two-component polysulfide base, elastic, synthetic rubber compound, conforming to Federal Spec. TT-S-00230, and shall be "Sonolastic" as manufactured by the Sonneborn Building Products, Inc., "Synthacalk" as manufactured by the Pecora Chemical Corp., or "Rubber Calk 500" as manufactured by the Products Research & Chemical Corp or an approved equal.
 - 1. Colors shall be from manufacturer's standards as selected by the Architect.
- C. Interior caulking for general use shall be a one-component acrylic latex compound, and shall be "Sonolac" as manufactured by the Sonneborn Building Products, Inc. "AC-20" as manufactured by the Pecora Chemical Corp., or "Latex Caulk" as manufactured by DAP, Inc.
- D. Primers shall be as manufactured and recommended for each substrate by the manufacturer of each caulking compound used in the work.
- E. Backer materials shall be as recommended for and compatible with each caulking used, and shall be as follows unless otherwise required to meet specific job conditions.
 - 1. Backer rod for use in all joints requiring backer for caulking shall be a soft, closed cell polyethylene foam meeting requirements of AASHO Specifications M153-54, Type I and III, and shall be as manufactured by the Dow Corning Corp., Sonneborn Building Products, Inc., or Williams Products, Inc.
- F. Release material, where required, shall be polyethylene film.

PART 7 - MIXING

- A. Job mix multi-component sealants with suitable power operated equipment, following specific directions of sealant manufacturer.
- B. Base and accelerator components of multi-part sealants shall have batch control numbers clearly indicated on containers. Control numbers for mixed components shall be identical.

PART 8 - CONDITION OF SURFACES

- A. Inspect all surfaces to receive caulking materials, and report all defects. Starting work implies acceptance of surfaces as satisfactory. Verify that joints and spaces to be caulked are of proper width.

- B. Concrete surfaces shall be thoroughly cured.
- C. Apply no caulking materials in contact with surfaces contaminated with oil, grease, bituminous materials, form release agents, bond breakers, deleterious curing compounds, water repellents, and other special surface treatments. Aluminum surfaces shall be free of lacquer. Costs incurred by removal of such contaminants shall be borne by the trades responsible for their presence.

PART 9 - PREPARATION

- A. Thoroughly clean all joints, removing all foreign matter such as dirt, dust, moisture, frost, rust, paint, lacquer, and protective coatings. Blow all joints free of loose particles.
- B. Use no cleaning solvents which leave residue. Wipe joints free of solvent using clean, dry white cloths or white lintless paper. Do not permit solvent to air dry.
- C. Follow manufacturer's directions for products and surfaces.

PART 10 - INSTALLATION

- A. Unless otherwise required by these specifications, install materials in strict accordance with manufacturer's specifications and recommendations, using approved equipment.
- B. Usage of various materials shall be as specified under Article 6 above.
- C. Prime surfaces as recommended by the manufacturer's immediately prior to caulking or sealing. Make preliminary tests to ensure that primers will not stain exposed materials or deteriorate backer materials.
- D. Unless otherwise required by caulking manufacturer's specifications and recommendations, use backer material to control caulking and sealant depth as follows (depths measured at bond face).
 - 1. Polysulfide and Polyurethane Sealants. For joints up to 1/2" wide and less, make depth equal to width but not less than 1/4". Joints over 1/2" wide shall be 3/8" deep.
 - 2. Acrylic Sealant. For joints 1/2" wide and less, make depth equal to width but not less than 1/4". Joints over 1/2" wide shall be 3/8" deep.
 - 3. Do not twist or stretch preformed backer materials during installation.
- E. At joints subject to movement, where required by nature of backer material used or where sealant contacts back of joint, use release material between backer material or back of joint and sealer to confine adhesion to surfaces of materials being joined. Follow manufacturer's recommendation exactly.

- F. Neatly tool joints to slightly concave surface using tooling agent recommended by sealant manufacturers. Repair any air pockets exposed by tooling. Tool so as to compress material and improve adhesion to surfaces joined.

PART 11 - PATCHING

- A. Patch or replace defective or damaged sealants as directed by the Architect. Be responsible for damage to adjacent surfaces caused by caulking and sealing operations.

PART 12 - CLEANING

- A. Clean adjacent surfaces soiled by caulking and sealing operations. Remove wet material before it "sets". Follow manufacturer's recommendations for cleaning procedures. Cleaning agents shall not stain or be injurious to exposed surfaces nor shall they be potentially dangerous to glass and metal surfaces due to wash-off by rain.

END OF SECTION