

Part 1 General

1.01 RELATED SECTIONS

- .1 Section 07 27 10 - Air Barriers.
- .2 Section 07 92 10 - Joint Sealants.

1.02 REFERENCES

- .1 American Society for Testing and Materials International (ASTM).
 - .1 ASTM C920-14a. Standard Specification for Elastomeric Joint Sealants.
 - .2 ASTM D412-15a. Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
 - .3 ASTM D624-00(2012). Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
 - .4 ASTM D2240-15. Standard Test Method for Rubber Property-Durometer Hardness.
 - .5 ASTM D4263-83(2012). Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - .6 ASTM E96/E96M-16. Standard Test Methods for Water Vapor Transmission of Materials.
 - .7 ASTM E283-04(2012). Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - .8 ASTM E331-00(2016). Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - .9 ASTM E2178-13. Standard Test Method for Air Permeance of Building Materials.
 - .10 ASTM G154-16. Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.
- .2 National Air Barrier Association (NABA). Professional Contractor Quality Assurance Program.

1.03 SUBMITTALS

- .1 Provide Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit manufacturer's printed product literature, specifications and datasheet. Include product characteristics, performance criteria and limitations.
 - .1 Submit substrate preparation instructions.
 - .2 Submit preconstruction compatibility and adhesion test reports.
 - .3 Provide data on primers and accessories.
 - .4 Submit standard details illustrating applications of products.
 - .5 Submit product test reports.
- .3 Submit manufacturer's instructions for installation and field quality control testing.
- .4 Provide LEED Submittals:
 - .1 Product Data for Credit IEQ 4.2 Low-Emitting Materials-Paints and Coatings, including printed statement of VOC content.

1.04 QUALITY ASSURANCE

- .1 Perform Work in accordance with NABA Professional Contractor Quality Assurance Program.
- .2 Maintain one copy of documents on site.
- .3 Pre installation conference. Convene conference one week prior to commencing Work of this section. Conduct conference at Project site. Review installation requirements including substrate condition inspection, testing requirements, environmental conditions, mockups, details, and scheduling and inspection of work.

1.05 QUALIFICATIONS

- .1 Applicator: company specializing in performing work of this section with minimum 5 years documented experience with installation of barrier system. Completed installation must be approved by the material manufacturer.
- .2 Applicator: company who is currently licensed by NABA or certifying organization. Maintain license for entire duration of the project. Provide list of certified personnel performing work on Project.
- .3 Applicator qualifications: employ experienced applicators trained by manufacturer for application of products with record of successful completion of projects of similar scope.

1.06 MOCK-UP

- .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 Mock up to be used to verify details and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as application and execution specifics.
- .3 Construct typical exterior wall panel. Apply barrier including transitions and junctions at window and door frames and sills, insulation, flashing, corner condition, junctions with roof system and foundation wall, and typical penetrations and gaps, illustrating materials interfaces and seals.
- .4 Locate where directed by Consultant. Allow 24 hours for inspection of mock-up by Consultant before proceeding.
- .5 Approved Mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Avoid spillage. Immediately notify Consultant if spillage occurs and start clean up procedures. Clean spills and leave area as it was prior to spill.
- .4 Deliver materials to Project site in original packaging with seals unbroken, labeled with manufacturer's name, product, date of manufacture and/or use-by date, and directions for storage.
- .5 Store materials in their original undamaged packages in a clean, dry, protected location at a temperature below 32 degrees C.

1.08 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with the Waste Reduction Workplan as specified in Section 01 74 21 - Construction / Demolition Waste Management.

- .2 Place materials defined as hazardous or toxic waste in designated containers. Ensure emptied containers are sealed and stored safely for disposal away from children.

1.09 PROJECT ENVIRONMENTAL REQUIREMENTS

- .1 Do not install solvent curing or vapour release compounds or materials in enclosed spaces without ventilation.
- .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
- .3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.
- .4 Do not apply products during inclement weather or when such conditions are expected. Do not apply when relative humidity is greater than 90 percent or when there is a possibility of rain within 8 hours.
- .5 Allow wet substrates to dry before applying products.
- .6 Apply when air or substrate temperatures will be between minus 6 degrees C and 38 degrees C at time of product application.

Part 2 Products

2.01 U/V WEATHER BARRIER

- .1 Air and U/V Weather barrier: 100 % Silicone elastomeric coating. Liquid applied membrane. Water based, vapour permeable, single component treatment for above grade application to exterior wall backup substrates. Breathable coating that is impervious to water but allows water vapour to escape from behind the membrane. Provides long term air and water protection properties even when exposed to sunlight, rain, snow, or temperature extremes. Primerless adhesion on most substrates. Seamless: cured membrane is continuous and does not form seams or laps. Designed to protect against air infiltration and water penetration. Single coat installation that performs as a continuous barrier, capable of accommodating normal structural movement, transitions between coating substrate materials, penetrations of coating substrates, and tie-ins to framed openings, waterproofing systems, and roofing systems, without deterioration or air leakage exceeding specified limits. Properties as follows:
 - .1 Air permeance: to ASTM E2178: Maximum 0.004 cfm per square foot of surface area at 1.57 lbf per square foot. (0.02 Litres per second per square meter of surface area at 75 Pa).
 - .2 VOC) Content: Maximum 19 grams per Litre.
 - .3 Vapour permeance: to ASTM E96, Method A: Not less than 10 perms.
 - .4 Ultimate elongation: to ASTM D412: Not less than 600 percent.
 - .5 UV exposure and resistance: to ASTM G154: Not less than 5000 hour exposure.
 - .6 Custom Colour: colour number 07 - Medium Grey.
 - .7 Acceptable Material: DefendAir 200 by DOW CORNING.
- .2 Transition strips: by same manufacturer as membrane. Silicone elastomer. Highly flexible clear flashing and transition sheet. Provide with pre molded corner accessory pieces for bonding to weather barrier substrates and to adjacent penetrations through substrate using silicone sealant. Properties as follows:
 - .1 Air infiltration: to ASTM E283: Maximum 0.025 cfm per square foot. (0.127 L/s per sq. m) at a pressure of 6.24 lbf per square foot (300 Pa).
 - .2 Water penetration under static pressure: to ASTM E331: None at a pressure of 15 lbf per square foot (720 Pa).

- .3 Movement capability: Not less than plus 200, minus 75 percent.
 - .4 Tensile strength: to ASTM D412: minimum 800 psi (5.5 MPa).
 - .5 Tear strength: to ASTM D624. Minimum 200 psi (16 kN/m).
 - .6 Elongation: to ASTM D412. Minimum 400 percent.
 - .7 Hardness: to ASTM D412: 50 - 60 durometer Shore A.
 - .8 Acceptable Material: Silicone transition strip (STS) by DOW CORNING.
- .3 Silicone elastomer seals: highly flexible low modulus flashing and transition material for bonding to substrates with silicone sealant. Bonding sealant: manufacturer's recommended neutral curing silicone. Hardness: to ASTM D2240. Minimum 25 durometer Shore A.
- .1 Acceptable Material: 123 silicone seal by DOW CORNING.
- .4 Detail joint and bonding sealant: to ASTM C920. Single component, neutral curing silicone, Grade NS. Compatible with adjacent materials. Provide products recommended by barrier manufacturer for application.
- .5 Accessories: by same manufacturer. Specifically designed for use specified membrane.
- .1 Crack fillers: substrate manufacturer's recommended crack fillers or sealants compatible with barrier assembly components and adjacent materials.

Part 3 Execution

3.01 EXAMINATION

- .1 Verify that surfaces and conditions are ready to accept the Work of this section.
- .2 Verify that surfaces are clean, dry, and free of frost, dust, dirt, grease, oil, curing compounds, form release agents, laitance, efflorescence, mildew, excess alkalinity, and other conditions affecting performance of work.
- .3 Verify that new concrete and mortar to receive coating application has cured adequately in accordance with substrate and barrier coating manufacturers' instructions.
- .4 Report any unsatisfactory conditions to Consultant in writing.
- .5 Do not start work until deficiencies have been corrected. Commencement of Work implies acceptance of conditions.
- .6 Sequence work to permit installation of materials in conjunction with related materials and seals.
- .7 Pre-installation testing: prior to application of coatings, perform the following tests to verify condition of substrate in accordance with manufacturer's instructions:
 - .1 Adhesion: perform substrate field adhesion tests on each substrate to determine if primer is required to satisfactorily adhere coatings to substrates.
 - .2 Alkalinity: verify substrate is within alkalinity range acceptable to manufacturer.
 - .3 Moisture level: verify substrate moisture content is acceptable to manufacturer. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.
 - .4 Proceed with work once conditions meet coating manufacturer's recommendations.

3.02 PREPARATION

- .1 General: Comply with coating manufacturer's written instructions for preparation of substrates. Protect work of other trades against damage.

- .2 Clean substrates to remove contaminants and foreign material by pressure cleaning, wire brushing, grinding or other method recommended by coatings manufacturer. Remove loose or foreign matter which might impair adhesion of materials.
- .3 Ensure all substrates are clean of oil or excess dust; all joints are flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.
- .4 Ensure all substrates are free of surface moisture prior to application of primer and self-adhesive membrane.
- .5 Repair deteriorated or damaged substrates, repair masonry joints, and fill cracks, voids, honeycomb, and other defects using materials as recommended by coating manufacturer. Allow patching materials to cure.
- .6 Fill cracks larger than 1.6 mm wide using joint sealant. Fill cracks larger than 25 mm wide using joint sealant and compatible bond breaker where movement is expected.
- .7 Ensure metal closures are free of sharp edges and burrs.
- .8 Prime substrate surfaces to receive membrane in accordance with manufacturer's instructions.
- .9 Protect adjacent surfaces not designated to receive coatings. Provide protection for pedestrians, vehicles, landscaping, and surrounding areas to prevent contact.
- .10 Apply primer to substrates where required based upon pre-installation testing and coating manufacturer's recommendations, using application methods and rate of application recommended by manufacturer. Allow to dry prior to application of coating.

3.03

INSTALLATION

- .1 Install materials in accordance with manufacturer's instructions.
- .2 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program requirements for installation.
- .3 Transition strips and elastomer seals: Install with approved sealants in accordance with manufacturer's written instructions.
 - .1 Form tie in to windows, storefront, and curtain wall frames, door frames, louver frames, roofing system perimeters, and at interface of other adjacent materials utilizing compatible accessory materials forming part of assembly.
 - .2 Promptly adhere laps and bonds to substrates.
- .4 Coating: apply coating using application methods and rate of application recommended by manufacturer. Apply using nap roller or airless sprayer.
 - .1 Provide wet application of not less than 0.76 mm thickness or more as required by substrate conditions in order to provide finished dry film thickness of not less than 0.38 mm.
 - .2 Apply additional coats when required to provide uniform, continuous cured airtight and watertight film.

3.04

FIELD QUALITY CONTROL

- .1 Perform verification testing to confirm:
 - .1 That substrate preparation meets manufacturer's requirements.
 - .2 That coating materials comply with requirements for thickness and continuity.
 - .3 Compliance with adhesion and film thickness requirements.

- .2 If testing indicates products or work do not meet requirements, remove non complying materials and materials applied over non complying substrates, and correct application.

3.05 PROTECTION OF WORK

- .1 Protect finished Work in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Do not permit adjacent work to damage work of this section.
- .3 Ensure finished Work is protected from climatic conditions.
- .4 Allow coatings to cure before exposure to traffic or other construction operations. Prevent damage to coatings resulting from construction operations or other causes. Replace damaged coatings prior to concealment.
- .5 Cleaning: Remove overspray and excess material as work progresses, using materials and methods approved by manufacturer that will not damage adjacent materials.
- .6 Remove temporary coverings and protection upon completion. Clean and repair adjacent surfaces damaged by application.

END OF SECTION