Roofing Specification
For:

# Rowland High School
# Gymnasium Roof

# Guide Specification
# Parasolo PVC KEE Fleece-Back Membrane System
# (Adhered System over Structural Concrete Deck)

This specification is provided as a general guide for use of Siplast products based on typical building conditions and standard roofing practices. Siplast is strictly a manufacturer of roofing and waterproofing systems and has no experience, training or expertise in the areas of architecture/engineering or in the area of consulting with respect to matters related to such areas. Siplast recommends that the Owner's representative independently verify the accuracy and appropriateness of a specification provided for a specific project.

January 1, 2020

SECTION 07 54 19 POLYVINYL CHLORIDE ROOFING (Rev 01/2020)

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Preparation of Substrate to Receive Roofing Materials

B. Temporary Roof Application to Prepared Substrate

C. Roof Insulation Application to Prepared Substrate

D. Roof Membrane Application

E. Roof Flashing Application

F. Incorporation of Sheet Metal Flashing Components and Roofing Accessories into the Roof System

## 1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

A. Sheet Metal Flashing and Trim

B. Sheet Metal Roofing Specialties

## 1.03 RELATED SECTIONS

A. Section [----] - Rough Carpentry

B. Section [----] - Roof Decks

C. Section [----] - Sheet Metal Flashing and Trim

D. Section [----] - Roof Specialties

## 1.04 REFERENCE STANDARDS

References in these specifications to standards, test methods and codes, are implied to mean the latest edition of each such standard adopted. The following is an abbreviated list of associations, institutions, and societies which may be used as references throughout this specification section.

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| ASTM | American Society for Testing and Materials<br>Philadelphia, PA |
| FM | Factory Mutual Engineering and Research<br>Norwood, MA |
| NRCA | National Roofing Contractors Association<br>Rosemont, IL |
| OSHA | Occupational Safety and Health Administration<br>Washington, DC |
| SMACNA | Sheet Metal and Air Conditioning Contractors National Association<br>Chantilly, VA |
| UL | Underwriters Laboratories |

## 1.05 SUBMITTALS

All submittals which do not conform to the following requirements will be rejected.

A. Submittal of Equals: Submit primary roof systems to be considered as equals to the specified roof system no less than 10 days prior to bid date. Primary roof systems which have been reviewed and accepted as equals to the specified roof system will be listed in an addendum prior to bid date; only then will equals be accepted at bidding. Submittals shall include the following:

1. Two 3 inch x 5 inch samples of the primary roofing and flashing sheets.

2. Latest edition of the roofing system manufacturer's specifications and installation instructions.

3. Evidence that the manufacturer of the proposed roofing system utilizes a quality management system that is ISO 9001 certified. Documentation of ISO 9001 certification of foreign subsidiaries without domestic certification will not be accepted.

4. Evidence and description of manufacturer's quality control/quality assurance program for the primary roofing products supplied. The quality assurance program description shall include all methods of testing for physical and mechanical property values. Provide confirmation of manufacturer's certificate of analysis (COA) for reporting the tested values of the actual material being supplied for the project prior to issuance of the specified guarantee.

5. Descriptive list of the materials proposed for use.

6. Evidence of Underwriters' Laboratories Class A acceptance of the proposed roofing system (including mopping asphalt or cold adhesive) without additional requirements for gravel or coatings. No other testing agency approvals will be accepted.

| * NOTE: UL Rating must be preselected. Flashings are listed. |
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7. Evidence that the roof configuration (including fastening of insulation) has been tested by an accredited independent testing agency to meet the design windload pressure indicated in Part 1.07 C2.

8. The roof membrane configuration shall be approved by FM for Class 1-SH (severe hail) exposure.

9. Complete list of material physical and mechanical properties for each sheet including: weights and thicknesses.

10. Sample copy of the proposed guarantee.

B. Submittals Prior to Contract Award:

1. Letter from the proposed primary roofing manufacturer confirming that the bidder is an acceptable Contractor authorized to install the proposed system.

2. Letter from the primary roofing manufacturer stating that the proposed application will comply with the manufacturer's requirements in order to qualify the project for the specified guarantee.

C. Submittals Prior to Project Close-out:

1. Manufacturer's printed recommendations for proper maintenance of the specified roof system including inspection frequencies, penetration addition policies, temporary repairs, and leak call procedures.

## 1.06 QUALITY ASSURANCE

A. Acceptable Products: Primary roofing products, including each type of sheet, all manufactured in the United States, shall be supplied by a single manufacturer which has been successfully producing the specified types of primary products for not less than 10 years. The primary roofing products shall have maintained a consistent composition for a minimum of five years.

B. Product Quality Assurance Program: Primary roofing materials shall be manufactured under a quality management system that is monitored regularly by a third party auditor under the ISO 9001 audit process. A certificate of analysis (COA) for reporting/confirming the tested values of the actual material being supplied for the project will be required prior to project close-out.

C. Agency Approvals: The proposed roof system shall conform to the following requirements. No other testing agency approvals will be accepted.

1. Underwriters Laboratories Class A acceptance of the proposed roofing system (including mopping asphalt or cold adhesive) without additional requirements for gravel or coatings.

2. Evidence by an accredited independent testing agency or agencies that the roof configuration meets a design windload pressure of - [---] psf or greater.

| * NOTE: uplift pressure must be preselected. |
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D. Acceptable Contractor: Contractor shall have a minimum of 2 years experience in successfully installing the same or similar roofing materials and be certified in writing by the roofing materials manufacturer to install the primary roofing products.

E. Scope of Work: The work to be performed under this specification shall include but is not limited to the following: Attend necessary job meetings and furnish competent and full time supervision, experienced roof mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the roof installation in accordance with this specification. Comply with the latest written application instructions of the manufacturer of the primary roofing products. In addition, application practice shall comply with requirements and recommendations contained in the latest edition of the National Roofing Contractor's Association (NRCA) Roofing Manual as published by the National Roofing Contractor's Association.

F. Local Regulations: Conform to regulations of public agencies, including any specific requirements of the city and/or state of jurisdiction.

G. Manufacturer Requirements: Ensure that the primary roofing materials manufacturer provides direct trained company personnel to attend necessary job meetings, perform periodic inspections as necessary, and conducts a final inspection upon successful completion of the project.

## 1.07 PRODUCT DELIVERY STORAGE AND HANDLING

A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.

B. Storage: Refer to the manufacturer’s published literature for storage guidelines.

C. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture or foreign matter. Handle rolled goods to prevent damage to edges or ends.

D. Damaged Material: Any materials that are found to be damaged or stored in any manner other than stated above will be automatically rejected, removed and replaced at the Contractor's expense.

## 1.08 PROJECT/SITE CONDITIONS

A. Requirements Prior to Job Start

1. Notification: Give a minimum of 5 days notice to the Owner and manufacturer prior to commencing any work and notify both parties on a daily basis of any change in work schedule.

2. Permits: Obtain all permits required by local agencies and pay all fees which may be required for the performance of the work.

3. Safety: Familiarize every member of the application crew with all fire and safety regulations recommended by OSHA, NRCA and other industry or local governmental groups.

B. Environmental Requirements

1. Precipitation: Do not apply roofing materials during precipitation or in the event there is a probability of precipitation during application. Take adequate precautions to ensure that materials, applied roofing, and building interiors are protected from possible moisture damage or contamination.

2. Temperature Restrictions - adhesive: Refer to the manufacturer’s published guidelines for temperature restrictions for adhesive applications.

C. Protection Requirements

1. Membrane Protection: Provide protection against staining and mechanical damage for newly applied roofing and adjacent surfaces throughout this project.

2. Limited Access: Prevent access by the public to materials, tools and equipment during the course of the project.

3. Debris Removal: Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.

4. Site Condition: Complete, to the owner's satisfaction, all job site clean-up including building interior, exterior and landscaping where affected by the construction.

## 1.09 GUARANTEE/WARRANTY

A. Roof Membrane/System Guarantee: Upon successful completion of the project, and after all post installation procedures have been completed, furnish the Owner with the manufacturer's 20 year labor and materials guarantee covering the rigid insulation, insulation fasteners/plates, insulation adhesive, and roof membrane/flashing system. The guarantee shall be a term type, without deductibles or limitations on coverage amount, and shall be issued at no additional cost to the Owner.

> 20 year Parasolo Roof Membrane/System Guarantee

# PART 2 PRODUCTS

## 2.01 ROOFING SYSTEM ASSEMBLY/PRODUCTS

A. Temporary Roof Membrane

1. Torchable Modified Bitumen Ply Sheet: A fiberglass reinforced, specially modified asphalt coated sheet, having an minimum weight of 76 lb/sq. The reinforcement mat shall be impregnated/saturated and coated each side with SBS modified bitumen blend and coated one side with a torch grade SBS bitumen blend adhesive layer. The adhesive layer shall be manufactured with a factory applied heat activated adhesive stripes combined with an acrylic coating between the stripes, which provides uniform bonding of 50% of the total surface area of the sheet. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen.

## 2.02 DESCRIPTION OF SYSTEMS

A. Roof Membrane Ply: A roof membrane consisting of one ply of a prefabricated, polyester scrim-reinforced, polyvinyl chloride (PVC) membrane formulated with an Elvaloy® Ketone Ethylene Ester (KEE) copolymer, applied over a prepared substrate. The roof membrane shall have a factory-adhered polyester fleece backing on the bottom side. The roof membrane shall meet or exceed to the minimum criteria established by ASTM D4434 Standard Specification for Poly(Vinyl Chloride) Sheet Roofing (Type III). The minimum thickness of the roof membrane shall be 60 mils, as established by ASTM D751 Standard Test Method for Coated Fabrics. The minimum thickness of the roof membrane over the reinforcement scrim shall be 27 mils, as established by ASTM D7635 Standard Test Method for Measurement of Thickness of Coatings Over Fabric Reinforcement.

B. Flashing Ply (fleece-back): A roof membrane consisting of one ply of a prefabricated, polyester scrim-reinforced, polyvinyl chloride (PVC) membrane formulated with an Elvaloy® Ketone Ethylene Ester (KEE) copolymer, applied over a prepared substrate. The flashing membrane shall have a factory-adhered polyester fleece backing on the bottom side. The flashing system shall meet or exceed to the minimum criteria established by ASTM D4434 Standard Specification for Poly(Vinyl Chloride) Sheet Roofing (Type III). The minimum thickness of the flashing membrane shall be 60 mils, as established by ASTM D751 Standard Test Method for Coated Fabrics. The minimum thickness of the flashing membrane over the reinforcement scrim shall be 27 mils, as established by ASTM D7635 Standard Test Method for Measurement of Thickness of Coatings Over Fabric Reinforcement.

C. Catalyzed Acrylic Resin Flashing System for Penetrations: A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing system consists of a catalyzed acrylic resin primer, basecoat and topcoat, combined with a non-woven polyester fleece. The resin and catalyst are pre-mixed immediately prior to installation. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer for each application.

## 2.03 ROOFING ACCESSORIES

A. Insulation Adhesives

1. Insulation Adhesive: A dual component, polyurethane foam adhesive used to adhere insulation panels to the substrate, as well as to other insulation panels.

B. Roofing Adhesives

1. Membrane Adhesive: A dual component, polyurethane foam adhesive used to adhere the roof membrane to the substrate.

2. Flashing Membrane Adhesive: A solvent-based, low VOC, rubberized adhesive designed for bonding PVC single-ply roofing membranes and flashings to various roofing substrates.

3. Pourable Sealer: A single component, moisture cure, self-leveling sealant designed for use around penetrations in pitch pan details.

C. Bituminous Cutback Materials for SBS Modified Bitumen Temporary Roof

1. Primer: An asphalt/solvent blend for use with SBS modified bitumen membrane ply applications meeting ASTM D 41, South Coast Air Quality District and Ozone Transport Commission requirements.

D. Sealant: A solvent-based, UV resistant synthetic elastomeric sealant for the completion of details.

E. Water Block: A single component butyl-based high viscosity sealant for sealing the flashing membrane to the substrate behind exposed termination bars and at drain flanges.

F. Membrane Conditioner/Cleaner: A solvent-based agent used to clean exposed or contaminated seams prior to heat welding to remove any residue that may compromise lap welding.

G. Membrane Separation Pad: A non-woven polyester mat, having a weight of 3 oz./yd. (85 $g/m^2$), used beneath mechanically attached single-ply membrane in re-cover applications or between single-ply flashing membrane and flashing substrates contaminated with asphalt residue.

H. PVC Membrane Flashing Accessories

1. Outside Corner Flashing: A molded PVC membrane having a thickness of 0.075 inch (1.9 mm), designed to accommodate outside corners of base and curb flashing details. The molded flashing component shall be hot-air welded directly to the specified PVC membrane.

2. Inside Corner Flashing: A molded PVC membrane designed to accommodate inside corners of base and curb flashing details. The molded flashing component shall be hot-air welded directly to the specified PVC membrane.

3. Fluted Corner Flashing: A molded PVC membrane having a thickness of 0.055 inch (1.4 mm), designed to accommodate corners of base and curb flashing details having dimensions that cannot be addressed using standard pre-formed PVC inside or outside corner flashing components. The molded flashing component shall be hot-air welded directly to the specified PVC membrane.

4. Flashing Strip: An 8-inch wide molded PVC membrane strip having a thickness of 0.045 inch (1.14 mm), designed for general repairs and to strip-in PVC coated metal flanges.

5. Termination Bar with Receiver: An extruded aluminum termination bar with rounded edges and an angled sealant receiver and lower leg bulb stiffener, having factory-punched, slotted holes spaced on 6-inch (152 mm) centers.

6. Termination Bar with Receiver: An extruded aluminum termination bar with rounded edges and an angled sealant receiver and lower leg bulb stiffener, having factory-punched, slotted holes spaced on 8-inch (203 mm) centers.

7. Flat Termination Bar: A flat, extruded aluminum termination bar with rounded edges, having factory-punched, slotted holes spaced on 6-inch (152 mm) centers.

8. Flat Termination Bar: A flat, extruded aluminum termination bar with rounded edges, having factory-punched, slotted holes spaced on 8-inch (203 mm) centers.

9. Pre-formed Vent Boots: A molded PVC membrane used to flash pipe and conduit penetrations having a diameter of 1 to 6 inches (25 to 152 mm). The pre-formed vent boots shall be hot-air welded directly to the PVC roof membrane.

10. Cover Patches at T-Joints: A molded PVC membrane used to reinforce the T-joints of the specified PVC membrane system.

I. Fasteners for Dry-hung Flashing Installation

1. Membrane Fasteners for Dry-hung Flashing: Membrane fasteners shall be FM Approved, and/or approved by the manufacturer of the primary roofing products. The fasteners shall provide attachment required to meet the specified uplift performance. The fastener spacing for membrane laps shall be as recommended by the manufacturer of the primary roofing products. Acceptable membrane fastener manufacturers for specific deck types are listed below.

a) Metal Substrates: Mechanical fasteners for metal decks shall be factory coated for corrosion resistance. The fasteners shall meet or exceed Factory Mutual Standard 4470 and when subjected to 30 Kesternich cycles, show less than 15% red rust. Acceptable fastener types for metal decks are listed below.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.245 inch thread diameter, used in conjunction with the specified seam plate.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.275 inch thread diameter, used in conjunction with the specified seam plate.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.325 inch thread diameter, used in conjunction with the specified seam plate.

b) Wood/Plywood Substrates: Mechanical fasteners for wood/plywood decks shall be factory coated for corrosion resistance. The fastener shall conform meet or exceed Factory Mutual Standard 4470 and when subjected to 30 Kesternich cycles, show less than 15% red rust. Acceptable fastener types for wood/plywood decks are listed below.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.245 inch thread diameter, used in conjunction with the specified seam plate.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.275 inch thread diameter, used in conjunction with the specified seam plate.

c) Concrete/Masonry Substrates: Insulation mechanical fasteners for structural concrete decks shall be factory coated for corrosion resistance. The fastener shall conform meet or exceed Factory Mutual Standard 4470 and when subjected to 30

Kesternich cycles, show less than 15% red rust. Acceptable insulation fastener types for structural concrete decks are listed below.

- A fluorocarbon coated non-threaded, hammer-driven roofing fastener specifically manufactured for use in structural concrete decks, used in conjunction with the specified seam plate.

- A fluorocarbon coated screw type roofing fastener having a minimum 0.245 inch thread diameter, used in conjunction with the specified seam plate.

2. Membrane Seam Plates: Membrane seam plates shall be FM Approved, and/or approved by the manufacturer of the primary roofing products. The plates shall be used with the specified seam fasteners to provide attachment required to meet the specified uplift performance. Acceptable seam plate manufacturers are listed below.

   - Barbed plates used in conjunction with the fastener shall be a metal type having a minimum 2.375 inch diameter, as supplied by the fastener manufacturer.

   - Barbed plates used in conjunction with the fastener shall be a metal type having a minimum 2.75 inch diameter, as supplied by the fastener manufacturer.

   - Barbed plates used in conjunction with the fastener shall be a metal type having a minimum 2.375 inch diameter and designed for use with a specialized stand-up attachment tool.

J. Walktread: A prefabricated, extruded and embossed PVC protection pad with a skid-resistant surface.

   1. Thickness: 1/8 inch (3.2 mm)
   2. Width: 30 in (76.2 cm)

## PART 3 EXECUTION

### 3.01 PREPARATION

A. General: Sweep or vacuum all surfaces, removing all loose aggregate and foreign substances prior to commencement of roofing.

B. Remove All Existing:

   - Surface gravel
   - Roof membrane
   - Insulation
   - Base flashings

- Edge metal
- Flanged metal flashings
- Cants, wood blocking
- Walkways
- Non functional penetrations/curbs
- Drain assemblies
- Vapor retarder
- Metal trim, counterflashing

C. Asphaltic Primer for Modified Bitumen Membrane: Prime metal and concrete and masonry surfaces with a uniform coating of the specified asphalt primer.

## 3.02 SUBSTRATE PREPARATION

A. Temporary Roof Application: Torch apply the ply sheets directly to the prepared substrate, lapping sides and ends a minimum of 3 inches. Apply the sheets free of wrinkles, creases or fishmouths and exert sufficient pressure on the roll during application to ensure the prevention of air pockets. Seal each penetration and termination using fiberglass tape and the specified plastic cement to ensure that the temporary roof configuration is completely water-tight.

B. Insulation: Install insulation panels with end joints offset; edges of the panels shall be in moderate contact without forcing applied in strict accordance with the insulation manufacturer's requirements and the following instructions. Where insulation is installed in two or more layers, stagger joints between layers. Maintain a maximum panel size of 4 feet by 4 feet for polyisocyanurate insulation applied in insulation adhesive. Install only as much insulation as can be made watertight within the same work day.

1. Insulation - multiple layer: Install all layers in an application of the specified insulation adhesive in strict accordance with the requirements of the insulation adhesive supplier. Stagger the panel joints between insulation layers.

## 3.03 ROOF MEMBRANE INSTALLATION

A. Membrane Application: Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements. Application of roofing membrane components shall immediately follow application of base sheet and/or insulation as a continuous operation.

B. Aesthetic Considerations: Construction of an aesthetically pleasing overall appearance of the finished roof application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques, apply the specified materials including granules, and exercise care in ensuring that the finished application is acceptable to the Owner.

C. Membrane Adhesive Application: Membrane adhesive can be applied by brush or roller. Apply cold adhesive in a smooth, even, continuous layer without breaks or voids. Utilize an application rate of 60 square feet per gallon (1.47 sq. m/liter).

D. Roofing Application: Apply roofing to be free of wrinkles, creases or fishmouths. Use a blower and/or broom to remove any dirt or debris from the substrate surface.

1. Unroll the specified fleece-back PVC sheets in place and fold back sheets in the long dimension to allow adhering of membrane, one half of sheet at a time. Alternatively, align a full roll of membrane with the factory-applied lap line on the previously installed sheet. Roll out the roll approximately 20 feet (6.1 m) checking to see that the edge of the new roll is straight with the line. Pick up the tail end of the previously rolled-out membrane and pull back over top of the roll of membrane.

2. Apply the specified low-rise foam adhesive in a “spatter pattern” over the substrate to yield a heavily textured, even coating of approximately 1/4- inch (6.2 mm) to 1/2- inch (12 mm) nominal thickness height on the peaks of the spattered adhesive. Allow the adhesive to rise and apply the roof membrane before the adhesive begins to “skin” over.

3. Lay half of the membrane into the wet adhesive and roll into place with a clean 150 lb. roller. Repeat the process for the other half of sheet. If following the alternative method, pull the sheet back to its original position, and roll into place. Make sure that the lap line is followed when re-installing the sheet.

4. Where the substrate angle changes in excess of 5 degrees (i.e. 1-inch slope), mechanically attach the membrane into the structural deck on 12-inch centers, keeping the fasteners 1/4 to 3/4 inch from the angle change. At curbs and walls, mechanically attach the membrane into the structural deck on 12-inch centers, keeping the fasteners 1/4 to 3/4 inch from the membrane edge. Alternatively, at walls/curbs extend the membrane a minimum of 3 inches up the vertical flashing substrate and mechanically attach the specified flat termination bar at the top edge of the membrane. The termination bar must be installed within 1.5 to 2 inches (38 to 51 mm) of the horizontal plane of the roof, with a minimum of 1-inch (25 mm) of membrane extending above the termination bar. Prior to mechanical attachment of the termination bar, apply the specified water block sealant on the flashing substrate behind the membrane where the termination bar will be installed.

5. Install a minimum of 4 fasteners evenly spaced around all round, square, “L”-beam or “H”-beam penetrations, keeping the fasteners 1/4 to 3/4 inches from the penetration. At penetrations having a larger diameter, install fasteners around the penetration on 12-inch centers.

6. Clean the laps of membrane that have become dirty or contaminated using the specified conditioner. Heat weld all side and end laps of the membrane during each day’s application. All welds must be continuous, without voids, and free of burns and scorch marks. Weld shall be a minimum width of 1.5 inches (38 mm) for automatic machine welding and 2 inches (51 mm) for hand welding. Contact the manufacturer of the heat-welding equipment for specific guidelines on operating the equipment. Hand-roll the side laps and head laps of the membrane behind the heat welder when hand welding.

E. Flashing Application - General: Locate all penetrations at least 24 inches from curbs, walls, and edges to provide access for proper application of the specified flashing materials. Reinforce all coated metal and membrane flashing corners using preformed corners or non-reinforced membrane. Hot-air weld all flashing membranes, accessories, and coated metal to have a minimum 2-inch (51 mm) hand-welded or minimum 1.5-inch (38 mm) automatic machine-welded lap. Cover flashing substrates contaminated with asphalt residue with the specified membrane separation pad and mechanically attach at the top of the flashing condition. Reference the manufacturer’s standard details for all flashing conditions. For dry-hung flashing over asphalt-contminated walls with smooth flashing membrane, loose lay the specified protection layer over the flashing substrate without any wrinkles of buckles.

Overlap side and ends with the adjacent courses of the specified protection layer by a minimum of 6 inches.

F. Flashing Application - Coated Metal Flashings: Form coated metal flashings in accordance with SMACNA guidelines and the manufacturer's published specifications. Reference the manufacturer's standard details for all flashing conditions. Butt all joints of coated metal edge sections with a 1/4-inch (6 mm) gap to allow for expansion and contraction. Hot-air weld a 6-inch (152 mm) reinforced membrane flashing strip to both sides of the joint, with approximately 1-inch (25 mm) on either side of the joint left un-welded to allow for expansion and contraction. Apply 2-inch (51 mm) aluminum tape over the joint as a bond-breaker, to prevent welding in this area. Lap all joints of coated metal sealant pans, scupper inserts, corners of roof edging, and base flashing or pop-rivet a separate metal piece to create a continuous flange condition. Hot-air weld a 6-inch (152 mm) strip of reinforced membrane flashing over all seams that will not be sealed during subsequent flashing installation.

G. Reinforced Flashing Application – Dry-hung Membrane Flashing (horizontal lap orientation): Prior to installation, heat-weld the laps of the reinforced flashing sheet. Starting with the lowest lap of the flashing sheet, install the flashing membrane with the side laps running horizontally. mechanically attach the flashing membrane through the unadhered selvage into the flashing substrate using the specified fasteners on 12-inch centers. Mechanically attach subsequent side laps up the full height of the flashing condition using the same method. Terminate the top of the flashing membrane in accordance with the manufacturer's standard details.

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| * NOTE: For dry hung flashing with a horizontal lap orientation, install the flashing sheet in maximum sheet heights of 24 inches. |

G. Reinforced Flashing Application - Dry Hung Membrane Flashing (vertical lap orientation): Install the flashing membrane with the side laps running vertically. Mechanically attach each course of the flashing membrane through the selvage into the flashing substrate using the specified fasteners on 12-inch centers. Heat weld the laps over the fasteners and terminate the top of the flashing membrane in accordance with the manufacturer's standard details.

G. Reinforced Smooth Flashing Application - Adhered Membrane Flashing (solvent based adhesive): Apply the solvent-based bonding adhesive to both the underside of the membrane and the substrate at the minimum rate published by the manufacturer. Allow the bonding adhesive to dry until tacky to the touch before application of the flashing membrane.

H. Flashing Application - Adhered Un-Reinforced Membrane Flashing: Apply un-reinforced membrane at field-fabricated penetrations or as reinforcement flashings in locations where preformed corners and pipe boots cannot be properly installed. Apply un-reinforced flashing in strict accordance with the published details and requirements of the roof membrane manufacturer. Allow the bonding adhesive to dry until tacky to the touch before application of the flashing membrane.

I. Catalyzed Acrylic Resin Flashing System (at penetrations): Install the liquid-applied primer and flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer.

J. Water Cut-Off: At end of day's work, or when precipitation is imminent, construct a water cut-off at all open edges. Construct cut-offs to withstand protracted periods of service

without leaking using materials and methods compatible with the specified roof membrane system. Cut-offs must be completely removed prior to the resumption of roofing.

## 3.04 ROOF SYSTEM INTERFACE WITH RELATED COMPONENTS

A. Walkway/Protection Pads: Install walkway rolls at all roof access locations and other designated locations includin1392g roof-mounted equipment, work locations and areas of repeated rooftop traffic. Cut the walktread into maximum 5 foot lengths and allow to relax until flat. Use a minimum spacing of 2 inches between sheets to allow for proper drainage. Heat-weld walkway rolls to the roof membrane surface continuously around the perimeter of the roll.

B. Roof Drains: Fit drains with clamping rings and strainer baskets. Provide a minimum 36-inch by 36-inch sump and a slope within the sump not exceeding 4:12. Extend the roof membrane over the drain opening and cut a hole in the membrane directly over the opening, leaving 1 inch of membrane to extending past the drain flange into the drain opening. Punch holes through the roofing membrane at drain bolt locations. Set the membrane in a full bed (use full tube) of the specified water block sealant over the drain flange prior to securement of the clamping ring. Lap seams within the sump area must be avoided. Where lap seams cannot be located outside of the sump area, apply a separate target of the specified roof membrane to extend a minimum of 12-inches in all directions from the sump area and mechanically attached on 12-inch centers around the drain with the specified screws and plates. Heat weld the flashing target beyond the screws and plates, extending over the drain flange.

C. Exposed Termination Bars: Prior to mechanical attachment of the specified termination bar with receiver, apply the specified water block sealant on the flashing substrate behind the membrane where the termination bar will be installed. Mechanically attach termination bars using the specified fasteners. Apply a continuous bead of the specified sealant at the top of termination bar sealant receiver lip.

## 3.05 FIELD QUALITY CONTROL AND INSPECTIONS

A. Site Condition: Leave all areas around job site free of debris, roofing materials, equipment and related items after completion of job.

B. Notification Of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.

C. Final Inspection

1. Post-Installation Meeting: Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.

D. Issuance Of The Guarantee: Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified guarantee.