

SECTION 07920

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Exterior polyurethane sealants.
 - 2. Exterior and interior polyurethane traffic sealants.
 - 3. Interior polyurethane sealants.
 - 4. Interior latex sealants.
 - 5. Interior sanitary silicone sealants.
 - 6. Exterior and interior water immersed polyurethane sealants.
 - 7. Metal lap joint sealants.
 - 8. Threshold and sheet metal bedding sealants.
 - 9. Joint accessories.

- B. Related Sections:
 - 1. Section 08 80 00 – Glazing: Glazing sealants and protective glazing systems.

1.2 REFERENCES

- A. ASTM International Inc.
 - 1. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
 - 2. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
 - 3. ASTM C 794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 - 4. ASTM C834 - Standard Specification for Latex Sealants.
 - 5. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
 - 8. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
 - 9. ASTM C 1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.
 - 10. ASTM C 1311 - Standard Specification for Solvent Release Sealants.
 - 11. ASTM D 2203 - Standard Test Method for Staining from Sealants.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Submit details to show installation and interface between sealants and adjacent work.

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- B. Product Data:
 - 1. Materials list of items proposed to be provided under this Section;
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
- C. Samples:
 - 1. Submit color charts for each sealant type for initial selection.
 - 2. Submit standard cured color samples for each sealant type illustrating selected colors.
- D. Manufacturer's Installation Instructions:
 - 1. Submit manufacturer's published installation procedures.
 - 2. Include instructions for completing sealant intersections when different materials are joined.
 - 3. Include instructions for removing existing sealants and preparing joints for new sealant.
- E. Manufacturer's Certificate:
 - 1. Certify products are suitable for intended use and products meet or exceed specified requirements.
 - 2. Certify applicator is approved by manufacturer.
- F. Qualifications Data:
 - 1. Submit applicator's qualifications, including reference projects of similar scope and complexity, with current phone numbers and contact names of architects and owners for verification.
- G. Manufacturer's Field Reports:
 - 1. Indicate time present at project site.
 - 2. Include observations, indicate compliance with manufacturer's installation instructions, and supplemental instructions provided to installers.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data:
 - 1. Submit recommended inspection intervals.
 - 2. Submit instructions for repairing and replacing failed sealant joints.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with the following:
 - 1. Building Joints: ASTM C 1193.
- B. Field Pre-Construction Testing:
 - 1. Test each elastomeric sealant and joint substrate in accordance with the following, before beginning work of this section:
 - a. Install sealants in field samples using joint preparation methods determined by laboratory pre-construction testing.

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- b. Remove existing sealant, clean joint, and install new sealant using manufacturer's recommended joint preparation methods.
- c. Install field-test joints in location as approved by Architect.
- d. Test Method: Manufacturer's standard field adhesion test to verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
- e. When test indicates sealant adhesion failure, modify joint preparation, primer, or both and retest until joint passes sealant adhesion test.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.
- B. Applicator Qualifications:
 - 1. Company specializing in performing work of this section with minimum three years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
 - 2. Designate one individual as project foreman who shall be on site at all times during installation.

1.7 MOCKUP

- A. Install sealants in mockups specified in other sections including sealant and joint accessories to illustrate installation quality and color.
- B. Incorporate accepted mockup as part of Work.
 - 1. Repair seal joint mockups used for field adhesion testing.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.
- B. Store primers and sealants in cool dry location with ambient temperature range of 60 to 80 degrees F.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 degrees F.

1.10 SCHEDULING

- A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.
- B. Ensure sealants are cured before covering with other materials.

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1.11 WARRANTY

- A. Submit signed copies of the following warranties against adhesive and cohesive failure of sealant and against infiltration of water and air through sealed joint for period of 3 years from date of completion.
 - 1. Manufacturer's standard warranty covering sealant materials.
 - 2. Applicator's standard warranty covering workmanship.

PART 2 PRODUCTS

2.1 Caulking for joints at all junctions as necessary to obtain complete watertight construction.

2.2 MANUFACTURERS

- A. Tremco Sealant/Weatherproofing Division of RPM International, Inc.
- B. Or equal

2.3 URETHANE SEALANTS

- A. Multi-Component Urethane: two component, chemical curing, nonstaining, nonbleeding, color as selected.
 - 1. Dymeric 240
 - 2. Dymeric 240FC
 - 3. Or equal
- B. Single Component Urethane: single component, moisture curing, nonstaining, nonbleeding, color as selected.
 - 1. Dymonic FC
 - 2. Or equal

2.4 SILICONE SEALANTS

- A. Multi-Component Silicone: ASTM C920, Type M, Grade NS, Class 50; Uses NT, M, G, A and O: multi-component, neutral curing, nonstaining, nonbleeding, color as selected
 - 1. Spectrem 4-TS.
 - 2. Or equal
- B. Single Component Silicone: ASTM C920, Type S, Grade NS, ; Uses NT, M, G, A and O: single component, nonstaining, nonbleeding, color as selected.
 - 1. Spectrem 1.
 - 2. Spectrem 2.
 - 3. Spectrem 3.
 - 4. Or equal
- C. Single Component Silicone: ASTM C920, Type S, Grade NS, Class 25; Uses NT, G, A and O: single component, nonstaining, nonbleeding, color as selected.

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1. Proglaze.
2. Tremsil 200.

2.5 OTHER SEALANTS

- A. Latex Sealant: ASTM C 834; single component, solvent curing, nonstaining, nonbleeding, nonsagging; color as selected.
 1. Tremflex 834.
- B. Synthetic Rubber Sealant:
 1. Acoustical Sealant.
- C. Butyl Sealant: ASTM C 1311, butyl or polyisobutylene, single component, nondrying, non-skinning, non-curing.
 1. Butyl Sealant.

2.6 ACCESSORIES

- A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
- E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate surfaces and joint openings are ready to receive work.
 1. Verify joint surfaces are clean and dry.
 2. Ensure concrete surfaces are fully cured.
- B. Report unsatisfactory conditions in writing to the Architect;
- C. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Prepare joints in accordance with ASTM C 1193 and manufacturer's instructions.

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- B. Clean joint surfaces to remove dirt, dust, oils, wax, paints, and other contamination capable of affecting primer and sealant bond.
 - 1. Clean concrete joint surfaces to remove curing agents and form release agents.
- C. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.3 EXISTING WORK

- A. Mechanically remove existing sealant.
- B. Clean joint surfaces of residual sealant and other contaminants capable of affecting sealant bond to joint surface.
- C. Allow joint surfaces to dry before installing new sealants.

3.4 SEALANT INSTALLATION

- A. INTERIOR CAULKING shall be applied to seal all penetrations through top plates of interior walls, (due to electrical or plumbing), and at tubs, showers, counter tops, bottom of party walls GWB, and other as shown on Drawings.
- B. ALL POTENTIAL INFILTRATION cracks & joints to be caulked. Caulking shall be done only by workmen who are thoroughly experienced in this work. Exterior caulking shall be applied around windows, doors, vents, utilities, and any other infiltration "crack".
- C. IN GENERAL see Drawings for any additional applications. Joints and spaces to be caulked shall be dry and free from dust. Finished caulking "bead" shall be neat and smooth, free of gaps and sags and run continuously. Complete all caulking work and allow to stand for the manufacturer's recommended time period before painting. Prime if required before finish coat of paint is applied.
- D. Install primer and sealants in accordance with ASTM C 1193 and manufacturer's instructions.
- E. Caulking shall apply to sealing of joints less than 3/4 inches in width. Any joint in excess of this width shall be filled with a low-expansion closed cell foam insulation or as directed by Architect.
- F. Install joint backing to maintain the following joint ratios:
 - 1. Joints up to **1/2 inch** Wide: 1:1 width to depth ratio.
 - 2. Joints Greater than **1/2 inch** Wide: 2:1 width to depth ratio; maximum 1/2 inch joint depth.
- G. Install bond breaker where joint backing is not used.
- H. Apply primer where required for sealant adhesion.

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- I. Install sealants immediately after joint preparation.
- J. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- K. Tool exposed joint surface concave.
- L. Building Envelope:
 - 1. Gaskets or sill seals under mud sills along foundation walls.
 - 2. Seal first floor band joists to the adjoining mud sills and plywood decking using adhesive or caulk. Use construction adhesive or caulking between multiple sill plates.
 - 3. Seal any band joists between upper floors to the adjoining top plate and plywood decking.
 - 4. Use construction adhesive or caulking between multiple tops plates.
 - 5. Seal bottom plates of exterior walls to the sub-floor with construction adhesive or caulking.
 - 6. Window frames and doorjambs must be sealed to their rough openings using low expansion foam, backer rod or caulk but NOT fiberglass.
 - 7. All penetrations through building must be carefully sealed. Typical Penetrations include chimney, duct and plumbing chases and penetrations of pipes and wires through the top plates of top story walls. It is particularly important to seal all possible air paths to the attic.
 - 8. Electrical boxes on exterior walls and ceilings should either be air-sealed or placed in airtight.

3.5 MANUFACTURER'S FIELD SERVICES

- A. Require sealant manufacturer to be present at project site to:
 - 1. Observe sealant mockup installation and to issue reports of observations.
 - 2. Conduct field pre-construction testing.

3.6 CLEANING

- A. Remove masking tape.
- B. Clean adjacent surfaces soiled by sealant installation.

3.7 SCHEDULE – SEALANT JOINTS

- A. Exterior Sealant Joint [Type A]:
 - 1. Applications:
 - a. Control and expansion joints in cast-in-place concrete.
 - b. Joints between architectural precast concrete units.
 - c. Control and expansion joints in unit masonry.
 - d. Control and expansion joints in stone masonry.
 - e. Butt joints between metal panels.
 - f. Joints between different materials listed above.

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- g. Perimeter joints between materials listed above and frames of doors, windows, storefronts, louvers and similar openings.
 - h. Control and expansion joints in soffits and overhead surfaces.
 - i. Other exterior joints in vertical surfaces and non-traffic horizontal surfaces for which no other sealant is specified.
 - j. Or equal
 - 2. Multi-Component Urethane Sealants:
 - a. Dymeric 240/240FC.
 - b. Vulkem 227.
 - c. Or equal
 - 3. Single Component Urethane Sealants:
 - a. Dymonic FC.
 - b. Dymonic.
 - c. Vulkem 116.
 - d. Or equal
 - 4. Multi-Component Silicone Sealants:
 - a. Spectrem 4-TS. D.O.E
 - 5. Single Component Silicone Sealants:
 - a. Spectrem 1.
 - b. Spectrem 2.
 - c. Spectrem 3.
 - d. Or equal
- B. Interior Sealant Joint [Type C]:
 - 1. Applications:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints on exposed interior surfaces of exterior openings.
 - c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
 - d. Other interior joints in vertical surfaces and non-traffic horizontal surfaces subject to movement for which no other sealant is specified.
 - 2. Multi Component Urethane Sealants:
 - a. Dymeric 240/240FC.
 - b. Vulkem 227.
 - c. Or equal
 - 3. Single Component Urethane Sealants:
 - a. Dymonic FC.
 - b. Dymonic.
 - c. Vulkem 116.
 - d. Or equal
 - 4. Single Component Silicone Sealants:
 - a. Spectrem 1.
 - b. Spectrem 2.
 - c. Spectrem 3.
 - d. Or equal

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5. Other Sealants:
 - a. Tremflex 834.
 - b. Or equal

- C. Interior Sanitary Sealant Joint [Type G]:
 1. Applications:
 - a. Joints in toilet room and bathroom counter tops.
 - b. Joints between plumbing fixtures and adjacent materials.
 - c. Joints between locker room lockers and adjacent materials.
 - d. Joints between food service equipment and surrounding construction.
 - e. Other interior joints in wet areas where needed to limit mold and mildew growth.
 2. Single Component Silicone Sealants:
 - a. Trensil 200.
 - b. Or equal

- D. Concealed Metal Lap Sealant Joint [Type J]:
 1. Applications:
 - a. Concealed lap and hook joints in sheet metal flashing and trim.
 2. Single Component Non-Curing Sealants:
 - a. Tremco Butyl Sealant.
 - b. Or equal

- E. Concealed Bedding Sealant Joint [Type K]:
 1. Applications:
 - a. Bedding joints under metal thresholds and saddles.
 - b. Bedding joints between sheet metal flashing and other materials.
 2. Single Component Urethane Sealants:
 - a. Dymonic FC.
 - b. Dymonic.
 - c. Vulkem 116.
 - d. Or equal
 3. Single Component Silicone Sealants:
 - a. Proglaze.
 - b. Spectrem 2.
 - c. Spectrem 3.
 - d. Or equal
 4. Single Component Non-Curing Sealants:
 - a. Tremco Butyl Sealant.
 - b. Tremco Acoustical Sealant.
 - c. Or equal

END OF SECTION