INVITATION FOR BIDS-

ROOF REPLACEMENT FOR THE AQUARIUM AND REPTILE COMPLEX (ARC)

BID NUMBER: B2020-005
DATE: 03/03/2020

OPENING DATE AND TIME: March 24, 2020
OPENING LOCATION: Riverbanks Zoo & Garden
Procurement Services
400 Rivermont Drive
Columbia, SC 29210

MAILING ADDRESS: Riverbanks Zoo & Garden
Attn: Raymond Brindle
400 Rivermont Drive
Columbia, SC 29210

PROCUREMENT FOR: Roof Replacement for the Aquarium and Reptile Complex

Subject to the conditions, provisions and the enclosed specifications, sealed bids will be received at this office until the stated date and time and then publicly opened. Any bid received after the scheduled deadline will be immediately disqualified. The District assumes no responsibility for delivery of bids which are mailed. Oral, telephonic, electronic or telegraphic bids are invalid and will not receive consideration.

IT IS REQUIRED THAT THE BID NUMBER BE SHOWN ON THE OUTSIDE OF ENVELOPE.

DIRECT ALL INQUIRIES TO: Raymond Brindle, Procurement Manager, 803-602-0831, rbrindle@riverbanks.org

KEY EVENTS / DATES

1. Advertisement / Posting Date
   March 3, 2020
2. Mandatory Site Visit
   March 10, 2020 10:00 AM (EST.)
3. Deadline for Questions
   March 12, 2020 5:00 PM (EST.)
4. Submittals Due
   March 24, 2020 2:00 PM (EST.)
5. Start Date:
   April 20, 2020

NOTICE TO BIDDERS: There will be a Mandatory Site Visit on March 10, 2020 10:00 AM (EST.) at Riverbanks Zoo & Garden, 400 Rivermont Drive, Columbia, SC 29210. Please meet at the front desk.

Due to the importance of all bidders having a clear understanding of the scope and requirements for this project, attendance at this meeting will be a prerequisite for bidding. Therefore, bids will be considered only from those bidders who are represented at this site visit. Attendance will be evidenced by the representative’s signature on the attendance roster. Any changes that may be agreed upon as a result of this conference will be noted in an amendment to the bid invitation and emailed to all attendees. Each bidder shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this bid. The failure or omission of a bidder to acquaint himself with existing conditions shall in no way relieve him of any obligation with respect to this bid or to the contract. All amendments to and interpretations of this
solicitation shall be in writing and issued by the Procurement Manager. Richland-Lexington Riverbanks Park District DBA Riverbanks Zoo & Garden (hereinafter known as “the District”) shall not be legally bound by any amendment or interpretation that is not in writing.

If downloading this solicitation from our website or alternate internet location, it is the responsibility of the bidder to email rbrindle@riverbanks.org to be registered as a potential bidder and to receive any subsequent amendments. Deadline for questions is March 12, 2020 5:00 PM (EST.) All questions must be submitted in writing.

"NO BID" RESPONSE FORM

To submit a "No Bid" response for this project, this form must be completed for your company to remain on our bidders list for commodities/services referenced.

Note: Please show the solicitation number on the outside of the envelope.

Please check statement(s) applicable to your "No Bid" response --

- Specifications are restrictive; i.e. geared toward one brand or manufacturer only (explain below).
- Specifications are ambiguous (explain below).
- We are unable to meet specifications.
- Insufficient time to respond to the solicitation.
- Our schedule would not permit us to perform.
- We are unable to meet bond requirements.
- We are unable to meet insurance requirements.
- We do not offer this product or service.
- Remove us from your vendor list for this commodity/service.
- Other (specify below).

Comments:

_______________________________________________________________________________

_______________________________________________________________________________

Company Name (as registered with the IRS) ________________________________

Authorized Signature ________________________________

Correspondence Address ________________________________

Printed Name ________________________________

City, State, Zip ________________________________

Title ________________________________

E-mail Address (Please Print) ________________________________

Date ________________________________ Date / ________________________________

Telephone ____________________ Fax ____________________
INSTRUCTIONS TO BIDDERS

1. Only one copy of bid invitation is required, unless otherwise stated.

2. Bids, amendments thereto or withdrawal request must be received by the time advertised for bid openings to be timely filed. It is the vendor's sole responsibility to ensure that these documents are received by the Procurement Office at or before the time indicated in the bid document.

3. When specifications or descriptive papers are submitted with the bid invitation, enter bidder's name thereon.

4. Submit your signed bid on the forms provided. Show bid number on envelope as instructed. The District assumes no responsibility for unmarked or improperly marked envelopes. Unsigned bids will be rejected.

5. Bidders must clearly mark as "Confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under Section 30-4-4C Code of Laws of South Carolina, 1976, (1986 Cum Supp) Freedom of Information Act. The District reserves the right to determine whether this information should be exempt from disclosure and no legal action may be brought against the District or its agents for its determination in this regard.

6. By submission of a bid, you are guaranteeing that all goods and services meet the requirements of the solicitation during the contract period.

7. This solicitation does not commit the District to award a contract, to pay any cost incurred in the preparation of the bid, or to procure or contract for goods or services listed herein.

8. CORRECTION OF ERRORS ON THE BID FORM: All prices and notations shall be printed in ink or typewritten. Errors should be crossed out, corrections entered and initialed by the person signing the bid. Erasures or use of typewriter correction fluid may be cause for rejection. No bid shall be altered or amended after specified time for opening.

9. BIDDERS SCHEDULE: Enter the manufacturer, brand, and model/catalog number, as applicable, and your bid price in the space provided on the bidder’s schedule. Additional pages may be attached, when applicable, for alternates, etc.

10. NOTIFICATION: Intent to Award and/or Statement of Award will be posted on the Riverbanks Zoo & Garden website at http://www.riverbanks.org/procurement

11. RIGHT TO PROTEST: (does not apply to procurements $1-$50,000) Any prospective bidder, offeror, or contractor, who is aggrieved in connection with the solicitation of a contract shall protest in writing to the Procurement Manager within ten (10) calendar days of the date of issuance of the Invitation to Bid, Requests for Proposals or other solicitation documents, whichever is applicable, or any amendments thereto, if the amendment is at issue. Any actual bidder, offeror, or contractor, who is aggrieved in connection with the intended award or award of a contract, shall protest in writing to the Procurement Manager within ten (10) calendar days of the notification of Intent to Award or Statement of Award.

12. PROTEST PROCEDURE: A protest shall be in writing, submitted to the Procurement Manager, and shall set forth the specific grounds of the protest with enough particularity to give notice of the issues to be decided.

13. QUESTIONS REGARDING SPECIFICATIONS AND/OR THE BIDDING PROCESS:
   • To ensure fair consideration for all bidders the District prohibits any type of communications to or with any department, employee, or District official during the solicitation process, except as provided on page one of the solicitation. This includes any communications initiated by a bidder to any District Official or employee evaluating or considering the bidder, prior to the time an award decision has been made public. **Failure to comply shall be grounds for disqualification**
of the offending bidder from consideration for award of the bid and/or any future solicitations.

- Any communications between the bidder and the District shall be initiated by the Procurement Office or the appropriate District representative in order to obtain necessary information or clarification needed to develop a proper and accurate evaluation of the bid. **Failure to comply shall be grounds for disqualification of the offending bidder from consideration for award of the bid and/or any future solicitations.**

- It will be the sole responsibility of the bidder to contact the Procurement Office prior to submitting a bid to ascertain if any amendments have been issued in order to obtain all such documentation, and to return the executed documentation with their bid. All amendments will be posted on the Riverbanks Zoo & Garden website at: [http://www.riverbanks.org/procurement](http://www.riverbanks.org/procurement)

### GENERAL PROVISIONS

1. The District reserves the right to reject any and all bids, to cancel a solicitation, and to waive any technicality if deemed to be in the best interest of the District.

2. Unit prices will govern over extended prices unless otherwise stated in this bid invitation.

3. PROHIBITION OF GRATUITIES: Amended section 8-13-700 and 705 of the 1976 Code of Laws of South Carolina states: "Whoever gives or offers to any public official or public employee any compensation including a promise of future employment to influence his action, vote, opinion or judgment as a public official or public employee or such public official solicits or accepts such compensation to influence his action, vote, opinion or judgment shall be subject to the punishment as provided by Section 16-9-210 and Section 16-9-220."

4. BIDDERS QUALIFICATIONS: Consideration will be given only to the contractors who can produce conclusive evidence that they can meet the following requirements:

   4.1 Adequate capital and credit rating sufficient to complete all operations under this contract in a satisfactory manner.

   4.2 An efficient office force with satisfactory record in expediting delivery of materials to field force, and capable of fulfilling proper liaison service with mechanical trade.

   4.3 An adequate and efficient field force with extensive knowledge of all types of work involved under this contract.

   4.4 A record of amicable relations with labor.

   4.5 An adequate supply of applicable equipment in good operating condition to fulfill the contract.

5. LICENSES, PERMITS, INSURANCE, & TAXES: All costs for required licenses, permits, insurances and taxes shall be borne by the Contractor.

6. INSURANCE:

   6.1 The amount and types of insurance required should be reasonably commensurate with the hazards and magnitude of the undertaking, but in no event of lesser amount nor more restrictive than the limits of liability and schedule of hazards below described. Without limiting its liability under the contract agreement, the Contractor shall procure and maintain, at its expense during the life of this contract, insurance of the types in the minimum amounts stated below:

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<tr>
<th>SCHEDULE</th>
<th>LIMIT</th>
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<tbody>
<tr>
<td><strong>WORKERS COMPENSATION</strong></td>
<td>Statutory</td>
</tr>
<tr>
<td>As required by the State of South Carolina.</td>
<td></td>
</tr>
<tr>
<td><strong>COMPREHENSIVE GENERAL LIABILITY</strong></td>
<td></td>
</tr>
<tr>
<td>Premises Operations</td>
<td>$1,000,000 Single Limit</td>
</tr>
<tr>
<td>Contractual Liability</td>
<td></td>
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</table>
6.2 The Contractor's comprehensive general liability policy shall also include blanket contractual liability coverage or shall be endorsed to cover the liability assumed by the Contractor. Said insurance shall be written by a company or companies approved to do business in the State of South Carolina and acceptable to the District. Before commencing any work hereunder, certificates evidencing the maintenance of said insurance shall be furnished to the District. The District, its officials, employees and volunteers are to be covered as insured’s as respects: liability arising out of activities performed by or on behalf of the contractor, including the insured's general supervision of the contract; products and completed operations of the contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the contractor. The coverage shall contain no special limitations on the scope of protection afforded the District, its officials, employees or volunteers. To accomplish this objective, the District shall be named as an additional insured under the Contractor's insurance as outlined above.

6.3 The contractor shall take out and maintain, during the life of this contract, the statutory Workmen's Compensation and Employer's Liability Insurance for all of his employees to be engaged in work on the project under this contract, and in case any such work is sublet, the contractor shall require the subcontractor similarly to provide Workmen's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such work.

6.4 Contractors insurance coverage shall be primary insurance as respects the District, it officials, employees and volunteers. Any insurance or self-insurance maintained the District shall be in excess of the Contractor's insurance and shall not be required to contribute. To accomplish this objective, the following wording should be incorporated in the previously referenced additional insured endorsement:

**Other Insurance:** This insurance is primary, and our obligations are not affected by any other insurance carried by the additional insured whether primary, excess, contingent or on an other basis.

6.5 Each insurance required by the District shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to Riverbanks Zoo & Garden Procurement Office.

6.6 Contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage’s for subcontractors shall be subject to all the requirements stated herein.

6.7 All certificates and endorsements must be received and approved by the District within ten (10) days after notification of award.

6.8 The District, its officers and employees shall be named as an “additional insured” in the Automobile and General Liability policies and it shall be stated on the Insurance Certificate with the provision that this coverage “is primary to all other coverage the District may possess”.

7. **BIDDERS RESPONSIBILITY:** Each bidder shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this bid. It is expected that this will sometimes require on-site observation. The failure or omission of a bidder to acquaint himself with existing conditions shall in no way relieve him of any obligation with respect to this bid or to the contract.

8. **AWARD CRITERIA:** The contract shall be awarded to the lowest responsible and responsive bidder(s) whose bid meets the requirements and criteria set forth in the Invitation for Bid. The award can be made
to one or a multiple of contractors; whichever is in the best interest of the District, or unless otherwise stated on bidders’ schedule.

If two or more bidders are tied in price while otherwise meeting all of the required conditions, awards are determined in the following order of priority:

8.1 If there is a South Carolina firm tied with an out-of-state firm, the award must be made automatically to the South Carolina firm.
8.2 Tie bids involving South Carolina produced or manufactured products, when known, and items produced or manufactured out of the State must be resolved in favor of the South Carolina commodity.
8.3 Tie bids involving a business certified by the South Carolina Office of Small and Minority Business Assistance as a Minority Business Enterprise must be resolved in favor of the Minority Business Enterprise.
8.4 Tie bids involving South Carolina firms must be resolved in favor of the South Carolina firm located closest to the District.
8.5 In all other situations in which bids are tied, the award must be made to the tied bidder offering the quickest delivery time, or if the tied bidders have offered the same delivery time, the tie must be resolved by the flip of a coin witnessed by the Procurement Manager. All responding vendors must be invited to attend.

9. WAIVER: The District reserves the right to waive any Instruction to Bidders, General or Special Provisions, General or Special Conditions, or specifications deviation if deemed to be in the best interest of the District.

10. COMPETITION: This solicitation is intended to promote competition. If any language, specifications, terms and conditions, or any combination thereof restricts or limits the requirements in this solicitation to a single source, it shall be the responsibility of the interested contractor to notify the Procurement Services Office in writing within five (5) days prior to the opening date. The solicitation may or may not be changed but a review of such notification will be made prior to the award.

11. REJECTION: The District reserves the right to reject any bid that contains prices for individual items or services that are inconsistent or unrealistic when compared to other prices in the same or other bids or ambiguous bids which are uncertain as to terms, delivery, quantity, or compliance with specifications may be rejected or otherwise disregarded if such action is in the best interest of the District.

**GENERAL CONDITIONS**

1. DEFAULT: In case of default by the contractor, the District reserves the right to purchase any or all items in default in the open market, charging the contractor with any excessive costs. Should such charge be assessed, no subsequent bids will be considered, or purchase orders issued to the defaulting contractor until the assessed charge has been satisfied.

2. NON-APPROPRIATION: Any contract entered into by the District resulting from this bid invitation shall be subject to cancellation without damages or further obligation when funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period or appropriated year.

3. INDEMNIFICATION: The contractor agrees to indemnify and save harmless the District and all District officers, agents and employees from claims, suits, actions, damages and costs of every name and description, arising out of or resulting from the use of any materials furnished by the Contractor, provided that such liability is not attributable to negligence on the part of the District or failure of the District to use the materials in the manner outlined by the Contractor in descriptive literature or specifications submitted with the Contractor's bid.

4. CONTRACT ADMINISTRATION: Questions or problems arising after award of this contract shall be directed to the Procurement Manager. Copies of all correspondence concerning this contract shall be sent
to, 400 Rivermont Drive, Columbia, SC 29210. All change orders must be authorized in writing by the Procurement Manager. The District shall not be bound to any change in the original contract unless approved in writing by the Procurement Manager.

5. PUBLICITY RELEASES: Contractor agrees not to refer to award of this contract in commercial advertising in such a manner as to state or imply that the products or services provided are endorsed or preferred by the User. The contractor shall not have the right to include the District's name in its published list of customers without prior approval. With regard to news releases, only the name of the project and duration of contract may be used and then only with prior approval of the District. The contractor also agrees not to publish, or cite in any form, any comments or quotes from the Riverbanks Zoo & Garden Staff unless it is a direct quote from the Public Relations Officer.

6. QUALITY OF PRODUCT: Unless otherwise indicated in this bid it is understood and agreed that any items offered or shipped on this bid shall be new and in first class condition unless otherwise indicated herein.

7. S.C. LAW CLAUSE: Upon award of a contract under this bid, the person, partnership, association or corporation to whom the award is made must comply with the laws of South Carolina which require such person or entity to be authorized and/or licensed to do business with this State. Notwithstanding the fact that applicable statutes may exempt or exclude the successful bidder from requirements that it be authorized and/or licensed to do business in this State, by submission of this signed bid, the bidder agrees to subject himself to the jurisdiction and process of the courts of the State of South Carolina as to all matters and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability for taxes, licenses, or fees levied by the State.

8. ASSIGNMENT: No contract or its provisions may be assigned, sublet, or transferred without the written consent/Acknowledgement of the Procurement Manager.

9. AFFIRMATIVE ACTION: The successful bidder will take affirmative action in complying with all Federal and State requirements concerning fair employment and treatment of all employees, without regard or discrimination by reason of race, color, religion, sex, national origin or physical handicap.

10. BIDDING CONDITION OF PRICE: All bid prices submitted shall remain effective for a minimum period of 90 days, or until evaluation of bids is complete and award is made unless mutual consent of parties is established to extend due to unforeseen circumstances. Thereafter, the contract prices shall remain effective for the term of the contract.

11. 8% S.C. SALES TAX: The District shall add 8% sales tax to all orders; however lump sum bids shall include sales tax in bid price unless otherwise noted. By submission of a signed proposal, you are certifying, under penalties of perjury that you comply with the SC Code of Laws 1976, as amended, relating to payment of any applicable taxes. This will certify to the District your compliance.

Forms to register for all taxes administered by the South Carolina Department of Revenue may be obtained by calling the License and Registration Section at (803) 898-5872 or by writing to the South Carolina Department of Revenue, Registration Unit, Columbia, South Carolina 29214-0140.

12. PAYMENT TERMS: Payment will be made within thirty (30) days after acceptance of completed order/project. Early payment discount, if available, will be calculated from date of acceptance. Application for payment shall reflect services completed through the last day of the month. There will be no exceptions to these payment terms unless approval is obtained in writing from the Procurement Manager prior to bid opening date.

13. BID REQUIREMENTS: Bid requirements on the equipment/goods/services specified are not intended to be restrictive to potential bidders, but indicate the required features for satisfactory performance. The District will determine if minor deviations from these features are acceptable.
14. **DEVIATIONS FROM SPECIFICATIONS:** Any deviation from specifications indicated herein must be clearly pointed out; otherwise, it will be considered that items offered are in strict compliance with these specifications, and successful bidder will be held responsible therefore. Deviations must be explained in detail on separate attached sheet(s). The listing of deviations, if any, is required but will not be construed as waiving any requirements of the specifications. Deviations found in the evaluation of the bid and not listed may be cause for rejection. Bidders offering substitute or equal items must provide information sufficient enough to determine acceptability of item offered.

15. **CONTRACT:** This bid, contract and submitted documents, when properly accepted by the District along with a written purchase order, shall constitute a contract equally binding between the successful offeror, and the District. No different or additional terms will become a part of this contract with the exception of a Change Order.

16. **CHANGE ORDERS:** No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by the Procurement Manager.

17. **AMENDMENTS:** All amendments to and interpretations of this solicitation shall be in writing and issued by the Procurement Manager. The District shall not be legally bound by any Amendment or interpretation that is not in writing.

18. **BID EVALUATION:** Bids received will be evaluated by the Procurement Manager. However, based on bid total, final decision for bid award may rest with the Richland-Lexington Riverbanks Park Commission.

Factors to be considered during the evaluation process include, but are not limited to:
18.1 - Cost.
18.2 - Reputation and dependability of the contractor
18.3 – Past performance

19. **ARBITRATION:** Under no circumstances and with no exception will the District act as arbitrator between the Contractor.

20. **SHIPPING:** All deliveries shall be shipped F.O.B. point Destination-freight prepaid, the seller pays and bears all freight charges; collect shipments will not be accepted. It is agreed by the parties hereto that delivery by the contractor to the common carrier does not constitute delivery to the District. Any claim for loss or damage shall be between the contractor and the carrier.

21. "**OR APPROVED EQUAL**: Certain processes, types of equipment or kinds of material are described in the specifications and/or on the drawings by means of trade/brand names and catalog numbers. In each instance where this occurs, it is understood and inferred that such description is followed by the words "or approved equal". Such method of description is intended merely as a means of establishing a standard of comparability. However, the Owner reserves the right to select the items, which, in the judgment of the Owner, are best suited to the needs of the Owner, based on price, quality, service, availability, standardization and other relative factors. Bidders should indicate brand name, model, model number, size, type, weight, color, etc., of the item bid, if not exactly the same as the item specified. Vendor's stock number or catalog number is not sufficient to meet this requirement. If any bidder desires to furnish an item different from the specifications, vendor should submit along with the bid, the information, data, pictures, designs, cuts, etc., of the material they plan to furnish so as to enable the Owner to compare the material specified; and, such material shall be given due consideration. The Owner reserves the right to insist upon, and receive items as specified if the submitted items do not meet the Owner's standards for acceptance.

22. **ALTERNATE BIDS:** Bidders wishing to submit an alternate for consideration that does not meet the District’s specifications (or approved deviations), must submit their proposal as an alternate bid. **This must be properly marked on both the sealed envelope and the Bidder’s Schedule and submitted**
separately from any other bid. Failure to comply shall be grounds for being deemed non-responsive.

23. DRUG-FREE WORKPLACE: By submittal of this bid, you are certifying that you will comply with Title 44, Code of Laws of South Carolina, 1976, Section 44-107-30.

24. ILLEGAL IMMIGRATION & PUBLIC CONTRACTS: In accordance with the South Carolina Illegal Immigration Reform Act, 2008, Act No. 280. Section 3 of this Act added to Chapter 14 to Title 8 of the South Carolina Code of Laws prohibits covered persons from entering into covered contracts unless the contractor agrees either (a) to verify all new employees through the federal work authorization program [and requires the same from subcontractors and sub-subcontractors] or (b) to employ only qualifying workers. Effectively, the Act also requires contractors to agree to provide any documentation required to establish either (a) that the Act does or does not apply to the contractor, subcontractor, or sub-subcontractor; or (b) that the contractor, and any subcontractor or sub-subcontractor, are in compliance with Section 3 of the Act.”

25. NO CONTACT POLICY: After the date and time established for receipt of proposals by the District, any contact initiated by any offeror with any District representative, other than the Purchasing Department representative listed herein, concerning this solicitation is prohibited. Any such unauthorized contact may cause the disqualification of the offeror from this procurement transaction.

26. TERMINATION: Subject to the provisions below, the contract may be terminated for any reason by the District providing a 30 day advance notice in writing is given to the contractor.

26.1 Termination for Cause: Termination by the District for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provisions, termination costs, if any, shall not apply. The thirty (30) days advance written notice requirement is waived and the default provision in this bid shall apply; see General Conditions.

26.2 Termination for Convenience: The District, by written notice, may terminate this contract in whole or in part, when it is in the best interest of the District.

26.3 Termination requirement does not apply if contract is to terminate at the end of an established contract term.

26.4 Termination for Nonappropriations: If the District fails to appropriate or authorize the expenditure of sufficient funds to provide the continuation of this contract, or if a lawful order issued in or for any fiscal year during the term of the contract reduces the funds appropriated or authorized in such amount as to preclude making the payments set out therein, the contract shall terminate on the date said funds are no longer available without any termination charges or other liability incurring to the District. Any termination for non-appropriations shall not prohibit the District from obtaining services from another source or in another manner, which is in the best interest of the District.
SCOPE OF WORK

INTENT:

The Riverbanks Zoo and Garden is seeking a roofing contractor to demo the existing roof from the Aquarium and Reptile Complex (ARC) and Install a new roof per this solicitation. The roof is approximately 19,000 SQFT. Included are specs for the desired roofing system, however the Project Management Team will review and consider Value Engineered Alternates if in our sole discretion the contractor has provided adequate details and information that results in the determination that the alternate will perform as well as or better than the provided roofing system. We may use a third-party engineer in this determination.

REQUIREMENTS:

• Proposers shall refrain from direct or indirect communications promoting their qualifications for this Project to the District or any member of the Lexington-Richland Riverbanks Park Commission, other than through the formal submittal process established by this Request for Proposals (RFP). Failure to comply with submittal requirements may cause the submittal to be removed from further consideration.

• The selected contractor must hold the required license(s) for demolition and installation of the new roofing system.

• Contractor must be bondable, a certified installer by the manufacturer of the roofing system being used and have personnel on site who hold the necessary OSHA required certifications to safely perform the work.

• The contractor should submit as a part of the bid package the safety program to be used on this site to ensure workplace safety.

• Contractor’s site superintendent shall coordinate all activities with zoo project management to ensure the zoo has enough notice to secure animals that have access to any roof structures the contractor will be working with that serve as part of the exhibit containment below the roof.

• During the install of the roofing system a manufacturer’s representative must visit the site and inspect the installation weekly (at a minimum) to ensure the install was to their specifications. A letter so stating to the owner will be required prior to final payment.

CONSIDERATIONS:

• The area around the Aquarium and Reptile Complex will be open to the general public so deliveries, work practices, application processes and behavior of staff will be closely monitored by Project Management to ensure the quality of the guest environment.

• A portion of the building serves as a boundary for tortoise exhibits. This exhibit must be protected from roofing materials during the demo and installation phases.

• This roof currently suffers from several issues including but not limited to: humidity in the building making its way into the foam insulation, the roof has multiple HVAC systems on the roof and since they control animal Life Support Systems are serviced at a high frequency and rodents, including Racoons are damaging the roof either by chewing their way in or chewing damaged areas making the damage much worse. The roofing system used must address these three issues.
• The work on this building is similar to working on a hospital roof as air quality for the fish and reptiles in the building is of critical importance and there are no other adequate facilities to move these animals into for the work period. Safety Data Sheets must be submitted for approval along with a work plan to ensure no toxic fumes are introduced into the building environment. Work practices must prevent fumes from entering interior.

BIDS MUST INCLUDE

• Solicitation name and number clearly marked on the outside of the envelope
• One hard copy and one digital (i.e. thumb drive)
• A schedule showing phases and duration
• For any alternative systems proposed, submit along with your proposal the following:
  o Manufacture’s Specifications for the proposed alternative system
  o A system mockup (to be submitted along with the bid)
• Three references from past projects
• A single point of contact – name, title, phone and email address must be included.

HOURS OF OPERATION:

• Riverbanks Zoo and Garden is open Monday through Sunday from 9:00 am to 5:00 pm and closed on Thanksgiving and Christmas Days.

DISPOSAL OF WASTE:

• Contractor shall dispose of all refuse collected by the District. The Contractor will ensure proper handling and disposal of materials removed from the containers to prevent discharges of pollutants to surface waters or groundwater.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENT:

• Contractor shall comply with current and future requirements of the City of Columbia, City of West Columbia and State of South Carolina’s NPDES permits (if any) as it may be amended from time to time.
BIDDERS SCHEDULE

BID NUMBER:  B2020-005          DATE:  03/03/2020

OPENING DATE AND TIME:  March 24, 2020 2:00 PM (EST)

OPENING LOCATION:  Riverbanks Zoo & Garden
                   Procurement Services
                   400 Rivermont Drive
                   Columbia, SC 29210

PROCUREMENT:  Under a fixed price contract provide all materials, equipment, and labor for the ARC roof replacement in accordance with the specifications, conditions, and provisions as applicable to this solicitation. All prices are to include all applicable transportation, recycle and disposal costs. Submit one (1) hard copy and one (1) digital copy.

Delivery Requirements:  None

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<th>ITEM NUMBER</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
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<tr>
<td></td>
<td></td>
<td>Roof Demolition and Replacement*</td>
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*If you are bidding an equivalent or an alternative system, you must state the BRAND you are bidding, the manufacturer's item number, and the manufacturer's descriptive literature. Riverbanks Zoo and Garden reserves the right to use a third-party engineer in determining that proposed alternate is an acceptable roof system for the building.

COMPANY:  ________________________  AUTHORIZED SIGNATURE:  ________________________

The attached Certificate of Familiarity must be returned with bid.

SOLICITATION NUMBER:  B2020-005          DATE:  February 26, 2020
**CERTIFICATE OF FAMILIARITY**

The undersigned, having fully familiarized himself with the information contained within this entire solicitation and applicable amendments, submits the attached bid and other applicable information to the District, which I verify to be true and correct to the best of my knowledge. I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a bid for the same materials, supplies or equipment, and is in all respects, fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid. I further certify that this bid is good for a period of ninety (90) days, unless otherwise stated.

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<th>Company Name as registered with the IRS</th>
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Please list four (4) references that your company has recently or currently provided similar products and/or services for.

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COMPANY: __________________________
AUTHORIZED SIGNATURE: __________________________
SAMPLE CONTRACT

Date

Name
Address

Re: Bid No.

Dear (Name),

Enclosed is a signed original contract for the above referenced project. Upon review and approval, please have a copy of the contract signed on behalf of your company and return one fully executed copy of the contract along with certificate of insurance to my office.

For all billing questions, your Accounts Payable contact will be Tammy Jenkins at (803) 779-8717. Invoices may be emailed to finance@riverbanks.org

We look forward to working with you on this project. Please let me know if you should you have any questions or concerns regarding this contract.

Sincerely,

Raymond T Brindle
Procurement Manager
CONTRACT FOR
STATE OF SOUTH CAROLINA )
RICHLAND-LEXINGTON RIVERBANKS PARK DISTRICT )

THIS AGREEMENT is entered into by and between the Richland-Lexington Riverbanks Park District, 500 Wildlife Parkway, Columbia, SC 29210 (hereinafter referred as District) and Company, Address (hereinafter referred to as Company)

NOW THEREFORE, for and in consideration of the mutual covenants and conditions set forth herein, the parties hereto agree as follows:

1. **Scope of Contract.** Company shall provide all of the work and services required by Bid Number, which is incorporated herein and made a part hereof, for the Contract Name.

2. **Term of Contract.** The term of this contract shall commence on (Date) and shall continue for a period of one (1) year. The District shall have the right, but not the obligation, to renew this contract for four (4) additional one year periods under the same terms and conditions. This contract may be extended upon District’s written notice not less than thirty (30) days prior to the expiration of the initial term or any extension hereof.

3. **Compensation.** The District agrees to pay Company according to the schedule of charges attached hereto and incorporated herein as Exhibit A and there shall be no deviation from these charges without a written change order as provided for herein. The charges shall include all tariffs, taxes, fees and other assessments imposed from time to time by any federal, state, or local governments.

4. **Payment Terms.** Payment will be made within thirty (30) days after acceptance of completed order/project.

5. **Insurance.** Company shall provide insurance as set forth in the BID.

6. **Modification / Change Orders.** Any change orders, alternations, amendments or other modifications hereunder shall not be effective unless reduced to writing, signed by the District and Company, and executed with the same formality as this contract.

7. **Termination.** This contract may be terminated pursuant to the BID.

8. **Warranty.** Company's services are warranted to be performed in a timely and workmanlike manner and such services shall meet in addition to the response to the BID.

9. **Indemnification.** Company shall provide indemnification as set forth in the BID.

10. **Breach / Waiver.** No term or provision hereof shall be deemed waived unless breach thereof is waived in writing and signed by the party claimed to have waived and consented. No consent by any party to, or waiver of, a breach by the other, whether expressed or implied, shall constitute a consent to, or waiver of, or excuse for, any difference or subsequent breach.

11. **Severability.** If any term or provision of this contract shall be found to be illegal or unenforceable, then, notwithstanding any such illegality or unenforceability, the remainder of said contract shall remain in full force and effect and such term or provision shall be deemed to be deleted and severable there from.

12. **Entire Agreement and Priority of Documents.** This document, together with all subordinate and other documents incorporated by reference herein, will constitute the entire agreement between the parties.
with respect to the subject matter contained herein and may only be modified by an amendment executed in writing by both parties. Company hereby agrees, except where this contract specifically indicates otherwise, all written bids, specifications, brochures and sales materials presented by Company to District leading to this contract, and all other Company representations, commitments, warranties prior to and in connection with this contract, shall be deemed to be, and are, incorporated by reference into and made a part of this contract. Except as otherwise expressly stated, in the event of a conflict in the interpretation of the contract, the order of priority in descending order is (I) this document, (ii) the BID, and then (iii) the Response.

IN WITNESS WHEREOF, the Company and the District have signed and executed this contract this _______ day of _________________, 2015

WITNESSES: COMPANY NAME

_________________________   BY: ______________________________
TITLE: _____________________________

RICHLAND-LEXINGTON RIVERBANKS PARK DISTRICT

_________________________   BY: ______________________________
Raymond Brindle                        Dave Ruhl
Procurement Manager            Chief Operations Officer

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PART 1   GENERAL

1.01 RELATED SECTIONS

A. Division 010000 – General Requirements
B. Division 072200 – Roof Insulation
C. Division 072713 – Modified Bituminous Sheet Vapor Retarders
D. Division 075216 – Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing
E. Division 076200 – Sheet Metal Flashing and Trim

1.02 DESCRIPTION

A. The Work includes the provision of all labor, material, equipment, management, coordination, supervision and administration to complete the Work as outlined.
B. The Contractor shall complete the following Work. The following outline of Work is noted by System. The Work includes, but is not limited to the following:
   1. SYSTEM #1 (Roofing):
      a. Preparation of existing concrete roof deck, and all flashing substrates.
      b. Adhere SBS vapor retarder/temporary roof of Soprema Sopralene 180 Sanded 2.2 in Colply EF membrane adhesive.
      c. Adhere specified 4’x4’ R-20 Polyisocyanurate insulation in Duotack 365 insulation adhesive at 12”-6”-4” on center.
      d. Adhere specified ¼” per foot tapered Polyisocyanurate insulation in Duotack 365 insulation adhesive at 12”-6”-4” on center.
      e. Adhere 4’x8’ x 1/4” Soprema Sopraboard in Duotack 365 insulation adhesive at 12”-6”-4” on center.
      f. Adhere SBS field base ply of Sopralene 180 Sanded 2.2 in Colply membrane adhesive.
      g. Adhere SBS field cap ply of Sopralene 180 Sanded 2.2 in Colply membrane adhesive.
      h. Flood and gravel field plies with hot asphalt and gravel (crushed stone) as specified.
      i. Apply 400 to 600 pounds per square of aggregate in nominal 60 pounds per square flood coat of hot asphalt as specified.
      j. The aggregate shall be fully embedded into the hot asphalt. Loose gravel shall be broomed and embedded or removed to meet the 400 to 600 pounds per square requirement.
      k. Hold asphalt and gravel back from all SBS modified bitumen flashings.
I. Adhere SBS flashing base ply of Sopralene 180 Sanded 2.2 in Colply Flashing Cement.

m. Adhere SBS flashing cap ply of Sopralene 180 FR GR in Colpy Flashing Cement.

n. Liquid-applied, reinforced flashings.

o. Provide 2-year contractor workmanship warranty.

p. Provide 20-year manufacturer total system NDL warranty.

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. Flat and tapered polyisocyanurate insulation.
   3. 1/8” Soprema Sopraboard coverboard.
   4. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer’s warranty.

1.02 RELATED SECTIONS

A. Division 010000 – General Requirements
B. Division 011000 – Summary of Work
C. Division 072713 – Modified Bituminous Sheet Vapor Retarders
D. Division 075216 – Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing
E. Division 076200 – Sheet Metal Flashing and Trim

1.03 DEFINITIONS

A. ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.

1.04 REFERENCES

B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).

E. UNDERWRITERS LABORATORY (UL):
   1. 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 manufacturer’s 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 at all times 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 review project conditions and determine when and where conditions are appropriate to utilize the specified hot asphalt-applied 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.

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.

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 ¼ 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.
   a. Total Thermal Resistance R Value, continuous insulation (ci) above-deck: R-20

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.

2.02 ROOFING SYSTEM

A. ROOFING SYSTEM BASIS OF DESIGN: SOPREMA

B. 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. Total thickness to meet specified insulation system thermal resistance ‘R’ value
         ii. Dimensions: 4 x 4 ft 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: ¼ in per foot. Insulation, crickets and saddles provided with taper as required for positive roof slope.
         ii. Dimensions: 4 x 4 ft boards
         iii. Meets or exceeds ASTM C1289, Type II, Class 1, Grade 2 (20 psi).

C. COVER-BOARD
   1. ASPHALTIC ROOF BOARD
      a. 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 8 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) 1/4 in board: 1,320 (9,100)

vi. Puncture resistance, lbf (N) per ASTM E154:
   a) 1/4 in board: 100 (445)

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

2.03 ACCESSORIES

A. PRIMERS:
   1. SOPREMA ELASTOCOL 500 PRIMER: Asphalt cut-back primer. Primer for the preparation of substrates for asphalt applications.
      a. Meets or exceeds ASTM D41
      b. VOC content: 350 g/L or less.

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 PRIMER APPLICATION

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

B. Apply primer using brush, roller, or sprayer at the rate published on the product data sheet.

C. Asphalt Primer: Apply SOPREMA ELASTOCOL 500 primer to dry compatible masonry, metal, wood and other required substrates before applying asphalt.

D. 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 INSULATION ADHESIVE APPLICATION

A. DUOTACK 365

1. Apply the specified two-component insulation adhesive to adhere Insulation Base Layers, Tapered Layer 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.
3.05 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.

3.06 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
SECTION 07 27 13

SBS MODIFIED BITUMINOUS SHEET VAPOR RETARDERS & AIR BARRIERS

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 vapor retarder/temporary roof (Soprema Sopralene 180 Sanded 2.2) set in Colply EF membrane adhesive.
   3.  SBS-modified bitumen membrane flashings at penetrations
   4.  Liquid-applied, reinforced flashings at penetrations.
   5.  All related materials and labor required to complete specified roofing necessary to receive specified manufacturer’s warranty.

1.02  RELATED SECTIONS

A.  Division 010000 – General Requirements
B.  Division 011000 – Summary of Work
C.  Division 072200 – Roof Insulation
D.  Division 075216 – Styrene-Butadiene-Styrene (SBS) Modified Bitumen Membrane Roofing
E.  Division 076200 – Sheet Metal Flashing and Trim

1.03  DEFINITIONS

A.  ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.

1.04  REFERENCES

B.  AMERICAN STANDARD OF TESTING METHODS (ASTM):
   1.  ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.

C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).

E. UNDERWRITERS LABORATORY (UL):
1. 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 manufacturer’s 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 at all times 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. 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.

3. The contractor shall review project conditions and determine when and where conditions are appropriate to utilize the specified hot asphalt-applied 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.

3. Cold adhesive application: Primer, where used, shall be fully dry before proceeding. During cold weather, store the specified membrane adhesives, flashing cements and mastics in heated storage areas. Take all necessary measures and monitor application conditions, to ensure the adhesive and cement materials are no less than 70°F (21°C) at the point of contact with the membrane.

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/Air Barrier shall be included in the specified roofing Manufacturer's No Dollar Limit (NDL) Warranty. The Vapor Retarder/Air Barrier 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.  

2.02 SBS-MODIFIED BITUMEN VAPOR RETARDER/TEMP ROOF:  

A. VAPOR RETARDER, COLD ADHESIVE (COLPLY EF APPLIED):  

a. SOPREMA SOPRALENE 180 SANDED 2.2: SBS-modified bitumen membrane sanded on both top and bottom surfaces. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:  

i. Thickness: 91 mils (2.3 mm)  

ii. Width: 39.4 in (1 m)  

iii. Length: 49.2 ft (15 m)  

iv. Roll weight: 92 lb (41.7 kg)  

v. Net mass per unit area, lb/100 sq ft (g/sq m):  

a) 57 lb (2782 g)
vi. Peak load @ 0°F (-18°C), lbf/in (kN/m).
   a) MD 110 lbf/in (19.3 kN/m), XMD 85 lbf/in (14.9 kN/m)

vii. Elongation at peak load @ 0°F (-18°C), lbf/in (kN/m):
    a) MD 35%, XMD 40%

viii. Peak load @ 73.4°F (23°C), lbf/in (kN/m):
     a) MD 85 lbf/in (14.9 kN/m), XMD 65 lbf/in (11.4 kN/m)

ix. Elongation at peak load @ 73.4°F (23°C), lbf/in (kN/m):
    a) MD 55%, XMD 60%

x. Ultimate Elongation @ 73.4°F (23°C), lbf/in (kN/m):
    a) MD 85 lbf/in (14.9 kN/m), XMD 65 lbf/in (11.4 kN/m)

xi. Tear Strength @ 73.4°F (23°C), lbf (N):
    a) MD 125 lbf (556 N), XMD 85 lbf (378 N)

xii. Low temperature flexibility, °F (-°C):
    a) MD/XMD: -15°F (-26°C)

xiii. Dimensional stability, %:
     a) MD/XMD: Less than 0.5%

xiv. Compound stability, °F (-°C):
     a) MD/XMD: 240°F (116°C):

2.03 ACCESSORIES

A. PRIMERS:
   1. NOTE: Primer not required for SOPREMA COLPLY EF Adhesive and
      SOPREMA COLPLY EF Flashing Cement applications.

B. VAPOR RETARDER ADHESIVES:
   1. SOPREMA COLPLY EF ADHESIVE: Premium, non-toxic, low odor,
      solvent-free, polymeric membrane adhesive for use with all SBS-modified
      bitumen sanded base ply and all Cap Sheet membrane applications.
      a. VOC Content: 32 g/L or less VOC Content.
      b. Meets or exceeds ASTM D7379

C. FLASHING CEMENT
   1. SOPREMA COLPLY EF FLASHING CEMENT: Premium, non-toxic, low-
      odor, solvent-free, polymeric membrane flashing cement for use with
      sanded base ply and all sanded Cap Sheet flashing applications.
      a. VOC Content: 32 g/L or less VOC Content.

D. 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.
   a. VOC Content: 190 g/L or less.
   b. Meets or exceeds ASTM D4586, Type I, Class II.

E. 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.

F. 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.

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. Primer is not required for SOPREMA COLPLY EF Adhesive and SOPREMA COLPLY EF Flashing Cement.

3.04 MEMBRANE ADHESIVE APPLICATION

A. The ambient temperature shall be above 50°F (10°C), and the adhesive temperature shall be a minimum of 70°F (21°C) at the point of membrane application.

B. To ensure the adhesive is applied at 70°F (21°C), during cold weather, drums and 5 gallon pails shall be stored in heated areas. Drums and 5 gallon pails exposed to cold temperature on the roof shall be provided with heaters when necessary to ensure the minimum application temperature is maintained.

C. Priming substrates is optional when solvent-based membrane adhesives are used. Primer may be applied to reduce adhesive consumption rates for some absorptive substrates. Primer is not required for COLPLY EF.

D. FULLY ADHERED ADHESIVE APPLICATION:

1. SOPREMA COLPLY EF ADHESIVE may be applied using a 3/16 – 3/8 inch notched squeegee or brush. SOPREMA COLPLY EF ADHESIVE is not spray-applied.

2. Apply adhesive to clean, dry and prepared compatible substrates as required to ensure adhesion.

3. Apply a uniform application of membrane adhesive at the required application rate.

4. The application rate is 2 to 3 gallons per square or more over absorptive substrates and over granule surfaces. The application rate is 1-1/2 to 2 gallons per square between plies. Refer to manufacturer’s product data sheet, and adjust application rate based upon surface conditions.

E. Immediately install the SBS vapor retarder ply into the adhesive before the adhesive begins to skin over. Once adhesive skins over, the ply will not adhere.
3.05 FLASHING CEMENT APPLICATION

A. The ambient temperature shall be above 50°F (10°C), and the flashing cement temperature shall be a minimum of 70°F (21°C) at the point of membrane application.

B. To ensure the flashing cement is applied at 70°F (21°C), during cold weather, pails shall be stored in heated areas. Pails exposed to cold temperature on the roof shall be provided with heaters when necessary to ensure the minimum application temperature is maintained.

C. Priming substrates is optional when solvent-based membrane adhesives are used. Primer may be applied to reduce adhesive consumption rates for some absorptive substrates.

D. SOPREMA COLPLY EF FLASHING CEMENT may be applied using ¼ inch notched trowel. Apply 2.0 – 2.5 gallons per square to each surface. Priming substrates is not required when using SOPREMA COLPLY EF FLASHING CEMENT.

E. Application rates vary based on substrate porosity and roughness.

3.06 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.

3.07 COLD ADHESIVE-APPLIED VAPOR RETARDER APPLICATION

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

B. Ensure environmental conditions are satisfactory, and will remain satisfactory, during the application of the membrane adhesive and membrane plies.

C. Unroll membrane onto the roof surface and allow the membrane to relax prior to installing the membrane.

D. Re-roll the membrane in order for the plies to be rolled into the adhesive while ensuring the specified side and end-laps are maintained.

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. Cut rolls to working lengths and widths to conform to roof conditions, and lay out to always work to a selvage edge.

G. Ensure all substrates are prepared as necessary, and all substrates are acceptable to receive the specified adhesive and membrane.

H. Install the specified membrane adhesive ahead of the membrane application. Do not allow the adhesive to skin-over before the membrane is applied into the adhesive. The membrane will not adhere where adhesive has skinned over.

I. Where laps are adhered using membrane adhesive, apply sufficient adhesive coverage to ensure 1/8 to 1/4 in bleed-out is present at all laps.

J. Once set in place, ensure specified side-laps and end-laps are maintained.

K. At end-laps, cut a 45 degree dog-ear away from the selvage edge for all T-joints.

L. For low-slope areas where the roof slope falls below 1/4 in per foot, and where otherwise specified, leave all membrane side and end-laps dry in order to hot-air weld or torch all laps watertight. Embed granules, where present, when heat welding sheets.

M. Use a follow tool, weighted roller or broom the leading edge of the membrane to the substrate, working forward and outward as necessary to remove wrinkles. Avoid walking over the membrane during application.

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 adhered. Repair all voids, wrinkles, open laps and all other deficiencies.

3.08 LIQUID-APPLIED, SINGLE-COMPONENT, BITUMEN-URETHANE FLASHING SYSTEM APPLICATION (SOPREMA ALSAN FLASHING):

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 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
SECTION 07 52 16

STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE 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. Anchor Sheet/Base Sheet mechanically fastened.
3. Adhere SBS vapor retarder/temporary roof of Soprema Sopralene 180 Sanded 2.2 in Colply EF membrane adhesive
4. Adhere specified 4’x4’ R-20 polyisocyanurate insulation in Duotack 365 insulation adhesive at 12”-6”-4” on center.
5. Adhere specified ¼” per foot tapered polyisocyanurate insulation in Duotack 365 insulation adhesive at 12”-6”-4” on center.
6. Adhere 4’x8’ x ¼” Soprema Sopraboard in Duotack 365 insulation adhesive at 12”-6”-4” on center.
7. Adhere SBS field base ply of Sopralene 180 Sanded 2.2 in Colply membrane adhesive.
8. Adhere SBS field cap ply of Sopralene 180 Sanded 2.2 in Colply membrane adhesive.
9. Flood and gravel field plies with hot asphalt and gravel (crushed stone) as specified.
10. Apply 400 to 600 pounds per square of aggregate in nominal 60 pounds per square flood coat of hot asphalt as specified.
11. The aggregate shall be fully embedded into the hot asphalt. Loose gravel shall be broomed and embedded or removed to meet the 400 to 600 pounds per square requirement.
12. Hold asphalt and gravel back from all SBS modified bitumen flashings.
13. Adhere SBS flashing base ply of Sopralene 180 Sanded 2.2 in Colply flashing cement.
15. Liquid-applied, reinforced flashings.
16. Provide 2-year contractor workmanship warranty.
17. Provide 20-year manufacturer total system NDL warranty.
18. All related materials and labor required to complete specified roofing necessary to receive specified manufacturer’s warranty.

1.02 RELATED SECTIONS

A. Division 010000 – General Requirements
B. Division 011000 – Summary of Work
C. Division 072200 – Roof Insulation
D. Division 072713 – Modified Bituminous Sheet Vapor Retarders
E. Division 076200 – Sheet Metal Flashing and Trim

1.03 DEFINITIONS

A. ASTM D 1079-Definitions of Term Relating to Roofing and Waterproofing.

1.04 REFERENCES

B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
   1. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).
   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 manufacturer’s 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
      completion.
   2. Applicators shall have completed projects of similar scope using same or
      similar materials specified.
   3. Contractor shall provide full time, on-site superintendent or foreman
      experienced with the specified roofing from beginning 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 at all times 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. 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 review project conditions and determine when and where conditions are appropriate to utilize the specified hot asphalt-applied 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.
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. Mopping asphalt application: Primer, where used, shall be fully dry before applying hot asphalt. Take all necessary measures and monitor all conditions, to ensure the specified asphalt temperature is no less than 400°F (204°C) at the point of contact with the specified membrane as it is unrolled into the hot asphalt.
   4. Cold adhesive application: Primer, where used, shall be fully dry before proceeding. During cold weather, store the specified membrane adhesives, flashing cements and mastics in heated storage areas. Take all necessary measures and monitor application conditions, to ensure the adhesive and cement materials are no less than 70°F (21°C) at the point of contact with the membrane.

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. FIRE CLASSIFICATION:
   1. Performance testing shall be in accordance with UL 790, ASTM E108, FM 4450 or FM 4470 to meet the ¼":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.
a. Meets requirements of UL 1256, or FM Class 1.

C. ROOF SLOPE:
1. Finished roof slope for SBS modified bitumen surfaces shall be ¼ inch per foot (2 percent) minimum for roof drainage.

D. 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).

1.12 WARRANTY

A. 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.

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. 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.

2.02 ROOFING SYSTEM

A. ROOFING SYSTEM BASIS OF DESIGN: SOPREMA

2.03 SBS-MODIFIED BITUMEN MEMBRANES
A. FIELD BASE & FIELD CAP PLY:

1. FIELD BASE AND CAP PLY, COLD ADHESIVE APPLIED:
   a. SOPREMA SOPRALENE 180 SANDED 2.2: SBS-modified bitumen membrane sanded on both top and bottom surfaces. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:
      i. Thickness: 91 mils (2.3 mm)
      ii. Width: 39.4 in (1 m)
      iii. Length: 49.2 ft (15 m)
      iv. Roll weight: 92 lb (41.7 kg)
      v. Net mass per unit area, lb/100 sq ft (g/sq m):
         a) 57 lb (2782 g)
      vi. Peak load @ 0°F (-18°C), lbf/in (kN/m):
         a) MD 110 lbf/in (19.3 kN/m), XMD 85 lbf/in (14.9 kN/m)
      vii. Elongation at peak load @ 0°F (-18°C), lbf/in (kN/m):
         a) MD 35%, XMD 40%
      viii. Peak load @ 73.4°F (23°C), lbf/in (kN/m):
         a) MD 85 lbf/in (14.9 kN/m), XMD 65 lbf/in (11.4 kN/m)
      ix. Elongation at peak load @ 73.4°F (23°C), lbf/in (kN/m):
         a) MD 55%, XMD 60%
      x. Ultimate Elongation @ 73.4°F (23°C), lbf/in (kN/m):
         a) MD 60%, XMD 65%
      xi. Tear Strength @ 73.4°F (23°C), lbf (N):
         a) MD 125 lbf (556 N), XMD 85 lbf (378 N)
      xii. Low temperature flexibility, °F (°C):
         a) MD/XMD: -15°F (-26°C)
      xiii. Dimensional stability, %:
         a) MD/XMD: Less than 0.5%
      xiv. Compound stability, °F (°C):
         a) MD/XMD: 240°F (116°C):

B. FLASHING BASE PLY

1. FLASHING BASE PLY, FLASHING CEMENT-APPLIED:
   a. SOPREMA SOPRALENE 180 SANDED 2.2: SBS-modified bitumen membrane sanded on both top and bottom surfaces. Non-woven polyester reinforcement. Meets or exceeds ASTM D6164, Type I, Grade S, per ASTM D5147 test methods:
      i. Thickness: 91 mils (2.3 mm)
      ii. Width: 39.4 in (1 m)
iii. Length: 49.2 ft (15 m)
iv. Roll weight: 92 lb (41.7 kg)
v. Net mass per unit area, lb/100 sq ft (g/sq m):
   a) 57 lb (2782 g)
vi. Peak load @ 0°F (-18°C), lbf/in (kN/m).
   a) MD 110 lbf/in (19.3 kN/m), XMD 85 lbf/in (14.9 kN/m)
vii. Elongation at peak load @ 0°F (-18°C), lbf/in (kN/m):
   a) MD 35%, XMD 40%
viii. Peak load @ 73.4°F (23°C), lbf/in (kN/m):
   a) MD 85 lbf/in (14.9 kN/m), XMD 65 lbf/in (11.4 kN/m)
ix. Elongation at peak load @ 73.4°F (23°C), lbf/in (kN/m):
   a) MD 55%, XMD 60%
x. Ultimate Elongation @ 73.4°F (23°C), lbf/in (kN/m):
   a) MD 60%, XMD 65%
xii. Tear Strength @ 73.4°F (23°C), lbf (N):
   a) MD 125 lbf (556 N), XMD 85 lbf (378 N)
xiii. Low temperature flexibility, °F (°C):
   a) MD/XMD: -15°F (-26°C)
xiv. Compound stability, °F (°C):
   a) MD/XMD: 240°F (116°C)

C. FLASHING CAP SHEET

1. FLASHING CAP SHEET, FLASHING CEMENT-APPLIED:
   a. SOPREMA SOPRALENE 180 FR GR: SBS-modified bitumen membrane Cap Sheet with a sanded 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. Net mass per unit area, lb/100 sq ft (g/sq m):
   a) 109 lb (5322 g)
v. Peak load @ 0°F (-18°C), lbf/in (kN/m).
   a) MD 115 lbf/in (20.1 kN/m), XMD 90 lbf/in (15.8 kN/m)
vi. Elongation at peak load @ 0°F (-18°C), lbf/in (kN/m):
   a) MD 35%, XMD 40%
vii. Peak load @ 73.4°F (23°C), lbf/in (kN/m):
a) MD 85 lbf/in (14.9 kN/m), XMD 65 lbf/in (11.4 kN/m)

viii. Elongation at peak load @ 73.4°F (23°C), lbf/in (kN/m):
   a) MD 55%, XMD 60%

ix. Ultimate Elongation @ 73.4°F (23°C), lbf/in (kN/m):
   a) MD 65%, XMD 80%

x. Tear Strength @ 73.4°F (23°C), lbf (N):
   a) MD 125 lbf (556 N), XMD 85 lbf (378 N)

xi. Low temperature flexibility, °F (°C):
   a) MD/XMD: -15°F (-26°C)

xii. Dimensional stability, %:
   a) MD/XMD: Less than 0.5%

xiii. Compound stability, °F (°C):
   a) MD/XMD: 240°F (116°C)

xiv. Granule Surfacing:
   a) 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. NOTE: Priming is not required for SOPREMA COLPLY EF ADHESIVE and SOPREMA COLPLY EF FLASHING CEMENT applications.
      a. Meets or exceeds ASTM D41
      b. VOC content: 350 g/L or less.

B. MEMBRANE ADHESIVES:
   1. SOPREMA COLPLY ADHESIVE (use for field base and cap ply): SBS-modified bitumen membrane adhesive for use with sanded base ply and granule-surfaced Cap Sheet membranes.
      a. VOC Content: 250 g/L or less.
      b. Meets or exceeds ASTM D3019
   2. SOPREMA COLPLY EF ADHESIVE (use for vapor retarder direct to existing concrete deck): Premium, non-toxic, low odor, solvent-free, polymeric membrane adhesive for use with all SBS-modified bitumen sanded base ply and all Cap Sheet membrane applications.
      a. VOC Content: 32 g/L or less VOC Content.
      b. Meets or exceeds ASTM D7379

C. MOPPING ASPHALT (flood and gravel over field):
   1. MOPPING ASPHALT, pre-approved in writing by membrane manufacturer for use for applying the specified SBS-modified bitumen membrane.
a. Application Rate: Solid mopping, full coverage at 23-25 lb per square and as required for specified approvals.

b. Application Temperature: Apply asphalt at the published EVT and no less than 400°F (204°C) at the point of contact when applying the SBS-modified bitumen membrane into the hot asphalt.

c. The Equiviscous Temperature (EVT), the finished blowing temperature (FBT) and the flash point (FP) shall be indicated on each container.

d. Meets or exceeds ASTM D312, Type IV as listed in Table I.

D. FLASHING CEMENT

1. SOPREMA COLPLY FLASHING CEMENT (use for flashing base and cap plies): SBS-modified bitumen membrane flashing cement for use with sanded base ply flashing and granule-surfaced Cap Sheet flashing.
   a. VOC Content: 250 g/L or less.
   b. Meets or exceeds ASTM D4586

2. SOPREMA COLPLY EF FLASHING CEMENT (use for vapor retarder flashing direct to concrete deck): Premium, non-toxic, low-odor, solvent-free, polymeric membrane flashing cement for use with sanded base ply and all sanded Cap Sheet flashing applications.
   a. VOC Content: 32 g/L or less

E. GENERAL PURPOSE ROOFING CEMENT AND MASTIC

   a. VOC Content: 190 g/L or less.
   b. Meets or exceeds ASTM D4586, Type I, Class II.

   a. VOC Content: 190 g/L or less.
   b. Meets or exceeds ASTM D4586, Type I, Class II.

F. 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.
   d. 
G. 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.

H. AGGREGATE SURFACING:
   1. Aggregate: Crushed stone for use as a coarse mineral aggregate on built-up roofs, sorted and graded per ASTM D 1863.

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. Primer is not required for SOPREMA COLPLY EF ADHESIVE and SOPREMA COLPLY EF FLASHING CEMENT.
F. 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 MEMBRANE ADHESIVE APPLICATION

A. The ambient temperature shall be above 50°F (10°C), and the adhesive temperature shall be a minimum of 70°F (21°C) at the point of membrane application.
B. To ensure the adhesive is applied at 70°F (21°C), during cold weather, drums and 5 gallon pails shall be stored in heated areas. Drums and 5 gallon pails exposed to cold temperature on the roof shall be provided with heaters when necessary to ensure the minimum application temperature is maintained.
C. Priming substrates is optional when solvent-based membrane adhesives are used. Primer may be applied to reduce adhesive consumption rates for some absorptive substrates.
D. SOPREMA COLPLY ADHESIVE may be applied using a 3/16 – 3/8 inch notched squeegee, brush or spray equipment.
E. SOPREMA COLPLY EF ADHESIVE may be applied using a 3/16 – 3/8 inch notched squeegee or brush. SOPREMA COLPLY EF ADHESIVE is not spray-applied.
F. Apply adhesive to clean, dry and prepared compatible substrates as required to ensure full adhesion.
G. Follow the adhesive product data sheet requirements for application rates.
H. Apply a uniform application of membrane adhesive at the application rate published on the product data sheet.
I. Apply 1-1/2 to 2 gallons per square between membrane plies. The application rate is 2 to 3 gallons per square or more over absorptive substrates and over
granule surfaces. Refer to manufacturer’s product data sheet, and adjust application rate based upon surface conditions.

J. Install the SBS membrane ply before the adhesive begins to skin over. Once adhesive skins over, the membrane ply will not adhere.

3.05 MOPPING ASPHALT APPLICATION (FLOOD AND GRAVEL FIELD):

A. Mopping asphalt manufacturer and type shall be preapproved by the manufacturer.

B. Refer to mopping asphalt supplier published values for Softening Point, Minimum Flash Point (FP), Finished Blowing Temperature (FBT) and Equiviscous Temperature (EVT).

C. Refer to the Softening Point for maximum Roof Slope applications. The maximum recommended roof slope for asphalt built-up roofing felts is 3/4:12. Contact the manufacturer for special back-nailing requirements necessary to prevent membrane slippage for roof slopes that exceed 3/4:12.

D. To avoid risk of fire do not heat asphalt at or above the Flash Point temperature.

E. The EVT is the temperature at which the mopping asphalt viscosity is 125 centistokes.

F. Apply 400 to 600 pounds per square of aggregate in nominal 60 pounds per square flood coat of hot asphalt.

G. The aggregate shall be fully embedded into hot asphalt. Loose gravel shall be broomed and embedded or removed to meet the 400 pounds per square requirement.

H. Hold asphalt and gravel back from all SBS modified bitumen flashings.

I. Apply mopping asphalt within +/- 25°F (14°C) of the published EVT to obtain the nominal 23 to 25 pounds per square coverage rate.

J. Refer to the EVT provided by the asphalt supplier.

1. Type III asphalt application temperature should be within 365 to 435°F (185 to 224°C) at the point of application when installing roofing materials into the hot asphalt.

2. Type IV asphalt application temperature should be within 400 to 475°F (204 to 246°C) at the point of application when installing roofing materials into the hot asphalt.

K. For SBS modified bitumen membrane plies, the asphalt temperature shall not fall below 400°F (204°C) at the point of membrane contact when installing the SBS membrane into the hot asphalt.

L. The contractor shall monitor asphalt application temperature, and shall record the temperature during application.

3.06 FLASHING CEMENT APPLICATION
A. The ambient temperature shall be above 50°F (10°C), and the flashing cement temperature shall be a minimum of 70°F (21°C) at the point of membrane application.

B. To ensure the flashing cement is applied at 70°F (21°C), during cold weather, pails shall be stored in heated areas. Pails exposed to cold temperature on the roof shall be provided with heaters when necessary to ensure the minimum application temperature is maintained.

C. Priming substrates is optional when solvent-based membrane adhesives are used. Primer may be applied to reduce adhesive consumption rates for some absorptive substrates.

D. SOPREMA COLPLY FLASHING CEMENT may be applied using ¼ inch notched trowel. Apply 2.0 – 2.5 gallons per square to each surface. Primer may be used to reduce consumption of solvent based flashing cement.

E. SOPREMA COLPLY EF FLASHING CEMENT may be applied using ¼ inch notched trowel. Apply 2.0 – 2.5 gallons per square to each surface. Primer is not required for SOPREMA COLPLY EF FLASHING CEMENT.

F. Application rates vary based on substrate porosity and roughness.

3.07 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 where exposed.

3.08 COLPLY EF RIBBON-APPLIED BASE PLY APPLICATION

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

B. Ensure environmental conditions are satisfactory, and will remain satisfactory, during the application of the membrane adhesive and membrane plies.

C. Unroll membrane onto the roof surface and allow the membrane to relax prior to installing the membrane.

D. Re-roll the membrane in order for the plies to be rolled into the adhesive while ensuring the specified side and end-laps are maintained.
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. Cut rolls to working lengths and widths to conform to roof conditions, and lay out to always work to a selvage edge.

G. Ensure all roofing and flashing substrates are prepared as necessary, and all substrates are acceptable to receive the specified adhesive and membrane.

H. Install the COLPLY EF adhesive ribbons ahead of the base ply application. Do not allow the adhesive to skin-over before the membrane is applied into the adhesive. The membrane will not adhere where adhesive has skinned over.

I. Cross venting channel:
   1. For each roll of base ply installed, loose lay a 6 in x 39 in strip of roofing ply or felt material on the roof deck/substrate in the path of the COLPLY EF ribbon application, perpendicular to the ribbons.
   2. Immediately after the COLPLY EF ribbons have been applied over the 6 in x 39 in strip, remove the strip to produce a 6 in wide “skip” in the adhesive ribbons to allow for a “cross venting channel” between ribbons.

J. Use a weighted roller to roll-in the base ply.

K. Periodically examine the underside of the base ply to ensure COLPLY EF adhesive ribbons spread 2-1/2 wide or more, while maintaining an open “venting channel” between ribbons.

L. Where laps are adhered using membrane adhesive, apply sufficient adhesive coverage to ensure 1/8 to 1/4 in bleed-out is present at all laps.

M. Once set in place, ensure specified side-laps and end-laps are maintained.

N. At end-laps, cut a 45 degree dog-ear away from the selvage edge for all T-joints.

O. For low-slope areas where the roof slope falls below 1/4 in per foot, and where otherwise specified, leave all membrane side and end-laps dry in order to hot-air weld or torch all laps watertight.

P. Use a follow tool, weighted roller or broom the leading edge of the membrane to the substrate, working forward and outward as necessary to remove wrinkles.

Q. Each day, physically inspect all side and end-laps, and ensure the base ply is sealed watertight. Where necessary, use a torch or hot-air welder and a clean trowel to ensure all laps are fully sealed.

R. Inspect the installation each day to ensure the plies are fully adhered. Repair all voids, wrinkles, open laps and all other deficiencies.

3.09 COLD ADHESIVE-APPLIED MEMBRANE APPLICATION

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

B. Ensure environmental conditions are satisfactory, and will remain satisfactory, during the application of the membrane adhesive and membrane plies.

C. Unroll membrane onto the roof surface and allow the membrane to relax prior to installing the membrane.
D. Re-roll the membrane in order for the plies to be rolled into the adhesive while ensuring the specified side and end-laps are maintained
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. Cut rolls to working lengths and widths to conform to roof conditions, and lay out to always work to a selvage edge.
G. Ensure all roofing and flashing substrates are prepared as necessary, and all substrates are acceptable to receive the specified adhesive and membrane.
H. Install the specified membrane adhesive ahead of the membrane application. Do not allow the adhesive to skin-over before the membrane is applied into the adhesive. The membrane will not adhere where adhesive has skinned over.
I. Where laps are adhered using membrane adhesive, apply sufficient adhesive coverage to ensure 1/8 to 1/4 in bleed-out is present at all laps.
J. Once set in place, ensure specified side-laps and end-laps are maintained.
K. At end-laps, cut a 45 degree dog-ear away from the selvage edge for all T-joints.
L. For low-slope areas where the roof slope falls below 1/4 in per foot, and where otherwise specified, leave all membrane side and end-laps dry in order to hot-air weld or torch all laps watertight. Embed granules, where present, when heat welding sheets.
M. Use a follow tool, weighted roller or broom the leading edge of the membrane to the substrate, working forward and outward as necessary to remove wrinkles. Avoid walking over the membrane during application.
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.
P. 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.
Q. Immediately broadcast matching granules into adhesive bleed-out at cap sheet laps, or otherwise treat bitumen bleed-out once adhesive has dried and cured.

3.10 FLASHING APPLICATION, COLD-APPLIED FLASHING CEMENT

A. Refer to 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. It is not required to prime substrates to receive solvent-based flashing cement. Priming is recommended to enhance adhesion and reduce the consumption rate of flashing cement for absorptive substrates.
C. Primer is not required when SOPREMA COLPLY EF FLASHING CEMENT is used.
D. 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.

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

F. 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.

G. Install non-combustible cant strips at all horizontal-to-vertical roof transitions.

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

I. 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.

J. 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. 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.

K. 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, it is recommended to embed the Cap Sheet granules using a torch and trowel or granule embedder to prepare the surface to receive the flashing Cap Sheet.

L. 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.
   2. Install the flashing Cap Sheet to ensure a minimum two (2) ply flashing system is present at all roof terminations, transitions and penetrations.

M. Apply flashing cement to the substrate and to the underside of the flashing ply using a ¼ inch notched trowel. Apply 2.0 – 2.5 gallons per square to each surface. Application rates vary based on substrate conditions.
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 and end-laps.

O. Press-in the flashing plies during installation to ensure they are in full contact with the substrate below.

P. Where sufficient bitumen bleed-out is not present, 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 flashings watertight.

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

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

1. For SBS modified bitumen flashings installed using SOPREMA COLPLY adhesive and/or flashing cement, refer to manufacturer’s installation guidelines for SOPREMA ALSAN FLASHING.

2. For SBS modified bitumen flashings that are self-adhesive, heat-welded, installed using hot asphalt or SOPREMA COLPLY EF adhesive and/or flashing cement, refer to manufacturer’s installation guidelines for SOPREMA ALSAN FLASHING and SOPREMA ALSAN RS.

3.11 LIQUID-APPLIED, SINGLE-COMPONENT, BITUMEN-URETHANE FLASHING SYSTEM APPLICATION (SOPREMA ALSAN FLASHING):

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.

3.12 AGGREGATE SURFACING WITH HOT ASPHALT:

A. Apply 400 to 600 pounds per square of aggregate in nominal 60 pounds per square flood coat of hot asphalt.

B. The aggregate shall be fully embedded into hot asphalt. Loose gravel shall be broomed and embedded or removed to meet the 400 pounds per square requirement.

C. Hold asphalt and gravel back from all SBS modified bitumen flashings.

3.13 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