SECTION 07 92 00

JOINT SEALANTS

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\*\* NOTE TO SPECIFIER \*\* Garland Company, Inc. (The); Fluid applied roof restoration products.  
.  
This section is based on the products of Garland Company, Inc. (The), which is located at:  
3800 E. 91st St.  
Cleveland, OH 44105  
Toll Free Tel: 800-321-9336  
Tel: 216-641-7500  
Fax: 216-641-0633  
Email:[request info (ebuczek@garlandind.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Garland+Company,+Inc.+(The)&coid=32695&rep=&fax=216-641-0633&message=RE:%20Spec%20Question%20(07563gar):%20%20&mf=)  
Web:<http://www.garlandco.com>  
  
[[Click Here](http://www.arcat.com/arcatcos/cos32/arc32695.html)] for additional information.  
  
Garland offers a complete range of coatings that enhance, restore, and repair your roofing systems. Our coatings are designed for use with single-ply, BUR, modified bitumen, and metal substrates for a variety of slope configurations. We also offer a complete range structural standing seam metal roofing systems, metal trim, termination, and flashing systems, as well as fully integrated wall systems.  
  
This section includes system descriptions for fluid applied restoration products for modified roofs and flashing replacement. All-Knight, Black-Knight, White-Knight and White-Knight Plus systems are used for US and UK applications. All-Stallion, Black-Stallion, White-Stallion and White-Stallion Plus systems are used for Canada applications. Consult your local Garland Representative for recommendations on each system component.

1. GENERAL
   1. SECTION INCLUDES: Requirements including but not limited to:
      1. Control and expansion joints on exposed surfaces.
      2. Perimeter joints between wall surfaces and frames of doors, windows, louvers and other openings.
      3. Joints as indicated or as necessary.
      4. Accessories necessary for a complete installation.
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Division 4 Section “Maintenance of Unit Masonry” for sealing masonry joints.
    2. Division 7 Section "Manufactured Wall Panels" for sealing joints related to metal wall panels.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
    2. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
  1. SUBMITTALS
     1. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     2. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
     3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
  2. QUALITY ASSURANCE
     1. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
     2. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.
  3. PRE-INSTALLATION CONFERENCE
     1. Convene a pre-installation conference approximately two weeks before scheduled commencement of sealant installation and associated work.
     2. Require attendance of installers of sealant products and other associated work which must precede or follow sealant work as well as, Architect, Owner, and sealant manufacturer's representative.
     3. Objectives include:
        1. Review foreseeable methods and procedures related to sealant work, including set up and mobilization areas for stored material and work area.
        2. Tour representative areas of building substrates, inspect and discuss condition of substrate and preparatory work.
        3. Review Drawings, Specifications and other Contract Documents.
        4. Review and finalize schedule related to sealant work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
        5. Review required inspection, testing, certifying procedures.
        6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary weather protection.
        7. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.
     4. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Mockups establish the standard by which the Work will be judged.
  4. DELIVERY, STORAGE, AND HANDLING
     1. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
     2. Store and handle materials in compliance with manufacturer's recommendations to prevent deterioration or damage due to moisture, high/low temperatures, contaminants, or other causes.
  5. PROJECT CONDITIONS
     1. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions: Weather Condition Limitations: Do not install sealant during inclement weather or when inclement weather is expected.
        1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F (4.4 deg C).
        2. When joint substrates are wet.
     2. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
     3. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.
  6. WARRANTY
     1. Installer Warranty: Installer shall warrant all sealant work for two (2) years from the date of Substantial Completion for any failure or defects in installation and workmanship of sealant systems.
     2. Manufacturer’s Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
        1. Warranty Period: Five (5) Year Limited Material Only from date of Substantial Completion.

\*\* NOTE TO SPECIFIER \*\* Select the warranty required for the system specified from the following paragraphs and delete those not required. Various Garland warranties are available. Warranties range from limited materials warranties to limited materials and labor warranties with options for extending the term up to 15 years with required 5 year inspections.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Fax: 216-641-0633; Email:[request info (jbosl@garlandind.com)](mailto:request%20info%20(jbosl@garlandind.com)); Web:<http://www.garlandco.com>
   2. MATERIALS, GENERAL
      1. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
      2. Colors: Provide color of exposed joint sealants to comply with the following:
         1. Provide selections for review and approval by Owner from manufacturer's full range of standard colors for products of type indicated.
   3. JOINT SEALANTS
      1. Sealant Standard: Provide manufacturer's recommended sealants that comply with ASTM C 920 and other requirements indicated on each joint sealant data sheet at the end of this section, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.
         1. Silicone Polymer Hybrid Sealant
            1. Tuff-Stuff MS: One part, 100% solids, non-sag sealant as approved and furnished by the sealant manufacturer for cracks, movement and non-movement joints.

Shrinkage: No measurable shrinkage after 14 days

Elongation, ASTM D 412: 550%

Hardness, Shore A, ASTM C 661: 24 +/-3

Class: 50

* + - 1. Silicone Polymer Hybrid Sealant
         1. Green-Lock Sealant XL: One part, 100% solids, non-sag sealant as approved and furnished by the sealant manufacturer for cracks, movement and non-movement joints.

Service Temp -40°F to 200°F (-40°C to 93°C)

Elongation, ASTM D 412: 550%

Hardness, Shore A, ASTM C 661: 24 +/-3

* + - 1. Epoxy Urethane Hybrid Sealant
         1. Perma-Joint: Two part, 100% solids, self-leveling high performance, durable sealant as recommended and furnished by the sealant manufacturer.

Tensile Strength, ASTM D 412: 3,289 psi

Flexural Strength, ASTM D 790: 2,782 psi

Elongation, ASTM D 412: 50.4%

Hardness, Shore D: 56

* + - 1. Silicone Sealant
         1. All-Sil: One part, medium modulus, non-corrosive high performance silicone sealant as recommended and furnished by the sealant manufacturer for wet glazing and non-porous substrates.

Tensile Strength, ASTM D 412: 190 psi

Elongation, ASTM D 412: 650%

Hardness, Shore A, ASTM C 661: 15

Joint Movement Capability ASTM C 719: +/-50%

* 1. JOINT SEALANT BACKING
     1. General: Provide sealant backings of material and type that are non-staining; 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.
     2. Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-staining, non-waxing, non-extruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
        1. Proprietary, reticulated, closed-cell polymeric foam, non-out-gassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623, and with water absorption less than 0.02 gms/cc per ASTM C 1083.
     3. 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. MISCELLANEOUS MATERIALS
     1. 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.
     2. 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.
     3. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

\*\* NOTE TO SPECIFIER \*\* This section includes product requirements for Edge Treatments and Roof Penetration Flashings. Coordinate with the installation requirements specified under Installation and with Garland's Standard Flashing Details.

1. EXECUTION
   1. EXAMINATION
      1. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected at no cost to project by the responsible contractor.
   2. PREPARATION
      1. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
         1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
         2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
         3. Remove laitance and form release agents from concrete.
         4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
      2. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. 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.
      3. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
   3. INSTALLATION OF JOINT SEALANTS
      1. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
      2. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
      3. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
         1. Install joint fillers of type indicated to 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 that allow optimum sealant movement capability.
            1. Do not leave gaps between ends of joint fillers.
            2. Do not stretch, twist, puncture, or tear joint fillers.
            3. Remove absorbent joint fillers that 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 joint where required to prevent third-side adhesion of sealant to back of joint.
      4. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes, and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
      5. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, 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 that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
         1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise noted.
            1. Use masking tape to protect adjacent surfaces of recessed tooled joints.
   4. CLEANING

\*\* NOTE TO SPECIFIER \*\* The following two paragraphs include references to material requirements specified in other Sections of the specifications. The related subparagraphs includes references to details promulgated by SMACNA, NRCA, and CDA. Note that these details are likely to be used by Design Professionals on their Drawings and Specifications. The Specifier should coordinate the Design Professional's Specification requirements and Drawing Details with the Garland's Standard Flashing Details.  
1- If the Design Professional's details have been coordinated to Garland's Standard Flashing Details retain the following two paragraphs and subparagraphs and delete the references to Garland's Standard Flashing Details.  
2- If Garland's Standard Flashing Details are to be used, retain the following two primary paragraphs and delete both subparagraph references to SMACNA etc.

* + 1. Clean off excess sealants or smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.
  1. PROTECTION
     1. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraphs to specify requirements for inspection and testing by the manufacturer. Delete if not required for project.

END OF SECTION