SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for furnishing and installing joint sealants.

B. Related Sections:

1. Firestopping sealants are specified in Section 07 84 00.

2. Joint sealants related to flashing and sheet metal work are specified in Section 07 62 00.

3. Acoustical joint sealants are specified in Section 07 92 19.

4. Glazing sealants are specified in Section 08 80 00.

1.02 SUBMITTALS

A. Product Data: Manufacturer's technical data for each product required, including instructions for joint preparation and sealant application. Include certification by joint sealant manufacturer that sealants, primers, and cleaners comply with local regulations controlling the use of volatile organic compounds (VOC).

B. Samples: Manufacturer's bead samples of actual products showing full range of colors available, for each product exposed to view.

C. Test Reports:

1. Certified test results of elastomeric sealants showing compliance with specified requirements. Include results of aged performances including hardness, stain-resistance, adhesion and cohesion under cyclic movement, low temperature flexibility, modulus of elasticity at 100-percent strain, affects of heat and aging, and affects of accelerated weathering.

2. Preconstruction field test results indicating which products and joint preparation methods demonstrated acceptable adhesion to joint substrates.

D. Certificates: Manufacturer's certification that joint sealants comply with specified requirements and are suitable for required uses.

E. Warranty.

F. LEED Submittals:

1. Credit IEQ 4.1: Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D.

a. Furnish LEED Online Credit Template listing the adhesives and sealants used in the building and declaring that they meet the specified LEED requirements.

b. Required Audit Documentation:

1) Product data sheets and MSDS for each adhesive/sealant used on the interior, with the VOC content in g/L circled and indicating VOC content of each product used.

2) Summary table comparing credit VOC requirements and actual VOC levels for each product.

1.03 QUALITY ASSURANCE

A. Installer's Qualifications: Completion of at least 3 installations similar in type and size to this Project.

B. Obtain joint sealant materials from a single manufacturer for each product required unless otherwise approved.

C. Preconstruction Compatibility and Adhesion Testing: Submit sample substrate materials to be sealed to joint sealant manufacturer for testing of adhesion and for compatibility with secondary seals.

1. Determine if priming and/or other preparation techniques are required.

2. Determine compatibility of exterior joint sealant with stone material to be used. Verify that joint sealant oils do not migrate onto stone face causing visual banding while wet or dry. Manufacturer shall perform staining tests of sealant systems in accordance with ASTM C510 and ASTM D2203 methods for each joint substrate condition in the work.

3. Testing for adhesion is not required if sealant manufacturer has performed previous testing of proposed sealants for adhesion to and compatibility with required joints substrates.

D. Preconstruction Field Testing: Prior to installation of joint sealants, field-test adhesion to joint substrates.

1. Install joint sealants in 5-foot joint lengths. Allow to cure before testing. Test adhesion by pulling sealant out of joint according to "Method A, Field-Applied Sealant Joint Hand Pull Tab", in Appendix X1 in ASTM C1193. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

2. Perform field tests for each type of elastomeric sealant and joint substrate.

3. Arrange for tests to take place with joint sealant manufacturer's technical representative present.

4. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

5. Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrate during testing.

1.04 ENVIRONMENTAL QUALITY ASSURANCE

A. Credit IEQ 4.1: Adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards:

1. Adhesives, Sealants and Sealant Primers: Comply with South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits as follows:

Architectural Applications	VOC Limit g/L less water	Specialty Applications	VOC Limit g/L less water
Indoor Carpet Adhesives	50	PVC welding	510
Carpet pad adhesives	50	CPVC welding	490
Wood flooring adhesives	100	ABS welding	325
Rubber floor adhesives	60	Plastic cement welding	250
Subfloor adhesives	50	Adhesive primer for plastic	550
Ceramic tile adhesives	65	Contact adhesive	80
VCT and asphalt adhesives	50	Special purpose contact adhesive	250
Drywall and panel adhesives	50	Structural wood member adhesive	140
Cove base adhesives	50	Sheet applied rubber lining operations	850
Multipurpose construction adhesives	70	Top and trim adhesive	250
Structural glazing adhesives	100		

Substrate Specific Applications	VOC Limit g/L less water	Sealants	VOC Limit g/L less water
Metal to Metal	30	Architectural	250
Plastic foams	50	Nonmembrane roof	300
Porous material (except wood)	50	Roadway	250
Wood	30	Single-ply roof membrane	450
Fiberglass	80	Other	420
Sealant Primers	VOC Limit (g/L less water)		
Architectural, nonporous	250		
Architectural, porous	775		
Other	750		

2. Aerosol Adhesives: Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000.

Aerosol Adhesives	VOC Limit
General purpose mist spray	65% VOCs by weight
General purpose web spray	55% VOCs by weight
Special purpose aerosol adhesives (all types)	70% VOCs by weight

B. Applicable LEED Credits:

1. Credit IEQ 4.1 – Low-Emitting Materials - Adhesives and Sealants.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in the unopened, original containers or unopened packages with manufacturer's name, labels, product identification, color, expiration period, curing time and mixing instructions for multi-component materials.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturers.

1.06 PROJECT CONDITIONS

A. Environmental Conditions: Do not install sealants when ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer, or to wet joint substrates.

B. Joint Width Conditions: Do not install sealants when joint widths are less than permitted by sealant manufacturer.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.07 WARRANTY

A. Exterior Sealants: Furnish a written warranty against leaks or other defects of materials and workmanship for a period of 10-years. Defects include but are not limited to changes in the structural, physical or chemical properties of the sealant materials that impair function or require abnormal maintenance, changes in surface finish, color or texture, failure in adhesion, weather resistance or durability, failure to prevent entry of water, or failure to comply with specified requirements.

B. This warranty shall not cover formation of cracks or defects in substrate materials adjacent to the seal, joint movement in excess of movement rating of sealant, or physical damage caused by others.

C. Repair or replace defective materials and workmanship during warranty period without expense to County, including removal and replacement of other items as required.

D. This warranty shall be in addition to and not a limitation of other rights the County may have against the Developer Design/Builder under the Contract Documents.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Provide color of exposed joint sealants as selected by County's Representative. Custom colors will be used.

B. Provide joint sealers, joint fillers and other materials that are compatible with one another and with joint substrates, as demonstrated by testing and field experience.

2.02 ELASTOMERIC JOINT SEALANTS

A. Exterior Building Sealant: Either one-part silicone complying with ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A, and O or multi-component polyurethane complying with ASTM C920, Type M, Grade NS, Class 25, Use NT, M, A, and O. Dow Corning Corp. "790" or "795", Tremco "Spectrem 1" or approved equal. Sealant shall resist ultra-violet, heat, ozone and moisture exposure and shall withstand substrate surface temperatures as high as 250-deg. F. and a surface temperature range of 150-deg. F.

B. Sanitary Sealant: One-part mildew-resistant silicone; ASTM C920 Type S; Grade NS; Class 25; Uses NT, G, A and O; formulated with fungicide for sealing interior joints with nonporous substrates around ceramic tile, showers, sinks and plumbing fixtures; Dow Corning Corp. "786 Mildew Resistant", General Electric Co. "Sanitary 1700", Sonneborn Building Product Div. "Sonolastic Omniplus", Tremco Tremsil 200 or approved equal.

C. Horizontal Joint Sealant: Two-part pourable urethane; ASTM C920, Type M; Grade P; Class 25; Uses T, M, A and O; Pecora Corp. "NR-200 Urexpan", Sonneborn "Sonolastic Paving Joint Sealant", Tremco, Inc. "THC-900/901" or approved equal. Horizontal joint sealant shall have a minimum Shore A hardness of 30.

2.03 LATEX JOINT SEALANTS

A. Interior Building Sealant: Acrylic-emulsion; one-part, nonsag, mildew-resistant, complying with ASTM C834, formulated to be paintable; Pecora Corp. "AC-20", Sonneborn "Sonolac", Tremco Inc. "Tremco Acrylic Latex 834" or approved equal.

2.04 JOINT FILLERS FOR CONCRETE PAVING

A. Joint Filler: Preformed cork strips complying with ASTM D1752 for Type II or preformed sponge rubber strips complying with ASTM D1752 for Type I.

2.06 JOINT SEALANT BACKING

A. General: Provide sealant backings which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved by sealant manufacturer.

B. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam, of size, shape and density to control sealant depth.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer. Provide self-adhesive tape where applicable.

2.07 MISCELLANEOUS MATERIALS

A. Primer: As recommended by joint sealant manufacturer for adhesion of sealant to joint substrates.

B. Cleaners for Nonporous Surfaces: Non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.

C. Masking Tape: Non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove foreign material from joint substrates which could interfere with adhesion of joint sealant, including dust, paints, oil, grease, waterproofing, water repellents, water, and surface dirt.

2. Clean porous surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or acid washing to produce a clean, sound substrate. Remove loose particles remaining from cleaning operations by vacuuming or blowing out joints.

3. Remove laitance and form release agents from concrete.

4. Clean non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond, do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces. Remove tape immediately after tooling without disturbing joint seal.

3.02 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturers' printed installation instructions applicable to products and applications, except where more stringent requirements apply. Provide temporary ventilation during installation of interior joint sealants.

B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications and conditions.

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

1. Install joint-fillers to provide sealant support for optimum performance cross-sectional shapes and depths.

a. Do not leave gaps between ends of joint-fillers.

b. Do not stretch, twist, puncture or tear joint-fillers.

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

2. Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints where required to prevent third-side adhesion of sealant to back of joint.

D. Installation of Sealants: Install sealants by proven techniques to contact and full wet joint substrates, completely filling recesses provided for each joint configuration and providing uniform, optimum performance cross-sectional shapes and depths.

E. Tooling of Non-sag Sealants: Tool sealants to form smooth, uniform beads, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.03 PROTECTION AND CLEANING

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage.

B. Cut out and remove damaged or deteriorated joint sealers and reseal joints with matching new materials.

C. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by sealant manufacturer.

3.04 WASTE MANAGEMENT

A. General: Comply with Section 01 74 19.

B. Close and seal tightly all partly used sealant containers and store protected in well ventilated fire-safe area at moderate temperatures.

C. Place used sealant tubes and containers in areas designated for hazardous materials.

END OF SECTION