

SECTION 07 53 00 - LOW SLOPE MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes: Provide low slope membrane roofing system with base and cant flashings, perflite fiber cants, insulation, roof deck board, and accessories for complete, weather-tight installation.

1.2 ADMINISTRATIVE REQUIREMENTS
A. Pre-Installation Meeting: Convene not less than one week prior to commencing work of this section. Require attendance of parties directly affecting roofing work. Review procedures and coordination required with related work.

1.3 SUBMITTALS
A. Product Data: Submit membrane manufacturer's literature for membrane and base flashing materials, provide specific recommendations of insulation system manufacturer.

B. Shop Drawings: Submit for membrane seams, insulation and roof deck board layout; indicate location and insulation type; provide cross section indicating layers of insulation along with R-value calculations.
C. Samples: Submit samples of each exposed material.

D. Certifications:
1. Installer: Submit certification installer is approved for roof system installation.
2. Materials: Submit certification materials and components conform to Specifications and are compatible with each other, roof substrate, and related work.

3. Fire and Wind: Submit manufacturer's certification system conforms to fire and wind requirements.
4. Manufacturer Representative: Submit certification by manufacturer's representative indicating work has been installed in accordance with manufacturer's recommendations and installation instructions.

1.4 QUALITY ASSURANCE
A. Qualification of Installers: Company with minimum five years successful experience in membrane roof application on projects of similar scope.

B. Supervisor: Installer to maintain full-time supervisor/foreman who is on jobsite during roofing work who is experienced in installation of roofing system specified.
1. Installer: Roofing and insulation manufacturer certified or approved.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Protect foam insulation from direct sunlight exposure.
1.6 SITE CONDITIONS
A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.

1. Do not allow materials to be exposed to moisture during transportation, storage, handling or installation.
2. Mark damp or wet materials, including felts which froth or foam during installation, and remove from site within 24 hours.

B. Do not apply materials to damp, dirty, dusty, or otherwise unsuitable surfaces.
1. Allow concrete surfaces to cure minimum 28 days.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
1.7 WARRANTY
A. Extended Correction Period: Provide for correcting failure of system to resist damage from anticipated sources including damage from wind and water penetration for not less than two years. Repair system and pay for or replace damaged materials and surfaces.

B. Warranty: Contractor shall provide written 5-year warranty for roofing system agreeing to repair or replace roofing that leaks water, deteriorates, or otherwise fails to perform as required within warranty period as a result of failure of materials or workmanship.
1. By terms of warranty, also agree to remove and replace other work, as required, that has been connected to or superimposed on substrate material to be replaced.

2. Warranty shall include entire installation and roofing membrane assembly, including base flashing, with no dollar limit. Warranty shall be countersigned by installer.
3. Manufacturer's Warranty Period: Fifteen Years.

2.1 SYSTEMS MANUFACTURERS
A. Firestone Building Products Co.; Carlisle SynTec Systems; GenFlex Roofing Systems Division GenCorp.; Johns Manville Roofing Systems; GAF Materials Corp.; Soprema USA.

2.2 MATERIALS
A. System Description: Provide low slope membrane roofing system with base and cant flashings, insulation, roof deck board, perflite fiber cants, and accessories.
1. Acceptable Low Slope Membrane Systems: TPO not less than 60 mil thick reinforced membrane, EPDM not less than 45 mil thick, or two ply modified bitumen systems (torched-on systems not acceptable over wood decking).

2. System: Fully adhered exposed membrane or mineral cap sheet (modified bitumen).
3. Provide roofing system materials by a single manufacturer, except where materials of other manufacturers are specified or approved by Architect.
4. Provide tapered insulation as required to ensure positive slopes to drains.

5. Provide roof deck board to separate insulation from roof membrane.
B. Design Requirements: Completed system to be suitable for applicable weather conditions including hurricane winds and hail as applicable.
C. Regulatory Requirements
1. Cool Roof System: Comply with "Cool Roof" system requirements including three year aged solar reflectance and requirements. System to have Cool Roof Rating Council (CRRC) label.

2. Fire and Wind Resistance: Conform to International Building Code requirements for Underwriters Laboratory (UL) Class A roof system with UL Class 60 wind resistance classification.
3. Fire Protection: Provide materials conforming to code requirements for fire-retarding fire stop materials for penetrations and accessories as indicated in Contract Documents.

D. Roof Membrane: TPO, EPDM, or Modified Bitumen type and thickness recommended by roof membrane manufacturer for application indicated.
1. Membrane: Comply with NRCA Specification Guide for applicable membrane and application.
2. Provide materials compounded specifically for application methods and substrates indicated on Drawings; comply with requirements for fire rated materials.
3. Provide special coating where recommended by membrane

manufacturer at areas where membrane may be exposed to direct sunlight.
E. Insulation: Provide materials approved for use with specified membrane and suitable for application indicated; provide tapered insulation where insulation is necessary to maintain proper roof slopes.

1. Polystyrene Insulation: ASTM C1289, Type II, Class 1, Grade 2 glass fiber faced polystyrene, with ASTM C1303 Long Term Thermal Resistance (LTTR); 6" thick unless otherwise indicated.
2. Other Types of Insulation: Acceptable subject to manufacturer's recommendations, application involved, and total thickness required for specified thermal resistance.

F. Roof Deck Board: ASTM C1278 with moisture and mold resistant core. Provide as indicated, as required for uniform surface for membrane adherence, and as required for fire and wind ratings; such as Georgia Pacific/DensDeck Prime or Johns Manville/Securock.
G. Accessories: Provide as recommended by membrane manufacturer and system manufacturer as required for complete weather-tight installation, including, but not limited to:
1. Unreinforced thermoplastic polyolefin membrane flashing.
2. Bonding adhesive.
3. Splicing cement.
4. Lap sealant.
5. Water cut-off mastic.
6. Molded pipe flashing.
7. Temporary sealing, for end of day closing of membrane.
8. Pourable sealer.
9. Nailing strips.
10. Fasteners.

H. Roof Protection Pads: Provide protection materials as recommended by membrane manufacturer where maintenance traffic is anticipated over membrane.

1.8 QUALITY ASSURANCE
A. Qualification of Installers: Company with minimum five years successful experience in membrane roof application on projects of similar scope.

B. Supervisor: Installer to maintain full-time supervisor/foreman who is on jobsite during roofing work who is experienced in installation of roofing system specified.
1. Installer: Roofing and insulation manufacturer certified or approved.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Protect foam insulation from direct sunlight exposure.
1.6 SITE CONDITIONS
A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.

1. Do not allow materials to be exposed to moisture during transportation, storage, handling or installation.
2. Mark damp or wet materials, including felts which froth or foam during installation, and remove from site within 24 hours.

B. Do not apply materials to damp, dirty, dusty, or otherwise unsuitable surfaces.
1. Allow concrete surfaces to cure minimum 28 days.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
1.7 WARRANTY
A. Extended Correction Period: Provide for correcting failure of system to resist damage from anticipated sources including damage from wind and water penetration for not less than two years. Repair system and pay for or replace damaged materials and surfaces.

B. Warranty: Contractor shall provide written 5-year warranty for roofing system agreeing to repair or replace roofing that leaks water, deteriorates, or otherwise fails to perform as required within warranty period as a result of failure of materials or workmanship.
1. By terms of warranty, also agree to remove and replace other work, as required, that has been connected to or superimposed on substrate material to be replaced.

2. Warranty shall include entire installation and roofing membrane assembly, including base flashing, with no dollar limit. Warranty shall be countersigned by installer.
3. Manufacturer's Warranty Period: Fifteen Years.

2.1 SYSTEMS MANUFACTURERS
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2. System: Fully adhered exposed membrane or mineral cap sheet (modified bitumen).
3. Provide roofing system materials by a single manufacturer, except where materials of other manufacturers are specified or approved by Architect.
4. Provide tapered insulation as required to ensure positive slopes to drains.

5. Provide roof deck board to separate insulation from roof membrane.
B. Design Requirements: Completed system to be suitable for applicable weather conditions including hurricane winds and hail as applicable.
C. Regulatory Requirements
1. Cool Roof System: Comply with "Cool Roof" system requirements including three year aged solar reflectance and requirements. System to have Cool Roof Rating Council (CRRC) label.

2. Fire and Wind Resistance: Conform to International Building Code requirements for Underwriters Laboratory (UL) Class A roof system with UL Class 60 wind resistance classification.
3. Fire Protection: Provide materials conforming to code requirements for fire-retarding fire stop materials for penetrations and accessories as indicated in Contract Documents.

D. Roof Membrane: TPO, EPDM, or Modified Bitumen type and thickness recommended by roof membrane manufacturer for application indicated.
1. Membrane: Comply with NRCA Specification Guide for applicable membrane and application.
2. Provide materials compounded specifically for application methods and substrates indicated on Drawings; comply with requirements for fire rated materials.
3. Provide special coating where recommended by membrane

manufacturer at areas where membrane may be exposed to direct sunlight.
E. Insulation: Provide materials approved for use with specified membrane and suitable for application indicated; provide tapered insulation where insulation is necessary to maintain proper roof slopes.

1. Polystyrene Insulation: ASTM C1289, Type II, Class 1, Grade 2 glass fiber faced polystyrene, with ASTM C1303 Long Term Thermal Resistance (LTTR); 6" thick unless otherwise indicated.
2. Other Types of Insulation: Acceptable subject to manufacturer's recommendations, application involved, and total thickness required for specified thermal resistance.

F. Roof Deck Board: ASTM C1278 with moisture and mold resistant core. Provide as indicated, as required for uniform surface for membrane adherence, and as required for fire and wind ratings; such as Georgia Pacific/DensDeck Prime or Johns Manville/Securock.
G. Accessories: Provide as recommended by membrane manufacturer and system manufacturer as required for complete weather-tight installation, including, but not limited to:
1. Unreinforced thermoplastic polyolefin membrane flashing.
2. Bonding adhesive.
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4. Lap sealant.
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5. Provide roof deck board to separate insulation from roof membrane.
B. Design Requirements: Completed system to be suitable for applicable weather conditions including hurricane winds and hail as applicable.
C. Regulatory Requirements
1. Cool Roof System: Comply with "Cool Roof" system requirements including three year aged solar reflectance and requirements. System to have Cool Roof Rating Council (CRRC) label.

2. Fire and Wind Resistance: Conform to International Building Code requirements for Underwriters Laboratory (UL) Class A roof system with UL Class 60 wind resistance classification.
3. Fire Protection: Provide materials conforming to code requirements for fire-retarding fire stop materials for penetrations and accessories as indicated in Contract Documents.

D. Roof Membrane: TPO, EPDM, or Modified Bitumen type and thickness recommended by roof membrane manufacturer for application indicated.
1. Membrane: Comply with NRCA Specification Guide for applicable membrane and application.
2. Provide materials compounded specifically for application methods and substrates indicated on Drawings; comply with requirements for fire rated materials.
3. Provide special coating where recommended by membrane

SECTION 07 84 00 - FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes: Provide firestopping as required to maintain effective barrier against spread of flame, smoke and gases, and to maintain integrity of time-rated construction as indicated and at following types of locations.

1. Provide at fire rated system perimeters, and at duct, conduit, piping penetrations through time-rated construction, and as required by applicable codes.
2. Coordinate requirements for firestopping with work involving penetrations through fire rated assemblies.
3. Review Project and Contract Documents to ascertain extent of penetrations in fire rated assemblies and methods included in other sections for maintaining fire ratings.

1.2 ADMINISTRATIVE REQUIREMENTS
A. Coordination: Coordinate firestopping with fire rated assemblies and penetrations through fire rated assemblies to ensure compliance with applicable codes and regulations to maintain integrity of fire rated assemblies.
B. Mock-Up: Provide exterior joint sealers where required for mock-ups of other systems.

1.3 SUBMITTALS
A. Product Data: Submit manufacturer's literature including data for materials and prefabricated devices, including descriptions sufficient to identify materials and devices on job.
1. Submit Underwriter's Laboratory approval numbers for required fire ratings; approval of other laboratories contingent upon acceptance of applicable authorities.

2. Deferred Approvals: Submit data necessary for applicable authorities for each type of firestopping required including firestopping at fire rated assembly junctures, and penetrations through fire rated assemblies.
B. Shop Drawings: Submit manufacturer's installation details.
C. Certificates of Compliance: Submit manufacturer's certificates, accompanied by classifications, indicating material or combination of materials used meets requirements specified for flame spread and fire resistance.

1. Certificates to be supported by test reports by internationally recognized agency satisfactory to authorities.
D. Manufacturer's Instructions: Maintain copy of manufacturer's instructions and recommendations at each work area.

1.4 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials in their original unopened packages and store in location providing protection from damage and exposure to elements. Damaged or deteriorated materials shall be removed from site.

B. Performance Requirements:
1. Select materials for compatibility with joint surfaces and indicated exposures.
2. Where not indicated, select modulus of elasticity and hardness or grade recommended by manufacturer for each application indicated.

C. Regulatory Requirements: Comply with applicable regulatory requirements regarding limitations on volatile organic compound (VOC) emissions limitations.
D. Single Component Low Modulus Silicone Sealant: ASTM C920 Type S, Class 25, Grade NS; minimum 50% expansion and compaction capability.
1. Provide at exterior locations not exposed to traffic.

2. Manufacturers: General Electric Co./Silpruf, Silglaz or GESIL; Dow Corning Corp./790 or 795; Pectora Corp./864 Architectural Silicone; Tremco/Spectrum 3.
E. Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade P, Class 25, self-leveling; minimum 25% expansion and compaction capability.
1. Provide at traffic bearing locations.
2. Manufacturers: Pectora Corp./Urexpam NR-200, or Dynatrol II-SG; Tremco/THC 900-901, or Vulkem 245; BASF/Sonnelastic SL 2.

F. Mildew-Resistant Silicone Rubber Sealant: ASTM C920, Type S, Grade NS, Class 25, compounded with fungicide, specifically for mildew resistance and recommended for interior joints in wet areas.
1. Provide at interior joints in wet areas.
2. Manufacturers: General Electric Co./SCS 1702 Sanitary Sealant; Dow Corning Corp./786 Bathtub Caulk; Pectora Corp./898 Sanitary Mildew Resistant Sealant; Tremco/Tremisil 200.

G. Acrylic-Emulsion Sealant: ASTM C834 acrylic or latex-rubber-modified acrylic sealant, permanently flexible, non-staining and non-bleeding; recommended for general interior exposure; compatible with paints specified in Section 09 90 00.
1. Provide at general interior applications.
2. Manufacturers: Pectora Corp./AC-20; BASF/Sonolac; Tremco/Tremflex 834.

H. Air Seals: Provide non-staining and non-bleeding sealers, calks, or foams appropriate to specific applications for filling openings between conditioned and unconditioned spaces.
1. Type: As recommended by manufacturer for each specific application; compatible with adjacent materials.
2. Manufacturers: Dow/Great Stuff; Owens Corning/EnergyComplete Air Sealant; Grace/Polycel One.

I. Miscellaneous Materials:
1. Primers/Sealers: Non-staining types recommended by joint sealer manufacturer for joint surfaces to be primed or sealed.
2. Joint Cleaners: Non-corrosive types recommended by joint sealer manufacturer; compatible with joint forming materials.
3. Bond Breaker Tape: Polyethylene tape as recommended by joint sealer manufacturer where bond to substrate or joint filler must be avoided for proper performance of joint sealer.
4. Sealant Backer Rod: Compressible polyethylene foam rod or other flexible, permanent, durable non-absorptive material as recommended by joint sealer manufacturer for compatibility with joint sealer. Oversize backer rod minimum 30% to 50% of joint opening.
J. Colors: Provide colors indicated or as selected by Architect from manufacturer's full range of colors.
1. Custom Colors: Custom colors may be required at exterior walls; storefront sealant colors to match storefront.

2. Manufacturers: Pectora Corp./JAC-20; BASF/Sonolac; Tremco/Tremflex 834.
3. Flame Spread: ASTM E84 flame spread rating of 25 or less.
4. Smoke Density: ASTM E84 smoke density rating of 450 or less.
E. Firestopping: Maintain fire rating of assembly in which firestopping is installed, such as floor, partition, or wall, in accordance with ASTM E119 tests.

3.3 FIELD QUALITY CONTROL
A. Inspection: Keep area of work available for inspection by Architect and applicable authorities before and after application of firestopping.
3.4 REPAIR AND CLEAN-UP
A. Repair damage caused by work of this section; clean exposed surfaces soiled by work and leave work ready to receive following work.
B. On completion of work, remove debris, excess materials, and equipment from site.

3.5 FIELD QUALITY CONTROL
A. Inspection: Keep area of work available for inspection by Architect and applicable authorities before and after application of firestopping.
3.4 REPAIR AND CLEAN-UP
A. Repair damage caused by work of this section; clean exposed surfaces soiled by work and leave work ready to receive following work.
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A. Inspection: Keep area of work available for inspection by Architect and applicable authorities before and after application of firestopping.
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A. Repair damage caused by work of this section; clean exposed surfaces soiled by work and leave work ready to receive following work.
B. On completion of work, remove debris, excess materials, and equipment from site.

3.5 FIELD QUALITY CONTROL
A. Inspection: Keep area of work available for inspection by Architect and applicable authorities before and after application of firestopping.
3.4 REPAIR AND CLEAN-UP
A. Repair damage caused by work of this section; clean exposed surfaces soiled by work and leave work ready to receive following work.
B. On completion of work, remove debris, excess materials, and equipment from site.

3.5 FIELD QUALITY CONTROL
A. Inspection: Keep area of work available for inspection by Architect and applicable authorities before and after application of firestopping.
3.4 REPAIR AND CLEAN-UP
A. Repair damage caused by work of this section; clean exposed surfaces soiled by work and leave work ready to receive following work.
B. On completion of work, remove debris, excess materials, and equipment from site.

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes: Provide joint sealants, for interior and exterior joints not specified elsewhere, with backing rods and accessories as required for complete installation.
1. Joint sealants include joint sealers and caulking as indicated.

1.2 SUBMITTALS
A. Product Data: Furnish manufacturer's descriptive literature.
B. Samples: Furnish samples of each type of exposed joint sealer in full range of manufacturer's colors.
C. Certifications:
1. Furnish manufacturer's certification joint sealers comply with Contract Documents and are suitable for Project applications.
2. Furnish certification indicating installers are trained in proper use of specified products, qualified, and familiar with proper installation techniques.

1.3 QUALITY ASSURANCE
A. Installer Qualifications: Firm with minimum five years successful experience on projects of similar type and size, using specified products.
1. Installers shall be familiar with proper application procedures to ensure maximum joint sealer expansion and contraction capabilities.
B. Mock-Up: Provide exterior joint sealers where required for mock-ups of other systems.

1.4 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, cure time, and mixing instructions.

1.5 SITE CONDITIONS
A. Do not proceed with installation of joint sealers during unfavorable weather conditions.
B. Install elastomeric sealant when temperature is in the normal of temperature range recommended by manufacturer.

1.6 WORKING CONDITIONS
A. Extended Correction Period: Extend correction period to two years. Repair or replace joint sealant which fail to perform as intended, because of chalking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

1.7 WORKING CONDITIONS
A. Extended Correction Period: Extend correction period to two years. Repair or replace joint sealant which fail to perform as intended, because of chalking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

1.8 WORKING CONDITIONS
A. Extended Correction Period: Extend correction period to two years. Repair or replace joint sealant which fail to perform as intended, because of chalking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

1.9 WORKING CONDITIONS
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1.25 WORKING CONDITIONS
A. Extended Correction Period: Extend correction period to two years. Repair or replace joint sealant which fail to perform as intended, because of chalking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

1.26 WORKING CONDITIONS
A. Extended Correction Period: Extend correction period to two years. Repair or replace joint sealant which fail to perform as intended, because of chalking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

manufacturer; do not allow primer/sealer to spill or migrate onto adjoining surfaces.
D. Ensure protective coatings on surfaces in contact with joint sealers have been completely stripped.

3.2 INSTALLATION
A. Comply with manufacturer's printed instructions and ASTM C1193, except where more stringent requirements are shown or specified.
B. Sealant Backer Rods at Proper Depth or Position in Joint: Coordinate with other work, including installation of bond breaker and sealant, do not leave voids or gaps between ends of backer rods.
1. Do not stretch, twist, puncture or tear backer rod.
C. Install bond breaker tape as required to avoid three-sided bond of sealant to substrate and where required by manufacturer's recommendations to ensure joint sealant properly.
D. Size materials to achieve required width/depth ratio.
E. Employ installation techniques that will ensure joint sealant is deposited in uniform, continuous sections without gaps or air pockets, with complete "wetting" of bond surfaces equally on opposite sides.

F. Joint Condition: Fill sealant joint with concave surface, slightly below adjoining surfaces, unless otherwise indicated.
G. Where horizontal joints are begun on a horizontal surface and vertical surface, seal joint to form a slight curve, so that joint will not trap moisture.
H. Joint Sealer Depth: Depths recommended by joint sealer manufacturer but within the following general limitations, measured at center of section of bead.
1. Horizontal Joints: 75% width with minimum depth of 3/8".
2. Elastomeric Joints: 50% width with minimum depth of 1/4".
3. Non-Elastomeric Joints: 75% to 125% of joint width.

I. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces.
1. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.
J. Cure joint sealers in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
K. Maintain finished joints free of embedded matter, ridges and sags.

3.3 FIELD QUALITY CONTROL
A. Sealant Adhesion Field Tests:
1. Prior to start of sealant application, construct a mock-up using specified surface preparation and sealant installation on storefront and interfacing materials.
2. Notify Architect at least 48 hours prior to start of installation and testing.
B. Review the following procedure and make any adjustments to conform to actual project conditions.
C. Procedure for Sealant Adhesion Field Test:
1. Construct four 10 inch long x 1 inch wide x 1/4 inch thick strips of sealant over each substrate. Apply bond breaker tape to the substrate under the last 2 inches of the sealant at each end of the strips to provide a tab for peel testing.
2. Cure samples 21 days at minimum temperature of 50 degrees F.
3. After curing grasp strip sample end tabs and pull 90 degrees to the surface.
4. Acceptable application shall be cohesive failure (tearing within itself) with no adhesive (debonding) failure.
5. If sample debonds, the sealant manufacturer shall make written recommendations regarding changes in surface preparations or primers. Submit recommendations on the Architect for acceptance.
6. Repeat sealant adhesion trials as required to produce an acceptable application.
D. Issue a written report recording surface preparation procedures, sealant application procedures, and stating the work conforms to the manufacturer's recommendations and these specifications. Record results of field testing and note departures from these requirements and recommendations for necessary corrective actions.

3.4 FIELD QUALITY CONTROL
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2. Notify Architect at least 48 hours prior to start of installation and testing.
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C. Procedure for Sealant Adhesion Field Test:
1. Construct four 10 inch long x 1 inch wide x 1/4 inch thick strips of sealant over each substrate. Apply bond breaker tape to the substrate under the last 2 inches of the sealant at each end of the strips to provide a tab for peel testing.
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3. After curing grasp strip sample end tabs and pull 90 degrees to the surface.
4. Acceptable application shall be cohesive failure (tearing within itself) with no adhesive (debonding) failure.
5. If sample debonds, the sealant manufacturer