# PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

A. This Section includes the following:
   1. Adhered PVC membrane roofing system over substrate board and insulation.

B. Related Sections include the following:
   1. Section 018113 “Sustainable Design Requirements.”
   2. Section 061053 "Miscellaneous Carpentry" for wood nailers, curbs, and blocking.
   3. Section 076200 "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
   4. Section 079200 "Joint Sealants."
   5. Section 224000 "Plumbing Fixtures" for roof drains.

## 1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

## 1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
   1. Letter from proposed Roofing Manufacturer indicating the actual polymer thickness of the product supplied for this project.
   2. Data stating compliance with 2013 CBC Section 1505, Class A fire classification.
   3. Copy of the ASTM Certification for the named product showing Type II Class I fiberglass reinforced roofing membranes.
   4. Documentation showing full information for five projects within 100 miles of the subject project demonstrating a minimum twenty years service life of manufacturer’s specified roof membrane (membrane thickness may vary).
   5. Written confirmation from the proposed Roofing Manufacturer stating the number of years it has directly manufactured the roof system under the trade names and/or trademarks as proposed is a minimum of 20 years.

B. LEED Submittals: Credits MRc4, MRc5, and EQc4.1 (inside the weatherproofing system and applied on-site). Refer to Section 018113 "Sustainable Design Requirements" for additional submittal requirements.

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work and the following:
   1. Base flashings and membrane terminations.
   2. Tapered insulation, including slopes.
   3. Insulation fastening patterns.
   4. Each membrane-clad metal fabrication.
   5. Walkway pad layout.

D. Samples for Verification: For the following products:
   1. Sheet roofing, of colors required.

1.5 INFORMATIONAL SUBMITTALS

A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
   1. Submit evidence of meeting performance requirements.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
   1. Submit test report for UL Class A fire resistance approval.

D. Research/Evaluation Reports (ICC ER Reports): Evidence of roofing material's compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

E. Maintenance Data: For roofing system to include in maintenance manuals.

F. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

G. Warranties: Special warranties specified in this Section including sample copy of Manufacturer’s NDL warranty.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for membrane roofing system identical to that used for this Project. Membrane manufacturer shall provide a roof membrane that has had no formulation change in the last fifteen years.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

D. Source Limitations: Obtain components for membrane roofing system from roofing membrane manufacturer.

E. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.

2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

F. Install only PVC Roofing systems from manufacturers able to demonstrate the product on five (5) existing functional roofs within 100 miles of the proposed project. The age of the reference roofs must match or exceed the warranty term specified in this document.

G. Roofing materials shall be the product of a manufacturer regularly engaged in manufacturer of this product for not less than the warranty term (20 years).

H. Membrane thicknesses stated in this document are waterproofing membrane PVC polymer thicknesses.

I. Unreinforced or polyester reinforced membrane base flashings are prohibited.

J. The Manufacturer shall provide interim and final roof inspection from a directly employed dedicated team of experienced inspectors. Sales personnel may not be used for on site inspection of installations.

K. Adhesion test strips of the self-adhered membrane are required prior to actual installation. Do not install self-adhered membrane until a successful adhesion test has been completed.

L. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:
   1. Meet with Owner’s Representative, Architect, Owner’s insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
   2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
   3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
   5. Review structural loading limitations of roof deck during and after roofing.
   6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
   7. Review governing regulations and requirements for insurance and certificates if applicable.
   8. Review temporary protection requirements for roofing system during and after installation.
   9. Review roof observation and repair procedures after roofing installation.

M. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner's Representative, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
   1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Secure all new and temporary construction, including equipment and accessories, to preclude wind blow-off and roof or equipment damage.

C. Install uninterrupted waterstops at the end of each day's work. Completely remove before proceeding. Waterstops must not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses.

D. Prior to and during application, remove all excessive moisture, dirt, debris and dust.

E. Immediately take all existing and new roofing, insulation, flashings and metal work removed during construction to a legal dumping area authorized to receive such materials.

F. Take precautions that storage and/or application of materials and/or equipment does not overload the roof deck or building structure.

G. If any water is allowed to enter under the newly completed roofing, remove and replace the affected cover board and insulation with new dry materials.

1.9 SEQUENCING

A. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Provide a substantial protection layer consisting of plywood over fleece or insulation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

B. Special warranty without monetary limitation, includes contractor labor, roofing membrane, base flashings, and all other components of membrane roofing system that are supplied by the membrane manufacturer including the perimeter flashing metal system. Special warranty shall be non pro-rated and shall not exclude ponding water and that no time limit shall be assigned to any such ponding water during the warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.

C. Special Project Warranty: Submit roofing Installer's warranty, signed by Installer, covering Work of this Section, including all components of membrane roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, roof pavers, and walkway products, for the following warranty period:
1. Warranty Period: Five years from date of substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Roofing System Design: System shall meet the most stringent of the following:
1. Tested by a qualified testing agency to resist ASCE/SEI 7 uplift pressures.

2. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.
   a. Fire/Windstorm Classification: Class 1A-90.

D. Energy Performance:
1. Low-Slope Roofs: Provide roofing system with Solar Reflectance Index not less than 78 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.
2. Roof membrane (not post installation applied finish) shall comply with current California Title 24 Part 6 minimum 3-year aged solar reflectance of 0.55 and a minimum thermal emittance of 0.75 requirements.

2.2 PVC ROOFING MEMBRANE (075.A2 and 075.A3)

A. PVC Sheet: ASTM D 4434, Type II, Grade 1, glass fiber reinforced as follows:
1. Product: Subject to compliance with requirements, provide the following:
   a. "Sarnafil G410-20" ASTM D 4434, Type II, Grade 1, glass fiber reinforced by Sika Sarnafil (ICC ESR-1157) Basis-of-Design
   b. Or comparable product from one of the following:
      1) Fibertite.
      2) Duralast
      3) Or Equal.
2. Private label and third-party-manufactured membranes are not permitted.
3. Thickness: 80 mils minimum exclusive of any fleece backing.
4. Minimum weight 0.36lbs/sqft.
5. Minimum thickness above scrim reinforcement: 37mils.
6. Exposed Face Color(s): “White” complying with LEED SRI requirements, unless noted otherwise.

B. LEED Material Credits MRc4 and MRc5: Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

2.3 PVC FLASHING MEMBRANE

A. PVC Sheet: ASTM D 4434, Type II, Grade 1, glass fiber reinforced:
1. Product: Subject to compliance with requirements, provide "Sarnafil G410-15" by Sika Sarnafil.
2. Thickness: 60 mils minimum.
3. Weight 0.36lbs/sqft., minimum.
4. Exposed Face Colors: Colors shall match adjacent roofing membrane.

B. LEED Material Credits MRc4 and MRc5: Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

2.4 PVC WATERPROOFING MEMBRANE AT CONCRETE ROOF EQUIPMENT PADS

A. PVC Sheet: ASTM D 4434, Type II, Grade 1, fiber reinforced:
1. Product: Subject to compliance with requirements, provide "Sarnafil G476-15 SA” Waterproofing Membrane – a self-adhered, cold-applied composite 60-mil, PVC membrane and 60-mil integral non-permeable closed-cell foam backing (No Known Equal).

2. Thickness: 120 mils nominal.
3. Exposed Face Color: Signal Red.

B. LEED Material Credits MRc4 and MRc5: Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

2.5 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction complying with LEED and local and south coast air quality management district requirements.
2. Adhesives and sealants that are used inside the weatherproofing system shall comply with SCAQMD VOC content limit requirements.

B. PVC clad metal: A PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. 25 gauge, G90 galvanized metal sheet with a 20 mil unsupported PVC membrane laminated on one side.
1. PVC clad metal color shall match adjacent roofing membrane exposed face color.
2. Install at concealed locations only.

C. Bonding Adhesive: Manufacturer's standard water-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings.

D. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8-inch thick; with anchors.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

F. Surface Conditioner 150: Water-based surface treatment specifically designed to bind dust and concrete efflorescence thereby providing a suitable surface to install self-adhered membrane.

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and sheet flashings, preformed inside and outside corner sheet flashings, termination reglets, cover strips, and other accessories.

H. LEED Materials: Credits MRc4 and MRc5. Refer to Section 018113 "Sustainable Design Requirements" for additional product requirements.

2.6 SUBSTRATE BOARDS (GLASS-MAT GYPSUM ROOF SHEATHING)

A. Substrate Board (Glass-mat Gypsum Sheathing): ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate.
1. Provide 1/2-inch thick pre primed substrate board over concrete, insulation, and concrete, and directly over framed parapet walls per manufacturer.
a. Product: Subject to compliance with requirements, provide "Dens Deck Prime" by Georgia-Pacific Corporation or equal board approved as part of assembly.

2. Install substrate board (glass-mat gypsum sheathing) and membrane at inside face of parapets adjacent to roofs scheduled to receive thermoplastic membrane roofing, unless noted otherwise.
3. Cold Fluid Applied, Low Rise Polyurethane Adhesive: One step low-rise polyurethane foam used to attach insulation to approved compatible substrates. Adhesive is applied with a gravity fed applicator or by hand with a dual component caulk gun in bands 12 in. on center. Additional adhesive may be required for rougher surfaces. Consult Product Data Sheets for additional information. Application rates are as follows:

| | Approximate Square Feet *(Meter²)* |
|---|---|
| 600 ml cartridge | 50-65 *(15.24-19.81)* of insulation/dens deck |
| 1,500 ml cartridge | 150-200 *(15.24-60.96)* of insulation/den deck |

B. LEED Material Credits MRc4, MRc5 and EQc4.1(inside the weatherproofing system and applied on-site): Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

2.7 ROOF INSULATION

A. General: Provide preformed roof insulation boards with inorganic facer that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
1. Provide tapered and flat insulation where indicated on Drawings.
2. Insulation shall comply with 2013 CBC Section 719.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 2, Grade 3, 25 psi minimum.
1. Products: Product from roof membrane manufacturer or manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics and that produce FMG-approved molded polyisocyanurate.

C. LEED Material Credits MRc4 and MRc5: Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

2.8 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Two Component, Low Rise Polyurethane Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to substrate and coverboard to insulation.

C. Provide manufacturer’s recommended corrosion-resistant fastener used with manufacturer’s steel plates to attach insulation/cover boards to steel roof decks.

D. Provide manufacturer’s recommended 3 inch steel plate used with various required fasteners to attach insulation/cover boards to roof deck. Plates shall be a minimum of 3 inch square or round, 26 gauge stamping of SAE 1010 steel with an AZ 55 Galvalume coating.

E. LEED Materials: Credits MRc4 and MRc5. Refer to Section 018113 "Sustainable Design Requirements" for additional product requirements.

2.9 WALKWAYS

A. PVC Flexible Extruded Walkway: A rolled-out walkway protection mat used to protect PVC roofing membrane from mechanical abuse. Walkway shall be minimum 9/16 inch thick flexible PVC with a heavily textured surface. Walkway shall be loose laid on top of completed roof assemblies. Where design wind speeds exceed 94 mph the walkway must be secured with loops of PVC membrane welded to the field sheet.
   1. Product: Subject to compliance with requirements, provide the following:
      a. Sika Sarnafil Crossgrip or equal by roofing manufacturer.

B. LEED Material Credits MRc4 and MRc5: Refer to Section 018113 “Sustainable Design Requirements” for additional product requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
   1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
   2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
   3. Verify that concrete substrate meets minimum drying period requirements per Division 03 Section “Cast-in-Place Concrete.”
   4. Verify that concrete substrate is visibly dry and free of moisture.
   5. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.
   6. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

C. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is created by installing 2 or more layers stagger the joints of each succeeding layer from joints of previous layer a minimum of 6 inches in each direction.

D. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
   1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

F. Adhered Insulation: Install each layer of insulation and secure first layer of insulation to deck using low rise polyurethane adhesive.
   1. Install all layers of insulation according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.

G. Install fasteners consistently with a 1-inch minimum penetration into structural deck as determined by the manufacturer.

H. Use fastener tools with a depth locator and torque-limiting attachment as recommended or supplied by fastener manufacturer to ensure proper installation.

3.4 SUBSTRATE BOARD INSTALLATION

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

3.5 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Adhesive:
   1. Pour adhesive out of the pail and spread using notched1/4-inch by 1/4-inch by 1/4-inch rubber squeegees. Apply the adhesive at a rate according to manufacturer requirements. No adhesive shall be applied to the back of the membrane or to seam areas.
   2. Unroll the PVC membrane immediately into the wet adhesive. Adjacent rolls overlap previous rolls by 3 inches. This process shall be repeated throughout the roof area. Immediately after application into adhesive, press each roll firmly into place with a water-filled, foam-covered lawn roller by frequent rolling in two directions. Do not allow adhesive to skin-over or surface-dry prior to installation of membrane.

D. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

G. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
   1. Test lap edges with probe to verify seam weld continuity.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
   3. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.

H. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal bare backed flashing membrane in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply a low VOC approved solvent-based bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with sheet flashing.

D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.7 SELF-ADHERED THERMOPLASTIC WATERPROOFING MEMBRANE INSTALLATION

A. Prepare substrate per manufacturer’s written recommendations. Unroll adjacent rolls of PVC waterproofing membrane over properly prepared substrate. Position to allow a 3 inch overlap on the selvage

B. Prior to installing self-adhered membrane apply surface conditioner according to manufacturer’s printed instructions.

C. Surface conditioner shall be applied to all horizontal and vertical concrete and masonry substrates.

D. Do not apply surface conditioner during periods of inclement weather or when ambient or substrate temperatures are below 25 deg F. Temperature must be 25 deg° F and rising for surface conditioner application.

E. Adhesion test strips are required prior to actual installation. Test strips approximately 6 inches wide by 1-1/2 feet long shall be installed by the applicator to test the adhesion prior to the actual installation in representative areas. Do not install self-adhered membrane until a successful adhesion test has been completed. Refer to manufacturer’s most current quality assurance requirements for additional information.

3.8 WALKWAY INSTALLATION

A. Roofing membrane to receive Walkway shall be clean. Walkway shall be loose laid on top of completed PVC roof assemblies. Where design wind speeds exceed 94 mph the walkway must be secured with loops of membrane welded to the field sheet. Consult Product Data Sheet for additional information.
   1. Check all existing deck membrane seams that are to be covered by Walkway with rounded screwdriver and reweld any inconsistencies before Walkway installation.

3.9 FIELD QUALITY CONTROL

A. Provide sample membrane welds at the beginning of each workday and after long breaks.

B. Quality Control of Welded Seams: Check all welded seams for continuity using a rounded screwdriver daily and re-weld any inconsistencies. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane.

C. On-site evaluation of welded seams shall be made daily at locations as directed by the Owner's Representative or Manufacturer’s representative. Take one inch wide cross-section samples of welded seams at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

D. The installation of the roof system shall be installed in such a manner as to maintain a watertight integrity on a daily basis. If water is allowed under the completed roof remove the roofing and dispose of all wet and damaged insulation and cover boards. Provide and reinstate new dry roofing materials.

E. Interim and Final Inspections: Upon completion of the installation and the delivery to Manufacturer by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and Manufacturer’s requirements, a warranty inspection shall be made by the manufacturers Specialist Technical Representative no personnel with a sales role/function within the company shall be permitted to inspect contractors work.

F. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

G. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner's Representative.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Contract Completion and according to warranty requirements.

3.11 DEMONSTRATION

A. Provide maintenance documents and personal instruction for the facilities staff and other interested parties at a single pre-determined mutually convenient time. . The instruction shall include the following topics:
   1. Access restriction and precautions
   2. Avoiding Mechanical Damage
   3. Potential Contaminants and rectification
   4. Cleaning
   5. Emergency repairs
   6. Procedures for permanent repairs and alterations

END OF SECTION