

BuildingName
The Description of the Project
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ARCHITECTURE & ENGINEERING
326 East Hoover, Mail Stop B
Ann Arbor, MI 48109-1002
Phone: 734-764-3414
Fax: 734-936-3334

SPECIFICATION DIVISION 7

NUMBER SECTION DESCRIPTION

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 079200 - JOINT SEALANTS

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DIVISION 07 THERMAL AND MOISTURE PROTECTION
SECTION 079200 - JOINT SEALANTS

MAY 2012 - REVISED TO ADD REQUIREMENTS FOR LOW VOC PRODUCTS AND TO UPDATE PRODUCT LISTINGS.

REVISED TO DELETE FIRESTOPPING, WHICH IS NOW IN A SEPARATE SECTION, 078413. FIRE-RATED JOINT SEALERS REMAIN IN THIS SECTION (6/04).

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of each type of joint sealant is indicated on drawings and by provisions of this Section.

EDIT THE FOLLOWING TO SUIT PROJECT REQUIREMENTS.

- B. Types of sealants include:
1. Weather-proofing joint sealants.
 2. Interior joint and seam sealers.
 3. Sanitary joint sealers.
 4. Fire-proofing joint sealers.

1.2 SUBMITTALS

- A. Submit product data for each product indicating compliance with requirements.

USUALLY DELETE BELOW. A NOTE REGARDING ADHESION: THE ONLY WAY TO BE ENSURE A GIVEN SEALANT PRODUCT WILL ADHERE TO VARIOUS SUBSTRATES (WITH OR WITHOUT A PRIMER) IS TO DO AN ADHESION TEST. ONE STANDARD TEST CONSISTS OF APPLYING THE ADHESIVE (PRIMED AS REQUIRED) TO EACH MATERIAL IN CONTACT WITH SEALANT. THE SEALANT IS ALLOWED TO CURE, AND THEN A DRY ADHESION TEST IS PERFORMED (PEELING). IF THE TEST IS PASSED, THE SAMPLE (OR ANOTHER) IS SOAKED IN WATER FOR A 24 HOUR PERIOD, AND A SIMILAR WET TEST IS PERFORMED.

- B. Submit one sample tube of each approved sealant product specified for exterior applications. The Architect will perform adhesion testing.

DELETE BELOW IF NO FIRE-PROOF SEALANTS REQUIRED.

- C. Fire-Proofing Sealant Schedule: Submit a schedule indicating, for each application (penetration condition or joint type), the manufacturer, product name, and UL Design number of the proposed fire-proofing sealant system to be used.

1. Submit manufacturer's data and certification as required in the "Quality Assurance" Article of this Section.

- D. Product Data: For sealants and sealant primers used inside the weatherproofing system, documentation including printed statement of VOC content.

1.3 **QUALITY ASSURANCE**

DELETE THIS ARTICLE IF NO FIRE-PROOF SEALANTS REQUIRED.

- A. Fire-Proof Sealant Design and Test Criteria: Unless a specific product or system is otherwise indicated, select fire-proof sealant system recommended by the manufacturer for each specific application indicated, and to comply with requirements indicated in the "Fire-Proofing Sealant Systems" Article of this Section. Provide only fire-proofing systems that have been tested and listed by Underwriter's Laboratories (UL) in the applications indicated.
 - 1. Provide fire-proof sealant systems with fire-ratings equal to the fire-rated assembly into which the sealant system is incorporated.
 - 2. Coordinate fire-proof sealant system selections with the construction detail and opening size of the fire-rated assembly; and the size, location, configuration, and material of the penetrating element (if any), to ensure full compliance with each detail of each UL Design.
 - 3. Where an indicated application has not been tested and listed, provide a written proposal, prepared by the manufacturer of the fire-proofing system, showing materials and methods to be used, and certifying that fire-resistance rating of the fire-proofing sealant system will not be less than that of the surrounding assembly.

PART 2 - PRODUCTS

2.1 **SEALANTS, GENERAL**

- A. Compatibility: Provide joint sealers, fillers and related materials compatible with one another and with joint substrates under conditions of service and application.
- B. Colors: Provide color of exposed joint sealers indicated or, if not indicated, as selected by Owner from manufacturer's standard colors.

SEALANTS LISTED IN PART TWO COMPLY WITH THE VOC REQUIREMENTS BELOW. USE VOC COMPLIANT SEALANTS UNLESS THERE IS A SPECIFIC PROJECT REQUIREMENT THAT CAN ONLY BE SATISFIED USING NON-COMPLIANT PRODUCTS.

- C. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.

2.2 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.

USE THE FOLLOWING FOR TOILET ROOMS AROUND FIXTURES AND OTHER HIGH HUMIDITY AREAS; SILICONE CAULK IS NOT PAINTABLE; FOOD PREP AREAS REQUIRE SPECIAL SEALANTS.

- B. One-Part Mildew-Resistant Silicone Sealant: Subject to compliance with requirements, provide one of the following, or manufacturer's equivalent two-part sealant:

Dow Corning 786; Dow Corning Corp.
SCS 1700 Sanitary; General Electric Co.
No. 898 ; Pecora Corp.
Tremsil 200; Tremco Inc.

USE THE FOLLOWING AS A CLEAR SILICONE SEALANT FOR USE IN CONJUNCTION WITH GLAZING INSTALLATIONS -NOTE THAT THE PRODUCTS BELOW ARE RATED FOR +/- 25% MOVEMENT AND THAT THEY ARE NOT SUITABLE FOR STRUCTURAL GLAZING.

- C. One-Part Clear Building and Glazing Sealant: Subject to compliance with requirements, provide one of the following:

Bostik Chem-Calk 1200; Bostik, Inc.
Dow Corning 999A; Dow Corning Corp.
SCS 1200; General Electric Co.
No. 860; Pecora Corp.
Proglaze; Tremco

USE THE FOLLOWING AS A GENERAL EXTERIOR CAULK - SEE OTHER REFERENCES FOR SPECIFIC LIMITATIONS OF PRODUCT.

- D. One-Part Nonsag Urethane Sealant: Subject to compliance with requirements, provide one of the following, or manufacturer's equivalent two-part sealant:

Chem-Calk 900; Bostik, Inc.
Sikaflex-1a; Sika Corp.
Dymonic; Tremco Inc.
Sonolastic NP 1; BASF Construction Chemicals LLC

2.3 LATEX JOINT SEALANTS

- A. General: Provide manufacturer's standard one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

USE THE FOLLOWING AS GENERAL PURPOSE INTERIOR CAULK, IN LOW-MOVEMENT CONDITIONS. USE BUTYL FOR NON-MOVEMENT SEAMS IN METALS SUCH AS FILLER PANELS, CLOSURES AND SIMILAR WORK.

- B. Siliconized Acrylic-Latex Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.
- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Siliconized Acrylic-Latex Sealant:
 - AC-20 + Silicon; Pecora Corp.
 - Sonolac; BASF Construction Chemicals LLC
 - Tremflex; Tremco, Inc.

2.4 PREFORMED FOAM SEALANTS

USE THE FOLLOWING SEALANTS FOR SEALING LARGE GAPS BETWEEN BUILDING ELEMENTS. SUITABLE FOR BOTH ABOVE- AND BELOW-GRADE APPLICATIONS.

- A. Preformed Foam Sealants: Manufacturer's standard preformed, precompressed, impregnated open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water repellent agent; factory-produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following requirements:
 - 1. Properties: Permanently elastic, mildew-resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.
 - 2. Impregnating Agent: Manufacturer's standard.
 - 3. Density: Manufacturer's standard.
 - 4. Backing: Pressure-sensitive adhesive factory applied to one side with protective wrapping.
 - 5. Products: Subject to compliance with requirements, provide one of the following:
 - Emseal Backerseal (Greyflex); Emseal Corp.
 - Sealtite; Schul International Co.
 - Illmod 600; Tremco Inc.

2.5 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

BELOW REQUIRED FOR THROUGH-JOINTS, DEEP JOINTS AND WITH FIRE-STOPPING SEALANTS. DELETE IF CAULKING SMALL, SHALLOW JOINTS (AROUND INTERIOR DOOR FRAMES AND PLUMBING FIXTURES FOR EXAMPLE).

- B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below, of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing:

SELECT ONE OR BOTH TYPES OF JOINT BACKER BELOW. CONFIRM COMPATIBILITY WITH SEALANT SELECTED. OPEN CELL MATERIAL IS MORE COMPRESSIBLE AND DOES NOT EMIT GAS, BUT WILL ABSORB AND RETAIN MOISTURE. CLOSED CELL MATERIAL DOES NOT ABSORB MOISTURE BUT CAN EMIT GAS. IT IS THE PREFERRED BACKING MATERIAL IN MOST CASES.

1. Open-cell polyurethane foam with impervious surface: ASTM C1330 Type O.
2. Closed-cell polyethylene foam: ASTM C1330 Type C.

USUALLY RETAIN BELOW FOR EXTERIOR JOINTS OR INTERIOR MOVEMENT JOINTS. BOND-BREAKER TAPE MAY BE USED IN CONJUNCTION WITH SOME BACKER ROD AND FOR FILLET-TYPE JOINTS.

- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

USUALLY RETAIN BELOW - MAY BE REQUIRED FOR PROPER SEALANT ADHESION TO SUBSTRATE.

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

2.7 FIRE-PROOF SEALANT SYSTEMS

DELETE PARA AND SUBPARA BELOW IF NO FIRE-PROOF SEALANT SYSTEMS.

- A. Fire-Proofing Sealant System(s): Unless otherwise indicated, provide only the manufacturer's UL tested and listed sealant and accessory system(s) designed for use in each indicated application.

1. For applications subject to movement, including joints between structural elements, walls, floors, and curtain walls, and adjacent elements, provide elastomeric sealants capable of sustaining the expected range of movement without failure.
2. For application to backs of switch and outlet boxes, provide intumescent pads.
3. Approved Manufacturers: Listed manufacturers do not necessarily provide all products required. Subject to compliance with requirements, provide applicable systems of one of the following:
Bio-Fire Shield.
Hilti, Inc. Metacaulk; Rectorseal Corp.
3M Corp.
Tremco Inc.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine joints indicated to receive joint sealers, with installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer.
 2. Clean masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 3. Clean metal, glass, porcelain enamel, surfaces of ceramic tile; and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on prior experience. Apply primer to comply with joint sealer manufacturer's recommendations.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces.

3.3 SEALANT INSTALLATION

- A. Installation: Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

EDIT FOLLOWING 3 TYPES TO INCLUDE STANDARDS FOR RELEVANT PRODUCTS.

B. Elastomeric Sealant Installation Standard: ASTM C 962.

ABOVE FOR SILICONES, URETHANES, AND POLYSULFIDES.

C. Acrylic Emulsion Sealant Installation Standard: ASTM C 790.

D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

PROVIDE BELOW ONLY WHERE REQUIRED.

2. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.

PROVIDE BELOW ONLY WHERE REQUIRED.

E. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

F. Install sealants to directly contact and fully wet joint substrates, completely fill recesses, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

G. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Remove excess sealants; do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 6A in ASTM C 962, unless otherwise indicated.

H. Clean off excess sealants of sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

I. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes. Cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce repaired areas indistinguishable from original work.

DELETE BELOW IF NO FIRE-PROOFING SEALANTS.

3.4 FIRE-PROOFING SEALANT SYSTEM INSTALLATION

- A. Installation of Fire-Proof Sealant Systems: Install sealant system, including forming, packing, and other accessory materials to fill openings in fire-rated assemblies. Comply with installation requirements of the relevant UL Design number, and in accordance with manufacturer's recommendations.

3.5 JOINT SEALER SCHEDULE

EDIT THE FOLLOWING LIST TO SUIT PROJECT. DELETE IF NO EXTERIOR JOINTS.

- A. Exterior Joints(Exposed to Weather): Install indicated sealants at each scheduled joint condition:
 - 1. Perimeter joints between concrete or masonry and metal frames of louvers and windows:
 - a. One-part nonsag urethane.
 - 2. Perimeter joints between masonry and wood door and window frames:
 - a. One-part nonsag urethane.
 - 3. Other joints as indicated.
 - a. As indicated, or if not indicated, provide nonsag urethane sealant.

EDIT THE FOLLOWING LIST TO SUIT PROJECT.

- B. Interior Joints (In Conditioned Spaces): Install indicated sealants at each scheduled joint condition:
 - 1. Perimeter joints of exterior openings where shown, or if not shown, where exterior caulking is indicated:
 - a. One- or two-part nonsag urethane.
 - b. Acrylic emulsion sealant.
 - 2. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
 - a. Acrylic emulsion sealant.
 - 3. Perimeter joints of toilet fixtures and urinals, at pipe penetrations through ceramic tile, and similar applications:
 - a. One-part mildew resistant silicone sealant.
 - 4. Other joints as indicated.
 - a. As indicated, or if not indicated, provide acrylic emulsion sealant.

3.6 FIRE-PROOFING SEALANT SYSTEM SCHEDULE

ADD TO OR DELETE ITEMS LISTED BELOW.

- A. Provide manufacturer's UL tested and approved sealant systems in each of the following applications:
 - 1. Joints between the tops of new fire-rated walls and structural deck above.
 - 2. Joints between fire-rated walls and floors and exterior building curtain wall.
 - 3. Joints between fire-rated assemblies or within fire-rated assemblies as required to maintain indicated fire-rating of the assembly.

4. At the backs of switch and outlet boxes within fire-rated drywall walls.
5. Other joints as shown on drawings.

END OF SECTION 079200