MIAMI-DADE COUNTY, FLORIDA

Aviation Maintenance Department
4331 NW 22 Street. Bldg.3030
Miami, FL 33102
305.876.8322

RPQ ADDENDUM

Addendum No.:	1	Date:	2/19/2025
Project No.:	CA166A	Project Title:	HGA Bldg 5 40-Year Recertification
RPQ No.:	CA166A	RPQ Due Date:	3/12/2025
Project Location:	HGA Bldg 5	Project Manager:	C. Cook

- **Change Bid Due Date from Wednesday, 2/26/2025 to Wednesday, 3/12/2025.**
- **See Specifications attached.**

All else remains the same. This document must be signed and returned as part of your RPQ response. Failure to return this document signed may result in your RPQ response being rejected as non-responsive.

Name of Contractor: _____

Name of Individual Authorized to Sign: _____

Title: _____

Signature: _____

Miami Homestead Airport
Building #5 – 40-year Recertification Project
MDAD Project #CA166A

Miami Dade Aviation Department

600 W Hillsboro Blvd,
Deerfield Beach, FL 33441
(954) 719-0033
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MIAMI DADE AVIATION DEPARTMENT (MDAD)

MDAD Project No. CA166A

Miami Homestead Airport

HGA BUILDING 5 – 40 YEAR RECERTIFICATION

Permitting submittal August 2024

Miami Homestead Airport – Miami, Florida

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SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section requires the selective removal and subsequent offsite disposal ofthe following:

1. Portions of existing building indicated on drawings and as required to accommodate new construction.
2. Removal and protection of existing fixtures, materials, and equipment items indicated "salvage", or that may be required.

B. Removals:

1. Remove demolished materials from site on a daily basis. Leave no discarded material overnight.
2. Dispose of all wastes only at site locations off the property specifically designated and appropriately licensed to receive construction and demolition waste materials.

1.02 SUBMITTALS

A. Schedule indicating proposed sequence of operations for selective demolition work to the MDAD project manager for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of the MDAD's onsite operations personnel.
2. Coordinate with MDAD project manager, continuing occupation of portions of existing building and with MDAD's on-site partial occupancy of completed portions of the work.

C. Photograph existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

D. Submit for review by the Design Professional, shop drawings, calculations and erection drawings as required for construction activities.

1.03 JOB CONDITIONS

A. Occupancy: Building Tenant will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Building Tenant's normal operations. Provide minimum of 72 hours advance notice to MDAD of demolition activities which may affect normal airport operations.

B. Condition of Structures: MDAD assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by MDAD insofar as practicable. However, minor variations within structure may occur by MDAD's removal and salvage operations prior to start of selective demolition work.

C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

D. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Building Tenant's personnel and general public to occupied portions of building.
2. Erect temporary ornamental barrier walls, covered passageways where and as required prior to proceeding with any demolition work in and adjacent to any area used for normal operations.
3. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
4. Protect floors with suitable coverings when necessary.
5. Any work that may be required in operational areas must be scheduled in writing a minimum of 72 hours in advance with permission from MDAD Project Manager before proceeding. All finish material in that area must be returned to its original condition.
6. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
7. Remove protections at completion of work.

E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

F. Traffic: Conduct demolition operations and removal of debris to ensure no interference with ongoing Building Tenant and airlines operations. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from MDAD Project Manager. Provide alternate routes around closed or obstructed traffic ways as approved by MDAD Project Manager.

G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

H. Utility Services: The Contractor shall not disconnect, cut, cut into, or otherwise interrupt any existing utility service, electrical, water, sewerage or any other wire, pipe or conduit which connects to or serves the adjacent building installations or facilities from either off-site or on-site sources except as follows:

1. The Contractor shall notify MDAD Project Manager, the Design Professional and Utility Company in writing, thirty (30) full days in advance, of the reasons and necessity of interruption of any utility services as defined herein. The notice shall state the date, the time of day, and the estimated duration of the proposed interruption.
2. The Contractor will coordinate the proposed interruption of service and notify the Design Professional of approval or disapproval of the proposed interruption and the restrictive conditions connected therewith. The Contractor shall not cause any interruption without the prior approval of MDAD Project Manager and Utility Company and shall provide temporary services during interruption to existing utilities as approved by MDAD Project Manager and the Design Professional.
3. Perform emergency repairs to any and/or all utilities on site and/or off site damaged as a result of Contractor's actions at no additional cost to the Owner.
4. Maintain fire protection services during selective demolition operations.
5. Utility shutdowns require MDAD Project Manager approval at least 7 working days prior to shutdown. A utility shutdown form is available from MDAD Project Manager.

I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as flooding, and pollution.

J. Patching: The Contractor shall be responsible for the proper patching and restoration of all work that is cut into for any reason. Patching shall be neat, shall match the finish of contiguous areas and shall meet with the approval of the Design Professional and the Owner.

K. Explosives: Explosives are not to be used at any time.

L. Provide Sound Control for disruptive sound activities that impede normal operations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION

A. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.

1. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building.

b. Utility shutdowns require MDAD Project Manager approval at least 7 working days prior to shutdown. A utility shutdown form is available from MDAD Project Manager.

3.02 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to the MDAD's Project Manager in written, accurate detail. Pending receipt of directive from MDAD's Project Manager, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

A. Salvaged Items: Where indicated on Drawings as "Salvage" carefully remove indicated items, clean, store, and turn over as directed by MDAD Project Manager and obtain receipt.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

A. Title to Materials:

1. Title to all materials and equipment to be removed is vested in the Contractor upon receipt of Notice to Proceed.

a. MDAD will not be responsible for condition, loss of, or damage to such materials and /or equipment after receipt by contractor of Notice to Proceed.

b. Remove excess materials and equipment from site upon completion of

removal operations.

c. Contractor shall provide safe, off-site storage for all materials scheduled to be reused.

d. In the event hazardous substances/materials are encountered during demolition operations, work is to immediately stop, and the area is to be secured. Contractor shall immediately notify the Design Professional.

e. Burning of removed materials is not permitted on project site.

3.05 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

B. Pollution Controls: Use water sprinkling, temporary enclosures and other suitable methods to limit dust and dirt rising in the air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

C. Do not use water when it may create hazardous or objectionable conditions such as flooding and pollution.

D. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations, as directed by MDAD, Design Professional or governing regulations.

END OF SECTION

SECTION 07 22 00

ROOF INSULATION

PART 1 GENERAL

1.01 SUMMARY

A. Work shall include, but is not limited to, the following:
   1. Preparation of existing roof deck and all flashing substrates.
   2. Insulation, adhered.
   3. Cover-board, adhered.
   4. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer's warranty.

1.02 RELATED SECTIONS

A. Division 072713 – Modified Bituminous Sheet Vapor Retarders
B. Division 075216 – Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing
C. Division 076200 – Sheet Metal Flashing and Trim

1.03 DEFINITIONS

A. ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.
B. The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual, Fifth Edition Glossary.

1.04 REFERENCES

A. AMERICAN SOCIETY OF CIVIL ENGINEERS - Reference Document ASCE 7, Minimum Design Loads for Buildings and Other Structures.
B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
   1. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Insulation Board.
   2. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
   1. ANSI/SPRI IA-1, Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates.
   2. ANSI/FM 4474- American National Standard for Evaluating the Simulated Wind Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.
D. FACTORY MUTUAL (FM):
   1. FM 4450 - Approval Standard - Class I Insulated Steel Roof Decks.
   2. FM 4470 - Approval Standard - Class I Roof Covers.
E. FLORIDA BUILDING CODE (FBC):
   1. 2023 Florida Building Code (FBC), 8th edition.

F. NATIONAL ROOFING CONTRACTORS' ASSOCIATION (NRCA).
G. UNDERWRITERS LABORATORY (UL):
   1. UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
   2. UL 1256 – Fire Test of Roof Deck Constructions.

1.05 ACTION SUBMITTALS

A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.
B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
C. Sample/Specimen Warranty from the manufacturer and contractor.
D. Shop Drawings: Provide roof plan and applicable roof system detail drawings.

1.06 INFORMATIONAL SUBMITTALS

A. Contractor Certification: Submit written certification from roofing system manufacturer certifying that the applicator is authorized by the manufacturer to install the specified materials and system.

1.07 CLOSEOUT SUBMITTALS

A. Warranty: Provide manufacturers and contractor's warranties upon substantial completion of the roofing system.

1.08 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS:
   1. Manufacture shall have 20 years of experience manufacturing roofing materials.
   2. Trained Technical Field Representatives, employed by the manufacturer, independent of sales.
   3. Provide reports in a timely manner of all site visit reports.
   4. Provide specified warranty upon satisfactory project completion.

B. CONTRACTOR QUALIFICATIONS:
   1. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
   2. Applicators shall have completed projects of similar scope using same materials as specified herein.
   3. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified roof system through satisfactory project completion.
   4. Applicators shall be skilled in the application methods for all materials.
   5. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
   6. Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.

1.09 DELIVERY, STORAGE AND HANDLING

A. Refer to each product data sheet or other published literature for specific requirements.
B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location.
D. When materials are to be stored outdoors, store away from standing water, stacked on raised pallets or dunnage, at least 4 in or more above ground level. Carefully cover storage with “breathable” tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
E. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.10 SITE CONDITIONS

A. SAFETY:
1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
2. Refer to NRCA CERTA recommendations, local codes and building owner’s requirements for hot work operations.
3. The contractor shall review project conditions and determine when and where conditions are appropriate to utilize the specified liquid-applied, or semi-solid roofing materials. When conditions are determined by the contractor to be unsafe or undesirable to proceed, measures shall be taken to prevent or eliminate the unsafe or undesirable exposures and conditions, or equivalent approved materials and methods shall be utilized to accommodate requirements and conditions.
4. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.

B. ENVIRONMENTAL CONDITIONS:
1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.
2. Precipitation and dew point: Monitor weather to ensure the project environment is dry before, and will remain dry, during the application of roofing materials. Ensure all roofing materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.

1.11 PERFORMANCE REQUIREMENTS

A. FIRE CLASSIFICATION:

1. Roof construction performance testing shall be in accordance with UL 1256, FM 4450, or FM 4470 to meet the specified requirements for interior flame spread and fuel contribution.
   a. Roof construction meets requirements of UL 1256, or FM Class 1.

B. ROOF SLOPE:
1. Finished roof slope shall be ½”-inch per foot (2 percent) minimum for roof drainage.

C. ENERGY CONSERVATION REQUIREMENTS:
1. Polyisocyanurate Insulation "R" Value: Shall be determined in accordance with ASTM C1289-11a.
2. Thermal Resistance ‘R’ for the specified roof insulation system shall include the continuous insulation (ci) above the roof deck.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. SINGLE SOURCE MANUFACTURER: All roofing materials shall be provided by a single supplier with 20 years or more manufacturing history in the US.
1. Comply with the Manufacturer’s requirements as necessary to provide the specified warranty.

B. PRODUCT QUALITY ASSURANCE PROGRAM: Manufacturer shall be an ISO 9001 registered company.

C. ACCEPTABLE MANUFACTURER:
1. SOPREMA, located at: 310 Quadral Dr.; Wadsworth, OH 44281; Tel: 800- 356-3521; Tel: 330-334-0066; Website: www.soprema.us.
2. MDAD Approved Equal.

2.02 ROOFING SYSTEM

A. ROOFING SYSTEM BASIS OF DESIGN: SOPREMA

2.03 THERMAL INSULATION SYSTEM

A. RIGID INSULATION
1. POLYISOCYANURATE INSULATION:
   a. SOPREMA SOPRA-ISO: Closed cell polyisocyanurate foam core bonded on each side to a glass fiber-reinforced felt facer.
      i Thickness: Total thickness to meet specified insulation system thermal resistance ‘R’ value.
      ii Dimensions: 4 x 4 foot boards.
      iii Meets or exceeds ASTM C1289, Type II, Class 1, Grade 2 (20 psi).

   b. SOPREMA SOPRA-ISO Tapered: Closed cell polyisocyanurate foam core bonded on each side to a glass fiber-reinforced felt facer, tapered to provide slope.
      i Taper: 1/2 in per foot.
      ii Dimensions: 4 x 4 ft boards.

iii Meets or exceeds ASTM C1289, Type II, Class 1, Grade 2 (20 psi).

B. COVER-BOARD

1. ASPHALTIC ROOF BOARD

a. ¼ IN SOPREMA SOPRABOARD: Mineral fortified, asphaltic roof substrate board with glass fiber facers. For use as roof cover- board and for vertical flashing substrate. ASPHALTIC ROOF BOARD shall be manufactured by the membrane supplier.

i Thickness: 1/4 in

ii Dimensions: 4 x 4 ft acceptable for mechanical attachment, insulation adhesive or asphalt application.

iii Water absorption: Less than 1 percent per ASTM D994.

iv Impact resistance: Included in FM Approvals per 4450/4470 for FM Severe Hail (SH) rating.

v Compressive strength, psi (kPa) measured at 50 percent compression, per ASTM C472:

a) ¼ in board: 1,320 (9,100)

vi Puncture resistance, lbf (N) per ASTM E154:

a) ¼ in board: 100 (445)

C. INSULATION CANT AND TAPERED STRIP

a. SOPREMA SOPRACANT MB: Modified bitumen cant strips for use with heat-welded SBS modified bitumen.

i Length: 39.4 in sections.

ii Cross-section dimensions: Size as required for flashing conditions.

1. TAPERED EDGE STRIP AND BOARDS:

a. Expanded perlite, blended with binders and fibers.

i Dimensions: Size as required.

ii Meets or exceeds ASTM C728.

D. INSULATION ADHESIVE

1. POLYURETHANE FOAM INSULATION ADHESIVE

a. SOPREMA DUOTACK 365: Two-component, polyurethane foam insulation adhesive, applied in ribbons from cartridges or two-component bulk packaging with pump-driven delivery system.

i Ribbon size: 1/2 in to 3/4 in wide.

ii Ribbon spacing: As required to meet specified wind uplift resistance performance.

a) Field of Roof (Zone 1): 12 in on-centers

b) Perimeter of Roof (Zone 2): 6 in on-centers

c) Corners of Roof (Zone 3): 4 in on-centers

PART 3 EXECUTION

3.01 EXAMINATION

A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.

B. Conduct qualitative insulation adhesive adhesion tests, or quantitative bonded pull tests as necessary to ensure satisfactory adhesion is achieved.

C. The contractor shall examine all roofing substrates including, but not limited to: insulation materials, roof decks, walls, curbs, rooftop equipment, fixtures, and wood blocking.

D. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified roofing materials.

E. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified roofing system.

3.02 PREPARATION

A. Before commencing work each day, the contractor shall prepare all roofing substrates to ensure conditions are satisfactory to proceed with the installation of specified roofing materials. Preparation of substrates includes, but is not limited to, substrate repairs, securement of substrates, eliminating all incompatible materials, and cleaning.

B. Where conditions are found to be unsatisfactory, work shall not begin until conditions are made satisfactory to begin work. Commencing of work shall indicate contractor's acceptance of conditions.

3.03 INSULATION ADHESIVE APPLICATION

A. DUOTACK 365

1. Apply the specified two-component insulation adhesive to adhere Insulation Layers and Cover-board to the deck and insulation substrate(s).
2. Follow insulation adhesive product data sheets and published general requirements for installation requirements.
3. Apply insulation adhesive in uniform ribbons, 1/2 in to 3/4 in wide.
4. Immediately install insulation components into insulation adhesive and apply weight to ensure the materials maintain full contact with all ribbons for complete adhesion. Do not allow insulation adhesive to skin-over before placing the insulation materials into the adhesive.
5. Adhere the insulation system to meet the specified wind uplift resistance performance and specified warranty requirements.
6. Minimum insulation adhesive ribbon spacing:
    a. Field of Roof (Zone 1): 12 in on-centers.
    b. Perimeter of Roof (Zone 2): 6 in on-centers.
    c. Corners of Roof (Zone 3): 4 in on-centers.

3.04 INSULATION SYSTEM APPLICATION

A. Follow insulation system component product data sheets, published general requirements and, approvals.

B. Install all insulation system components on clean, dry, uniform and, properly prepared substrates.

C. All insulation system boards shall be carefully installed and fitted against adjoining sheets to form tight joints.

D. Insulation system boards that must be cut to fit shall be saw-cut or knife-cut in a straight line, not broken. Chalk lines shall be used to cut insulation components. Uneven or broken edges shall not be accepted. Remove dust and debris that develops during cutting operations.

E. Stagger successive layers of insulation 12 in vertically and laterally to ensure board joints do not coincide with joints from the layers above and below.

F. Crickets, saddles, and tapered edge strips shall be installed before installing Cover-boards.

G. Install tapered insulation, saddles and crickets as required to ensure positive slope for complete roof drainage.

H. Cover-boards shall be installed to fit tight against adjacent boards. When required by the Cover-board manufacturer, a uniform gap shall be provided between Cover-boards using a uniform guide placed between board joints to form a gap between all boards during installation.

I. The finished insulation system surface shall be tight to, and flush with, adjacent substrates to form a satisfactory substrate to install specified roof membrane and flashings.

J. Install specified cants where required for membrane flashing transitions.

3.05 CLEAN-UP

A. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

END OFSECTION

SECTION 072713

SBS MODIFIED BITUMINOUS SHEET VAPOR RETARDERS

PART 1 GENERAL

1.01 SUMMARY

A. Work shall include, but is not limited to, the following:
   1. Preparation of existing, concrete roof deck, and all flashing substrates.
   2. SBS-modified bitumen roof vapor retarder.
   3. SBS-modified bitumen membrane flashings at penetrations
   4. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer's warranty.

1.02 RELATED SECTIONS

A. Division 072200 – Roof Insulation
B. Division 075216 – Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing
C. Division 076200 – Sheet Metal Flashing and Trim

1.03 DEFINITIONS

A. ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.
B. The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual, Fifth Edition Glossary.

1.04 REFERENCES

A. AMERICAN SOCIETY OF CIVIL ENGINEERS - Reference Document ASCE 7, Minimum Design Loads for Buildings and Other Structures.
B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
   1. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants
   2. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
   3. ASTM D 312- Standard Specification for Asphalt Used in Roofing.
   4. ASTM D 3746 - Standard Test Method for Impact Resistance of Bituminous Roofing System.
   5. ASTM D 5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
   6. ASTM D 5849 - Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement)
   7. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
   8. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

1. ANSI/FM 4474- American National Standard for Evaluating the Simulated Wind Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.

D. FACTORY MUTUAL (FM):
   1. FM 4450 - Approval Standard - Class I Insulated Steel Roof Decks.
   2. FM 4470 - Approval Standard - Class I Roof Covers.

E. FLORIDA BUILDING CODE (FBC):
   1. 2020 Florida Building Code (FBC).

F. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).

G. UNDERWRITERS LABORATORY (UL):
   1. UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
   2. UL 1256 – Fire Test of Roof Deck Constructions.

1.05 ACTION SUBMITTALS

A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.

B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.

C. Sample/Specimen Warranty from the manufacturer and contractor.

D. Shop Drawings: Provide roof plan and applicable roof system detail drawings.

1.06 INFORMATIONAL SUBMITTALS

A. Contractor Certification: Submit written certification from roofing system manufacturer certifying that the applicator is authorized by the manufacturer to install the specified materials and system.

1.07 CLOSEOUT SUBMITTALS

A. Warranty: Provide manufacturers and contractor's warranties upon substantial completion of the roofing system.

1.08 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS:
   1. Manufacture shall have 20 years of experience manufacturing SBS-modified bitumen roofing materials.

B. CONTRACTOR QUALIFICATIONS:
   1. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
   2. Applicators shall have completed projects of similar scope using same materials as specified herein.
   3. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified roof system through satisfactory project completion.
   4. Applicators shall be skilled in the application methods for all materials.
   5. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.

6. Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.

1.09 DELIVERY, STORAGE AND HANDLING

A. Refer to each product data sheet or other published literature for specific requirements.
B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location. During cold weather, store materials in a heated location, removed only as needed for immediate use.
D. When materials are to be stored outdoors, store away from standing water, stacked on raised pallets or dunnage, at least 4 in or more above ground level. Carefully cover storage with “breathable” tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
E. Carefully store roof membrane materials delivered in rolls on-end with selvage edges up. Store and protect roll storage to prevent damage.
F. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.10 SITE CONDITIONS

A. SAFETY:
1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
2. Heat-welding shall include heating the specified membrane ply using propane roof torches or electric hot-air welding equipment. The contractor shall determine when and where conditions are appropriate to utilize heat-welding equipment. When conditions are determined by the contractor to be unsafe to proceed, equivalent SBS-modified bitumen materials and methods shall be utilized to accommodate requirements and conditions.
3. Refer to NRCA CERTA recommendations, local codes and building owner’s requirements for hot work operations.
4. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.
5. Heat-welding requires an MDAD Hot Work Permit Form and approval from the Airport Fire Division. Hot Work Permit Form is available from MDAD. During Hot Work procedure a designated Fire Watch employee is to be assigned and remain on site at least 30 minutes after Hot Work is completed for the day.

B. ENVIRONMENTAL CONDITIONS:
1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of

specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.

2. Precipitation and dew point: Monitor weather to ensure the project environment is dry before, and will remain dry, during the application of roofing materials. Ensure all roofing materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.
3. Heat-Welding Application: Take all necessary precautions and measures to monitor conditions to ensure all environmental conditions are safe to proceed with the use of torches and hot-air welding equipment. Combustibles, flammable liquids, and solvent vapors that represent a hazard shall be eliminated and primers shall be fully dry before proceeding with heat-welding operations. Refer to NRCA CERTA recommendations.

1.11 PERFORMANCE REQUIREMENTS

A. FIRE CLASSIFICATION:
1. Vapor Retarder/Air Barrier included in system performance testing in accordance with UL 790, ASTM E108, FM 4450 or FM 4470.
a. Meets requirements of UL Class A or FM Class A.
2. Vapor Retarder/Air Barrier included in system performance testing in accordance with UL 1256, FM 4450 or FM 4470 to meet the specified requirements for interior flame spread and fuel contribution.
a. Meets requirements of UL 1256, or FM Class 1.

1.12 WARRANTY

A. Vapor Retarder shall be included in the specified roofing Manufacturer's No Dollar Limit (NDL) Warranty. The Vapor Retarder manufacturer shall provide the owner with the manufacturer’s warranty for 20 years from the date the warranty is issued.
B. The contractor shall guarantee the workmanship and shall provide the owner with the contractor’s warranty covering workmanship for a period of 2 years from completion date.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. PRODUCT QUALITY ASSURANCE PROGRAM: Manufacturer shall be an ISO 9001 registered company. A ‘Quality Compliance Certificate (QCC) for reporting/confirming the tested values of the SBS-Modified Bitumen Membrane Materials will be supplied upon request.
B. ACCEPTABLE MANUFACTURER:
1. SOPREMA, located at: 310 Quadral Dr.; Wadsworth, OH 44281; Tel: 800-356-3521; Tel: 330-334-0066; Website: www.soprema.us.
2. Siplast - 14911 Quorum Dr, Suite 600, Dallas, TX 75254; Tel: 1-800-922-8800; Website: www.siplast.com
3. MDAD Approved Equal

2.02 SBS-MODIFIED BITUMEN VAPOR RETARDER

A. VAPOR RETARDER, HEAT-WELDED:

1. SOPREMA SOPRALENE 180 SP 3.0: SBS-modified bitumen membrane with a plastic burn-off film on the bottom surface and a sanded top surface. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:

   a. Thickness: 118 mils (3.0 mm)
   b. Width: 39.4 in (1 m)
   c. Length: 32.8 ft (10 m)
   d. Roll weight: 83 lb (37.6 kg)

2.03 ACCESSORIES

A. PRIMERS:

1. SOPREMA ELASTOCOL 500: Asphalt cut-back primer. Primer for the preparation of roof membrane and flashing substrates for asphalt, heat- welded, hot asphalt and SOPREMA COLPLY ADHESIVE, solvent-based, cold adhesive-applied and cement applications.
   a. Meets or exceeds ASTM D41
   b. VOC content: 350 g/L or less.

B. GENERAL PURPOSE ROOFING CEMENT AND MASTIC

1. SOPREMA SOPRAMASTIC: SBS Mastic. Fiber-reinforced, roofing cement, packaged in 5 gallon pails. General purpose roofing cement for low-slope roofing used for sealing membrane T-joints and membrane edges along terminations, transitions and at roof penetrations.
   a. VOC Content: 190 g/L or less.
   b. Meets or exceeds ASTM D4586, Type I, Class II.

2. SOPREMA SOPRAMASTIC: SBS Mastic. Fiber-reinforced, roofing cement, packaged in 10.4 oz caulk tubes. General purpose roofing cement for low-slope roofing used for sealing membrane T-joints and membrane edges along terminations, transitions and at roof penetrations.
   a. VOC Content: 190 g/L or less.
   b. Meets or exceeds ASTM D4586, Type I, Class II.

C. GENERAL PURPOSE SEALANT

1. SOPREMASOPRAMASTIC SP1: General purpose, paintable, gun-grade, elastomeric, polyether moisture curing sealant for sealing SBS membrane terminations, Kynar 500 PVDF, horizontal and vertical construction joints.
   a. VOC Content: 20 g/L or less.
   b. Meets or exceeds ASTM C920, Type S, Grade NS, Class 50.
   c. Standard color.

D. LIQUID-APPLIED REINFORCED FLASHING SYSTEM:

1. SOPREMAALSAN FLASHING: Single-component, polyurethane-bitumen resin with polyester reinforcing fleece fabric fully embedded into the resin to form roof system flashings.
   a. VOC Content: 250 g/L.
   b. SOPREMAALSAN FLASHING: Liquid resin, Meets or exceeds ASTM C836.

c. SOPREMAALSAN POLYFLEECE: Non-wovenpolyester reinforcement.
d. Surfacing: SOPREMA ALSAN FLASHING with mineral granules broadcast into wet SOPREMA ALSAN FLASHING to match adjacent SBS-modified bitumen cap sheet.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.
B. The contractor shall examine all roofing substrates including, but not limited to: insulation materials, roof decks, walls, curbs, rooftop equipment, fixtures, and wood blocking.
C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified roofing materials.
D. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified roofing system.

3.02 PREPARATION

A. Before commencing work each day, the contractor shall prepare all roofing substratesto ensure conditions are satisfactory to proceed with the installation of specified roofing materials. Preparation of substrates includes, but is not limited to, substrate repairs, securement of substrates, eliminating all incompatible materials, and cleaning.
B. Where conditions are found to be unsatisfactory, work shall not begin until conditions are made satisfactory to begin work. Commencing of work shall indicate contractor's acceptance of conditions.

3.03 PRIMER APPLICATION

A. Examine all substrates, and conduct adhesion peel tests as necessary, to ensure satisfactory adhesion is achieved.
B. Apply the appropriate specified primer to dry, compatible substrates as required to enhance adhesion of new specified materials.
C. Apply primer using brush, roller, or sprayer at the rate published on the product data sheet.
D. Asphalt Primer: Apply primer to dry compatible masonry, metal, wood, and other required substrates before applying asphalt and heat-welded membrane plies.

   Primer is optional for solvent based solvent based SBS adhesives and cements, refer to product data sheets.
E. Project conditions vary throughout the day. Monitor changing conditions, monitor the drying time of primers, and monitor the adhesion of the membrane plies. Adjust primer and membrane application methods as necessary to achieve the desired results.

3.04 HEAT WELDING

A. The Contractor is responsible for project safety. Where conditions are deemed unsafe to use open flames, manufacturer's alternate membrane application methods shall be used to install SBS modified bitumen membrane and flashings. Acceptable alternate installation methods include hot asphalt, cold adhesive- applied, self-adhered membranes and mechanically fastened plies. Hot-air welding equipment may be used in lieu of roof torches to seal membrane side and end laps where heat welding the laps is necessary. Refer to NRCA CERTA, local codes and building owner's requirements for hot work operations.

B. Single or multi-nozzle, hand-held propane roof torches shall be used to install heat-welded plies. Multi-nozzle carts (dragon wagons) may also be utilized to install plies. Seven (7) nozzle carts are recommended for more uniform heat application in lieu of five (5) nozzle carts.

3.05 SBS MASTIC AND GENERAL-PURPOSE ROOFING CEMENT APPLICATION

A. Apply SOPREMA SOPRAMASTIC general purpose SBS mastic and roofing cement to seal drain leads, metal flanges, seal along membrane edge at terminations, and where specified and required in detail drawings.

B. Do not use general purpose SBS mastics and roofing cement where flashing cement applications are required. Do not use SBS mastics and roofing cement beneath SBS-modified bitumen membrane and flashing plies.

C. Apply general purpose SBS mastic and elastic roofing cement using caulk gun, or notched trowel at 2.0 – 2.5 gallons per square on each surface. Application rates vary based on substrate porosity and roughness. Tool-in as necessary to seal laps.

3.06 HEAT-WELDED, FULLY ADHERED VAPOR RETARDER APPLICATION

A. Follow material product data sheets and published general requirements for installation instructions.

B. Ensure environmental conditions are safe and satisfactory, and will remain safe and satisfactory, during the application of the heat-welded vapor retarder membrane.

C. Ensure all primers are fully dry before beginning heat-welding operations.

D. Unroll membrane onto the roof surface and allow time to relax prior to heat welding.

E. Starting at the low point of the roof, lay out the membrane to ensure the plies are installed perpendicular to the roof slope, shingled to prevent back-water laps.

F. Ensure all roofing and flashing substrates are prepared and acceptable to receive the heat-welded membrane.

G. Cut membrane to working lengths and widths to conform to rooftop conditions and lay out to always work to a selvage edge.

H. Ensure specified side-laps and end-laps are maintained. End-laps should be staggered 3 ft apart.

I. Direct roof torch on the roll as necessary to prevent overheating and damaging the membrane and substrates.

J. As the membrane is unrolled, apply heat to the underside of the membrane until the plastic burn-off film melts away. Continuously move the torch side-to-side across the underside of the roll to melt the bitumen on the underside of the sheet, while continuously unrolling the membrane.

K. While unrolling and heating the sheet, ensure a constant flow hot bitumen approximately ¼ to 1/2 in flows ahead of the roll as it is unrolled, and there is 1/8 to 1/4 in bleed out at all laps.

L. Adjust the application of heat to the underside of the membrane and to substrate as required for varying substrates and environmental conditions.
M. At end-laps, cut a 45-degree dog-ear away from the selvage edge.
N. Each day, physically inspect all side and end-laps, and ensure the membrane is sealed watertight. Where necessary, use a torch or hot-air welder and a clean trowel to ensure all laps are fully sealed.
O. Inspect the installation each day to ensure the plies are fully adhered. Repair all voids, wrinkles, open laps, and all other deficiencies.

3.07 LIQUID-APPLIED, SINGLE-COMPONENT, BITUMEN-URETHANE FLASHING APPLICATION

A. Refer to manufacturer's details drawings, product data sheets and published general requirements for application rates and specific installation instructions.
B. Pre-cut SOPREMA ALSAN POLYFLEECE polyester reinforcing fleece to conform to roof terminations, transitions and penetrations being flashed. Ensure a minimum 2 in overlap of fleece at side and end-laps. Ensure the completed liquid-applied flashing membrane is fully reinforced.
C. Apply the base coat of SOPREMAALSAN FLASHING liquid-applied flashing resin onto the substrate using a brush or roller, working the material into the surface for complete coverage and full adhesion at 2.0 gallons per square.
D. Immediately apply the SOPREMAALSAN POLYFLEECE reinforcing into the wet base coat of resin. Using a brush or roller, work the SOPREMA ALSAN POLYFLEECE into the wet resin while applying the second coat of SOPREMA ALSAN FLASHING resin tocompletely encapsulate the fleece at 2.0 gallons per square, and extend the liquid resin 1 inch beyond the fleece.
E. Apply a finish coat of SOPREMA ALSAN FLASHING resin at 2.0 gallons per square within 2-3 hours. When applying the finish coat more than 24 hours, the surface may need to be cleaned using acetone or MEK to ensure satisfactory adhesion.
F. Broadcast mineral granules into the wet finish coat as required to match the adjacent cap sheet.

3.08 CLEAN-UP

A. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

END OFSECTION

SECTION 07 52 16 STYRENE-BUTADIENE-

STYRENE (SBS) MODIFIED BITUMINOUS ROOFING

PART 1 - GENERAL

1.01 SUMMARY

A. Work shall include, but is not limited to, the following:
   1. Preparation of existing concrete roof deck, and all flashing substrates.
   2. SBS-modified bitumen base ply, heat-welded.
   3. SBS-modified bitumen cap sheet, heat-welded.
   4. SBS-modified bitumen membrane flashings.
   5. Liquid-applied, reinforced flashings.
   6. Refer to related Sections for Insulation and Coverboard.
   7. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer's warranty.

1.02 RELATED SECTIONS

A. Division 072200 – Roof Insulation
B. Division 072713 – Modified Bituminous Sheet Vapor Retarders
C. Division 076200 – Sheet Metal Flashing and Trim

1.03 DEFINITIONS

A. ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.
B. The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual, Fifth Edition Glossary.

1.04 REFERENCES

A. AMERICAN SOCIETY OF CIVIL ENGINEERS - Reference Document ASCE 7,
B. Minimum Design Loads for Buildings and Other Structures.
C. AMERICAN STANDARD OF TESTING METHODS (ASTM):
   1. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants
   2. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
   3. ASTM D 312- Standard Specification for Asphalt Used in Roofing.
   4. ASTM D 3746 - Standard Test Method for Impact Resistance of Bituminous Roofing System.
   5. ASTM D 5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
   6. ASTM D 5849 - Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement)
   7. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

8. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.

D. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
   1. ANSI/SPRI/FM 4435/ES-1 Wind Design Standard for Edge System Used with Low Slope Roofing System.
   2. ANSI/FM 4474- American National Standard for Evaluating the Simulated Wind Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.

E. FACTORY MUTUAL (FM):
   1. FM 4450 - Approval Standard - Class I Insulated Steel Roof Decks.
   2. FM 4470 - Approval Standard - Class I Roof Covers.

F. FLORIDA BUILDING CODE (FBC):
   1. Florida Building Code (FBC) 2023, 8TH Edition.

G. NATIONAL ROOFING CONTRACTORS' ASSOCIATION (NRCA).
   1. UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
   2. UL 1256 – Fire Test of Roof Deck Constructions.

1.05 ACTION SUBMITTALS

A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.
B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
C. Sample warranty from the manufacturer and contractor.
D. Provide roof plan and representative detail drawings.

1.06 INFORMATIONAL SUBMITTALS

A. Submit a letter from the roofing manufacturer indicating the contractor is an authorized applicator.

1.07 CLOSEOUT SUBMITTALS

A. Warranty: Provide manufacturers and contractor's warranties upon project completion.

1.08 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS:
   1. Manufacturer shall have 20 years of manufacturing experience.
   2. Manufacturer shall have trained technical service representatives employed by the manufacturer, independent of sales.
   3. Manufacturer shall provide site visit reports in a timely manner.

B. CONTRACTOR QUALIFICATIONS:
   1. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project
   2. completion.
   3. Applicators shall have completed projects of similar scope using same or similar materials specified.
   4. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified roofing from beginning through satisfactory project completion.

5. Applicators shall be skilled in the application methods for all materials.
6. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
7. Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.

1.09 DELIVERY, STORAGE AND HANDLING

A. Refer to each product data sheet or other published literature for specific requirements.
B. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
C. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location. During cold weather, store materials in a heated location, removed only as needed for immediate use.
D. When materials are to be stored outdoors, store away from standing water,
E. stacked on raised pallets or dunnage, at least 4 in or more above ground level. Carefully cover storage with “breathable” tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
F. Carefully store roof membrane materials delivered in rolls on-end with selvage edges up. Store and protect roll storage to prevent damage.
G. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.10 SITE CONDITIONS

A. SAFETY:

1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
2. Heat-welding shall include heating the specified membrane ply using propane roof torches or electric hot-air welding equipment. The contractor shall determine when and where conditions are appropriate to utilize
3. heat-welding equipment. When conditions are determined by the contractor to be unsafe to proceed, equivalent SBS-modified bitumen materials and methods shall be utilized to accommodate requirements and conditions.
4. Refer to NRCA CERTA recommendations, local codes and building owner’s requirements for hot work operations.
5. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.

B. ENVIRONMENTAL CONDITIONS:

1. Monitor substrate temperature and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate

varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.

2. Precipitation and dew point: Monitor weather to ensure the project environment is dry before, and will remain dry, during the application of roofing materials. Ensure all roofing materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.
3. Heat-Welding Application: Take all necessary precautions and measures to monitor conditions to ensure all environmental conditions are safe to use roof torches and hot-air welding equipment. Combustibles, flammable liquids, and solvent vapors that represent a hazard shall be eliminated. Flammable primers and cleaners shall be fully dry before proceeding with heat-welding operations. Prevent or protect wood, paper, plastics, and other such combustible materials from direct exposure to open flames from roof torches. Refer to NRCA CERTA recommendations.

1.11 PERFORMANCE REQUIREMENTS

A. WIND UPLIFT RESISTANCE:

1. Performance testing shall be in accordance with ANSI/FM 4474, FM 4450, FM 4470, UL 580, or UL 1897.
   a. Roof System Design Pressures: Calculated in accordance with ASCE 7, or applicable standard, for the specified roof system attachment requirements.
   b. Approval Rating:
      I. Miami-Dade NOA Maximum Design Pressure -382.5 psf., NOA No.: 20-0902.15, Page 78-79 of 108, See General Limitation #9.

B. FIRE CLASSIFICATION:

1. Performance testing shall be in accordance with UL 790, ASTM E108, FM 4450 or FM 4470 to meet the 1/2:12 roof slope requirement.
   a. Meets requirements of UL Class A or FM Class A.
2. Performance testing shall be in accordance with UL 1256, FM 4450 or FM 4470 to meet the specified requirements for interior flame spread and fuel contribution.
   b. Meets requirements of UL 1256, or FM Class 1.

C. ROOF SLOPE:

1. Finished roof slope for SBS modified bitumen surfaces shall be 1/2 inch per foot minimum for roof drainage.

D. IMPACT RESISTANCE:

1. Performance testing for impact resistance shall be in accordance with FM 4450, FM 4470, ASTM D3746 or CGSB 37-GP 56M to meet the specified impact resistance requirements.

E. CYCLIC FATIGUE:

1. The roof system shall pass ASTM D5849 Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint

Displacement). Passing results shall show no signs of cracking, splitting, or tearing over the joint.

a. Roof system shall pass Test Condition 5, tested at -4 F (-20 C) in accordance with ASTM D5849. (SOPREMA SOPRALENE polyester reinforced membranes).

F. WARRANTY

1. Manufacturer's No Dollar Limit (NDL) Warranty. The manufacturer shall provide the owner with the manufacturer's warranty providing labor and materials for 20-years from the date the warranty is issued.
2. The contractor shall guarantee the workmanship and shall provide the owner with the contractor's warranty covering workmanship for a period of 2-years from completion date.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. SINGLE SOURCE MANUFACTURER: All SBS modified bitumen membrane and flashing sheets shall be manufactured by a single supplier with 20 years or more manufacturing history in the US.

1. Comply with the Manufacturer's requirements as necessary to provide the specified warranty.

B. PRODUCT QUALITY ASSURANCE PROGRAM: Manufacturer shall be an ISO 9001 registered company. A 'Quality Compliance Certificate (QCC) for reporting/confirming the tested values of the SBS-Modified Bitumen Membrane Materials will be supplied upon request.

C. ACCEPTABLE MANUFACTURER:

1. SOPREMA, located at: 310 Quadral Dr.; Wadsworth, OH 44281; Tel: 800- 356-3521; Tel: 330-334-0066; Website: www.soprema.us.
2. Siplast - 14911 Quorum Dr, Suite 600, Dallas, TX 75254; Tel: 800-922-8800; Website: www.siplast.com
3. MDAD Approved Equal
4. Roofing System must have Miami-Dade NOA.

2.02 ROOFING SYSTEM

A. ROOFING SYSTEM BASIS OF DESIGN: SOPREMA

1. The roof membrane assembly shall consist of a multi-ply, prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane, secured to a prepared substrate. Reinforcement mats shall be impregnated (saturated) and coated with a high quality SBS modified bitumen blend. The cross section of the sheet material shall contain no oxidized or non-SBS modified bitumen.

2.03 SBS-MODIFIED BITUMEN MEMBRANES

A. BASE PLY:

1. BASE PLY, HEAT-WELDED:
   a. SOPREMA SOPRALENE FLAM 180: SBS-modified bitumen membrane with

plastic burn-off film on top and bottom surfaces. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:

b. Thickness: 118 mils (3.0 mm)
c. Width: 39.4 in (1 m)
d. Length: 32.8 ft (10 m)
e. Roll weight: 81 lb (36.7 kg)

B. FLASHING BASE PLY

1. FLASHING BASE PLY, HEAT-WELDED:
a. SOPREMA SOPRALENE FLAM 180: SBS-modified bitumen membrane with plastic burn-off film on top and bottom surfaces. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:
I. Thickness: 118 mils (3.0 mm)
II. Width: 39.4 in (1 m)
III. Length: 32.8 ft (10 m)
IV. Roll weight: 81 lb (36.7 kg)

C. CAP SHEET:

1. CAP SHEET, HEAT-WELDED:
a. SOPREMA SOPRALENE FLAM 180 FR GR: SBS-modified bitumen membrane Cap Sheet with a burn-off film bottom surface and mineral granule top surface. Non-woven polyester reinforced. UL Class A for specified roof slope requirements. Meets or exceeds ASTM D6164, Type I, Grade G, per ASTM D5147 test methods:
i Thickness: 157 mils (4.0 mm)
ii Width: 39.4 in (1 m)
iii Length: 32.8 ft (10 m)
iv Roll weight: 118 lb (53.5 kg)
v Granule Surfacing:
a. White mineral granules.

D. FLASHING CAP SHEET

1. FLASHING CAP SHEET, HEAT-WELDED:
a. SOPREMA SOPRALENE FLAM 180 FR GR: SBS-modified bitumen membrane Cap Sheet with a burn-off film bottom surface and mineral granule top surface. Non-woven polyester reinforced. UL Class A for specified roof slope requirements. Meets or exceeds ASTM D6164, Type I, Grade G
i Thickness: 157 mils (4.0 mm)
ii Width: 39.4 in (1 m)
iii Length: 32.8 ft (10 m)
iv Roll weight: 118 lb (53.5 kg)
v Granule Surfacing:
vi White mineral granules.

2.04 ACCESSORIES

A. PRIMERS:
1. SOPREMA ELASTOCOL 500 Primer: Asphalt cut-back primer. Primer for the

preparation of membrane substrates for asphalt, heat-welded, hot asphalt and COLPLY ADHESIVE, solvent-based, cold adhesive-applied and cement applications.
   a. Meets or exceeds ASTM D41.
   b. VOC content: 350 g/L or less.

B. GENERAL PURPOSE ROOFING CEMENT AND MASTIC:
   1. SOPREMA SOPRAMASTIC: SBS Mastic. Fiber-reinforced, roofing cement, packaged in 5-gallon pails. General purpose roofing cement for low-slope roofing used for sealing membrane T-joints and membrane edges along terminations, transitions and at roof penetrations.
      a. VOC Content: 190 g/L or less.
      b. Meets or exceeds ASTM D4586, Type I, Class II.

   2. SOPREMA SOPRAMASTIC: SBS Mastic. Fiber-reinforced, roofing cement, packaged in 10.4 oz caulk tubes. General purpose roofing cement for low-slope roofing used for sealing membrane T-joints and membrane edges along terminations, transitions and at roof penetrations.
      a. VOC Content: 190 g/L or less.
      b. Meets or exceeds ASTM D4586, Type I, Class II.

C. GENERAL PURPOSE SEALANT
   1. SOPREMA SOPRAMASTIC SP1: General purpose, paintable, gun-grade, elastomeric, polyether moisture curing sealant for sealing SBS membrane terminations, Kynar 500 PVDF, horizontal and vertical construction joints.
      a. VOC Content: 20 g/L or less.
      b. Meets or exceeds ASTM C920, Type S, Grade NS, Class 50.
      c. Standard color, custom color.

D. LIQUID-APPLIED REINFORCED FLASHING SYSTEM:
   1. SOPREMA ALSAN FLASHING: Single-component, polyurethane- bitumen resin with polyester reinforcing fleece fabric fully embedded into the resin to form roof system flashings.
      a. VOC Content: 250 g/L.
      b. SOPREMA ALSAN FLASHING: Liquid resin, Meets or exceeds ASTM C836.
      c. SOPREMA ALSAN POLYFLEECE: Non-woven polyester reinforcement.
      d. Surfacing: SOPREMA ALSAN FLASHING with mineral granules broadcast into wet SOPREMA ALSAN FLASHING to match adjacent SBS-modified bitumen cap sheet.

E. MINERAL GRANULES:
1. SOPREMA Granules: No. 11, mineral coated colored granules, color to match cap sheet, supplied by membrane cap sheet manufacturer.
a. SOPREMA GRANULES.

F. EXPANSION JOINT:
1. SOPREMA SOPRAJOINT: Low-profile, polyester knit-reinforced, SBS- modified bitumen expansion joint membrane. Top surface consists of an aluminum-clad bond-breaker, with plastic burn-off film on the bottom surface for torch or hot air welding.
a. Thickness: 160 mils (4.0 mm)
b. Width: 18 in (457 mm)
c. Roll Length: 32.8 ft (10 m)
d. Expansion joint, maximum unsupported span: 2 in (51 mm)
e. Expansion joint, maximum displacement: 5/8 in (16 mm)

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions remain satisfactory throughout the project.

B. The contractor shall examine all roofing substrates including, but not limited to insulation materials, roof decks, walls, curbs, rooftop equipment, fixtures, and wood blocking.

C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified roofing materials.

D. During the application of specified materials, the applicator shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified roofing system.

3.02 PREPARATION

A. Before commencing work each day, the contractor shall prepare all roofing substrates to ensure conditions are satisfactory to proceed with the installation of specified roofing materials. Preparation of substrates includes, but is not limited to substrate repairs, securement of substrates, eliminating all incompatible materials, and cleaning.

B. Where conditions are found to be unsatisfactory, work shall not begin until conditions are

made satisfactory to begin work. Commencing of work shall indicate contractor's acceptance of conditions.

3.03 PRIMER APPLICATION

A. Examine all substrates, and conduct adhesion peel tests as necessary, to ensure satisfactory adhesion is achieved.

B. Apply the appropriate specified primer to dry, compatible substrates as required to enhance adhesion of new specified roofing materials.

C. Apply primer using brush, roller, or sprayer at the rate published on the product data sheet. Lightly prime for uniform coverage, do not apply heavy or thick coats of primer.

D. Asphalt Primer: Apply SOPREMA ELASTOCOL 500 primer to dry compatible masonry, metal, wood and other required substrates before applying asphalt and heat-welded membrane plies. Primer is optional for solvent based solvent based SBS adhesives and cements. Refer to product data sheets.

E. Project conditions vary throughout the day. Monitor changing conditions, monitor the drying time of primers, and monitor the adhesion of the membrane plies. Adjust primer and membrane application methods as necessary to achieve the desired results.

3.04 HEAT WELDING

A. The Contractor is responsible for project safety. Where conditions are deemed unsafe to use open flames, manufacturer's alternate membrane application methods shall be used to install SBS modified bitumen membrane and flashings. Acceptable alternate installation methods include hot asphalt, cold adhesive-applied, self-adhered membranes and mechanically fastened plies. Hot-air welding equipment may be used in lieu of roof torches to seal membrane side and end laps where heat welding the laps is necessary. Refer to NRCA CERTA, local codes and building owner's requirements for hot work operations.

B. Single or multi-nozzle, hand-held propane roof torches shall be used to install heat-welded membrane and flashing plies. Multi-nozzle carts (dragon wagons) may also be utilized to install membrane plies. Seven (7) nozzle carts are recommended for more uniform heat application in lieu of five (5) nozzlecarts.

3.05 SBS MASTIC AND GENERAL-PURPOSE ROOFING CEMENT APPLICATION

A. Apply SOPREMA SOPRAMASTIC general purpose SBS mastic and roofing cement to seal drain leads, metal flanges, seal along membrane edge at terminations, and where specified and required in detail drawings.

B. Do not use general purpose SBS mastics and roofing cement where flashing cement applications are required. Do not use SBS mastics and roofing cement beneath SBS-modified bitumen membrane and flashing plies.

C. Apply general purpose SBS mastic and elastic roofing cement using caulk gun, or notched trowel at 2.0 – 2.5 gallons per square on each surface. Application rates vary based on substrate porosity and roughness. Tool-in as necessary to seal laps.

D. Embed matching granules into wet cement whereexposed.

3.06 HEAT-WELDED, FULLY ADHERED MEMBRANE APPLICATION

A. Follow material product data sheets and published general requirements for installation instructions.
B. Ensure environmental conditions are safe and satisfactory, and will remain safe and satisfactory, during the application of the heat-welded membrane and flashings.
C. Ensure all primers are fully dry before beginning heat-welding operations.
D. Unroll membrane onto the roof surface and allow time to relax prior to heat welding.
E. Starting at the low point of the roof, lay out the membrane to ensure the plies are installed perpendicular to the roof slope, shingled to prevent back-water laps.
F. Ensure all roofing and flashing substrates are prepared and acceptable to receive the heat-welded membrane.
G. Cut membrane to working lengths and widths to conform to rooftop conditions and lay out to always work to a selvage edge.
H. Ensure specified side-laps and end-laps are maintained. End-laps should be staggered 3 ft apart.
I. Direct roof torch on the roll as necessary to prevent overheating and damaging the membrane and substrates.
J. As the membrane is unrolled, apply heat to the underside of the membrane until the plastic burn-off film melts away. Continuously move the torch side-to-side across the underside of the roll to melt the bitumen on the underside of the sheet, while continuously unrolling membrane.
K. While unrolling and heating the sheet, ensure approximately ¼ to 1/2 in of hot bitumen flows ahead of the roll as it is unrolled, and there is 1/8 to 1/4 in bleed out at all laps.
L. Adjust the application of heat to the underside of the membrane and to substrate as required for varying substrates and environmental conditions.
M. At the 6 in end-laps, melt the plastic burn-off film from the top surface or embed granules and remove surfacing, where present, using a torch or hot-air welder.
N. At end-laps where T-Joints exist, cut a 45-degree dog-ear away from the selvage edge.
O. Each day, physically inspect all side and end-laps, and ensure the membrane is sealed watertight. Where necessary, use a torch or hot-air welder and a clean trowel to ensure all laps are fully sealed.
P. Inspect the installation each day to ensure the plies are fully adhered. Repair all voids, wrinkles, open laps, and all other deficiencies.
Q. Offset cap sheet side and end-laps away from the base ply laps so that cap sheet laps are not located within 18 in of base ply laps.

3.07 FLASHING APPLICATION, HEAT WELDED

A. Refer to SBS manufacturer's membrane application instructions, flashing detail drawings, and follow product data sheets and other published requirements for installation instructions. Refer to manufacturer's membrane flashing detail drawings.
B. The contractor is responsible for project safety. Refer to NRCA CERTA recommendations and building owner requirements for hot work operations.
C. Where required to seal substrates for fire safety, install specified adhered, self- adhered or fastened backer ply to the substrate. Ensure backer-ply covers and seals all substrates requiring protection from exposure to torch operations.
D. Ensure all flashing substrates that require primer are primed, and the primer is fully dry.

E. Unroll the flashing base ply and flashing cap sheet onto the roof surface to their complete length. Once relaxed, cut the membrane to the required working lengths to accommodate the flashing height, cants, and the required over-lap onto the horizontal roof surface.

F. Cut the flashing membrane from the end of the roll to always install flashings to the side-lap line or selvage edge line.

G. Lay out the flashing base ply and flashing Cap Sheet to offset all side-laps a minimum of 12 inches so that side-laps are never aligned on top of the ply beneath. Shingle the flashing ply laps to prevent back-water laps.

H. Install non-combustible cant strips attransitions where required.

I. Ensure correct membrane and flashing sequencing to achieve redundant, multi- ply, watertight flashings.

J. ROOF MEMBRANE BASE PLY:

1. Before installing flashings, install the roof membrane base ply in the horizontal field of the roof, and extend the base ply up to the top of the cant, where present, at roof terminations, transitions, and penetrations.

K. FLASHING BASE PLY:

1. Install the flashing base ply starting at the top leading edge of the vertical flashing substrate, down over the cant and onto the horizontal surface of the roof a minimum of 3 inches beyond the of base of the cant onto the roof. Cut the base ply at corners to form 3-inch side-laps. Install gussets to seal corner transitions.
2. Install one or more flashing base ply(s) at all roof terminations, transitions, and penetrations.

L. ROOF MEMBRANE CAP SHEET:

1. Install the roof membrane Cap Sheet in the horizontal field of the roof over the flashing base ply up to the roof termination, transition, or penetration, and up to the top of cants where present.
2. Using a chalk line, mark a line on the membrane cap sheet a minimum of 4 inches from the base of the cant onto the roof. Where granules are present, embed the cap sheet granules using a torch and trowel or granule embedder to prepare the surface to receive the flashing cap
3. sheet.

M. FLASHING CAP SHEET:

1. Install the flashing Cap Sheet starting at the top leading edge on the vertical substrate, over the cant and onto the roof surface 4 inches from the base of the cant onto the roof.
2. Install the flashing Cap Sheet to ensure a minimum two (2) ply flashing system is present at all roof terminations, transitions, and penetrations.

N. During the membrane and flashing installation, ensure all plies are completely adhered into place, with no bridging, voids, or openings. Ensure bitumen or flashing cement bleed-out is present at all flashing side andend-laps.

O. Use a damp sponge float or damp rag to press-in the heat-welded flashing plies during installation.

P. Where sufficient bitumen bleed-out is not present, and for all self-adhered plies, apply specified gun-grade sealant or mastic to seal the membrane termination along all roof terminations, transitions, and penetrations. These include gravel stop edge metal, pipe penetrations, along the top edge of curb and wall flashing, and all other flashing terminations where necessary to seal flashing watertight.

Q. Fasten the top leading edge of the flashing 8 in on-centers with appropriate 1 in metal cap nails or other specified fasteners and plates. Seal fastener penetrations watertight using specified

sealant or mastic.

R. Manufacturer's liquid-applied, reinforced flashing systems shall be installed where conditions are not favorable to install SBS modified bitumen flashings. Such conditions include irregular shapes penetrating roof surfaces (I-beams), confined areas and low flashing heights. Manufacturer's liquid-applied, reinforced flashing systems are recommended in lieu of pitch pans and lead pipe flashings.

3.08 LIQUID-APPLIED, SINGLE-COMPONENT, BITUMEN-URETHANE FLASHING SYSTEM APPLICATION

A. Refer to manufacturer's details drawings, product data sheets and published general requirements for application rates and specific installation instructions.

B. Pre-cut SOPREMA ALSAN POLYFLEECE polyester reinforcing fleece to conform to roof terminations, transitions and penetrations being flashed. Ensure a minimum 2 in overlap of fleece at side and end-laps. Ensure the completed liquid-applied flashing membrane is fully reinforced.

C. Apply the base coat of SOPREMA ALSAN FLASHING liquid-applied flashing resin onto the substrate using a brush or roller, working the material into the surface for complete coverage and full adhesion at 2.0 gallons per square.

D. Immediately apply the SOPREMA ALSAN POLYFLEECE reinforcing into the wet base coat of resin. Using a brush or roller, work the SOPREMA ALSAN POLYFLEECE into the wet resin while applying the second coat of SOPREMA ALSAN FLASHING resin to completely encapsulate the fleece at 2.0 gallons per square, and extend the liquid resin 1 inch beyond the fleece.

E. Apply a finish coat of SOPREMA ALSAN FLASHING resin at 2.0 gallons per square within 2-3 hours. When applying the finish coat more than 24 hours, the surface may need to be cleaned using acetone or MEK to ensure satisfactory adhesion.

F. Broadcast mineral granules into the wet finish coat as required to match the adjacent cap sheet.

3.09 WALKWAYS

A. At areas outlined on the drawings, and around the perimeter of all rooftop equipment and at all door and stair landings, install walkway protection.

B. Cut walkway from end of rolls. No piece shall be less than 24 in and no more than 60 in.

C. Remove foil/film or embed granules where present on cap sheet.

D. Provide a 4 in space between sheets for drainage.

E. Locate walkway membranes a minimum of 2 in from side-laps, end-laps and flashing membranes.

F. Fully adhere walkway protection by heat welding or adhering the field with cold adhesive and heat welding a 3 in perimeter.

3.10 CLEAN-UP

A. Clean-up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

END OF SECTION

CONTRACTOR'S ROOFING GUARANTEE AND MANUFACTURER'S NOTICE OF INTENT TO ISSUE ROOF WARRANTY FORMS FOLLOW

CONTRACTOR'S ROOFING GUARANTEE

WHEREAS_____Roofing Contractor

whose address is:_____working under a

contract with_____Sheet Metal Contractor

whose address is:_____

has completed application of the following roof:

Facility:_____

Address:_____

Project Name:_____

Location:_____

Area of Roof:_____Type of Roof:_____

Date of Acceptance:_____

Date of Building Substantial Completion:_____

Guarantee Period: FIVE (5) YEARS FROM DATE OF Building Final Completion.

Date of Expiration:_____

AND WHEREAS, at the inception of such work the Roofing Contractor and the Sheet Metal Contractor agreed to guarantee the aforesaid roofing and associated work against leaks and faulty or defective materials and workmanship for designated guaranteed period and subject to the conditions herein set forth;

KNOW THEREFORE The Roofing Contractor and Sheet Metal Contractor hereby warrants, subject to terms and conditions herein set forth, that during a period of Five (5) years from the date of final acceptance they will, at their own cost and expense, make or cause to be made such repairs to, or replacements of, said roofing and associated work as may be necessary to maintain the roof in a 100% watertight condition. Items to be repaired and/or removed and replaced under this guarantee shall include, but are not limited to, damaged roof membrane (base sheet, interply sheets, and cap sheet or surfacing and fastening of same), wet or damaged roof deck insulation, stack vent flashing and flashing of pipe sleeves and similar roof penetrations, roof vents and other set-on items, copings, expansion joint covers, stucco stops used in conjunction with base flashing, and all other composition and metal flashing and counterflashing resulting from faults or defects in materials or workmanship applied by or through the Roofing Contractor and/or

Sheet Metal Contractor.
Determination of cause of leaks shall not be the exclusive right of the Manufacturer or his authorized installer. Should disputes arise as to the cause of leaks where Warranty coverage would be questioned, an independent Roof Consulting firm, not in the business of selling or installing roof materials or

equipment, shall be commissioned by the Owner. The Roofing Consultant shall conduct a survey and issue a written determination to concerned parties as to the cause or suspected cause of said leaks. Such determination shall be binding upon all parties. Should it be determined that the cause or suspected cause is the result of faulty roofing materials or workmanship, all costs incurred by the Owner to obtain said survey and written report and to repair faulty roof shall be reimbursed to the Owner by the Manufacturer or his authorized installer or agent.

The Roofing Contractor shall make or cause to be made temporary repair of the roof within 24 hours of receipt of telephoned or faxed compliant from the Owner, and final repairs or replacements shall be made to the standards of the originally specified roof. Failure to comply with the aforementioned schedule will constitute automatic authorization for the Owner to make, or have the repairs made, by whatever means necessary, at the Contractor's and/or the Surety expense. Such repairs to be made by the Owner due to the Contractor's failure to respond within the time restraints indicated shall not be cause to void the guarantee or any coverage otherwise afforded by the guarantee. The Owner shall be entitled to all costs, including reasonable attorney's fees necessary, incurred upon the Contractor's failure to pay the above costs. The guarantee is made subject to the following conditions.

Specifically excluded from this guarantee, limited to the affected areas, is any and all damage to said roofing and associated work, the building or contents caused by:

1. Natural disasters, acts of God (lightning, windstorm in excess of 120 MPH, tornadoes, earthquakes), as documented by the National Weather Bureau of other recognized government weather agency.
2. Acts of negligence, abuse or misuse, accidents, vandalism, civil disobedience, war.
3. Installation by others of structures, fixtures, or utilities on or through roof not in compliance with manufacturers published installation instructions.
4. Excessive traffic or improper storage of materials on unprotected roofing membrane subsequent to completion of project and turn over of building to the Owner.
5. Repairs performed or materials furnished by others in correcting leaks unless specifically authorized and approved by the manufacturer, unauthorized repairs; roof maintenance for corrections other than leaks. (This exclusion shall not exclude routine maintenance and minor, temporary or emergency repairs made by roofing manufacturer trained and certified building maintenance personnel. This exclusion does not include repairs caused to be made by the Owner due to the Contractors failure to respond to complaints as indicated herein.)
6. Fire.
7. Damages caused by falling objects.
8. Roof is used as promenade deck.
9. Roof is used as working deck without proper protection of the roof membrane.

When roofing or associated work has become damaged, or conditions have been created by any of the foregoing causes, this guarantee shall become null and void upon date of said occurrence or change, but only to the extent said damage or change affects roofing or associated work covered by this guarantee, and only until said damage or condition has been repaired, replaced or otherwise corrected and costs of remedy has been paid by the Owner or by another responsible party so designated.
The Roofing Contractor and the Sheet Metal Contractor are not liable for consequential damages to the building or contents resulting from any defects in said roofing or associated work.

This Guarantee shall not be limited to the original cost of the roof system, shall not be prorated, and shall not operate to restrict or cut off the Owner from implied warranties or other remedies lawfully available to him in cases of roofing failure. This Guarantee shall not operate to relieve the Roofing Contractor or the Sheet Metal Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with the Owner or a subcontractor with Owner's Roofing Contractor.

In witness Whereof, this instrument has been duly executed this____day of_____,20___.

By:_____

Title: _____

_____
Roofing Contractor

By:_____

Title: _____

_____
Sheet Metal Contractor

By:_____

Title: _____

_____
Roofing Contractor's Surety

Sworn to and subscribed before me this_____day of_____, 20___.

_____ _____
Notary Public - State of Florida My commission expires

ATTACH ROOFING KEY PLAN DESCRIBING LIMITS OF ROOFING WORK
COVERED UNDER THIS GUARANTEE

MANUFACTURER'S NOTICE OF INTENT TO ISSUE ROOF WARRANTY

WHEREAS, Approved Manufacturer, herein called the "Roofing System Manufacturer" hereby gives notice to:

The Owner: Miami-Dade County

Address:_____
of its Intent to Issue its Roof Warranty to the Owner for the Project,

Project:_____

Address:_____

Incorporating the Manufacturer's_____

_____
roofing system or product if installed in accordance with the Contract Documents.

A. Manufacturers' Notice of Intent to Issue Roof Warranty in conformance with the Contract Documents shall be executed by the manufacturer and attached to the bid form. Each Bidder shall submit a single form, only from the specified manufacturer, and shall include items 1 and 2 as follows:

1. A detailed description of the components of the manufacturer's system proposed and a list of any other component and accessories proposed for use in the system that is provided by other manufacturers or suppliers.

    a. A statement that the Manufacturer's Representative has visited this site prior to the bid date, reviewed the job conditions and project manual. Having reviewed the above items in detail, the Representative will provide a written response to the Design Professional ten days prior to the bid date, if conflicts between the Manufacturer's requirements occur with the above listed documents.

2. A sample of the Manufacturer's Roof Warranty shall be attached to and submitted with this form and the bid package. The manufacturer shall delete all exceptions relative to damage due to gale force winds in the following manner:

    a. Delete any exceptions to wind damage due to "windstorms" which would create a maximum wind uplift pressure of 135 psf as tested in compliance with FM I-52. (At roof areas over existing lightweight insulating concrete, the Warranty shall not exclude the wind uplift field pressures of 65 psi or less, with extrapolated pressures at the perimeter and corner zones of the roof.)

3. Twenty (20) year total roof system warranty inclusive of roofing materials, all included products and accessories, including all metal flashings, from roof deck to finish membrane, whether supplied by the membrane manufacturer or by others. Provide a "No Dollar Limit", single

source responsibility, non-deductible roofing warranty inclusive of all material and labor in full compliance with all the requirements of the project specifications.

a. If the manufacturer fails and/or refuses to issue the required roof warranty, the Contractor with Surety shall warrant to make repairs, replacement or take corrective action on the same terms as required of the manufacturer, (had the warranty been issued by the manufacturer), so that the intended warranty is delivered to the Owner.

b. The manufacturer shall modify the roof warranty to include total labor coverage for the warranty period and to cover damage to roof materials and insulation down to the roof deck resulting from water penetration.

c. The manufacturer shall modify the roof warranty to state that the Owner has the right to make emergency repairs without voiding the warranty if the manufacturer or applicator do not respond within 24 hours to notification by the Owner of a defect or leak.

d. The manufacturer shall modify the roof warranty to state that annual inspections with written reports by the Owner, and resulting maintenance, are sufficient to fulfill the periodic inspection requirements of the manufacturer's warranty.

4. The manufacturer's Representative shall conduct a Post-Construction field inspection no earlier than eleven (11) months, and no later than twelve (12) months after the Date of Substantial Completion. Submit a written report within seven (7) days of this visit to the Owner's Maintenance Dept. listing observations, conditions and recommended repairs or remedial action.

Further, the manufacturer acknowledges that the applicator:

Roof Applicator's Name:_____

Address:_____

has been approved to install this roof system since_____,__ and meets the criteria for an approved applicator listed in the Project Manual.

By signing the above, the Authorized Representative of said Manufacturer certifies and represents the Roofing System Manufacturer with the authority to contract and make the above representatives to the Owner.

By:_____

Signature of Authorized Representative/Date

(SEAL)

Witness/Date:_____

CODE COMPLIANCE
SUBMITTAL DOCUMENT

Roofing System Manufacturer _____

Address: _____

_____

_____

Technical Director: _____

Project Name: _____

Address: _____

_____

_____

Roofing Contractor: _____

Roofing System Name: _____

General Description of roof system: _____

_____

_____

Insulation to be installed with roof system: _____

Fasteners to be installed with roof system: _____

_____

Attach copy of Factory Mutual Approval, including approval for submitted fastener and insulation type. If no such approval is available due to deck type, provide supporting technical data to support the use of the products in the assembly.

Attach a copy of Underwriters Laboratories listing confirming that the new roof assembly is in compliance with a Class A listing over the deck types.

Attach a copy of Miami-Dade County Code Compliance Approval for the roofing system and insulation.

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Drip metal.
2. Two-Piece Counterflashing over bituminous base flashing.
3. Coping over parapets.
4. Reglets and accessories.
5. Gutter and Downspout.

1.02 RELATED SECTIONS

A. Section 07 92 00 - Joint Sealers.

1.03 REFERENCES

A. AISI American Iron and Steel Institute - Stainless Steel - Uses in Architecture.

B. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.

C. ASTM A 653 - Steel Sheet, Zinc Coated (Galvanized), or Zinc-Iron Alloy-Coated (Galvannealed), by the Hot-Dip Process.

D. ASTM B 209 - Aluminum and Alloy Sheet and Plate.

E. ASTM B 32 – Standard Specifications for Solder Metal.

F. ASTM B 486 – Standard Specifications for Paste Solder.

G. ASTM D 226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

H. ASTM D 4586-86 - Asphalt Roof Cement, Asbestos-Free.

I. FS O-F-506 - Flux, Soldering, Paste and Liquid.

J. NRCA National Roofing Contractors Association - Roofing Manual.

K. SMACNA - Architectural Sheet Metal Manual.

1.04 SUBMITTALS

A. Submit under provisions of the Contract.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashing terminations, and installation details for all conditions. Detail and submit a Shop Drawing for any condition not shown on the Plans or Details.

C. Samples: Submit three 8" square samples of each specified sheet material to be exposed as a finished surface.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA and standard details and requirements.

B. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

C. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

A. Fabricator and Installer: Company specializing in sheet metal flashing work with five (5) years documented experience.

1.07 PRE-INSTALLATION CONFERENCE

A. Convene one (1) week prior to commencing work on this Section, under provisions the Contract.

B. Pre-Installation Conference: Attendance at the conference by a qualified representative is required.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver to site, store, protect and handle products **shall be in accordance with procedures outlines at project mobilization.**

B. Stack pre-formed material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials which may cause discoloration or staining.

1.09 COORDINATION

A. Coordinate work under provisions of this Section.

B. Coordinate application of flashings with application of roofing, protruding material, and roof accessories to provide a complete weathertight installation according to the specified warranty requirements.

C. For areas where counter-flashing is scheduled to be replaced, coordinate material and scope of work with MDAD and manufacturer of existing roofing to maintain in place existing roofing warranty.

PART 2 - PRODUCTS

2.01 SHEET MATERIALS

A. Stainless Steel: ASTM A 167, Type 304, soft temper, 18, 20, 22, and 24 gauge thick unless otherwise indicated; smooth 2D finish.

B. Termination Bar: Aluminum ASTM B-209, Alloy 6061, Temper T-6, mill finish; sizes 1/8" thick by 1-

1/2" with rounded edges.

2.02 ACCESSORIES

A. Fasteners: Stainless Steel

B. Primer: Asphaltic based primer for flanges set in adhesive.

C. Protective Backing Paint: FS-TT-C-494, Bituminous.

D. Sealant: Specified in Section 07 92 00.

E. Flashing Cement: MBD type only.

F. Plastic cement: ASTM D 4586, Type

G. Solder: ASTM B-32; 50/50 lead/tin type.

H. Flux: Acid - Chloride Type.

I. Flux Cleaner: Washing Soda Solution - 5% to 10%.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats of stainless steel.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside 1/2". Miter and seam corners.

E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

F. Pre-tin edges of stainless-steel sheet. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.

G. Perform soldering work slowly, with properly heated irons to thoroughly heat seam material and sweat solder through full width of seam that shall show not less than 1" of evenly flowed solder.

1. Start soldering immediately after application of flux.
2. Solder flat locked seams.

H. Do not place in contact with nor in positions where drainage across such paint or other materials will occur.

I. Solder or weld per metal type all miters, corners or transitional changes to form one continuous piece.

J. Fabricate corners form one piece with 18-inch-long face; solder/weld for rigidity.

K. Fabricate vertical faces with bottom edge formed outward 1/4" and hemmed to form drip.

L. Fabricate flashing to allow toe to extend 1-1/2" over wood nailers. Return and brake edges.

M. Form sheet metal pans (pitch pockets) 6" nominal size, with 4" upstand, and 4" flanges.

N. Fabricate gutters to profiles and sizes indicated by the project details.

O. Fabricate downspouts to profile and size indicated by the drawings and details using extruded stainless-steel tube.

P. Fabricate accessories in profile and size to suite gutters and downspouts.

1. Anchorage Devices: As indicated by details and in accordance with SMACNA requirements.
2. Gutter Supports: Brackets - stainless steel
3. Downspout Supports: Brackets - stainless steel

Q. Seal metal joints.

2.04 FINISH

A. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

B. Isolate dissimilar metals with accepted isolation paint or other accepted materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify roofing termination and base flashing are in place, sealed, and secure. Coordinate with manufacturer of existing roofing system.

B. Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in acceptable manner.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.03 INSTALLATION

A. Apply plastic cement compound between metal flashings and felt flashings.

B. Fit flashing tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

C. Solder/weld joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.

D. Seal metal joints watertight.

3.03 FIELD QUALITY CONTROL

A. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.04 SCHEDULE: The following schedule is a guideline, specific information shown on the drawings or details shall govern.

	LOCATION	METAL TYPE	THICKNESS	FINISH
A.	Edge Metal	Stainless steel	22 gauge	Mill
B.	Cont. Cleat	Stainless steel	20 gauge	Mill
C.	Exp. Jt. Cover	Stainless steel	22 gauge	Mill
D.	Exp. Jt .Cleats	Stainless steel	20 gauge`	Mill
E.	Area Divider Covers	Stainless steel	22 gauge	Mill
F.	Area Divider Cleats	Stainless steel	20 gauge	Mill
G.	Gutters	Stainless steel	22 gauge	Mill
H.	Downspouts	Stainless steel	22 gauge	Mill
I.	Downspout Brackets	Stainless steel	1/8" x 1"	Mill
J.	Counterflashing	Stainless steel	22 gauge	Mill
K.	Coping	Stainless steel	22 gauge	Mill
L.	Sill Flashing	Stainless steel	22 gauge	Mill
M.	Scuppers	Stainless steel	22 gauge	Mill
N.	Thru-Wall Flashings	Stainless steel	24 gauge	Mill
O.	C.F. Receiver	Stainless steel	22 gauge	Mill
P.	Reglet (C.I.B.)	Stainless steel	24 gauge	Mill
Q.	Curb Caps	Stainless steel	22 gauge	Mill
R.	Extension Curbs	Stainless steel	18 gauge	Mill
S.	Mounting Frame	Stainless steel	18 gauge	Mill

Miscellaneous metal flashing: Stainless Steel, 22 gauge, Mill or painted finish as required by the Design Professional.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide joint sealers and associated materials required for complete installations at exterior and interior locations to prevent moisture, light, and sound leakage at exposed joints at:

1. Expansion and contraction joints.
2. Wet areas such as around plumbing fixtures.
3. Other locations, as necessary.

1.02 REFERENCES

A. American Society for Testing and Materials: ASTM D 1056: Flexible Cellular Materials - Sponge or Expanded Rubber.

B. Federal Specifications:

1. FS TT-S-00227E - Sealing Compound, Elastomeric Type, Multi-Component.
2. FS TT-S-00230C - Sealing Compound, Elastomeric Type, Single-Component.
3. FS TT-S-001543 - Sealing Compound, Silicone Rubber Base.
4. FF TT-S-001657 - Sealing Compound, Single-Component, Butyl Based, Solvent Release Type.

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. Exterior: Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.
2. Interior: Provide joint sealants that have been produced and installed to maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's product data, specifications, recommendations and instructions for surface preparation, sealant and backing installation, and related materials.

B. Samples: Submit standard color charts for selection; furnish samples of custom colors as applicable.

C. Certificates: Submit letter of certification from manufacturer or certified test laboratory reports that materials meet the following:

1. Sealant materials are chemically compatible with each other and proposed substrate, comply with Specification requirements, and are intended for applications indicated.
2. Sealant, primers, and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.

1.05 QUALITY ASSURANCE

A. Qualifications - Applicator: Provide documentation of minimum three years experience approved by sealant manufacturer.

B. Pre-Installation Meeting: Prior to installation of sealant, meet at project site to review material selections, joint preparations, installation procedures and coordination with other trades. Meeting shall include the sealant Installer, Contractor, Manufacturer's representative, and representatives of other trades or subcontractors affected by sealant installation. Examine sample installations which have been prepared and determine and record whether everyone present is in agreement that the proposed installations are likely to perform as required. Notify Design Professional prior to meeting as to time, place, and date of meeting.

1.06 DELIVERY STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendation to prevent their deterioration or damage due to moisture, high or low temperatures, contaminates, or other causes.

1.07 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate conditions are outside limits permitted by joint sealant manufacturer or below 40 deg. F.
2. When temperature conditions cause joint widths to be at either maximum or minimum design conditions.
3. When joint substrates are wet.

1.08 WARRANTY

A. Exterior Sealants: Warrant materials and installation against air and water leakage for minimum Ten-year period.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. MDAD Approved Manufacturers

2.02 SEALING AND CAULKING MATERIALS

A. Polyurethane Sealant - Type No. 1:

1. One-component, non-sag, low modulus, moisture curing, polyurethane joint sealant; FS TT-S-00230C, Class A, Type II.

2. Acceptable Products:
   a. Dymonic 100 by Tremco.
   b. NP-1 by Sonneborn.
   c. QSC-101 by QSC Products, Ltd.
   d. Dynatrol I by Pecora
   e. Vulkem 116 by Mameco International.
   f. MDAD Approved equal

2.03 ACCESSORIES

A. Joint Cleaner: Non-corrosive type recommended by sealant manufacturer, compatible with joint forming materials.

B. Primer: Non-staining type recommended by sealant manufacturer to suit application and substrate materials.

C. Backer Rod:

1. Combination open/closed, compatible with sealant; sized and shaped to control depth of sealant; and to maintain 25 to 50 percent compression of material, ASTM D 1056.
2. Acceptable Product: Sof Rod by I.T.D.

D. Bond Breaker: Pressure sensitive adhesive polyethylene tape recommended by sealant manufacturer to suit application.

E. Masking Tape: Pressure sensitive adhesive paper tape.

2.04 MIXING

A. Mix components in accordance with manufacturer's recommendations.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine joints to be sealed for construction defects which could adversely affect execution of Work.

B. Ensure that concrete has cured 28 days minimum before commencing sealing operations.

C. Determine in conjunction with sealant manufacturer's representative if adhesion testing is necessary prior to application of materials. Submit letter of certification from sealant manufacturer accepting substrate conditions for sealant.

3.02 PREPARATION

A. Clean joint surfaces using joint cleaner as necessary, free of dust, dirt, oil, grease, rust, lacquers, laitance, release agents, liquid water repellent, moisture or other matter which might adversely affect adhesion of sealants.

B. Etch concrete, masonry and plaster joint surfaces to remove excess alkalinity. Etch with 5 percent solution of muriatic acid. Neutralize with dilute ammonia solution. Rinse thoroughly with water and allow to dry.

C. Steel Surfaces: Scrape and wire brush to remove loose mill scale. Remove dirt, oil or grease by solvent cleaning. Wipe surfaces with lintless paper towels.

D. Aluminum Surfaces:

1. Clean off temporary protective coatings.
2. When masking tape is used for a protective cover, remove tape just prior to applying sealant.

E. Roughen joint surfaces on non-porous materials. Rub with fine abrasive cloth or wool to produce a dull sheen.

F. Mask areas adjacent to joints as necessary.

G. Apply primer as recommended by manufacturer. Do not allow primer or sealants to spill or migrate onto adjoining surfaces.

3.03 APPLICATION

A. Install sealant materials in accordance with manufacturer's instructions.

B. Install backing material in joints using blunt instrument to avoid puncturing.

C. Do not twist rod while installing.

D. Install backing to form joint depth of 50 percent of joint width, minimum of 1/4" deep.

E. Apply sealant in joints using pressure gun with nozzle cut to fit joint width.

F. Deposit sealant in uniform, continuous bead.

G. Tool joints to required configuration within manufacturer's recommended setting time.

H. If masking materials are used, remove immediately after tooling.

3.04 FIELD QUALITY CONTROL

A. Manufacturer's Representative:

1. No sealants may be used unless a qualified representative is present at start up of work to advise installer of proper procedures and precautions for use of materials and to check installation.

2. Contractor shall give manufacturer notice one week prior to start-up that his presence will be required, to ensure proper installation of his materials.

3.05 CLEANING

A. Remove excess materials adjacent to joints as Work progresses to eliminate evidence of spillage or damage to adjacent surfaces.

B. Remove and replace improperly sealed joints.

C. Clean or replace materials or surfaces that are damaged by sealing operations.

3.06 COLOR SCHEDULE

A. Other Exposed Locations: Manufacturer's standard color line as selected by Design Professional.

B. Non-exposed Locations: Manufacturer's standard.

END OF SECTION