SECTION 07 95 10

SEALANTS

PART 1 GENERAL

1.1 DESCRIPTION

A. This work includes furnishing of all labor, materials, tools and equipment and performing all work necessary for and incidental to the sealing and caulking of joints and cracks, including back-up fillers, as shown in the drawings and specified herein.

1.2 QUALITY ASSURANCE

A. Sealant applicator shall have a minimum of five years of experience in installation of similar caulking and sealants, and jobs of similar size. Submit a list of three completed projects of similar size and scope completed by sealant applicator within the past five years.

B. The Contractor shall meet with the sealant manufacturer's qualified representatives, prior to commencing with the work, to assure that all applications are in conformance with the manufacturer's recommendations. The manufacturer's qualified representatives shall periodically visit the job site during the course of the work to verify the proper installation of the sealant compounds. All such Project Site visits and meetings shall be documented in writing to the Architect/Engineer.

1.3 WARRANTY

A. Provide a single-source warranty against defects in materials and workmanship in crack and joint sealants, for a period of five years from date of installation. The warranty shall provide the Contractor will provide at no expense to the Owner all labor and materials necessary to correct any faults or defects in the work. The following problems shall be specifically covered under the warranty:
   1. Cohesive or adhesive failure of the seal.
   2. Weathering deficiencies resulting in failure of the seal.
   3. Abrasion or tear failure of the seal resulting from normal traffic use.

1.4 SUBMITTALS

A. Submit the following to the Architect/Engineer prior to beginning sealant work:
   1. Manufacturer's Literature: Materials description and installation instructions (including surface preparation) for each compound and filler.
   2. Samples: Samples of each compound and filler.

B. Laboratory Data: Submit results of laboratory adhesion testing for all sealant and substrates per ASTM C 794 “Adhesion-in-Peel of Elastomeric Joint Sealants”.

1.5 PRODUCT DELIVERY, HANDLING AND STORAGE

A. All materials shall be delivered to the job site in manufacturer's sealed packaging and suitably protected from damage and exposure to the elements while stored at the Project Site. Damaged or deteriorated materials shall be removed from the premises.

1.6 JOB CONDITIONS

A. Environmental Conditions: Do not apply if precipitation appears imminent. Do not apply any compound when ambient or surface temperature is less than or equal to 40ºF unless specifically approved by the sealant Manufacturer and Architect/Engineer.

B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to the mixing and handling of the sealant.

1.7 PAYMENT

A. The Work of this Section shall be performed on a lump sum basis.

PART 2 PRODUCTS

2.1 MATERIALS

A. Sealant Type 1 (to be used at all concrete-to-concrete joints): The sealant shall be a two-component polyurethane non-sag sealant of the chemical curing type, containing no asphalt, fillers or plasticizers. The sealant shall be suited with a compatible primer prescribed by the manufacturer. One of the following sealants, or an approved equal, shall be used:
   1. Iso-Flex 881 (non-sag), manufactured by LymTal International, Inc.
   2. Sikaflex-2c NS EZ Mix+ (with the TG+ additive for increased hardness/durability in traffic areas), manufactured by Sika.

B. Backer Rod: Non-gassing Closed Cell: Soft Backer Rod manufactured by BASF or approved equal, with configuration as shown on Drawings.

C. Joint cleaners, primers and sealers: As recommended by the sealant manufacturer for the specific joint surface and conditions.

D. Bond Breaker: Polyethylene tape.

E. Color samples of all sealant products shall be submitted to Owner and Architect/Engineer for approval.

PART 3 EXECUTION

3.1 PREPARATION

A. Examine all surfaces to receive sealants. All surfaces that are found to be unsuitable for installation of sealants shall be brought to the attention of the Architect/Engineer. Application or installation of the material constitutes acceptance of the surface of the substrate.

B. Select only sealing compounds of manufacturers who agree to have a qualified representative visit the site at the beginning of the joint sealing work and periodically thereafter as necessary to ensure the proper installation of the sealing compounds.

C. Prior to beginning joint sealant work, applicator shall make sample installations in representative types of prepared joints to demonstrate the adequacy of preparation procedures in providing optimum sealant adhesion. Refer to mock-up requirements in Section 3.3 below.

Sample applications shall be approved by the Manufacturer's Representative and Architect/Engineer prior to the start of work.

D. Remove all existing sealants from the areas to be resealed. Care shall be used in the removal of sealants to prevent damage to existing construction to remain.

E. Examine all surfaces to receive the parts of the Work specified herein. All surfaces to receive sealants shall be clean, dry, free of any loose materials including dirt, dust, laitance, rust, oil, frost, and other contaminants.

F. At all times, follow the manufacturer’s recommendations.

G. Clean surfaces and remove all sealant and protective coatings which might fail in adhesion or interfere with bond of compound so that surfaces are free of deleterious substances which might impair the Work. Except as otherwise approved by the manufacturer, elastomeric sealants shall not be applied to joint surfaces previously treated with paint, lacquer, sealer, curing compound, water repellent or other coatings unless such coatings have been entirely removed.

H. Where steel anchorage occurs, do not reduce steel cross section during joint preparation. In no case shall any existing component be reduced more than 1/32 in.

I. Prime surfaces in accordance with the instructions of the sealant manufacturer. Primer is to be applied to all substrates unless manufacturer states in writing to Architect/Engineer that this is not necessary after inspecting the particular conditions at the site.

J. Install bond breakers in locations and of type recommended by the sealant manufacturer to prevent bond of sealant to surfaces where such bond might impair the performance of the sealant. In all joints to receive sealant, except for cap beads, install bond breaker specified over backup unless otherwise recommended by sealant manufacturer.

K. Install spacer tape at cap bead joints and bridge seals to provide formwork for sealant application and backing for tooling.

L. Verify dimensions of sealant joints at the project site by field measurement so that all proper sealant profiles will be accurately maintained.

3.2 INSTALLATION

A. Prior to sealing, exposed joint or crack surface shall be thoroughly cleaned in accordance with the sealant manufacturer's recommendations. Installation procedures shall be in accordance with the manufacturer's recommendations and the following requirements.

B. Install bond breakers and backer rods where shown on the drawings and in locations and of the type recommended by the sealant manufacturer to prevent bond of sealant to surfaces where such bond might impair the performance of the sealant.

C. Apply joint sealant materials using cartridge-type caulking guns.

D. Install sealants and primers only when surface and ambient temperatures are at least 40 degrees F (or the minimum installation temperature recommended by the sealant manufacturer, if higher) and rising, unless specifically approved by the sealant manufacturer and

Architect/Engineer. Do not install sealants when surface or ambient temperatures exceed 100 degrees F.

E. Run the sealant beads sufficiently slowly that the entire cavity is filled from the bottom up. Air pockets or voids along the edges are not acceptable.

F. Tool sealant surfaces to the profiles shown on the drawings where shown, or to flush or slighting concave surface.

3.3 MOCK-UPS AND FIELD ADHESION TESTING

A. Perform trial sealant applications for all substrates and joint conditions in mock-up area selected by the Owner and Architect/Engineer prior to complete mobilization for review to determine the adhesive strength of the sealant and any necessary revisions to surface preparation and/or sealant application procedures. Sealant supplier is to be present. Only based upon test results can further activity proceed. The initial sealant application in the test area shall be made in accordance with written instructions from the sealant manufacturer indicating cleaning, priming and application procedures. These written instructions should be based upon wet and dry laboratory adhesion tests. After an appropriate cure period, a field adhesion test is to be performed as indicated below.

B. As a check for adhesion, at least one hand pull test shall be conducted after the sealant is fully cured (usually within 14 to 21 days) in accordance with ASTM C1521, Evaluating Adhesion of Installed Weathering Sealants. This will be done at each joint in the mock-up and at other locations at Architect/Engineer's discretion. Adhesion in peel tests on the mock-up shall be performed following successful completion of ASTM C1521 tests specified in Paragraph 3.04. The adhesion test shall be performed in accordance with the following procedure:
   1. Make a knife cut horizontally from one side of the joint to the other.
   2. Make two vertical cuts approximately 2 in. long at the sides of the joint meeting the horizontal cut at the top of the 2 in. cuts.
   3. Grasp the 2 in. piece of sealant firmly between the fingers and pull down at a 90 degree angle or more and try to pull the uncut sealant out of the joint.
   4. If adhesion is proper, the sealant should tear cohesively (within itself) before releasing from the substrate.
   5. Areas experiencing failures will be examined and these areas will have the existing sealant removed and then the surfaces recleaned, primed and reapply sealant.

C. Test areas will be selected by Owner and Architect/Engineer. Areas experiencing failure will have all material removed and released as necessary to assure good adhesive bond of the sealant.

3.4 PROTECTION

A. All surfaces adjacent to sealant joints shall be protected, unless otherwise approved by the Architect/Engineer. Use pressure sensitive tape to prevent staining of adjacent surfaces, or spillage and migration of sealant out of the joints, as required.

B. The sealants shall be protected from traffic and debris until fully cured.

3.5 CLEAN UP

A. As work progresses, remove excess sealant and clean adjoining surfaces as required. Remove all masking and other protection and clean up any remaining defacement caused by the work.

B. Clean up and remove from the project site all debris, refuse and surplus materials.

END OF SECTION