SECTION 07900

JOINT SEALANTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope: Furnish and install all caulking and sealant shown on the Drawings, specified herein and not specified under other sections

1. Seal all openings shown on the Drawings and at other locations requiring caulking to seal visually and against infiltration from air and water, including, but not limited to the following
   a. Control joints and expansion joints in masonry and concrete construction
   b. Flashing retainers
   c. Isolation joints between structure and other elements
   d. Joints at penetrations of walls, decks, and floors by piping and other service and equipment
   e. Joints between items or equipment and other construction
   f. Joints between door frames and adjacent materials, exterior and interior
   g. Bedding for all door thresholds and floor-mounted hardware
   h. Open joints between dissimilar materials; joints around door frames, louvers, and other penetrations in the interior or exterior walls as detailed or specified
   i. Joints between foundation and interior floor slabs or exterior flatwork
   j. Other joints as detailed

B. Additional Requirements Specified Elsewhere

1. Section 01340: Shop Drawings, Product Data, and Samples
2. Section 01400: Quality Control
3. Section 01600: Materials and Equipment

C. Related Requirements Specified Elsewhere

1. Section 03300: Cast-in-Place Concrete
2. Section 04200: Unit Masonry
3. Section 05501: Anchor Bolts and Drilled-In Anchors
4. Section 05400: Steel Framing
5. Section 06100: Carpentry
6. Section 07501: Metal Roof and Wall Panels
7. Section 07600: Flashing and Sheet Metal
8. Section 08100: Metal Doors and Frames
9. Section 08301: Overhead Sectional Door
10. Section 08510: Steel Windows
11. Section 08630: Fiberglass Reinforced Plastic Windows
12. Section 08710: Finish Hardware

13. Section 09900: Painting
14. Section 13121: Prefabricated Metal Building

1.2 QUALITY ASSURANCE

A. Applicator Qualifications: All caulking shall be by a sealant contractor, recognized as such, and in business for at least five years prior to this installation, employing skilled tradesmen for the Work

1.3 SUBMITTALS

A. In Accordance with Section 01340

B. Color Samples: Submit color chart for each type of sealant for Owner's color selection

C. Product Data: Submit product data for each material intended for use and location of application

D. Warranty: Submit warranty specified under Section 1.6

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver product in original, unopened containers and store in an area not subject to extreme heat or cold

1.5 JOB CONDITIONS

A. Environmental Conditions

1. Do not apply exterior sealants during wet weather and when the outside temperature is below 40°F
2. Do not apply interior sealants when the inside temperature is below 60°F

1.6 WARRANTY

A. Furnish a three-year written warranty to replace any or all joints which failed during the warranty period at no additional cost to the Owner

B. Submit two copies of written guarantee agreeing to repair or replace sealants which fail to perform as airtight and watertight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability; or appear to deteriorate in any other manner, not clearly specified as an inherent quality of the material by submitted manufacturer's data

C. Warranty shall date from final acceptance of the project by the Owner

PART 2 - PRODUCTS

2.1 JOINT BACKING MATERIAL

A. General

1. Size joint backing material for minimum 30% compression when inserted in the joint
2. Material shall be round rod or semicircular type

B. Design Basis

1. Dow Chemical Company, Ethafoam
2. Sonneborn, Sonofoam
3. Schlegel Manufacturing Company, Schlegelfoam
4. Denver Foam
5. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials, and performance of the specified items

2.2 SEALANT MATERIAL

A. Design Basis

1. DAP, Inc.
2. Sika Corporation
3. Pecora Corporation
4. Products Research and Chemical Corporation
5. Sonneborn Building Products
6. Tremco Manufacturing Company
7. Mameco International
8. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials, and performance of the specified items

B. Acceptable Materials

1. Interior and under thresholds: Latex acrylic
2. Sealant at concrete slabs: Two component self-leveling urethane
3. All other caulking: One or two component polysulfide, Type 1, Class B nonsag
4. Primer: As recommended by the sealant manufacturer
5. Plastic joint sealer, where indicated on the drawings or specified
   a. Horizontal application: Pecora "Urexpan NR-200" or equivalent
   b. Vertical application: Pecora "Dynatrol II" or equivalent
6. Sealant at foundations: Sika Corporation "Sikaflex 1a" or equivalent

2.3 BOND BREAKER TAPE

A. Polyethylene tape or other plastic tape as recommended by the sealant manufacturer to be applied to sealant contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant

B. Provide self-adhesive tape wherever applicable

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect all areas to receive caulking and sealant prior to application of such

B. If any joint or space to receive caulking or sealant is not according to detail and cannot be put into proper condition to receive the work by specified methods, notify Engineer in writing, or assume responsibility for and rectify any unsatisfactory caulking and sealing which results

3.2 PREPARATION

A. Preparation of Surfaces

1. Clean all surfaces in accordance with manufacturer's recommendations
2. Mask edges if required to protect adjoining surfaces and produce a straight finish line
3. Clean joint surfaces immediately before installation of sealant or caulking compound
    a. Remove dirt, insecure coatings, moisture, oil, grease, form release compounds, concrete curing compound, and other substances which would interfere with bond of sealant or caulking compound
4. Do not proceed with installation of sealant over joint surfaces which have been painted, lacquered, waterproofed, or treated with water repellent or other treatment or coating
    a. Remove coating or treatment at joint surfaces before installing sealant
5. Etch concrete masonry joint surfaces to remove excess alkalinity unless sealant manufacturer's printed instruction indicates that alkalinity does not interfere with sealant bond and performance
    a. Etch with 5% solution of muriatic acid, neutralize with diluted ammonia solution, rinse thoroughly with water and allow to dry before sealant installation

B. Priming

1. If required, prime all surfaces which are to be caulked with manufacturer's recommended or standard primer after the surfaces have been prepared as specified
2. Before use, check all primers for discoloration and dirt pick up on adjacent surfaces
    a. If staining occurs after exposure, take adequate measures to prevent the primer from being applied over the face of adjacent porous materials by masking or other suitable measures

C. Joint Backing

1. All joints which are to be caulked shall be of depth necessary to provide for the specified allowable thickness of sealant and also the required backing where specified
   a. Backing shall be to extent and type as specified and needed to provide for the allowable depth of the sealant
2. Backup materials for sealants shall be non-staining, compatible with the sealant and primer, shall be of a resilient nature and as recommended by the manufacturer of the sealant
   a. Size and shape of the backing shall be as required by the width of the joint and/or specified
   b. Do not use materials impregnated with oil, solvents, or bituminous materials
3. Compress backing material a minimum of 30% when inserted in the joint
   a. Backing material for the upper portion of joints shall be round rod or semicircular in cross section with the arc in contract with the sealant
4. Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly

3.3 APPLICATION

A. Exterior Metal Sills: Set in full bed of polysulfide sealant

B. Thresholds: Set in full bed of acrylic sealant

C. Caulk Joints

1. Apply sealants in continuous beads without open joints, voids, or air pockets, using a ratchet handgun or mechanical powered gun
2. Confine sealants to joint areas with masking tape or other precautions
   a. Apply compounds in concealed compression joints accurately so that excess compound will not extrude from joints
3. Remove excess compound or sealant promptly as work progresses, and clean adjoining surfaces
4. In rough surfaces or joint of uneven widths install sealant well back into joint (recess equal to width of joint, or 3/8" minimum at masonry)
5. Anti-tack agent shall be used where necessary to protect freshly applied sealant from dirt
6. Joints shall be slightly recessed as to facilitate a painter's line
   a. All joints throughout construction shall be handtooled and finished
7. All work shall be done according to manufacturer's printed instructions and specifications

D. Concrete Slab Control Joints: Pour joints full, but not overflowing

E. Workmanship

1. Employ only proven installation techniques which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides

2. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces
3. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt

F. Joint Sizes: Install sealants to depths as recommended by the sealant manufacturer but within the following general limitations

1. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but not more than ½" deep or less than ¼" deep
2. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in the range of 75% to 125% of joint width

G. Spillage

1. Do not allow sealants or compounds to overflow or spill onto adjoining surfaces or to migrate into the voids of adjoining surfaces
2. Use masking tape or other precautionary devices to prevent staining of adjoining surfaces by either the primer/sealer or the sealant/caulking compound
3. Remove excess and spillage of compounds promptly as the work progresses
4. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage
5. Do not damage the adjoining surfaces or finishes

3.4 FIELD QUALITY CONTROL

A. Where directed by the Engineer, cut out and remove a total of three samples consisting of the undisturbed sealant and back-up material from the joint

1. Samples to be 6" in length

2. Reseal cut out areas with the same materials

3.5 CURING, PROTECTION, AND CLEANING

A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability

B. The installer shall advise the contractor of procedures required for the protection of sealants and caulking compounds during the construction period, so that they will be without deterioration or damage (other than normal weathering) at the time of acceptance

C. Protect all surfaces from damage

1. Clean soiled surfaces immediately
2. Replace with new material any damaged material which cannot be cleaned

END OF SECTION