

SECTION 07900

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sealant Compound: Calk with sealant compound, exposed joints on exterior of the building as required to provide a weathertight condition, and joints throughout that are subject to movement. The principal locations are as follows:
 - a. Joints between metal frames, and framing of all kinds, and adjacent construction in exterior walls, interior and exterior sides.
 - b. Control joints in interior and exterior masonry walls, both sides.
 - c. Locations where "Sealant" is noted.
 - d. Interior joints between adjacent precast concrete units, and interior and exterior joints between precast concrete units and adjacent construction.
 - e. Interior and exterior joints between the following work and adjacent construction:
 - 1) Preformed metal siding.
 - 2) Roof sheet metal and flashing, except at direct interface with roofing.
2. Calking Compound: Calk with calking compound, joints on interior of building that are not subject to movement that require filling for appearance or sanitary reasons. The principal locations are as follows:
 - a. Joints between metal frames of all kinds and adjacent construction, in interior walls and partitions.
 - b. All locations where "calk" is noted, except if the locations are specified to receive sealant compound.
3. LEED Requirements: All interior sealants and adhesives shall comply with the South Coast Air Quality Management District (SCAQMD) Rule #1168, and VOC limits as defined in LEED NC 2.2.

B. Related Work Specified in Other Sections:

1. Gasketing and calking of joints in:
 - a. Concrete pavement - Division 2.
 - b. Concrete floor slabs - Division 3.
 - c. Ceramic tile flooring - Division 9.
2. Gasketing as necessary and calking of joints between adjacent units of the following work is specified in the following Sections; joints between the following work and adjacent construction are to be calked as specified in this Section.
 - a. Preformed Metal Siding - Division 7.
 - b. Flashing and Sheet Metal - Division 7.
3. Raking of mortar joints to receive calking work - Division 4.
4. Gasketing in masonry control joints - Division 4.
5. Glazing Work - Division 8.

1.2 PERFORMANCE REQUIREMENTS

- A. Elastomeric joint sealants: Sealants that provide and maintain watertight and airtight joints and seals without the deterioration and staining of adjacent materials.
- B. Interior joint sealants and calks: Sealants and calks that provide and maintain watertight and airtight joints and seals without the deterioration and staining of adjacent materials.

1.3 SUBMITTALS

- A. Furnish submittals for items that are identified in this Section by a different typeface and a bracketed code (e.g., *Item [L]*). Refer to Division 1 General Requirements for definition of codes for types of submittals and the administrative requirements governing submittal procedure. General submittal requirements pertaining to this Section are specified under this Article.
- B. *Sealant and Calking Compound Data [P]*: Submit product data describing composition, together with color chart.
- C. Sealant Guarantee: Calking work using sealant compound to remain in a serviceable, watertight, elastic, adhesive condition for a period of 5 years from date of final acceptance of the Project. Agree in such written guarantee to make good, at no cost to the Owner, imperfections which may develop in this work during the guarantee period as well as to repair damage to other work caused by such imperfections or the repair of same. Submit guarantees to Owner.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: The Work of this Section shall be carried out by an approved installer having specialized in this Work as its primary business for at least 5 years, and having performed satisfactorily Work of this type, size and scope. Employ craftsmen who are thoroughly skilled and completely familiar with the specified requirements. Provide the services of a competent foreman or supervisor who shall be available at all times during the progress of the work of this Section.
- B. Single source: Obtain and provide sealants of each joint type from 1 manufacturer.
- C. Field test sealant adhesion to substrates before installation as follows:
 - 1. Locate test joints as directed by the Owner's Representative.
 - 2. Conduct the field tests at the determined locations for each application as follows:
 - a. Provide a test joint of each type of elastomeric sealant and substrate.
 - b. Provide a test joint of each type of interior joint sealant and calk and substrate.
 - 3. Coordinate dates and times of the installation of the test joints with the Owner's Representative.
 - 4. Coordinate dates and times of the installations of the test joints for field observation of the test joints by the manufacturer's technical representative.

5. Test joint sealant adhesion by the proposed ASTM hand-pull method as follows:
 - a. Install joint sealants in 4 foot long test joints providing materials, accessories and substrates identical to the Work. Sealants must be cured before testing.
 - b. Make a knife cut horizontally from 1 side of the joint to the other. Also make 2 vertical cuts (from the horizontal cut) approximately 3 inches long on each side of the joint.
 - c. Using fingers, firmly grasp the flap of the sealant at the cut and pull at 90 degrees from the sealant plane. Pull flap until adhesive or cohesive failure is achieved a distance of 1 inch beyond the 3 inch vertical cuts or a distance required by the manufacturer.
 - d. When the seal is interfacing dissimilar materials, a test shall be run separately on each side of the joint by making a third vertical cut down the center of the sealant.
- D. Report cohesive or adhesive failure and pull distances for testing of sealant and substrates. For adhesive failures, retest until adequate adhesion is obtained.
- E. Evaluation: Satisfactory sealants are those that do not fail in adhesion, and which also comply with other requirements of the specification. Sealants that fail to adhere to substrates shall not be used.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged materials to the Project site in their original unopened containers, packages and bundles, bearing labels that identify manufacturer's name, brand name, and grade or type.

1.6 PROJECT SITE CONDITIONS

- A. Do not install compounds when ambient air temperature is less than 40 degF or when recesses are wet or damp; provide temporary heated enclosures to comply with this requirement.
- B. Protect adjacent exposed finished surfaces from damage prior to performing work, by masking or other acceptable means. Remove protection when no longer required, and clean the adjacent exposed surfaces of compound deposited upon them.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Materials, General:
 1. Provide joint sealants that are compatible with backing material, accessories, substrates and adjacent sealants for the intended uses based on the testing, recommendations experience and written instructions of the sealant manufacturer.
 2. Colors for Exposed Joint Sealants: Provide joint sealant colors (from matching Architect-Engineer samples) (as indicated by manufacturer's numbers in this specification section or drawings) (as selected by the Architect-Engineer from the manufacturer's full range of colors).

B. Sealant Compound:

1. Two-Part Polysulfide Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T, NT, M, A, G, and O as appropriate. Furnish in standard colors as selected.
 - a. Morton International “Thiokol 2P”.
 - b. Pecora Corp. “Synthacalk GC-5”
 - c. Polymeric Systems, Inc. Polysulfide PSI-350 Sealant.
 - d. Sonneborn, Division of ChemRex, Inc. “Sonolastic Two Part”
2. One-Part Polysulfide Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A, G and O as appropriate. Furnish in standard colors as selected.
 - a. Morton International “Thiokol 1P”.
 - b. Pecora Corp. “Synthacalk GC-9”
 - c. Polymeric Systems, Inc. “PSI-7000 Polysulfide Rubber”.
 - d. W.R. Meadows Inc., "Deck-O-Seal One Step".
3. Multi-Part Polyurethane Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T, NT, M, G, A, and O as appropriate. Furnish in standard colors as selected.
 - a. Mameco International “Vulkem 227”
 - b. Pecora Corp. “Dynatrol II Sealant”
 - c. Polymeric Systems, Inc. “270 Multi-Component Urethane”.
 - d. Sonneborn, Division of ChemRex, Inc. “Sonolastic NP 2”
 - e. Tremco “Dymeric” or “Dymeric 240 FC”
 - f. Sika "Sikaflex 2CNS".
4. One-Part Polyurethane Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, , G, A, and O as appropriate. Furnish in standard colors as selected.
 - a. Pecora Corp. “Dynatrol 1”.
 - b. Polymeric Systems, Inc. “PSI-901/RC-1 One Part Urethane”.
 - c. Sonneborn, Division of ChemRex, Inc. “Sonolastic NP1”
 - d. Sika "Sikaflex 1A".
 - e. Sika "Sikaflex 15LM".
5. One-Part Silicone Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A, and O as appropriate. Furnish in standard colors as selected.
 - a. Dow Corning Corp. “790 Building Sealant”
 - b. General Electric Silicone Products Department “Silpruf Sealant”
 - c. Pecora Corp. “864 Silicone Sealant”
 - d. Sonneborn, Division of ChemRex, Inc. “Sonolastic Omniseal”
 - e. Tremco “Spectrem 1”
 - f. Sika "Sikasil C-990".
6. One-Part Mildew-Resistant Silicone Sealant: Mildew-resistant formulation; ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A, and O. Furnish in standard colors as selected. Use to seal joints in damp areas such as around ceramic tile, showers, tubs, sinks and other plumbing fixtures.
 - a. Dow Corning Corp. “786 Mildew Resistant Sealant”.
 - b. General Electric Silicone Products Department “Sanitary 1700 Sealant”
 - c. Pecora Corp. “898 Silicone”.
7. *Chemical Resistant Sealant [P]*:
 - a. Pecora Corp. “GC-2 Synthacalk”.

- C. Calking Compound:
 - 1. Acrylic Latex Calk: Non-sag, 1-part latex base calk, per ASTM C834 Furnish in standard colors as selected.
 - a. DAP Inc. "ALEX Acrylic Latex Calk"
 - b. Pecora Corp. "AC-20 Acrylic Latex Calk"
 - c. Sonneborn "Sonolac"
 - d. Tremco "Acrylic Latex Calk Tremflex 834"
 - 2. Acrylic Polymer Calk: ASTM C920, Type S, Grade NS, Class 12-1/2, Use NT, M, A, and O. Furnish in standard colors as selected.
 - a. Tremco "Mono 555"
- D. Primers:
 - 1. Primers: Types recommended by the compound manufacturers to provide adhesion of the compounds to, and to prevent staining of, adjacent surfaces for all conditions encountered on the Project.
- E. Bond-Preventive Materials:
 - 1. Bond-Preventive Materials: Types recommended by the sealant compound manufacturer to prevent bonding of compound to back surface of recess, for all conditions encountered on the Project.
- F. Back-Up Material:
 - 1. Back-up Material: ASTM C1330 Type C of size and density to control sealant. Round, solid section, skinned surfaced, soft foam gasket stock in diameters 1/16 inch to 1/8 inch larger than width of joints in which it is installed. Back-up material skin shall be of proper consistency so as not to bond to sealant or calking compound.

PART 3 EXECUTION

3.1 PREPARATION

- A. Prepare joints to receive compound and verify suitability. Failure of compound in the future, due to claimed unsuitability of joint, will not be valid. Installation of compound is considered as evidence that joint is suitable to receive compound.
- B. Clean recesses which are to receive compound so as to be free of dirt, dust, loose material, oil, grease, form release agents and other substances detrimental to the compound's performance. Remove lacquer and other protective coatings from metal surfaces without damaging the metal finish; use oil-free solvents.
- C. Apply masking tape to surfaces adjacent to recesses to prevent smearing, staining or damage by sealant contact or by sealant cleaning methods to remove smears. After joint tooling, remove tape without disturbing or damaging the sealant joint.
- D. Depth of recess to receive compounds is not to exceed joint width up to a maximum of 1/2 inch. Where depth of recess is in excess of specified depth, place back-up material in recess, and

force into place under compression, to provide the specified recess depth. Where depth of recess is less than specified depth, cut the back surface of recess to the specified recess depth.

- E. Recesses are to be dry when compounds are installed. Prime recesses in accordance with the compound manufacturer's written instructions, to develop proper mechanical adhesion of compound to recess surfaces. Keep primers to recessed areas of joint sealant bond. Prevent spillage and primers from damaging or staining adjacent surfaces.
 - 1. Where depth of recess for sealants is at proper depth, apply bond-preventive material to back surface of recess.

3.2 INSTALLATION

- A. Install materials per manufacturer's directions. Use materials as received from the manufacturers, without additives or adulterations. Use 1 manufacturer's product for each kind of product specified.
 - 1. Mix 2-component compound per manufacturer's directions, until the compound is thoroughly and uniformly blended and install compound prior to start of hardening or curing cycle.
- B. Install compound immediately after adjoining work is in condition to receive such work. Fill all joints completely, regardless of variation of joint widths, and to full depth as prepared, at no extra cost to the Owner. Install compounds under pressure, without smearing adjacent surfaces.
 - 1. Sealant compounds must have full and uniform contact with, and adhesion to, side surfaces of recess.
 - 2. Calking compounds must have full and uniform contact with, and adhesion to, all surfaces of recess.
- C. Finish face of compound in recesses smooth and even. At recesses in angular surfaces, finish the compound with a flat face, flush with face of material at each side. At recesses in flush surfaces, finish the compound with a concave face, flush with face of material at each side. Compound may be tooled, provided that such tooling does not damage the seal nor tear the compound. Surface of compounds shall be free from dirt, stain or other defacements and shall be smooth and uniform in color.

3.3 ADJUSTING AND CLEANING

- A. Remove compounds not complying with these requirements, re-prepare the recesses and install new compounds to provide finish work complying with the requirements specified, at no extra cost to the Owner.

- B. Clean surfaces adjacent to the calked joints, remove compound smears or other soiling resulting from application of compounds. At metal surfaces, remove masking tape and other residue. Exercise care in cleaning and removal operations so as not to mar or damage finishes on materials adjacent to joints. Repair or replace marred or damaged materials, at no cost to the Owner.

END OF SECTION

Revision History	
Date	Rev. No.
A	0
B	0
C	0
D	0
E	0
F	0
02-19-09	0

DS/djo

C:\d\timsdata\sf\brookhaven_national_laboratory\sf070003\200-projexec\280-spec\07900.doc

THIS PAGE INTENTIONALLY LEFT BLANK