



DEPARTMENT OF FINANCE

INVITATION TO BID

August 9, 2023

BID #:	H00123
BID TITLE:	Staunton Public Library Modified Bituminous Membrane Roofing System Replacement
BID DUE / OPENING DATE:	September 5, 2023, 2:00 P.M.
DELIVERY DATE:	Work shall begin within 15 Days of Notice to Proceed
MANDATORY PRE-BID MEETING:	August 18, 2023 9:00 A.M. @ Staunton Public Library 1 Churchville Avenue, Staunton, VA 24401
BID BOND REQUIRED:	Yes, (Attachment A)

The City of Staunton is seeking written bids from qualified Class A contractors to replace the existing Built-Up Roofing system at the Staunton City Public Library, in accordance with the attached specifications.

Right is reserved to accept or reject bids on each item separately or as a whole, to reject any or all bids, to waive informalities or irregularities, to negotiate contract terms and options with the successful low bidder, and to contract for the bid to other than the lowest bidder in the best interest of City of Staunton.

Please quote lowest price and best delivery on items listed. Advise what discount, if any will be allowed for payment within a specified time. Terms and delivery date must be specified.

The City of Staunton does not discriminate against small and minority businesses or faith-based organizations.

All bids must be in an opaque, sealed envelope or box and clearly marked: **"Bid # H00123 – Staunton Public Library Modified Bituminous Membrane Roofing System Replacement"**. Bids shall clearly indicate the legal name, address and telephone number of the Offeror (company, firm, partnership, or individual). and shall be accompanied by complete specifications for the items offered.

No responsibility will attach the Owner or any official or employee thereof for the pre-opening of, post-opening of, or the failure to open a bid not properly addressed and identified. All expenses for bidding shall be borne by the Offeror.

Offerors shall provide one (1) paper copy, as well as one (1) identical electronic PDF (on thumb drive) of the bid documents. If proprietary/confidential information is included in the proposal, it shall be identified using **Attachment A**, and Offeror is required to submit a redacted copy of their bid in electronic PDF format on the thumb drive. All electronic copies shall be exact copies of the original, signed, completed documentation.

Bid documents shall be mailed to addressee below or hand-delivered to the **City of Staunton Finance Office located at 116 W. Beverley Street, 3rd Floor City Hall, Staunton, Virginia.** Office hours are Monday through Friday, 8:00am to 5:00pm. **E-Mail and facsimile responses are not acceptable.**

BIDS MUST BE SEALED, MARKED, AND DELIVERED TO:

Mail To:

Chad Horvat
Finance Business Manager
P.O. Box 58
Staunton, VA 24402-0058
(540) 332-3819

Overnight To:

Chad Horvat
Finance Business Manager
116 W. Beverley St., 3rd Floor
Staunton, VA 24401
(540) 332-3819

ALL BIDS MUST BE RECEIVED BY 2:00 P.M. LOCAL TIME, SEPTEMBER 5 2023

BIDS RECEIVED AFTER THE DATE AND TIME SPECIFIED WILL BE REJECTED

Questions regarding the specifications for this bid should be directed to **Christopher Hull, Superintendent of Facility Services**, hullcr@ci.staunton.va.us

CITY OF STAUNTON

BID FORM

<u>DESCRIPTION</u>	<u>TOTAL COST</u>
Provide all materials, equipment, labor and supervision to remove the existing Built-Up Roofing System and apply a new Modified Bituminous Membrane Roofing System in accordance with the attached specifications.	\$
Clean, Prime, and Repaint perimeter Metal Cornice and Metal Canopy Roof	\$
TOTAL	\$

NOTE: For bid to be considered complete, all required documentation must be included in the bid package

PER ATTACHED SPECIFICATIONS

OFFER

To Purchasing Department:

In compliance with the bid information, the undersigned offers and agrees, if this offer is accepted within _____ calendar days (30 calendar days unless a different period is inserted by the purchaser) from the bid open date specified above, to furnish any or all items upon which prices are offered, at the price set opposite each item, delivered at the designated point(s), within the time specified. TERMS: _____

BIDDER/COMPANY NAME: _____

BY: _____

TYPED NAME OF BIDDER: _____

STREET ADDRESS: _____

CITY AND STATE: _____

VIRGINIA SCC NUMBER: _____

DATE: _____ **PHONE:** _____ **FAX:** _____

Contract Provisions for Non-Federal Entity Contracts Under Federal Awards

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

1. Contracts for more than the simplified acquisition threshold currently set at \$250,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by *41 U.S.C. 1908*, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.
2. All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-federal entity including the manner by which it will be affected and the basis for settlement.
 - a. **Termination for Convenience.** Contract is terminated due to reasons known to COS, i.e., program changes, changes in state-of-the art equipment or technology, insufficient funding, etc. Termination is utilized when the contractor is not in violation of the contract terms and conditions.
 - b. **Termination for Cause.** Contract is terminated due to actions by the contractor, i.e., failure to perform, financial difficulty, slipped schedules, etc. In certain instances, termination settlement may include re-procurement costs to be paid by the contractor.
3. Equal Employment Opportunity. Except as otherwise provided under *41 CFR Part 60*, all contracts that meet the definition of “federally assisted construction contract” in *41 CFR Part 60-1.3* must include the equal opportunity clause provided under *41 CFR 60-1.4(b)*, in accordance with Executive Order 11246, “Equal Employment Opportunity” (*30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339*), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at *41 CFR part 60*, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”
4. Davis-Bacon Act, as amended (*40 U.S.C. 3141-3148*). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (*40 U.S.C. 3141-3144, and 3146-3148*) as supplemented by Department of Labor regulations (*29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”*). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be

conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

5. Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
6. Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of “funding agreement” under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.
7. Clean Air Act (42 U.S.C. 7401-7675) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1388), as amended - Contracts and subgrants of amounts in excess of \$150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7675) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1388). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).
8. Debarment and Suspension (Executive Orders 12549 and 12689) - A contract award (see

2 *CFR* 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 *CFR* 180 that implement Executive Orders 12549 (3 *CFR* part 1986 Comp., p. 189) and 12689 (3 *CFR* part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

9. Byrd Anti-Lobbying Amendment (31 *U.S.C.* 1352) - Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 *U.S.C.* 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.
10. §200-323 Procurement of recovered materials. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 *CFR* part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
11. To the extent that a procurement award or transaction for goods or services under this purchase order or other contract is funded with federal funds under American Rescue Plan Act (ARPA), the successful bidder or proposer or awardee must comply with the federal domestic preference for procurements requirements of the federal regulations prescribed in Section 200.322 of Title 2 of the Code of Federal Regulations (CFR). The successful bidder or proposer or awardee certifies that any contracts, as well as any subcontracts, shall include this requirement, which mandates that to the greatest extent practicable there shall be a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). Definition of the terms “produced in the United States” and “manufactured products” may be found in the CFRS at: Electronic Code of Federal Regulations (eCFR) or successor url. And to the extent not in compliance with such requirements, the successful bidder or proposer or awardee shall indemnify, defend and hold harmless the City of Staunton, to the fullest extent permitted by law

12. § 200.216 Prohibition on certain telecommunications and video surveillance services or equipment.

- a. Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:
 1. Procure or obtain;
 2. Extend or renew a contract to procure or obtain; or
 3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
 - i. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
 - ii. Telecommunications or video surveillance services provided by such entities or using such equipment.
 - iii. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.
- b. In implementing the prohibition under Public Law 115-232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.
- c. See Public Law 115-232, section 889 for additional information.
- d. See also § 200.471.

PROJECT SPECIFICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract.

1.2 SUMMARY

- A. This section includes information for the installation of the flat and tapered rigid polyisocyanurate insulation system, and roof recovery board, over the properly prepared wood roof deck substrates for the cold applied Modified Bituminous Membrane Roof System.
- B. Install the specified flat or tapered polyisocyanurate roof insulation system over the properly prepared wood roof deck substrate, and mechanically attach the insulation to the wood roof deck in accordance with the project specifications to meet the wind uplift requirements. On top of the polyisocyanurate insulation system, a water-resistant, fiber-reinforced gypsum recovery board shall be installed and adhered with the specified cold-applied insulation adhesive in accordance with the project specifications.
- C. Install specified tapered crickets between all drains, and/or scuppers, as drawn, or required, to provide complete positive drainage.
- D. Install specified tapered crickets/saddles at all roof top equipment.
- E. Install specified tapered sumps at all drains and scuppers. No drains or scuppers will be accepted without tapered sumps.
- F. Smooth any buildup of materials along the insulation to prevent air pockets. Shave, trim and grind down any irregularities to make all new insulation fit properly.
- G. Tape joints of the roof recovery board in accordance with Manufacturer's recommendations prior to installing the cold applied modified bituminous membrane roof system.

1.3 RELATED SECTIONS

- A. Section 07550 - Modified Bituminous Membrane Roofing – Cold Applied.
- B. Section 07565 - Preparation for Re-roofing
- C. Section 07620 - Sheet Metal Flashing and Trim

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM C-1289, Specification for Faced Rigid Polyisocyanurate Thermal Insulation
 - 2. ASTM D-312, Specification for Asphalt Used in Roofing.
 - 3. ASTM D-1863, Specification for Mineral Aggregate Used on Built-Up Roofs.

4. ASTM D-2178, Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing.
5. ASTM D-4601, Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
6. ASTM D-5147, Sampling and Testing Modified Bituminous Sheet Material.
7. ASTM E108, Test Methods for Fire Test of Roof Coverings.
- B. Cast Iron Soil Pipe Institute, Washington, D.C. (CISPI)
- C. Factory Mutual Research (FM):
 1. Roof Assembly Classifications.
- D. National Roofing Contractors Association (NRCA):
 1. Roofing and Waterproofing Manual
- E. Underwriters Laboratories, Inc. (UL):
 1. 1. Fire Hazard Classifications.
- F. Warnock Hersey (WH):
 1. 1. Fire Hazard Classifications.
- G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
- H. Steel Deck Institute, St. Louis, Missouri (SDI)
- I. Southern Pine Inspection Bureau, Pensacola, Florida (SPIB)
- J. Insulation Board, Polyisocyanurate (FS HH-I-1972)
- K. Insulation Board, Thermal (Fiberboard) (FS LLL-1-535B)

1.5 SUBMITTALS

- A. Product Data: Provide manufacturer's specification data sheets for each product in accordance with this specification.
- B. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- C. Provide a sample of each insulation type.
- D. Shop Drawings
- E. Submit four (2) copies of the roof insulation manufacturer's shop drawings indicating complete installation details of tapered and flat insulation system, including identification of each tapered insulation block, sequence of installation, layout, drain locations, scupper locations, roof slopes, thicknesses, crickets and saddles.
 1. Shop drawing shall include: Outline of roof, location of drains, location of scuppers, sumps, complete board layout of tapered insulation components, thickness, and the minimum and average "R" value for the completed insulation system.

F. Certification

1. Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's Roof System Warranty.

1.6 QUALITY ASSURANCE

- A. Certify that roof system furnished is approved by an approved third-party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.
- B. Certify that the roof system is adhered properly to meet or exceed the specific project wind uplift requirements listed in Section 1.16 "Design and Performance Criteria" of Division 7 Sections "Modified Bituminous Membrane Roofing – Cold Applied".
- C. Pre-installation Meeting: Refer to Division 7 Sections "Modified Bituminous Membrane Roofing – Cold Applied", specification for pre-installation meeting requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure (i.e., tarpaulins).
- D. In accordance with the manufacturer's recommendations, immediately remove the plastic wrapping on the recovery boards and cover with a watertight, ventilated enclosure (i.e. tarpaulins).
- E. Prevent the formation of condensation on the boards.
- F. Store materials off the ground. Any warped, broken or wet insulation boards shall be removed from the site.
- G. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.
- H. It is the responsibility of the contractor to secure all material and equipment on the job site. If any material or equipment is stored on the roof, the contractor must make sure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the contractor will be the sole responsibility of the contractor and will be repaired or replaced at his expense.

PART 2 - PRODUCTS

2.1 APPROVED EQUIVALENT

- A. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard

of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

2.2 INSULATION MATERIALS

A. Thermal Insulation Properties and Approved Insulation Boards.

1. Flat Polyisocyanurate Roof Insulation; ASTM C-1289:

Qualities:	Flat rigid closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
Board Size:	Four feet by four feet (4' x 4') or four by eight (4' x 8')
Thickness:	2 Layers of 2.6"
R-Value:	Minimum 5.6
Compressive Strength	Minimum 20 psi

a. Insulation board shall meet the following requirements:

- (i) UL, WH or FM listed under Roofing Systems
- (ii) Federal Specification HH-I-1972, Class 1

2. Nonstructural, water-resistant, fiber-reinforced gypsum roof recovery board

Qualities:	Nonstructural, water resistant, fiber-reinforced gypsum roof board
Board Size:	Four feet by four feet (4' x 4')
Thickness:	One-Half (1/2) inch
R-Value:	0.50 minimum

a. Insulation board shall meet the following requirements:

- (i) UL, WH, FM listed under Roofing Systems
- (ii) Federal Specification LLL-I-535-B.

2.3 RELATED MATERIALS

- A. Fiber Cant and Tapered Edge Strips: Preformed rigid insulation units of sizes/shapes indicated, matching insulation board of organic fiberboard, as per the approved manufacturer.
- B. Crickets: Shall be fabricated from tapered polyisocyanurate insulation and shall ensure complete drainage of the roof system.
 - 1. Shall be fabricated from 1/2":1' tapered polyisocyanurate
- C. Asphalt Primer: V.O.C. compliant, ASTM D41.

- D. Insulation Fasteners (Wood Decks):**
 - 1. Approved fasteners with three (3) inch coated disc to meet or exceed the specific project wind uplift requirements listed in Section 1.16 “Design and Performance Criteria” of Division 7 Section “Modified Bituminous Membrane Roofing - Cold Applied”. Length as required to penetrate roof deck per the screw manufacturers recommendation or one (1) inch if not listed.
- E. Insulation Adhesive:** Cold applied, highly elastomeric, high rise, fast setting, two-component with a one-step application mechanism, VOC compliant, foamable insulation adhesive that contains no solvents and sets in no more than 12 minutes. Designed to adhere approved insulation to insulation, structural decks, base sheets, smooth and graveled surfaced built-up roofs.
 - 1. Tensile Strength (ASTM D 412-92) 250 psi
 - 2. Density (ASTM D 1875-90) 8.5 lbs./gal
 - 3. Viscosity (ASTM D 2556-93a) 22,000-60,000 CP
 - 4. Peel Strength (ASTM D 903) 17 lb./in
 - 5. Flexibility (ASTM D 816-82) Pass @ -70°F
- F. Roof Board Joint Tape:** Six (6) inches wide glass fiber mat with adhesive compatible with insulation board facers.

PART 3 - EXECUTION

3.1 INSPECTION OF SURFACES

- A. Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.**
 - 1. Verify that deck surfaces and project conditions are ready to receive work of this section.
 - 2. Verify that deck is supported and secured to structural members.
 - 3. Verify that drain bowl assemblies, and scupper openings, are set at proper height to permit a slope of ½” per foot within the sump. The sump shall be a four (4) foot square sump, (centered on the primary drain or scupper) as noted on the project documents.
 - 4. Verify that work which penetrates roof deck has been completed.
 - 5. Verify that wood nailers are properly and securely installed.
 - 6. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.
 - 7. Verify that existing wood blocking and nailers that are of the size and type specified to be used are sound and not rotted or deteriorated. Replace deteriorated wood with new wood of like kind, size and configuration per the project details and specifications.

8. Verify that deck surfaces are dry, free of snow or ice, not rotten, corroded or deteriorated, do not have bacterial growth and are structurally sound. Replace decking that is wet, deteriorated, has bacterial growth or is not structurally sound in like kind to match existing.
9. Do not proceed until defects are corrected.
10. Do not apply insulation until substrate is dry. Confirm that moisture content of the wood blocking and nailers does not exceed twelve (12) percent by moisture meter tests.
11. Broom or air blow clean substrate immediately prior to application.
12. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.
13. As required, verify that temporary roof has been completed.
14. Contractor is responsible to verify existing substrate is sloped, or level/plumb, as stated in/on the project documents prior to installation of insulation system. All defects in roof pitch to be accommodated with tapered insulation to insure a positive pitch to all roof drains or roof edge.

3.2 INSTALLATION

- A. Mechanically Fastened Polyisocyanurate Insulation Boards to Wood Roof Decks
 1. Approved polyisocyanurate insulation boards shall be installed with joints in continuous straight lines, perpendicular to roof slopes with joints staggered between rows. Tightly butt boards together. Boards shall be fully attached to the deck with an approved mechanical fastening system. As a minimum, the number of fasteners shall be in accordance with the following:
 - a. Six (6) fasteners per 4' x 4' board in Zone 1 (field of roof)
 - b. Nine (9) fasteners per 4' x 4' board in Zone 2 (perimeter of roof)
 - c. Twelve (12) fasteners per 4' x 4' board in Zone 3 (corners of roof)

Or,

 - d. Eleven (11) fasteners per 4' x 8' board in Zone 1 (field of roof)
 - e. Seventeen (17) fasteners per 4' x 8' board in Zone 2 (perimeter of roof)
 - f. Twenty-two (22) fasteners per 4' x 8' board in Zone 3 (corners of roof)
 2. Filler pieces of polyisocyanurate insulation board require at least two fasteners per piece if size of polyisocyanurate insulation board is less than four square feet.
 3. Placement of any fastener from edge of polyisocyanurate insulation board shall be a minimum of three inches, and a maximum of six (6) inches.
 4. Minimum penetration into deck shall be as recommended by the fastener manufacturer. There is a one (1) inch for wood roof decks where not specified by the manufacturer.

B. Recovery Board Attachment with Cold Applied Insulation Adhesive:

1. The surface must be thoroughly cleaned using compressed air, vacuum equipment or hand/power brooms to remove dust, loose dirt or debris.
2. Adhere the specified recovery board directly to the newly installed polyisocyanurate insulation board with the specified cold applied insulation adhesive applied in a ribbon pattern of 3/4" beads, using an automatic applicator, at the maximum spacing listed below. Immediately place the insulation board. Do not slide the insulation board into the wet adhesive. Do not allow the insulation adhesive to skin over. Briefly step each board into place to ensure contact with the adhesive. Substrates with irregular or uneven surfaces may prevent the insulation from making positive contact with the adhesive. In these cases, relief cuts or a temporary weight may be required.
 - a. Beads shall be at 12 inches o.c. maximum per 4' x 4' board in Zones 1
 - b. Beads shall be at 6 inches o.c. maximum per 4' x 4' board in Zones 2
 - c. Beads shall be at 4 inches o.c. maximum per 4' x 4' board in Zones 3

C. General Installation Requirements.

1. Approved insulation shall be sumped and tapered around roof drains and scuppers. Tapered insulation sump shall start with a thickness required to achieve 1/2" per foot slope for the specified minimum dimension two feet (four-foot square sump) from the center line of the primary draining roof drain or scupper. Install tapered insulation sump in such a way to provide proper slope for runoff. Shape insulation with tool as required so completed surface is smooth and flush with drain or wood blocking at scupper opening. Under no circumstances will the membrane be left unsupported in an area greater than one quarter (1/4) inch. Install recovery board over tapered insulation sump as required.
2. All boards shall be cut and fitted where the roof deck intersects a vertical surface. The boards shall be cut to fit a minimum of one quarter (1/4) inch away from the vertical surface.
3. Install no more insulation at one time than can be roofed on the same day.
4. Install temporary water cut-offs at completion of each day's work and remove upon resumption of work. Install an envelope water stop at the edge of insulation to prevent water infiltration into new insulation/roof system.
5. Cant Strips/Tapered Edge Strips: Install preformed forty-five (45) degree cant strips at junctures of vertical surfaces. Provide preformed, tapered edge strips at perimeter of edges of roof that do not terminate at vertical surfaces and/or indicated on the drawings. Tape joints of insulation as per manufacturer's requirements. The wall/cant juncture will be examined for air passage. If airflow is present, joint between cant and wall will be sealed with closed cell joint backing and joint sealant.

6. Joints of Recovery Board: Before installing the cold-applied modified bitumen roof system over the recovery board, ALL joints of the recovery board MUST be sealed with the specified roof board joint tape.

3.3 CLEANING

- A. Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane.

END OF SECTION

SECTION 07550
MODIFIED BITUMINOUS MEMBRANE ROOFING - COLD APPLIED
STAUNTON PUBLIC LIBRARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the Conditions of the Contract apply to this section.

1.2 SUMMARY

- A. Cold applied asphalt modified bituminous membrane roofing over prepared substrate and insulation system.
 - 1. Install the specified roof insulation system, and recovery board over existing wood deck, in accordance with Division 7 Section "Roof Insulation."
 - 2. Adhere one (1) ply of the specified base roofing ply with the specified cold process adhesive.
 - 3. Adhere one (1) ply of the specified base flashing ply with the specified cold applied adhesive.
 - 4. Adhere one (1) ply of the specified modified membrane roof ply with the specified cold applied adhesive, and heat weld seams and laps together.
 - 5. Adhere one (1) ply of the specified modified membrane flashing ply with the specified cold applied adhesive, and heat weld seams and laps together.

1.3 SECTION INCLUDES

- A. This portion of the specification sets forth the general requirements and describes materials and workmanship for installing the cold applied modified bituminous membrane roof system over prepared substrates.
- B. Roofing contractor shall furnish and install all materials described herein unless specifically noted otherwise.
- C. This section is for work on roofs where indicated on the drawings as otherwise.

1.4 RELATED SECTIONS

- A. Section 07220 - Roof Insulation
- B. Section 07565 - Preparation for Re-roofing
- C. Section 07620 - Sheet Metal Flashing and Trim

1.5 REFERENCES

- A. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7-16, Minimum Design Loads for Buildings and Other Structures.

- B.** American Society for Testing and Materials (ASTM):
 - 1. ASTM D41, Specification for Asphalt Primer Used in Roofing, Damp proofing and Waterproofing.
 - 2. ASTM D 312 - Standard Specification for Asphalt used in Roofing.
 - 3. ASTM D 451 - Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.
 - 4. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.
 - 5. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.
 - 6. ASTM D 4586 Standard Specification for Asphalt Roof Cement, Asbestos-Free.
 - 7. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.
 - 8. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
 - 9. ASTM D 6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
 - 10. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
 - 11. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings.
- C.** Factory Mutual Research (FM):
 - 1. Roof Assembly Classifications.
- D.** National Roofing Contractors Association (NRCA):
 - 1. Roofing and Waterproofing Manual.
- E.** Underwriters Laboratories, Inc. (UL):
 - 1. Fire Hazard Classifications.
- F.** Warnock Hersey (WH):
 - 1. Fire Hazard Classifications.

2.1 SYSTEM DESCRIPTION

- A.** It is the intent of this specification to install a long-term, quality roof system that meets or exceeds all current NRCA guidelines as stated in the most recent edition of the NRCA Roofing and Waterproofing Manual. Please discuss any concerns with the Owner and Roofing System Manufacturer.

2.2 DISCLOSURE OF MATERIALS AND SUBSTITUTIONS

- A. Material product data sheets.
 - 1. A certificate from an accredited testing laboratory comparing the physical and performance attributes of the proposed material with the characteristics noted in the material specification section, including but not limited to the following:
 - a. Modified roofing membrane(s) and flashings substantiating Flexibility, Tensile Strength and Tear Strength. Test results must be dated, notarized and be on testing laboratory stationary. Testing for SBS membrane must follow standard ASTM D 5147 test methods. Testing shall be performed at 77°F. Tests at 0°F shall not be considered.
 - b. The manufacturer must have current ISO 9001:2008 certification for the manufacturing of the products to be utilized on this project.
 - c. The materials installed for the waterproofing membrane must be guaranteed by the material supplier.
 - d. A sample warranty by the manufacturer of the modified bitumen membrane roofing system. The manufacturer must be the organization that guarantees the modified roofing membrane.
 - e. All products must be in accordance with the Health, Safety and Environmental Control (H, S & E) Regulations, e.g., No asbestos materials, no harmful solvent release materials, etc.

2.3 SUBMITTALS

- A. Submit under provisions of Contract Documents.
- B. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements.
- C. Samples: Submit two (2) samples of each product specified.
- D. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.
- E. Manufacturer's Fire Compliance Certificate: Certify that roof system furnished is approved by Factory Mutual, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.
- F. Manufacturer's Wind Uplift Certificate: The manufacturer supplying the warranty of the modified bitumen membrane must provide certification that the proposed roof system will be secured properly to the structure to meet or exceed the specific project wind uplift requirements per Section 1.16 Design and Performance Criteria.

- G.** Manufacturer's Manufacturing Certificate: Certify that modified membrane materials to be used on this project conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- H.** Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001:2008 compliance certificate.
- I.** Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147. Testing must be performed at 77°F. Tests at 0°F will not be considered.
- J.** Submit a copy of an unexecuted manufacturer's warranty for review.
- K.** Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- L.** Provide a sample of each insulation type.
- M.** Shop Drawings:
 - 1. Submit four (4) copies of manufacturer's shop drawings indicating complete installation details of flat and tapered insulation system, including identification of each tapered insulation block, sequence of installation, layout, drain locations, scupper locations, sumps, roof slopes, thicknesses, tapered crickets and saddles.
 - 2. Shop drawing shall include: Outline of roof, location of drains, location of scuppers, sumps, complete board layout of tapered insulation components, thickness and the minimum and average "R" value for the completed insulation system.
- N.** Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7-16, Method 2 for Components and Cladding, prepared by an engineer employed by the system manufacturer as a full-time staff engineer. In no case, shall the design loads be taken to be less than those detailed in article 1.16 of this specification.

2.4 QUALIFICATIONS

- A.** Manufacturer: Company specializing in manufacturing the products specified in this section with minimum 12 years documented experience and has ISO 9001:2008 certification.
- B.** Manufacturer: The manufacturer must also have current ISO 9001:2008 certification for the manufacturing of the products to be utilized on this project.
- C.** Installer: Company specializing in modified bituminous roofing installation with a minimum 5years' experience and certified by roofing system manufacturer as qualified to install manufacturer's roofing materials.
- D.** Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work and at any time roofing work is in progress.

Maintain proper supervision of workmen. Maintain a copy of the specifications in the possession of the Supervisor/Foremen and on the roof at all times.

1. Maintain a copy of the Contract Documents in the possession of the Supervisor/Foreman and on the roof at all times.
- E. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.
1. Upon request of the Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.
- F. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty-four (24) hours, the Owner has the right to hire a qualified contractor and back charge the original contractor.
- G. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

2.5 PRE-INSTALLATION CONFERENCE

- A. Pre-Roofing Conference: Convene a pre-roofing conference approximately two (2) weeks before scheduled commencement of modified bituminous roofing system installation and associated work.
- B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing which must precede or follow roofing work (including mechanical work if any), Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies and governing authorities.
- C. Objectives of conference to include:
 1. Review foreseeable methods and procedures related to roofing work.
 2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by others.
 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 4. Review roofing system requirements (drawings, specifications and other contract documents).
 5. Review required submittals both completed and yet to be completed.
 6. Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

7. Review required inspection, testing, certifying and material usage accounting procedures.
8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).
9. Record discussion of conference including decisions and agreements (or disagreements) reached and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
10. Review notification procedures for weather or non-working days.
11. The Owner's Representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.
12. The intent of the conference is to resolve issues affecting the installation and performance of roofing work. Do not proceed with roofing work until such issues are resolved to the satisfaction of the Owner. This shall not be construed as interference with the progress of Work on the part of the Owner.

2.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or another raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).
- C. In accordance with the manufacturer's recommendations, immediately remove the plastic wrapping on the recovery boards and cover with a watertight, ventilated enclosure (i.e., tarpaulins). Prevent the formation of condensation on the boards.
- D. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.
- E. It is the responsibility of the contractor to secure all material and equipment on the job site. If any material or equipment is stored on the roof, the contractor must make sure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the contractor will be the sole responsibility of the contractor and will be repaired or replaced at his expense.
- F. All modified membranes and cold applied adhesives shall be properly stored in accordance with manufacturer's recommendations to ensure the materials are at the recommended temperature for application. Cold applied adhesives need to be kept at 70F for at least 24 hours prior to application. All products stored outside need to be under a tarp at all times. Rolls and containers that are improperly stored or have been warehoused for prolonged periods of time could potentially be damaged or go

beyond their shelf life. Leave the lids on the product until you are ready to use that container.

2.7 MANUFACTURER'S INSPECTIONS

- A.** The roofing system manufacturer shall provide the following at no additional cost to the owner:
 - 1.** Onsite project inspections shall be performed:
 - a.** Daily for the first seven (7) days from project commencement.
 - b.** No less than three (3) out of every five (5) workdays for the remaining duration of the project.
 - 2.** Provide observation reports to the owner, with a daily log and photographic documentation indicating procedures followed, weather conditions and any discrepancies found during inspection. Reports shall be submitted to the Owner on a daily or weekly basis per the preference of the Owner.
 - 3.** All job site inspections shall be performed by a full-time employee of the roof system manufacturer, with a minimum of two (2) years continuous, full-time employment history as a technical representative whose primary job description is to assist, inspect and approve membrane installations for the roof system manufacturer.
 - 4.** Manufacturer to provide annual inspections of the roof system over the warranted life of the roof and provide Owner with a photo report documenting system conditions and any deficiencies requiring maintenance or repair, to maintain warranty compliance.
 - 5.** Contractor shall provide a Manufacturer's Certification Letter, stating that the roof system manufacturer will provide the inspection services as described in this section. The letter must include the name, contact information, and years of experience of the inspector. This form must be notarized and signed by an officer of the manufacturer.

2.8 PROJECT CONDITIONS

- A.** Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- B.** Do not apply roofing insulation or membrane to damp deck surface. Do not attempt application if ice, snow, moisture or dew is present. Bonding substrates must be clean, dry and free of dust or other inhibitors of proper adhesion. Ambient temperature must be 40F and rising through the day. Rain, fog, dew, frost and relative humidity above 75% will adversely affect the cold applied adhesive, affecting adhesion and physical properties of the adhesive. Do not apply if any of these conditions exist or will exist within five hours of application. The substrate must be dry at the time of application.
- C.** Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

- D. Care must be taken during cold weather conditions. The new roof system shall never be undertaken when the temperature is below freezing. When the ambient temperature is below 40F and rising, heat must be applied to the cans or drums in order to ensure the adhesives are applied at the proper temperatures. Contractor shall use heated application equipment when temperatures are below recommended application temperatures. The contractor can either provide a storage trailer or put an electric heater on the cold applied adhesives to heat it to approximately 70F to 80F. As required and permitted by the Owner, a temporary heat bin can be built by using polyisocyanurate boards as the walls; these can be temporarily put together to make a shed and an electric heater installed so that each day's adhesives can be heated overnight and ready for application each morning. Adhesives should only be taken out of the heat source when ready for use; adhesives should never be allowed to sit out of the heat for any period of time prior to installation. Recovery board can be heated with large blower-type heaters to heat the substrate prior to adhering the base roofing plies. This will ensure that no residual moisture, dew or moisture of any kind is on the substrate prior to application of the roof system. Metal that is to receive the modified flashing systems should be heated as well, when modified membranes are installed directly over cold or frozen metal it will not adhere properly. All metals shall be heated and primed prior to applying flashings and adhesives. Flashing adhesives and roof cements should be heated as well. This will not only ensure they adhere properly, but will ensure that they are installed close to the same quantities as normal or as during hot weather applications.
- E. In cooler weather, a hand-held hot air welding gun can be used to warm the side lap areas and improve adhesion (prior to application of the cold-applied adhesive).

2.9 SEQUENCING AND SCHEDULING

- A. Sequence installation of modified bituminous sheet roofing with related units of work specified in other sections to ensure that roof assemblies including roof accessories, flashing, trim and joint sealers are protected against damage from effects of weather, corrosion and adjacent construction activity.
- B. Fully complete the installation of insulation system and base roofing ply assembly, and/or the installation of the modified bituminous membrane roof ply each day. Phase construction between the base roofing ply and modified membrane roof ply (top ply) is acceptable.

2.10 WARRANTY

- A. Upon completion of installation, and acceptance by the Owner, the manufacturer will supply to the Owner a single-source, thirty (30) year No Dollar Limit (NDL) Warranty covering the roof system.
- B. Installer will submit a minimum of a three (3) year warranty to the membrane manufacturer with a copy directly to Owner.

2.11 DESIGN AND PERFORMANCE CRITERIA

- A. Perform work in accordance with all federal, state and local codes.

- B. Uniform Wind Uplift Load Capacity**
 - 1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.
 - a. Design Code: ASCE 7-16, Method 2 for Components and Cladding.
 - b. Category III Building with an Importance Factor of 1.
 - c. Wind Speed: 116 mph
 - d. Exposure Category: C
 - e. Design Roof Height: 40 feet
 - f. Minimum Building Width: 90 feet
 - g. Roof Pitch: 1/4 inch per foot
 - h. Topographic Factor: 1.00

2.12 SITE CONDITIONS

- A. Field measurements and material quantities:**
 - 1. Contractor shall have SOLE responsibility for accuracy of all measurements, estimates of material quantities and sizes, and site conditions that will affect work.
- B. Existing Conditions:**
 - 1. Building space directly under roof area covered by this specification will be utilized by on-going operations. Do not interrupt Owner operations unless prior written approval is received from Owner.
- C. Waste Disposal:**
 - 1. 1. Do not re-use, re-cycle or dispose of materials except in accordance with all applicable regulations. The use of products is responsible for proper use and disposal of product containers.
- D. Safety Requirements:**
 - 1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
 - 2. Comply with federal, state, local and Owner fire and safety requirements.
 - 3. Advise Owner whenever work is expected to be hazardous to Owner, employees, and/or operators.
 - 4. Maintain a crewman as a floor area guard whenever roof decking is being repaired or replaced.
 - 5. Maintain fire extinguisher within easy access whenever power tools, roofing kettles, fuels, solvents, torches and open flames are being used.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. This specification is based on the performance characteristics of the system identified herein. Any proposed alternate systems, specified or not, must meet or exceed the following listed characteristics and be submitted for approval. Additionally, all Warranty Criteria (Section 1.15) and Design and Performance Criteria (Section 1.16) must be met and submitted as well as all items listed in the Disclosure of Materials and Substitutions (Section 1.7). Failure of a system to meet all requirements of this specification will result in forfeiture of the bid award. The materials in this project are based on the modified bitumen roofing system manufactured by the Garland Company, Cleveland, Ohio
- B. Provide primary products, including each type of roofing membrane, base roofing ply, base flashing ply, modified membrane flashing ply, modified membrane roof ply, and miscellaneous flashing materials from a single source roof manufacturer. Provide secondary products (insulation, mechanical fasteners, etc.) only as recommended by the roof manufacturer of primary products for use with the roof system specified.

2.2 DESCRIPTION

- A. A. Modified bituminous roofing work including but not limited to:
 - 1. Preparing the roof deck substrates prior to installing the insulation and modified bituminous roof system as specified.
 - 2. Install the specified roof insulation system in accordance with Division 7 Section 07 22 00. Tape joints of the recovery board in accordance with Manufacturer's recommendations prior to installing the cold applied base roofing membrane.
 - 3. Base Roofing Ply: One (1) ply of an 80 mil SBS (Styrene-Butadiene-Styrene) fiberglass reinforced modified membrane base roofing ply bonded to the prepared substrate with specified cold applied adhesive.
 - 4. Cold Applied Interply Adhesive: The cold-applied bitumen adhesive shall be consisting of a non-asbestos containing cold applied adhesive for roof slopes up to 3:12.
 - 5. Base Flashing Ply: One (1) ply of an 80 mil SBS (Styrene-Butadiene-Styrene) fiberglass reinforced modified membrane base roofing ply bonded to the prepared substrate with specified cold applied adhesive.
 - 6. Modified Membrane Flashing Ply: 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing membrane with fiberglass and polyester reinforced scrim set in cold applied flashing adhesive.
 - 7. Modified Membrane Roof Ply: 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing membrane with fiberglass and polyester reinforced scrim set in cold applied flashing adhesive.

2.3 BITUMINOUS MATERIALS

- A. Asphalt Primer: V.O.C. compliant, ASTM D-41.
- B. Asphalt Roofing Mastic: V.O.C. compliant, ASTM D-2822, Type II.
- C. Interply Adhesive cold applied adhesive.
- D. Flashing Plies Cold-Applied Adhesive:
- E. Aluminized Asphalt Roofing Mastic for Vertical Seams of Flashings:
- F. Elastomeric Asphaltic Sealant:

2.4 SHEET MATERIALS

- A. Base Roofing Ply:
 - 1. ASTM D6163, Type II; A 80 mil SBS modified membrane with woven fiberglass scrim reinforcement with the following minimum performance requirements according to ASTM D5147.
Properties (Finished Membrane):
 - a. Tensile Strength (ASTM D5147):
 - (i) 2 in/min. @73.4 +/- 3.6°F
 - (ii) MD 100 lbf/in
 - (iii) CMD 100 lbf/in
 - b. Tear Strength (ASTM D5147)
 - (i) in/min. @ 73.4 +/- 3.6°F
 - (ii) MD 100 lbf
 - (iii) CMD 85 lbf
 - c. Elongation at Maximum Tensile
 - (i) (ASTM D5147)
 - (ii) 2 in/min. @ 73.4 +/- 3.6°F MD 4%
 - (iii) CMD 4%
 - d. Low Temperature Flexibility (ASTM D5147):
 - (i) Passes -40°F
 - e. Recycled Content:
 - (i) 27% Pre-Consumer
 - f. Thickness:
 - (i) 80 mils
- B. Base Flashing Ply:

1. ASTM D6163, Type II; A 80 mil SBS modified membrane with woven fiberglass scrim reinforcement with the following minimum performance requirements according to ASTM D5147.

Properties (Finished Membrane):

- a. Tensile Strength (ASTM D5147) 2 in/min. @ 73.4 +/- 3.6°F
 - (i) MD 100 lbf/in
 - (ii) CMD 100 lbf/in
- b. Tear Strength (ASTM D5147) 2 in/min. @ 73.4 +/- 3.6°F
 - (i) MD 100 lbf
 - (ii) CMD 85 lbf
- c. Elongation at Maximum Tensile (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F
 - (ii) MD 4%
 - (iii) CMD 4%
- d. Low Temperature Flexibility (ASTM D5147):
 - (i) Passes -40°F
- e. Recycled Content:
 - (i) 27% Pre-Consumer
- f. Thickness:
 - (i) 80 mils

C. Modified Membrane Flashing Ply

1. ASTM D6162, Type III Grade G

Properties (Finished Membrane):

- a. Tensile Strength (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F MD 310 lbf/in
 - (ii) CMD 310 lbf/in
- b. Tear Strength (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F MD 500 lbf
 - (ii) CMD 500 lbf
- c. Elongation at Maximum Tensile (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F MD 8%
 - (ii) CMD 8%
- d. Low Temperature Flexibility (ASTM D5147):

- (i) Passes -40°F
 - e. Recycled Content:
 - (i) 27% Pre-Consumer
 - f. Thickness:
 - (i) 80 mils
- D. Modified Membrane Roofing Ply
 - 1. ASTM D6162, Type III Grade G

Properties (Finished Membrane):

 - a. Tensile Strength (ASTM D5147)
 - (i) 2 in/min. @73.4 +/- 3.6°F
 - (ii) MD 310 lbf/in
 - (iii) CMD 310 lbf/in
 - b. Tear Strength (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F
 - (ii) MD 500 lbf
 - (iii) CMD 500 lbf
 - c. Elongation at Maximum Tensile (ASTM D5147)
 - (i) 2 in/min. @ 73.4 +/- 3.6°F
 - (ii) MD 8%
 - (iii) CMD 8%
 - d. Low Temperature Flexibility (ASTM D5147):
 - (i) Passes -40°F
 - e. Recycled Content:
 - (i) 7% Pre-Consumer
 - f. Thickness:
 - (i) 80 mils
- E. Reinforcing Mesh for Flashing Seams – GARMESH Styrene-Butadiene-Rubber (SBR) coated, woven, fiberglass scrim.

2.5 SURFACINGS

- A. Mineral Surfaced Membrane: Roofing Granules shall meet requirements of ASTM D-451 and/or be recommended by the membrane manufacturer. Loose granules for bleed out shall match size and color of granulated membrane sheet.
- B. Mineral Surfaced Membrane: If minerals are not applied properly into the bleed out, apply manufacturers' fibrated aluminum coating on field seams of modified

bitumen roofing ply and broadcast minerals into the coating while it is still wet. Roofing Granules shall meet requirements of ASTM D-451 and/or be recommended by the membrane manufacturer.

- C. Aluminized asphalt mastic for the three-course application on vertical flashing seams at all curb corners.

2.6 RELATED MATERIALS

- A. Roof Insulation and Roof Recovery Board: In accordance with Division 7 Section 07 22 00.
- B. Roof Insulation Fasteners: In accordance with Division 7 Section 07 22 00.
- C. Roof Insulation and Roof Recovery Board Adhesives: In accordance with Division 7 Section 07 22 00.
- D. Nails and Fasteners: Non-ferrous metal or hot dipped galvanized fasteners complying with ASTM A153 and connectors complying with ASTM A653, Class G185; Type 304 or Type 316 stainless steel fasteners and connectors shall be used with new generation of pressure treated wood; except that hard copper nails shall be used with copper; aluminum or stainless-steel nails shall be used with aluminum; and stainless-steel nails shall be used with stainless steel. Fasteners shall be self-clinching type of penetrating type as recommended by the manufacturer of the wood blocking/nailer material. Nails and fasteners shall be flush driven through flat metal discs of not less than one (1) inch diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than one (1) inch diameter are used.
- E. Metal Discs: Flat discs or caps of zinc-coated sheet metal not lighter than twenty-eight (28) gauge and not less than one (1) inch in diameter. Form discs to prevent dishing. Bell or cup shaped caps are not acceptable.
- F. Metal Flashing Sheet, Pre-Manufactured Metal Fascia System: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim".
- G. Lead Flashing Sheet: Meets Federal Specification QQ-L-201, Grade B, four (4) pounds per square foot.
- H. Metal Termination Bars:
 - 1. Shall be heavy flat bar aluminum unless otherwise recommended by membrane manufacturers.
 - 2. Material shall be .125" x 1" (minimum) aluminum conforming to ASTM B-221, mill finish.
- I. Urethane Sealant: One-part, non-sag sealant as provided by or recommended by the membrane manufacturer for moving joints.
 - 1. Tensile Strength (ASTM D412)
 - a. 250 psi
 - 2. Ultimate Elongation (ASM D412)

- a. 950%
- 3. Hardness, Shore A (ASTM C920)
 - a. 35
- 4. Adhesion-in-Peel (ASTM C920)
 - a. 25 pli
- 5. 100% Modulus (ASTM D412)
 - a. 50 psi
- 6. Bond (Durability-Class 25, ASTM C920)
 - a. Passes
- 7. Service Temperature Range
 - a. 40°F to +180°F 8.
- 8. Stain and Color Change (ASTM C920)
 - a. Passes
- 9. Tack Free Time (ASTM C679 (max 72 hrs.))
 - a. 16 hrs.
- 10. Weep and Sag (ASTM C920 (max 3/16" (4mm))
 - a. Passes
- 11. Weight loss after heat aging (ASTM C920 (max 10%))
 - a. Passes
- J. Pitch Pocket Sealer: Two-part, high solids, pourable, self-leveling, asphaltic polyurethane-based, low-odor sealant for filling pitch pans as provided by the membrane manufacturer.
 - 1. Solids by Volume
 - a. 86%
 - 2. Tensile Strength (ASTM D412)
 - a. 650 psi
 - 3. Elongation (ASTM D412 @77 F)
 - a. 325%
 - 4. Hardness, Shore A (ASTM D2240 @77 F)
 - a. 55
 - 5. Tear Strength (ASTM D624 (Die C))
 - a. 115 lb./in
 - 6. Density

- a. 8.3 lbs./gal
- 7. Service Temperature Range
 - a. 60°F to +180°F
- K. Non-Shrink Grout: Use an all-weather fast setting chemical action concrete material to fill pitch Pans.
 - 1. Flexural Strength (ASTM C-78 (modified)) 7 days 1100psi
 - 2. High Strength (ASTM C-109 (modified)) 24 days 8400lbs (3810kg)
- L. Protection and Walkway Pads:
 - 1. Recycled rubber (97% recycled rubber), anti-skid surface pads, manufactured as a traffic pad for foot traffic and acceptable to roofing system manufacturer, ½ inch thick, minimum.
 - 2. Pad Size: 3'-0" x 4'-0"
- M. Protection and Walkway Pads Adhesive
- N. Liquid Flashing System: multi-purpose, asphaltic polyurethane based, low-odor, liquid flashing membrane system reinforced with an approved reinforcing scrim as provided by the roof membrane manufacturer, or approved equal.
- O. Retrofit Drains:
 - 1. A factory fabricated fixture (Retro Drain with Aluminum Dome), installed to replace a drain on an existing roof. The fixture is installed from the roof surface and provides a watertight connection to the existing plumbing and roofing system. The fixture is designed so that it may be installed without removing the existing drain body and plumbing.
 - 2. Drain Body:
 - a. Manufactured from 11 gauge (.125") spun aluminum
 - b. 17 ½ diameter flange with a 12" long stem
 - c. Flange includes six, 2 ½" long, aluminum studs
 - d. Depressed sump area 3. Strainer Dome:
 - e. Made of cast aluminum
 - f. Height - 7.25"
 - g. Outside base diameter - 9.77"
 - 4. Clamping Ring:
 - h. Made of cast aluminum
 - i. Drainage slots - 18 "V" shaped
 - j. Six bosses to accept studs on flange
 - 5. Backflow Seal
 - k. Mechanical compression seal
 - l. Made of Polyamide and EPDM rubber

- 3. Required for activation - A UFlow Screwdriver 6. Nuts and Screws:
 - a. Six stainless steel locknuts for the studs
 - b. Three stainless steel screws to attach strainer to the clamp ring
- P. Bellows Expansion Joint System: curb to curb, or wall to curb assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate surfaces to receive modified bituminous membrane roof system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer.
- B. Prior to installing the finish modified membrane roofing ply, the contractor must notify the roof system manufacturer representative, and Owner, to examine the roof area for high and low spots. It may be necessary to mist the roof with water to identify the problem areas. The contractor will correct all problem areas identified. This examination should take place no less than 24 hours in advance of installing the finished membrane.
- C. Verify that deck surfaces and project conditions are ready to receive work of this section.
- D. Verify that deck is supported and secured to structural members.
- E. Verify that deck is clean and smooth, free of depressions, projections or ripples, and is properly sloped to drains.
- F. Verify that adjacent roof members do not vary more than 1/4 inch in height.
- G. Verify that deck surfaces are dry, free of snow or ice, not rotten or deteriorated, do not have bacterial growth and are structurally sound.
- H. Confirm that moisture content within the wood blocking and nailers does not exceed twelve (12) percent by moisture meter tests.
- I. Verify that openings, curbs, pipes, conduit, sleeves, ducts, and other items which penetrate the roof are set solidly, and that wood cant strips, wood nailing strips and reglets are set in place. Verify that all roof curb heights are satisfactory and that the wood blocking height along the perimeter of the building and/or roof levels is satisfactory to provide positive roof pitch away from the building edge.
- J. Contractor is responsible to verify existing substrate is sloped, or level/plumb, as stated in/on the project documents prior to installation of the insulation system. All defects in roof pitch to be accommodated with tapered insulation to insure a positive pitch to all roof drains.

3.2 PREPARATION – SUBSTRATE

- A. Clean substrate of debris and other substances detrimental to roofing installation according to the roof system manufacturer's written instructions. Remove sharp objects.

- B.** Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains/conductors at grade. Use roof drain plugs as required to prevent materials from entering and clogging drains/conductors. Remove roof drain plugs at the end of each workday, or when rain is forecasted. Replace or restore other work damaged by installation of the modified bituminous roofing system.
- C.** Prior to beginning work, contractor shall verify/test that existing roof drains are in working, or non-working, order. If the roof drains are in non-working order, the Owner shall address the non-working roof drains to working conditions. If the roof drains are in working order, then the contractor will be required to maintain, and deliver, the roof drains back to the Owner in working order.

3.3 PREPARATION - WOOD DECK

- A.** Dimensional wood deck shall be minimum 1 inch (25 mm) thick, knotholes and cracks larger than 1/4 inch shall be covered with sheet metal. All boards shall be appropriately nailed and have adequate end bearing to the centers of beams/rafters. Lumber shall be kiln dried.
- B.** Plywood shall be a minimum 15/32 inch (11.9 mm) thick and conform to the standards and installation requirements of the American Plywood Association (APA).
- C.** Insulation is to be mechanically attached in accordance with the insulation manufacturer's recommendations unless otherwise required by the applicable Code.
- D.** Light metal wall ties or other structural metal exposed on top of the wood deck shall be covered with one ply of a heavy roofing sheet, extending 2 inches to 6 inches (51 mm to 152 mm) beyond the metal in all directions. Nail in place before applying the base ply.

3.4 GENERAL INSTALLATION REQUIREMENT

- A.** Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
- B.** Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
- C.** Protect other work from spillage of roofing materials and prevent materials from entering or clogging gutter downspout drainpipes. Replace or restore other work damaged by installation of the modified bituminous roofing system.
- D.** Coordinate installation of roofing system components so that base sheet, insulation, recovery board and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each day's work to cover exposed roofing ply modified membranes, insulation and base sheet with one (1) ply of base roofing ply set in specified cold applied, solvent free adhesive, and with joints and edges sealed with the specified cold applied, solvent free adhesive. Install reinforcing scrim as needed. Remove cut-offs immediately before resuming work.

- E.** Cold applied membrane adhesive coverage rates:
 - 1. Base Roof Ply - application rate is two and one half (2 ½) gallons per one hundred (100) square feet.
 - 2. Modified Membrane Roof Ply – application rate is two and one half (2 ½) gallons per one hundred (100) square feet.
- F.** Substrate Joint Penetrations: Joints of the roof recovery board must be sealed with a 3-course application of mesh and cold-applied adhesive or specified roof board joint tape to prevent adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction, and to ensure continuous adhesive under the roof membrane.
- G.** Apply roofing materials as specified by manufacturer’s instructions.
 - 1. Keep roofing materials dry before and during application.
 - 2. Begin and apply only as much roofing in one day as can be completed that same day in accordance with following; fully complete the installation of insulation system and base roofing ply assembly, and/or the installation of the modified bituminous membrane roof ply each day. Phase construction between the base roofing ply and modified membrane roof ply (top ply) is acceptable.
- H.** Envelope Water stops: Where the existing roof system is wet, install temporary water cutoffs at completion of each day’s work and remove upon resumption of work. Install an envelope water stop at the edge of insulation to prevent water infiltration into new insulation/roof system. Install envelope water stop flashing 4 - 6 inches under face edge of new insulation and wrapped up face and back onto the newly installed roof system 4 - 6 inches from the face in the specified cold applied adhesive, top dress water stops with the specified cold applied adhesive and reinforcing scrim as needed. As required, seal joints and edges with the specified cold applied adhesive. Remove envelope water stop immediately before resuming work.

3.5 INSULATION INSTALLATION

- A.** Refer to Roof Insulation Specification Division 7 Sections 07 22 00 for complete installation requirements.
- B.** Deck types: Wood
- C.** Insulation: Flat and tapered rigid polyisocyanurate insulation with a minimum thickness and compressive strength as specified, and 1/2” thick nonstructural, water-resistant, fiber reinforced gypsum roof recovery board.
- D.** Insulation Attachment: All layers of the polyisocyanurate insulation shall be mechanically attached to the wood roof deck in accordance with the project specifications and in accordance with manufacturer’s recommendations to meet the wind uplift requirements. On top of the polyisocyanurate insulation system, a water-resistant, fiber-reinforced gypsum recovery board shall be installed, and

adhered with the specified cold-applied insulation adhesive in accordance with the project specifications.

- E. Joints of Recovery Board: Before installing the cold-applied modified bitumen roof system over the recovery board, ALL joints of the recovery board MUST be sealed with a 3-course application of mesh and cold-applied adhesive or specified roof board joint tape.

3.6 BASE ROOFING PLY INSTALLATION

- A. SBS Polymer Modified Membrane Base Ply: Install one (1) reinforced modified base ply membrane in two and one half (2 ½) gallons per ply per one hundred (100) square feet of the specified cold-applied membrane adhesive, shingled uniformly over the prepared substrate. Shingle in proper direction to shed water on each area of roofing. Prior to installation, cut sheets into 18' lengths and allow to relax. Colder temperatures will require the base roof ply to be cut in shorter lengths. As required, the base roof ply shall be warmed to allow them to properly relax prior to installation. In colder conditions, the base roof ply shall be warmed just prior to installation into the cold applied adhesive.
- B. The roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.
- C. Lap base ply sheet sides four (4) inches, and ends eight (8) inches. Stagger end laps twelve (12) inches minimum.
- D. For best results, immediately after installing the specified cold applied adhesive, lay the base roof into the adhesive and repeat this process for the top layer of modified membrane roofing ply. The applied amount of the cold applied adhesive will be dependent upon substrate, material and ambient temperature conditions, but no further than will allow the cold applied adhesive to skin over prior to the application of the modified membrane ply.
- E. Broom, squeegee and/or roll base roofing ply into the adhesive to ensure all air pockets are removed.
- F. Extend membrane to the top edge of all cants in full applications of the specified cold applied adhesives as shown on the drawings. Seal top of membrane with the specified cold applied adhesive until modified membrane flashing ply is installed.
- G. Install base flashing ply to all perimeter and projection details. Adhere the base flashing ply with the specified cold applied flashing adhesive noted in this specification at a rate of two and one half (2 ½) gallons per ply per 100 square feet. The base flashing ply shall extend a minimum of eight (8) inches above the finished roof surface.
- H. Allow the base roof ply to cure at least thirty (30) minutes before installing the modified membrane roof ply.

3.7 MODIFIED MEMBRANE APPLICATION

- A.** SBS Polymer Modified Membrane Roof Ply: Solidly bonded to the base roof ply layer with specified cold adhesive at the rate of two and one half (2 ½) gallons per one hundred (100) square feet of the specified cold-applied membrane adhesive, shingled uniformly over the prepared substrate. Shingle in proper direction to shed water on each area of roofing. Prior to installation, cut the modified membrane roof ply into 18' lengths and allow to relax. Colder temperatures will require the modified membrane roof ply to be cut in shorter lengths. As required, the modified membrane roof ply shall be warmed to allow it to properly relax prior to installation. In colder conditions, the modified membrane roof ply shall be warmed just prior to installation into the cold applied adhesive.
- B.** The roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.
- C.** Subsequent rolls of modified membrane shall be installed across the roof as above with a minimum of four (4) inch side laps and eight (8) inch end laps. The end laps shall be staggered twelve (12) inches minimum. The modified membrane shall be laid in the same direction as the base ply but the laps shall not coincide with the laps of the base ply.
- D.** For best results, immediately after installing the specified cold applied adhesive, lay the base roof into the adhesive and repeat this process for the top layer of modified membrane roofing ply. The applied amount of the cold applied adhesive will be dependent upon substrate, material and ambient temperature conditions, but no further than will allow the cold applied adhesive to skin over prior to the application of the modified membrane ply.
- E.** Broom, squeegee and/or roll base roofing ply into the adhesive to ensure all air pockets are removed.
- F.** The seams and end laps shall be heat welded together. All excessive adhesive must be removed from the top edge of the salvage lap or underlying end lap prior to heat welding the laps.
- G.** Where no compound is visible at edge of side lap or end lap, laps should be checked by probing the lap with a trowel after the membrane has cooled.
- H.** Avoid stepping on side laps before they have been heat welded and rolled. Stepping on the lap can make it stick and tear when the lap is lifted for heat welding.
- I.** The corners of the underlying membrane at the end laps, and the corner of the selvage edge on the side laps at T-joints should be cut at a 45-degree angle with the width of the selvage edge (4").
- J.** Heat weld all seams with a Leister Variant or approved modified bitumen heat welding machine. Torching is not permitted. Hand weld T joints and hard to reach areas. Membrane without selvage edge is to be butted together and sealed with a heat welded utility roll.

- K.** Aesthetics will be a punch list item. The roof must match the owner's standards for appearance. The desired result of heat welding the laps should be a small uniform pencil line bead of compound visible at all the laps.
- L.** Extend membrane to the top edge of all cants in full applications of the specified cold applied adhesives as shown on the drawings. Seal top of membrane with the specified solvent free, cold applied adhesive until modified membrane flashing ply is installed.
- M.** Install modified flashing ply to all perimeter and projection details in the specified cold applied flashing adhesive.

3.8 FLASHING MEMBRANE INSTALLATION

- A.** Seal all curb, wall and parapet flashings with an application of the specified cold applied membrane adhesive of flashing adhesive and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
- B.** Prepare all walls, penetrations, gutters, and where shown on the drawings to be flashed with asphalt primer at the rate of one hundred (100) square feet per gallon. Allow primer to dry tack free.
- C.** The wall/cant juncture will be examined for air passage. If airflow is present, the joint between the cant and wall will be sealed with a closed cell joint backing and reglet joint sealant.
- D.** Use the modified membrane flashing ply specified as the flashing membrane. Adhere to the underlying base flashing ply with specified cold applied flashing adhesive at a rate of two and one half (2 ½) to three (3) gallons per one hundred (100) square feet. Secure at a minimum of twelve (12) inches from the finished roof at all vertical surfaces with a continuous termination bar fastened at six (6) inches on center.
- E.** Solidly adhere the entire sheet of flashing membrane to the base flashing ply and substrate with the specified cold-applied flashing adhesive.
- F.** The seams/side laps shall be heat welded together. All excessive adhesive must be removed from the top edge of the selvage lap or underlying end lap prior to heat welding the laps.
- G.** Where no compound is visible at edge of side lap or end lap, laps should be checked by probing the lap with a trowel after the membrane has cooled.
- H.** Avoid stepping on side laps before they have been heat welded and rolled. Stepping on the lap can make it stick and tear when the lap is lifted for heat welding.
- I.** The corners of the underlying membrane at the end laps, and the corner of the selvage edge on the side laps at T-joints should be cut at a 45 angle with the width of the selvage edge (4").
- J.** Heat weld all seams with a Leister Variant or approved modified bitumen heat welding machine. Torching is not permitted. Hand weld T joints and hard to reach

areas. Membrane without selvedge edge is to be butted together and sealed with a heat welded utility roll.

- K.** Aesthetics will be a punch list item. The roof must match the owner's standards for appearance. The desired result of heat welding the laps should be a small uniform pencil line bead of compound visible at all the laps.
- L.** Allow the flashings to cure three (3) days and seal all vertical laps of flashing membrane with a three-course application of aluminized trowel-grade mastic and mesh.
- M.** Coordinate counter flashings, cap flashings and similar work with modified bitumen roofing work as specified in other sections.
- N.** Flash all penetrations as specified below and per the project documents. If specific detail is not shown in drawings or specified below, flash detail in accordance with the manufacturer's specifications to comply with the specified guaranty.
- O.** Retrofit Roof Drain:
 - 1. Plug drain to prevent debris from entering plumbing.
 - 2. Run complete roof system plies over drain. Cut out plies inside drain bowl.
 - 3. Set 4lb. lead flashing (thirty (30) inch square minimum) in ¼ inch bed of mastic. Run lead into drain a minimum of two (2) inches. Prime lead at a rate of one hundred (100) square feet per gallon and allow to dry.
 - 4. Install base flashing ply (forty (40) inch square minimum) in the specified cold applied flashing adhesive.
 - 5. Install modified membrane (forty-eight (48) inch square minimum) in the specified cold applied flashing adhesive. Stop both flashings ply short of the clamping ring and seal edge of modified flashing plies with a three-course application of aluminized mastic and reinforcing mesh.
 - 6. Install new retrofit drain per the manufacturer's specifications.
 - 7. Remove drain plug and install strainer.
- P.** Exhaust Fan/Passive Vent/Air Intake/Skylight:
 - 1. Minimum curb height is eight (8) inches off the finished roof surface. Prime vertical curb surface at a rate of one hundred (100) square feet per gallon and allow to dry.
 - 2. Set cant in cold applied insulation adhesive. Run base roofing ply over cant and stop at the top edge of the cant strip.
 - 3. Install base flashing ply the specified cold-applied flashing adhesive covering curb with six (6) inches on to field of the roof.
 - 4. Install modified membrane over cant and stop at the top edge of the cant strip.
 - 5. Install a second ply of modified flashing ply installed the specified cold-applied flashing adhesive over the base flashing ply, nine (9) inches on to

field of the roof. Attach top of membrane to top of wood curb and nail at eight (8) inches o.c. Allow the flashing system to cure and apply a three-course application of mastic and mesh at all vertical seams.

6. Install metal exhaust fan over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendation. If the existing fan cover cannot fit over the installed flashing system, stop the flashing system at the top of the curb and fasten with cap nails at eight (8) inches on center. Install an 0.040" aluminum slip flashing under the fan cover and fasten to the curb at eight (8) inches on center with neoprene gasketed screws. The slip flashing shall cover the top of the flashing system three (3) inches minimum. Install new corner pieces on the fan cover.

Q. Plumbing/Soil Stack:

1. Minimum stack height is twelve (12) inches.
2. Run roof system over the entire surface of the roof. Seal the base of the stack with specified elastomeric asphaltic sealant.
3. Prime flange of new lead sleeve. Install properly sized lead sleeve set in ¼ inch bed of the specified solvent free, cold applied flashing adhesive.
4. Install base flashing ply in the specified cold-applied flashing adhesive.
5. Install modified membrane in the specified cold-applied flashing adhesive.
6. Caulk the intersection of the membrane with elastomeric asphaltic sealant.
7. Turn sleeves a minimum of one (1) inch down inside of stack. For pipes 2 inches or less in diameter, lead top caps will be required.

R. Pitch Pocket:

1. Run all plies up to the penetration.
2. Seal base of penetration to roof surface with elastomeric asphaltic sealant.
3. Place the pitch pocket over the penetration in a bed of the specified cold applied flashing adhesive, and prime all flanges.
4. Strip in flange of pitch pocket with one (1) ply of base flashing ply in the specified cold applied flashing adhesive. Extend six (6) inches onto field of roof.
5. Install the modified membrane in the specified cold applied flashing adhesive extending nine (9) inches onto field of the roof.
6. Fill pitch pocket half full with non-shrink grout. Let this cure and top off with specified two-part pourable sealer.
7. Caulk joint between roof system and pitch pocket with the specified elastomeric asphaltic sealant.

S. Pre-manufactured Curb for Equipment Support:

1. Secure curb to roof deck. Minimum flashing height of curb shall be eight (8) inches above finished roof. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.
2. Run all field plies, including modified membrane, to the top edge of cant strip and seal with asphalt mastic to a watertight condition.
3. Install base flashing ply in the specified cold applied flashing adhesive covering premanufactured curb with six (6) inches on to field of the roof.
4. Install modified flashing ply in the specified cold applied flashing adhesive over the base flashing ply, nine (9) inches on to field of the roof. Attach top of membrane to top of curb and nail at eight (8) inches o.c. with cap nails. Apply a three-course application of Silver-Flash, or approved equal, aluminized mastic and mesh at all vertical seams.
5. Terminate the flashing system at the top of the curb and fasten with cap nails at eight (8) inches on center. Install a 0.040" aluminum slip flashing under the equipment support cover and fasten to the curb at eight (8) inches on center with neoprene gasketed screws. The slip flashing shall cover the top of the flashing system three (3) inches minimum.

T. Curb Detail/Air Handling Station:

1. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.
2. Set cant in cold applied insulation adhesive. Run base roofing ply over cant and stop at the top edge of the cant strip.
3. Install base flashing ply the specified cold-applied flashing adhesive covering curb with six (6) inches on to field of the roof.
4. Install modified membrane over cant and stop at the top edge of the cant strip.
5. Install a second ply of modified flashing ply installed the specified cold-applied flashing adhesive over the base flashing ply, nine (9) inches on to field of the roof. Attach top of membrane to top of wood curb and nail at eight (8) inches o.c. Allow the flashing system to cure and apply a three-course application of mastic and mesh at all vertical seams.
6. Terminate the flashing system at the top of the curb and fasten with cap nails at eight (8) inches on center. Install an 0.040" aluminum slip flashing under the equipment support cover and fasten to the curb at eight (8) inches on center with neoprene gasketed screws. The slip flashing shall cover the top of the flashing system three (3) inches minimum.

U. Wood Sleeper Support:

1. Approved wood of equal thickness to insulation will be placed into position where weight of object is over 12 pounds per square foot. Wood will be two (2) inches wider than base of object being supported.

2. Insulation will be installed up against wood sleeper.
3. Entire roof system will be installed over wood sleeper.
4. A walk pad will be installed in approved adhesive under the wood sleeper support.
5. Treated wood supports for the particular equipment would then be placed on the modified membrane roofing ply. Supports will be a minimum of four (4) inches wide.

V. Surface Mounted Counterflashing:

1. The new surface mounted counter flashing shall be installed to provide a minimum of twelve (12) inches of flashing height from the top of roof to the termination bar securing the roof flashing system.
2. Maximum flashing height is twenty-four (24) inches. Prime vertical wall at a rate of one hundred (100) square feet per gallon and allow to dry.
3. Set cant in bitumen. Run all field plies, including modified membrane, to the top edge of cant strip and seal with asphalt mastic to a watertight condition.
4. Install base flashing ply in the specified bitumen adhesive covering wall with six (6) inches on to field of the roof.
5. Install a second ply of modified flashing ply in the specified cold applied adhesive over the base flashing ply, nine (9) inches on to the field of the roof. Apply a three-course application of Silver-Flash, or approved equal, aluminized mastic and mesh at all vertical seams.
6. Install the specified termination bar even with the top of the flashing and secure the termination bar through flashing and into wall every six (6) inches on center. Seal top of termination bar and flashing system with specified elastomeric asphaltic sealant or a three-course application of mastic and mesh.
7. Install the new surface mounted counterflashing on the wall and secure with neoprene gasketed screws at 8" on center. End joints shall be interlocking and overlapping not less than 3". Corners shall be mitered and welded to a watertight condition. The bottom of the cap flashing insert shall project 1/4" from the face of the wall with a down turned drip edge (provide a down turned hem in areas subject to human contact). The new counterflashing shall extend down over the roof flashing system a minimum of four (4) inches below the termination bar.

W. Through wall Counterflashing:

1. Where existing through wall counterflashing is deemed to be in good condition and at the proper flashing height, lift up the counterflashing to allow for the roof flashing system to be installed. Cut existing metal counterflashing back 2" to allow installation of the roof flashing system and expansion joint.

2. Minimum flashing height is six (6) inches. Maximum flashing height is twenty-four (24) inches. Prime vertical wall at a rate of one hundred (100) square feet per gallon and allow to dry.
3. Set cant in specified cold applied insulation adhesive. Run base roof ply over cant and stop at the top edge of the cant strip.
4. Install base flashing ply set in the specified cold applied flashing adhesive covering curb and with six (6) inches on to field of the roof.
5. Install modified membrane over cant and stop at the top of the cant strip.
6. Install modified flashing ply in the specified cold applied flashing adhesive over the base flashing ply, nine (9) inches on to the field of the roof. Allow the flashing system to cure and apply a three-course application of mastic and mesh at all vertical seams.
7. Install the specified termination bar even with the top of the flashing, and secure the termination bar through flashing and into wall every six (6) inches on center. Seal the top of the termination bar/flashing with a 3-course application of asphaltic mastic and SBR coated fiberglass scrim.
8. Where the existing through wall counterflashing was left in place and turned up, bend down the counterflashing tight to the wall so that NO water sits on the top of the counterflashing against the wall. Use a 2x4 wood blocking as needed to bend the counterflashing down. As required, and recommended by the manufacturer, pin the face of the counterflashing to the wall with approved masonry anchors at 12" o.c.
9. Where required, install new metal counterflashing behind the cut existing through wall counterflashing with butyl tape, and secure with 1/8" diameter stainless steel or copper rivets at 8" o.c. Install the new slip counterflashing within the in-wall receiver. End joints shall be interlocking and overlapping not less than 3". Corners shall be mitered and welded to a watertight condition. The bottom of the cap flashing insert shall project 1/4" from the face of the wall with a down turned drip edge (provide a down turned hem in areas subject to human contact). The new slip counterflashing shall cover the roof flashing system a minimum of four (4) inches.

X. Roof Hatch:

1. Minimum curb height is eight (8) inches. Prime vertical at a rate of one hundred (100) square feet per gallon and allow to dry.
2. Set cant in specified cold applied insulation adhesive. Run base roof ply over cant and stop at the top edge of the cant strip.
3. Install base flashing ply set in the specified cold applied flashing adhesive covering curb and with six (6) inches on to field of the roof.
4. Install modified membrane over cant and stop at the top of the cant strip.
5. Install modified flashing ply in the specified cold applied flashing adhesive over the base flashing ply, nine (9) inches on to the field of the roof. Attach

top of 2-ply flashing system on the top of the curb and nail at eight (8) inches o.c. Allow the flashing system to cure and apply a three-course application of mastic and mesh at all vertical seams.

6. Install pre-manufactured lens and fasten flashing sides at eight (8) inches o.c. with fasteners and neoprene washers.
7. Install 0.040" aluminum counterflashing and fasten at eight (8) inches o.c. with fasteners and neoprene washers.

Y. Parapet Wall with Metal Coping Cap:

1. Remove the existing metal edge system, prepare existing substrate, and install new approved wood blocking fasten to top of wall with approved tapcon masonry anchors at eighteen (18) inches o.c., staggered pattern. Two (2) fasteners will be located within two (2) inches of the blocking section ends, each side. Width of wood blocking shall equal the width of the existing wall. Top of wood blocking shall be a minimum of eight (8) inches above top of roof. The joints of the wood blocking MUST be staggered between layers. Install the specified plywood sheathing and blocking to the inside of the masonry wall to flush the wall with the inside face of the precast concrete coping cap.
2. Remove the existing plywood sheathing on the back of the parapet wall. Install new ½" minimum plywood sheathing and secure to the structure per the project documents.
3. Minimum flashing height is eight (8) inches, and maximum flashing height is twenty-four (24) inches. Prime vertical wall at a rate of one hundred (100) square feet per gallon and allow to dry.
4. Set cant in specified cold applied insulation adhesive. Run base roof ply over cant and stop at the top edge of the cant strip.
5. Install base flashing ply set in the specified cold applied flashing adhesive covering entire wall and wrapped over top of wall and down the outside face of the wood blocking, and with six (6) inches on to field of roof and set in the specified asphalt flashing adhesive. Nail membrane at eight (8) inches o.c. to outside face of nailers on top of the wall.
6. Install modified membrane roof ply over cant and stop at the top of the cant strip.
7. Install the modified flashing ply in the specified cold applied flashing adhesive over the base flashing ply to the outside edge of the parapet wall, and nine (9) inches on to the field of the roof. Allow the flashing system to cure and apply a three-course application of mastic and mesh at all vertical seams.
8. Install new metal fascia extender with continuous cleat. Fasten to wall structure or wood blocking as specified. Metal fascia extender shall cover the bottom of the wood nailer and top of wall (interface between wood blocking and wall) a minimum of two (2) inches.

9. Install specified shop fabricated metal coping cap system in accordance with manufacturer's instructions/recommendations.

Z. Heat Stack:

1. Minimum stack height is twelve (12) inches.
2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric asphaltic sealant or roof cement.
3. Prime flange of new sleeve. Install properly sized sleeves set in ¼ inch bed of roof cement.
4. Install base flashing ply in the specified bitumen adhesive.
5. Install modified membrane in the specified flashing adhesive.
6. Caulk the intersection of the membrane with roof cement.
7. Install new collar over cape. Weld collar or install stainless steel draw brand.

AA. Primary Scupper Through Wall:

1. Inspect through wall scupper opening and raise, or lower, as required to ensure it is at the proper height to allow for a ½" per foot tapered slope within the tapered sump. Inspect the nailer to assure proper attachment and configuration. Install wood blocking/nailers at the scupper opening to allow for the attachment of the new scupper box.
2. Run base roofing ply over nailer, into scupper hole and assure coverage of all wood nailers.
3. Install the pre-fabricated through edge scupper box in a ¼ inch bed of mastic. Assure all box seams are welded and have a minimum four (4) inch flange. Make sure all corners are closed and welded. Prime scupper at a rate of 100 square feet per gallon and allow to dry.
4. Fasten flange of scupper box every three (3) inches o.c. staggered.
5. Strip in flange of scupper box with base flashing ply in the specified cold applied flashing adhesive covering entire area with six (6) inch overlap on to the field of the roof.
6. Install modified flashing ply the specified cold applied flashing adhesive over the base flashing ply, nine (9) inches on to the field of the roof. Apply a three-course application of mastic and SBR coated fiberglass at all seams.
7. Seal end of flashing system in scupper box with a three-course application of mastic and SBR coated fiberglass scrim.
8. Reinstall existing, or install new, aluminum collector head and downspout as specified.

BB. Overflow Scupper Through Wall:

1. Inspect through wall scupper opening and raise as required to ensure it is at the proper height above the top of the roof system as per the project

documents. Inspect the nailer to assure proper attachment and configuration. Install wood blocking/nailers at the scupper opening to allow for the attachment of the new scupper box.

2. Run base roofing ply over nailer, into scupper hole and assure coverage of all wood nailers.
3. Install the pre-fabricated through edge scupper box in a ¼ inch bed of mastic. Assure all box seams are welded and have a minimum four (4) inch flange. Make sure all corners are closed and welded. Prime scupper at a rate of 100 square feet per gallon and allow to dry.
4. Fasten flange of scupper box every three (3) inches o.c. staggered.
5. Strip in flange of scupper box with base flashing ply in the specified cold applied flashing adhesive covering entire area with six (6) inch overlap on to the field of the roof.
6. Install modified flashing ply the specified cold applied flashing adhesive over the base flashing ply, nine (9) inches on to the field of the roof. Apply a three-course application of mastic and SBR coated fiberglass scrim at all seams.
7. Seal end of flashing system in scupper box with a three-course application of mastic and SBR coated fiberglass scrim.

3.9 APPLICATION OF SURFACING

- A. Prior to installation of surfacing, the completed roof system must be inspected and approved by the Owner and Manufacturer. All repairs must be made by the Contractor prior to the application of the surfacing system. All bitumen materials have properly cured per the manufacturer's recommendations prior to applying the coating system.
- B. Mineral Surfaced Membrane System: While bleed out from the side and end laps are still wet, hand broadcast minerals into bleed out for a monolithic appearance.

3.10 FIELD QUALITY CONTROL

- A. Perform field inspection and testing as required by this specification and under provisions of Section 1.
- B. Correct defects or irregularities discovered during field inspection.
- C. Require attendance of roofing materials manufacturers' representative(s) at site during installation of the roofing system as specified in Section 1.9 above.

3.11 CLEANING

- A. Remove bitumen adhesive drippings from all walls, windows, floors, ladders and finished surfaces.
- B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning instructions and conform to their instructions.

- C. Repair or replace defaced or disfigured finishes caused by work of this section.

3.12 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.
- B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. The roofing system manufacturer and/or Owner reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor at a negotiated price.
- D. If core cuts verify the presence of damp or wet materials; the Roofing Contractor shall be required to replace the damaged areas at his own expense.
- E. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- F. Notify the Owner and roofing system manufacturer upon completion of corrections.
- G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

END OF SECTION

SECTION 07565

PREPARATION FOR RE-ROOFING STAUNTON PUBLIC LIBRARY

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Remove the existing rock ballast, roofing layers, insulation, recovery board, base flashings, sheet metal, vent stack flashings, completely to the existing structural deck. Sweep and clean all debris off the deck and adjacent areas. All debris must be off the surface of the wood deck and the wood deck completely clean and smooth.
- B. Remove all marked obsolete equipment and install new decking to match existing decking.
- C. Owner will occupy portions of the building immediately below reroofing area.
 - 1. Conduct reroofing so Owner operations are not disrupted.
 - 2. Provide Owner with not less than 72 hours written notice of activities that may affect Owner's operations.
 - 3. Coordinate work activities daily with City Facilities Director so that Library Staff has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings.
 - 4. Provide Owner with not less than 10 day written notice of activities if shut down of HVAC, fire alarm and/or detection equipment is needed when performing the work.
- D. Remove and reinstall ALL rooftop equipment as necessary to extend the existing curb flashings to a minimum of 8 inches above the finished roof surface and 12 inches above the finished roof surface for all vents. This shall include removal and re-installation of the existing exhaust fans, ventilators and all other equipment on areas to be re-roofed. Disconnect electric surface and controls and extend wiring / controls as necessary to achieve the required minimum heights.
- E. A cleaning crew shall clean all areas of the inside under the section that was re-roofed at the end of each day's tear off.

1.2 PRE-INSTALLATION CONFERENCE

- A. Review installation procedures and coordination required with related work.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Do not remove existing roofing system or damaged decking when weather conditions threaten the integrity of the building contents or intended continued occupancy. Maintain continued temporary protection prior to installation of the new roofing system. Provide temporary weather protection to ensure that the building is weather tight and that no damage occurs to the building, interior contents, furnishings, equipment and finished during re-roofing operations.

B. Hazardous Materials: It is not expected that hazardous material, such as asbestos containing materials, will be encountered in the work.

1. Installer Qualifications: Licensed to perform asbestos abatement in the state or jurisdiction where project is located.
2. If materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify the resident engineer.
3. Comply with governing EPA notification regulations before beginning roofing removal.
4. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.4 PROTECTION

- A.** It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. A four (4) hour time limit shall be given from the time of notification of emergency conditions. In the event of water penetration during rain or a storm, the Contractor shall provide for repair of the building contents and interior including, but not limited to, all interior contents, furnishings, equipment, building systems and finishes. If the Contractor does not respond or cannot be contacted, the Owner will affect repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.

1.5 SCHEDULING

- A.** Schedule work to coincide with commencement of installation of new roofing system.

PART 2 - PRODUCTS

2.1 MATERIALS

- A.** Temporary protection; Sheet Polyethylene. Provide weights or fasteners to retain sheeting in position.
- B.** Base Sheet: ASTM D-4601 Type II. Provide weights, adhesives or fasteners to retain sheeting in position.

PART 3 - EXECUTION

3.1 EXAMINATION

- A.** Roofing Contractor to verify existing site conditions, including roof dimensions. The Owner and Manufacturer assume no responsibility for the existing actual conditions that the Contractor may encounter during the course of work that can be reasonably foreseen during the Pre-Bid inspection. The Contractor shall verify all dimensions and conditions in the field prior to demolition and notify the Owner should any conditions encountered vary from the Contract Documents.
- B.** Verify that existing roof surface is clear and ready for work.

3.2 PROTECTION

- A.** Protection of In-Place Conditions:

1. Protect existing roofing system that is not to be reroofed.
 - a. Loosely lay 1-inch- (25-mm-) minimum thick, EPS insulation over existing roofing in areas not to be reroofed.
 - b. Loosely lay 15/32-inch (12-mm) plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch (25 mm).
2. Limit traffic and material storage to areas of existing roofing that have been protected.
3. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
4. Comply with requirements of existing roof system manufacturer's warranty requirements.
- B.** Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.
- C.** Shut off rooftop utilities and service piping before beginning the Work.
- D.** Test existing roof drains to verify that they are not blocked or restricted.
 1. Immediately notify Owner of any blockages or restrictions.
- E.** Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
 1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- F.** During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- G.** Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
 1. Prevent debris from entering or blocking roof drains and conductors.
 - a. Use roof-drain plugs specifically designed for this purpose.
 - b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.
 - a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.3 MATERIALS REMOVAL

- A.** Remove all membrane, cant strips, insulation, expansion joints, base flashings, and any other items required for installation of the new roof. In addition, completely remove all nails and other debris to leave a smooth, even surface for re-roofing.
- B.** Under certain conditions, it will be necessary and desirable to incorporate one or more of the following methods for removal of dirt, silt, gravel, debris, roof membrane, and insulation from the roof surface in order to preserve the ecology, eliminate unsightly conditions, and protect the building surfaces:
 - 1.** Enclosed chutes with protective shrouds on the building and ground surfaces.
 - 2.** All debris dumped from the roof shall be transported from the roof via chutes into dumpsters or trucks, and this debris shall be removed from the premises when vehicles are full at the Contractors cost. No debris shall be transported from the area being worked on over a previously finished roof without an underlayment of 3/4" plywood.
 - 3.** All MWRD safety rules prevail.
- C.** Perform all demolition and re-roofing work in such a manner as to not damage or affect the load carrying capacity of the existing structural system.
- D.** Contractor shall provide cut off (night tie in) at the end of each day's work.
- E.** All curbs are to be raised to a minimum height of 8" above the finished roof surface. Be sure to calculate tapered insulation + recovery board + new roof system when calculating blocking heights
- F.** All soil stacks must be raised a minimum of 8" above the finished roof surface. No soil stack may be sleeved with the joint facing to weather.
- G.** All abandoned curbs must be removed and the deck replaced with like kind materials and color.

END OF SECTION

SECTION 07620
SHEET METAL FLASHING AND TRIM
STAUNTON PUBLIC LIBRARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the Conditions of the Contract and Division 01 Specification Sections apply to this section.

1.2 SUMMARY

- A. Provide all labor, equipment, and materials to fabricate and install the following.
 - 1. Edge strip and flashing
 - 2. Fascia, scuppers, and trim
 - 3. Coping cap at parapets
 - 4. Expansion joint and area divider covers
 - 5. Fascia and edge material
 - 6. Gutters, scuppers and down spouts
- B. Related Sections:
 - 1. Division 07 Section Common Work Results for Thermal and Moisture Protection
- C. Related Work Specified Elsewhere:
 - 1. Division 07 Section - Modified Bituminous Membrane Roofing

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (galvanized) or Zinc-Iron Alloy-Coated (galvannealed) by the Hot-Dip Process.
 - 2. ASTM A792 Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process.
 - 3. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 4. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 5. ASTM D692 Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures.
- B. American National Standards Institute and Single Ply Roofing Institute (ANSI/SPRI)

- 1. ANSI/SPRI ES-1 Testing and Certification Listing of Shop Fabricated Edge Metal
- C. Warnock Hersey International, Inc., Middleton, WI (WH)
- D. Factory Mutual Research Corporation (FMRC)
 - 1. FM 1-49 Loss Prevention Data Sheet
- E. Underwriters Laboratories (UL)
- F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
 - 1. 1993 Edition Architectural Sheet Metal Manual
- G. National Roofing Contractors Association (NRCA)
 - 1. Roofing and Waterproofing Manual
- H. American Society of Civil Engineers (ASCE)
 - 1. ASCE 7 Minimum Design Loads for Buildings and Other Structures

1.4 SUBMITTALS FOR REVIEW

- A. Product Data:
 - 1. Provide manufacturer's specification data sheets for each product.
 - 2. Metal material characteristics and installation recommendations.
 - 3. Submit color chart prior to material ordering and/or fabrication so that equivalent colors to those specified can be approved.
- B. Samples: Submit two (2) samples, illustrating typical metal edge, coping, gutters, fascia extenders for material and finish.
- C. Shop Drawings
 - 1. For manufactured and ANSI/SPRI ES-1 compliant shop fabricated gravel stops, fascia, scuppers, and all other sheet metal fabrications.
 - 2. Indicate material profile, jointing details, fastening methods, flashing, terminations, and installation details.
 - 3. Indicate type, gauge and finish of metal
- D. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.

1.5 SUBMITTALS FOR INFORMATION

- A. Design Loads: Material submitted must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted material meets the wind uplift and perimeter attachment requirements according to ASCE 7 and that the submitted equal edge metal system is compliant with the ANSI/SPRI ES-1 standard.
- B. Factory Mutual Research Corporation's (FMRC) wind uplift resistance classification: The roof perimeter flashing shall conform to the requirements as defined by the FMRC Loss Prevention Data Sheet 1-49.

- C. A letter from the manufacturing company certifying that the materials furnished for this project are the same as represented in tests and supporting data.
- D. Mill production reports certifying that the steel thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.
- E. Certification of work progress inspection. Refer to Quality Assurance Article below.
- F. Certifications.
 - 1. Submit roof manufacturer's certification that metal fasteners furnished are acceptable to roof manufacturer.
 - 2. Submit roof manufacturer's certification that metal furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.

1.6 CONTRACT CLOSEOUT SUBMITTALS

- A. General: Comply with Requirements of Section 01 78 00 – Closeout Submittals
- B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.
- C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.
- D. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.7 QUALITY ASSURANCE

- A. Engage an experienced roofing contractor specializing in sheet metal flashing work with a minimum of five (5) years experience.
- B. Maintain a full-time supervisor/foreman who is on the job-site at all times during installation. Foreman must have a minimum of five (5) years experience with the installation of similar system to that specified.
- C. Source Limitation: Obtain components from a single manufacturer. Secondary products which cannot be supplied by the specified manufacturer shall be approved in writing by the primary manufacturer prior to bidding.
- D. Upon request fabricator/installer shall submit work experience and evidence of financial responsibility. The Owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
- B. Stack pre-formed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials which may cause discoloration or staining.

1.9 PROJECT CONDITIONS

- A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage requirements for pre-formed metal edge system.

1.10 DESIGN AND PERFORMANCE CRITERIA

- A. Thermal expansion and contraction:
 - 1. Completed metal edge flashing system, shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.

1.11 WARRANTIES

- A. Owner shall receive one (1) warranty from manufacturer of roofing materials covering all of the following criteria. Multiple warranties are not acceptable.
 - 1. Pre-finished metal material shall require a written thirty (30)- year nonprorated warranty covering fade, chalking and film integrity. The material shall not show a color change greater than 5 NBS color units per ASTM D2244 or chalking excess of 8 units per ASTM D659. If either occurs material shall be replaced per warranty, at no cost to the Owner.
 - 2. Changes: Changes or alterations in the edge metal system without prior written consent from the manufacturer shall render the system unacceptable for a warranty.
 - 3. Warranty shall commence on date of substantial completion or final payment, whichever is agreed by contract.
 - 4. The Contractor shall provide the Owner with a notarized written warranty assuring that all sheet metal work including caulking and fasteners to be watertight and secure for a period of two years from the date of final acceptance of the building. Warranty shall include all materials and workmanship required to repair any leaks that develop, and make good any damage to other work or equipment caused by such leaks or the repairs thereof.
 - 5. Installing roofing contractor shall be responsible for the installation of the edge metal system in general accordance with the membrane manufacturer's recommendations.
 - 6. Installing contractor shall certify that the edge metal system has been installed per the manufacturer's printed details and specifications.

PART 2 – PRODUCTS

2.1 PRODUCTS, GENERAL

- A. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria.

2.2 MATERIALS

- A. General: Product designations for the materials used in this section shall be based on performance characteristics.
- B. Materials: Minimum gauge of steel or thickness of Aluminum to be specified in accordance with Architectural Sheet Metal Manual, Sheet Metal and Air Conditioning Contractor's National Association, Inc. recommendations.
- C. Coping Cap Cover and Splice Plate
1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 24-gauge, 22 gauge or 20 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
 2. Aluminum, ASTM B209, alloy 3105-H14, in thickness of .040" nom. or .050" nom. or .063" nom.
- D. Coping Chairs
1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 0.0635 nom./ 16 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
- E. Finishes
1. Exposed surfaces for coated panels:
 - a. Steel Finishes: fluorocarbon finish. Epoxy primer baked both sides, .2-.25 mils thickness as approved by finish coat manufacturer. Weathering finish as referred by National Coil Coaters Association (NCCA).

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>FLUOROCARBON</u>
Pencil	ASTM D3363	HB-H
Hardness	NCCA II-2	
Bend	ASTM D-4145	O-T
	NCCA II-19	
Cross-Hatch Adhesion	ASTM D3359	no loss of adhesion
Gloss (60° angle)	ASTM D523	25+/-5%
Reverse Impact	ASTM D2794	no cracking or loss of adhesion

Nominal Thickness	ASTM D1005	
Primer		0.2 mils
Topcoat		0.7 mils min
Clear Coat (optional, only to be used with 22-gauge steel)		0.3 mils

- b. Color shall be as specified
- 2. Exposed and unexposed surfaces for mill finish flashing, fascia, and coping cap, shall be as shipped from the mil

2.3 RELATED MATERIALS AND ACCESSORIES

- A. Metal Primer: Zinc chromate type.
- B. Plastic Cement: ASTM D 4586
- C. Sealant: Specified in Section 07900 or on drawings.
- D. Underlayment: ASTM D2178, No 15-asphalt saturated roofing felt.
- E. Self-Adhering Underlayment, one of the following:
 - 1. 40 mil minimum transition strip
 - 2. 60 mil minimum transition strip
 - 3. 45 mil high temperature underlayment with cross laminated polymer surface
- F. Slip Sheet: Rosin sized building paper.
- G. Fasteners:
 - 1. Corrosion resistant screw fastener as recommended by metal manufacturer.
- H. Finish exposed fasteners same as flashing metal.
 - 1. Fastening shall conform to Factory Mutual requirements or as stated on section details, whichever is more stringent.
- I. Gutter and Downspout Anchorage Devices: Material as specified for system

PART 3 – EXECUTION

3.1 EXECUTION, GENERAL

- A. Refer to Division 07 Section Modified Bituminous Roofing

3.2 PROTECTION

- A. Isolate metal products from dissimilar metals, masonry or concrete with bituminous paint, tape, or slip sheet. Use gasketed fasteners where required to prevent corrosive reactions.

3.3 GENERAL

- A. Secure fascia to wood nailers at the bottom edge with a continuous cleat.

- B. Fastening of metal to walls and wood blocking shall comply with building code standards.
- C. All accessories or other items essential to the completeness of sheet metal installation, whether specifically indicated or not, shall be provided and of the same material as item to which applied.
- D. Allow sufficient clearances for expansion and contraction of linear metal components. Secure metal using fasteners as required by the system. Exposed face fastening will be rejected.

3.4 INSPECTION

- A. Verify that curbs are solidly set and nailing strips located.
- B. Perform field measurements prior to fabrication.
- C. Coordinate work with work of other trades.
- D. Verify that substrate is dry, clean and free of foreign matter.
- E. Commencement of installation shall be considered acceptance of existing conditions.

3.5 MANUFACTURED SHEET METAL SYSTEMS

- A. Furnish and install manufactured fascia and coping cap systems in strict accordance with manufacturer's printed instructions.
- B. Provide factory-fabricated accessories including, but not limited to, fascia extenders, miters, scuppers, joint covers, etc. refer to Source limitation provision in Part 1.

3.6 SHOP-FABRICATED SHEET METAL

- A. Metal work shall be shop fabricated to configurations and forms in accordance with recognized sheet metal practices
- B. Hem exposed edges.
- C. Angle bottom edges of exposed vertical surfaces to form drip.
- D. Lap corners with adjoining pieces fastened and set in sealant.
- E. Form joints for gravel stop fascia system, coping cap with a 3/8" opening between sections. Back the opening with an internal drainage plate formed to the profile of fascia piece.
- F. Install sheet metal to comply with referenced ANSI/SPRI, SMACNA and NRCA standards.

3.7 FLASHING MEMBRANE INSTALLATION

- A. Scupper Through Roof Edge
 - 1. Install scupper box in a one fourth (1/4) inch bed of mastic. Assure all box seams are soldered and have minimum four (4) inch flange. Make sure all corners are closed and soldered.
 - 2. Prime metal edge at a rate of one hundred (100) square feet per gallon and allow to dry.

B. Snap-On Coping Cap Detail

1. Install Miters first.
2. Position base flashing of the Built-Up and/or Modified Roofing membrane over the wall edge covering nailers completely, fastening eight (8) inches on center. Install membrane and cap sheet with proper material and procedure according to manufacturer's recommendations.
3. Install minimum sixteen (16) gauge, sixteen (16) inch long by specified width anchor chair at [Contact Garland Representative] feet on center.
4. Install six (6) inch wide splice plate by centering over sixteen (16) inch long by specified width anchor chair. Apply two beads of sealant to either side of the splice plate's center. Approximately two (2) inches from the coping cap joint. Install Coping Cap by hooking outside hem of coping on outside face of anchor chair. Press downward on inside edge of coping until "snap" occurs and hem is engaged on the entire chair.

3.8 CLEANING

- A. Clean installed work in accordance with the manufacturer's instructions.
- B. Replace damaged work than cannot be restored by normal cleaning methods.

3.9 CONSTRUCTION WASTE MANAGEMENT

- A. Remove and properly dispose of waste products generated. Comply with requirements of authorities having jurisdiction.

3.10 FINAL INSPECTION

- A. At completion of installation and associated work, meet with Contractor, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.
- B. Inspect work and flashing of roof penetrations, walls, curbs, and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements
- D. Notify the Owner upon completion of corrections.
- E. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.
- F. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty-four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

3.11 DEMONSTRATION AND TRAINING

- A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:
 1. Troubleshooting procedures

2. Notification procedures for reporting leaks or other apparent roofing problems
3. Maintenance
4. The Owner's obligations for maintaining the warranty in effect and force
5. The Manufacturer's obligations for maintaining the warranty in effect and force.

END OF SECTION

PROCUREMENT GUIDELINES

A. CHARGES AND PAYMENTS

1. To Prime Contractor:

- a.** Invoices for items ordered, delivered and accepted shall be submitted by the contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the purchase order number.
- b.** Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after satisfactory invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however.
- c.** All goods or services provided under the contract, which are to be paid for with public funds, shall be billed by the contractor at the contract price, regardless of which public agency is being billed.
- d.** The following shall be deemed to be the date of payment: the date of postmark in all cases where payment is made by mail, or the date of offset when offset proceedings have been instituted as authorized under the Virginia Debt Collection Act.
- e.** Unreasonable Charges. Under certain emergency procurements and for most time and material purchases, final job costs cannot be accurately determined at the time orders are placed. In such cases, contractors should be put on notice that final payment in full is contingent on a determination of reasonableness with respect to all invoiced charges. Charges which appear to be unreasonable will be researched and challenged, and that portion of the invoice held in abeyance until a settlement can be reached. Upon determining that invoiced charges are not reasonable, the City of Staunton shall promptly notify the contractor, in writing, as to those charges which it considers unreasonable and the basis for the determination. A contractor may not institute legal action unless a settlement cannot be reached within thirty (30) days of notification. The provisions of this section do not relieve City of Staunton of its prompt payment obligations with respect to those charges which are not in dispute (Code of Virginia, § 2.2-4363).

2. Payment to Subcontractors:

- a.** An offeror awarded a contract under this solicitation is hereby obligated:
- b.** To pay the subcontractor(s) within thirty (30) days of the offeror's receipt of payment from the City of Staunton for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or
- c.** To notify the agency and the subcontractor(s), in writing, of the offeror's intention to withhold payment and the reason.
- d.** The offeror is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the offeror that remain unpaid thirty (30) days following receipt of payment from the City of Staunton, except for amounts withheld as stated in (2) above. The date of mailing of any payment by U.S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the primary

contract. An offeror's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of the City of Staunton.

B. TESTING AND INSPECTION

The City of Staunton reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.

C. ASSIGNMENT OF CONTRACT

A contract shall not be assignable by the offeror in whole or in part without the written consent of the City of Staunton.

D. DEFAULT

In case of failure to deliver goods or services in accordance with the contract terms and conditions, the City of Staunton, after due oral or written notice, may procure them from other sources and hold the offeror responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which the City of Staunton may have.

E. TAXES

Sales to the City of Staunton are exempt from State sales tax. State sales and use tax certificates of exemption, Form ST-12, will be issued upon request, as the City of Staunton determines appropriate. Any deliveries under this contract shall be free of Federal excise and transportation taxes.

F. INDEMNIFICATION

The Offeror agrees to indemnify, defend, and hold harmless the City of Staunton and its Council members, officers, directors, agents and employees against any and all claims, liabilities, losses, damages, costs and expenses (including reasonable attorney fees) arising out of, or resulting from any and all injuries to persons or damage to property or intellectual infringement claim arising out of services performed hereunder or by reason of the intentional or negligent acts or omissions of the Offeror, its employees, agents or sub-contractors, including any independent contractors. The provisions of this section shall survive the completion, terminations or expiration of the contract.

G. LIABILITY AND LITIGATION

The City shall not indemnify or hold harmless any contractor or other third party. The City does not waive any right or release any party from liability, whether on its own behalf or on behalf of any boards, employees or agents. The City does not waive the right to trial by jury for any cause of action arising from the Contract and shall not submit any Contract claim to binding arbitration or mediation. The City shall not be liable to contractor for any special, punitive or exemplary damages arising from the performance of the contract, including, but not limited to, incidental damages, and lost profit and lost wages, even if such special damages are reasonably foreseeable. Any provision(s) in the Contract contrary to these statements is/are hereby deleted and rendered void.

H. COPYRIGHTS

The Offeror hired pursuant to this contract is prohibited from copyrighting any papers, interim reports, forms, or other materials resulting from performance under this agreement, without the written permission of the Purchasing Agency. Data and their analysis, forms, and images gathered or developed during fulfillment of this contract may be used by the Offeror in subsequent

copyrighted publications, provided the copyrights do not in any way restrict or limit the Purchasing Agency's ownership, use, or distribution of said information, forms, or images.

I. AWARDING THE CONTRACT

The award of a contract shall be determined in the sole discretion of the City based upon evaluation of all information as the City may request. The City reserves the right to waive any informality in bids submitted in response to this Invitation to Bid when such waiver is in the best interest of the City.

The City of Staunton shall endeavor to award the contract within thirty (30) days from receipt of bids. Notice of award will be posted on the City Web Site at <http://www.staunton.va.us/solicitation-results>

J. PUBLIC INSPECTION OF PROCUREMENT RECORDS

1. Bids submitted shall be subject to public inspection only in accordance with Section 2.2-4342 of the Code of Virginia, which reads, in essence, as follows:
2. Public inspection of certain records:
 - a. Except as provided in this section, all proceedings, records, contracts, and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act.
 - b. Cost estimates relating to a proposed procurement transaction prepared by or for a public body shall not be open to public inspection.
 - c. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the evaluation and negotiations of bids are completed but prior to award, except in the event that the City decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract.
 - d. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.
 - e. Trade secrets or proprietary information submitted by a bidder, offeror or contractor in connection with a procurement transaction shall not be subject to the Virginia Freedom of Information Act; however, the bidder, offeror or contractor shall
 - i) invoke the protections of this section prior to or upon submission of the data or other materials,
 - ii) identify the data or other materials to be protected, and
 - iii) state the reasons why protection is necessary.

Bidder may not invoke this protection on the entire bid – only on those sections or data which are considered trade secrets or proprietary.

K. ETHICS IN PUBLIC CONTRACTING

By submitting their bid, all offerors certify that their bid is made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer or sub-contractor in connection with their bid, and that they have not conferred on any public employee having official responsibility for this procurement transaction

any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised unless consideration of substantially equal or greater value was exchanged.

L. FORUM SELECTION

This solicitation and any resulting contract shall be governed in all respects by the laws of the Commonwealth of Virginia, without reference to conflict of laws principles or rules of construction. Any action, proceeding, or claim in any way related to this agreement or the relationship between the parties shall be filed and maintained solely in the General District Court or the Circuit Court of the City of Staunton, Virginia.

M. PROMPT PAYMENT ACT

Any contract awarded as a result of this Invitation to Bid shall incorporate the terms and conditions of Article 4 of the Virginia Public Procurement Act with respect to Prompt Payment.

N. REJECTION OF BIDS

The City reserves the right, at any time prior to award of the contract, to reject any and all bids, or any part thereof, to make no award, and/or to issue a new Invitation to Bid, or make modifications, corrections or additions to the information contained herein.

Offerors are cautioned this is an Invitation to Bid, NOT a request to contract.

O. COSTS FOR BID PREPARATION

Any costs incurred by offerors in preparing or submitting bids are the offeror's sole responsibility; the City will not reimburse any offeror for any costs incurred as a result of the preparation of this Invitation to Bid.

P. APPROPRIATIONS

The obligations of the City of Staunton are subject to and contingent upon annual appropriation by City Council of sufficient funds for the purposes of this contract. In the absence of such annual appropriation, either the City of Staunton or offeror may terminate the contract by giving not less than ten (10) days prior notice to the other, specifying this reason for the termination, and upon effective termination pursuant to this provision, any compensation due shall be equitably adjusted by mutual agreement.

Q. CONTRACTOR REGISTRATION

If a contract is for construction, removal, repair, or improvement of a building or other real property, bidders, whether residents or nonresidents of Virginia, will be required to show evidence of a certificate or registration as required by Chapter 7 of Title 54 of the Code of Virginia before their Bids will be considered. If a Bid is \$120,000 or more, or if the Contractor's annual volume is \$750,000 or more, the Contractor must be licensed as a "Class A Contractor." If a Bid is \$7,500 or more but less than \$120,000, the Contractor must be licensed as at least a "Class B Contractor". If a Bid is \$1,000 or more but less than \$7,500, the Contractor must be licensed as at least a "Class C Contractor". The Bidder shall place license on the outside of the envelope containing the Bid and shall place license in the Bid, at the place provided, whichever of the following notations is appropriate:

Licensed Class A Virginia Contractor No. _____

Licensed Class B Virginia Contractor No. _____

Licensed Class C Virginia Contractor No. _____

Contract is less than \$1,000 therefore licensure is not required.

R. STATE CORPORATION COMMISSION IDENTIFICATION NUMBER

Pursuant to Code of Virginia, §2.2-4311.2 subsection B, a bidder or offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 is required to include in its bid the identification number issued to it by the State Corporation Commission (SCC). **(Attachment SCC)**

Any bidder or offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law is required to include in its bid a statement describing why the bidder or offeror is not required to be so authorized. Link to the Virginia State Corporation Commission site: (<http://www.scc.virginia.gov/>).

S. ANTITRUST

By entering into a contract, the contractor conveys, sells, assigns, and transfers to the City all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the City under said contract.

T. QUALIFICATIONS OF (BIDDERS/OFFERORS)

The City may make such reasonable investigations as deemed proper and necessary to determine the ability of the (bidder/offeror) to perform the services/furnish the goods and the (bidder/offeror) shall furnish to the City all such information and data for this purpose as may be requested. The City reserves the right to inspect (bidder's/offeror's) physical facilities prior to award to satisfy questions regarding the (bidder's/offeror's) capabilities.

The City further reserves the right to reject any (bid/proposal) if the evidence submitted by, or investigations of, such (bidder/offeror) fails to satisfy the City that such (bidder/offeror) is properly qualified to carry out the obligations of the contract and to provide the services and/or furnish the goods contemplated therein.

U. CANCELLATION OF THE CONTRACT

The City may terminate any agreement resulting from this solicitation at any time, for any reason or for no reason, upon thirty days advance written notice to the contractor. In the event of such termination the contractor shall be compensated for services and work performed prior to termination.

V. AVAILABILITY OF FUNDS

Agreements are made subject to the appropriation of funds by the Staunton City Council and are null and void in the event of non-appropriation by the City Council. Non-appropriation of funds shall not be deemed a cancellation and shall terminate this agreement without recourse and with no liability on the part of the City.

W. SELECTION PROCESS/AWARD

Upon the award or the announcement of the decision to award a contract as a result of this solicitation, the department will publicly post such notice for a minimum of ten (10) days, or will notify all responsive bidders/offerors.

X. SAFETY AND OSHA STANDARDS

All parties performing services for the City shall comply with all Occupational Safety and Health Administration (OSHA), State Occupational Health Standards, and any other applicable rules and regulations. All parties shall be held responsible for the training, supervision, and safety of their employees. Any unsafe acts or hazardous conditions that may cause injury or damage to any persons or property within and around the work site areas under this contract shall be remedied per the regulatory agency's guidelines.

Y. MODIFICATION & WITHDRAWAL OF BID

An offeror may modify or withdraw his bid, either personally or by written request, at any time prior to the scheduled time for opening of bids. After bid opening, Code of Virginia 2.2-4330 B. 1. shall apply: "The bidder shall give notice in writing of his claim of right to withdraw his bid within two business days after the conclusion of the bid opening procedure and shall submit original work papers with such notice."

Z. CONTRACT TERM

The Offeror whose Bid is found to be the most advantageous to the City will be offered the opportunity to enter into an Agreement with the City. The scope, terms, and conditions of that Agreement shall be in substantial conformance with the terms, conditions, and specifications described in this Invitation to Bid.

If, through any cause, the contractor shall fail to fulfill in a timely and proper manner the obligations agreed to, the City shall have the right to terminate the contract by specifying the date of termination in a written notice to the contractor at least thirty (30) days prior to the termination date. The City may terminate this contract without cause in the event funds are not appropriated the City of Staunton.

Part of the consideration will be the capability of the Offeror to immediately begin work and meet the proposed timetable above.

The City reserves the right to negotiate the Agreement, to include any portion or portions of the services covered by this Invitation to Bid, and to reject any and all Bids in total or by components.

The contractor shall not assign or transfer any interest in the contract without prior written consent of the City.

AA. COMPENSATION AND RECORD KEEPING

Total compensation for services will be negotiated between the City and the successful Offeror. The City retains the right to terminate contract negotiations if insufficient progress is being made to establish contract terms. The Offeror selected will be paid on a percentage of progress completed basis, as provided for in the contract or lump sum at completion or project. The contract will be written on a "cost not to exceed" basis. Records are to be kept by the Offeror in such detail as to properly reflect all direct or indirect costs of labor and material for which payment will be claimed.

BB. PAYMENT

Appropriate personnel will make payment for all completed work only after final approval and acceptability of the work completed.

CC. BID BOND

If required, the Bid Bond shall be in the amount of 5% and shall be submitted on the City of Staunton's Bid Bond form (Attachment BB) provided in this bid package.

DD. PERFORMANCE AND PAYMENT BONDS

If required, successful contractor agrees to provide a performance bond (Attachment PB) and a payment bond (Attachment PYB) for any contract signed which exceeds \$50,000. When required, performance bonds and payment bonds shall be submitted on the City of Staunton's bond forms provided in this bid package (Attachment PB and Attachment PYB).

EE. BID ADDENDA

Prior to submitting their bid, it is the bidder's responsibility to check the City web-site for any addenda associated with this Invitation for Bid.

FF.INSURANCE REQUIREMENTS

Prior to contract award, the Contractor shall furnish certificates of General Liability, Vehicle Liability, and Worker's Compensation Insurance in amounts not less than \$2,000,000, \$1,000,000, and \$1,000,000 respectively, to the City. All insurance coverages shall be written by companies licensed to do business in Virginia and shall be administered by a Virginia registered agent. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the City."

GG. CONTRACT TERMINATION

This contract will not be awarded to any vendor who has had a previous contract with the City of Staunton terminated for substantial non-compliance within the last three (3) years.

HH. DEBARMENT STATUS

By submitting their bids/proposals, all bidders or offerors certify that they are not currently debarred from submitting bids or proposals on contracts by any public body of the Commonwealth of Virginia, nor are they an agent of any person or entity that is currently debarred from submitting bids on contracts by any public body of the Commonwealth of Virginia.

II. CONTRACTOR UNDERSTANDING

It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and locations of the work, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions and all other matters which in any way effect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the City either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

JJ. DRUG-FREE WORKPLACE

During the performance of this contract, the contractor agrees to:

1. provide a drug-free workplace for the contractor's employees;
2. post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, possession, or use of a controlled substance or marijuana is prohibited in the

contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

3. state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000.00, so that the provisions will be binding upon each subcontractor or vendor.

KK. NONDISCRIMINATION OF CONTRACTORS:

A bidder, offeror, or contractor shall not be discriminated against in the solicitation or award of this contract because of race, religion, color, sex, sexual orientation, gender identity, national origin, age, disability, faith-based organizational status, any other basis prohibited by state law relating to discrimination in employment or because the bidder or offeror employs ex-offenders unless the state agency, department or institution has made a written determination that employing ex-offenders on the specific contract is not in its best interest. If the award of this contract is made to a faith-based organization and an individual, who applies for or receives goods, services, or disbursements provided pursuant to this contract objects to the religious character of the faith-based organization from which the individual receives or would receive the goods, services, or disbursements, the public body shall offer the individual, within a reasonable period of time after the date of his objection, access to equivalent goods, services, or disbursements from an alternative provider.

LL. ANTI-DISCRIMINATION:

By submitting their (bids/proposals), (bidders/offerors) certify to the City of Staunton that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and § 2.2-4311 of the Virginia Public Procurement Act (VPPA). If the award is made to a faith based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender sexual orientation, gender identity, or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (Code of Virginia, § 2.2-4343.1E).

In every contract over \$10,000 the provisions in 1. and 2. below apply:

1. During the performance of this contract, the contractor agrees as follows:
 - a. The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, sexual orientation, gender identity, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
 - b. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer.

- c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
 - d. If the contractor employs more than five employees, the contractor shall (i) provide annual training on the contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and (ii) post the contractor's sexual harassment policy in (a) a conspicuous public place in each building located in the Commonwealth that the contractor owns or leases for business purposes and (b) the contractor's employee handbook.
 - e. The requirements of these provisions 1. and 2. are a material part of the contract. If the Contractor violates one of these provisions, the Commonwealth may terminate the affected part of this contract for breach, or at its option, the whole contract. Violation of one of these provisions may also result in debarment from State contracting regardless of whether the specific contract is terminated.
 - f. In accordance with Executive Order 61 (2017), a prohibition on discrimination by the contractor, in its employment practices, subcontracting practices, and delivery of goods or services, on the basis of race, sex, color, national origin, religion, sexual orientation, gender identity, age, political affiliation, disability, or veteran status, is hereby incorporated in this contract.
2. The contractor will include the provisions of 1. above in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.
- a. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer.
 - b. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

The contractor will include the provisions of the foregoing paragraphs 1 and 2 in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

MM. PERMITS AND LICENSES

Any required City permits must be obtained by the contractor but will be provided at no cost. The successful contractor must obtain at his/her own expense, the required business license from the City of Staunton, Commissioner of Revenue's Office prior to beginning work. All equipment and/or installation must meet all applicable local, State, and Federal codes.

NN. NEGOTIATION WITH SUCCESSFUL BIDDER

The City reserves the right to negotiate contract terms with the successful offeror for items/services other than those specifically stated in this IFB in the best interest of the City and agreed to by the contractor, in accordance with § 2.2-4318 of the Code of Virginia. Additional work of reasonable scale shall be priced consistent with bid to allow for additions and future expansions.

OO. COOPERATIVE PROCUREMENT

This procurement is being conducted on behalf of other public bodies, in accordance with § 2.2-4304 (A) of the Code of Virginia. If authorized by the bidder, the resultant contract may be extended to any public body in the Commonwealth of Virginia in accordance with contract terms.

PP. IMMIGRATION REFORM AND CONTROL ACT OF 1986

During the performance of this contract, contractor agrees that they will not, and shall not knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986. (per 2.2-4311.1)

QQ. CERTIFICATION OF INTEREST & RELATIONSHIPS WITH CITY OF STAUNTON, STAUNTON CITY COUNCIL, SCHOOL BOARD, AND STAUNTON PUBLIC SCHOOL EMPLOYEES

The extent that either Contractor or any of Contractor's officers, directors, or executive employees, maintains a financial or familial relationship with any person acting for, or employed by, the City of Staunton, Staunton City Council, School Board or Staunton Public Schools, Contractor shall reveal such relationships. In accordance with this paragraph, Contractor shall execute the certification attached hereto as **(Attachment E)** and submit the certification contemporaneously with the executed Contract.

VENDOR REFERENCES FORM

Note: The following information is required as part of your response to this solicitation. Failure to complete and provide this sheet may result in finding your bid nonresponsive.

- 1) Qualification: The vendor must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.

- 2) Vendor's Primary Contact:

Name: _____ Phone: _____

- 3) Years in Business: Indicate the length of time you have been in business providing this type of good or service:

_____ Years _____ Months

- 4) Vendor Information:

Vendor SCC Registration #: _____

- 5) Indicate below a listing of at least four (4) current or recent accounts, either commercial or governmental, that your company is servicing, has serviced, or has provided similar goods. Include the length of service and the name, address, and telephone number of the point of contact.

- | | | | |
|----|-------------------------|-----------------|--|
| A. | Company: _____ | Contact: _____ | |
| | Phone: () _____ | E-Mail: _____ | |
| | Project: _____ | | |
| | Dates of Service: _____ | \$ Value: _____ | |
-
- | | | | |
|----|-------------------------|-----------------|--|
| B. | Company: _____ | Contact: _____ | |
| | Phone: () _____ | E-Mail: _____ | |
| | Project: _____ | | |
| | Dates of Service: _____ | \$ Value: _____ | |

Continued on next page.

VENDOR REFERENCES FORM

(Cont.)

C.	Company:	_____	Contact:	_____
	Phone:	()	E-Mail:	_____
	Project:	_____		
	Dates of	_____		
	Service:	_____	\$ Value:	_____
D.	Company:	_____	Contact:	_____
	Phone:	()	E-Mail:	_____
	Project:	_____		
	Dates of	_____		
	Service:	_____	\$ Value:	_____

I certify the accuracy of this information.

Signed: _____ Title: _____ Date: _____

ATTACHMENT A**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as Principal, and
_____ as Surety, are hereby held
and firmly bound unto _____ as Owner in
the penal sum of _____ for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our
heirs, executors, administrators, successors and assigns.

Signed, this _____ day of _____ 2023

The condition of the above obligation is such that whereas the Principal has submitted to
_____ a certain bid attached
hereto and hereby made a part of hereof to enter into a contract in writing, for the _____

NOW THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The surety for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By: _____

Seal

**ATTACHMENT B
PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: that _____

(Insert full name or legal title and address of Contractor)

as Principal, hereinafter called Contractor,

and _____

(Insert full name or legal title and address of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto _____

(Insert Name and Address of Owner)

as Obligee in the amount of: _____ dollars (\$ _____)

(Insert sum equal to contract price in both words and figures)

for the payment where of Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____, 2023,
entered into a Contract with Owner for:

Staunton, Virginia

(Insert name or description and location of project)

in accordance with Drawings and Specifications as prepared by:

(Insert full name or legal title and address)

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, in strict conformity with the Drawings, Specifications and Contract Documents, then this obligation shall be null and void. Otherwise, it shall remain in full force and effect for one (1) year after completion of all work:

- a. The Surety hereby waives notice of any alternation or extension of time made by the Owner.
- b. Any suit under this bond must be instituted, (1) before the expiration of one (1) year after completion of the Contract including the expiration of all warranties and guarantees, or (2) before the expiration of one (1) year after a defect or breach of warranty is discovered, if the action be for such.
- c. No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the successors or assigns of Owner and every action brought hereon shall be filed and maintained solely in the General District Court or the Circuit Court of the City of Staunton, Virginia.

SIGNED AND SEALED THIS _____ day of _____, 2023

In the presence of:

PRINCIPAL (SEAL)

WITNESS

BY TITLE

SURETY

WITNESS

BY TITLE

Surety: (Attach power of attorney)

CONTRACTOR'S PERFORMANCE BOND
Project: _____

ATTACHMENT C
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

that _____

(Insert full name or legal title and address of Contractor)

as Principal, hereinafter called Contractor,

and _____

(Insert full name or legal title and address of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto

(Insert full name or legal title and address of Owner)

as Obligee for the use and benefit of claimants as herein below defined in the amount of: _____

_____ (\$_____).

(Insert sum equal to contract price in both words and figures)

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____, 2023,
entered into a Contract with Owner for:

(Insert name or description and location of project)

in accordance with Drawings and Specifications as prepared by: _____

(Insert full name or legal title and address)

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and materials used or reasonable required for use in the performance of the Contract, then this obligation shall be void. Otherwise, it shall remain in full force and effect, subject, however, to the following conditions:

- a. A Claimant is defined as one having a direct contract with the Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.
- b. The above-named Contractor and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work of labor was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as many be justly due claimant and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
- c. Any suit or action hereunder by any claimant:
 1. Shall not be commenced after the expiration of one (1) year following the date on which the claimant last performed labor or last supplied materials.
 2. Shall be filed and maintained solely in the General District Court or the Circuit Court of the City of Staunton, Virginia.

SIGNED AND SEALED THIS _____ day of _____, 2023,
in the presence of:

_____(SEAL)
PRINCIPAL

WITNESS

BY TITLE
_____(SEAL)
SURETY

WITNESS

BY TITLE

Surety:
(Attach power of attorney)

CONTRACTOR'S LABOR AND MATERIAL
PAYMENT BOND
Project _____

ATTACHMENT D

CERTIFICATION OF INTEREST & RELATIONSHIPS WITH CITY OF STAUNTON, STAUNTON CITY COUNCIL, SCHOOL BOARD AND STAUNTON PUBLIC SCHOOL EMPLOYEES

Contractor hereby certifies that neither Contractor, nor any of Contractor's officers, directors, or executive employees maintain a financial or familial relationship with any person acting for, or employed by, the City of Staunton, Staunton City Council, School Board, or Staunton Public Schools (City Employee).

To the extent that such relationships exist, Contractor shall reveal the relationship below by describing the nature of the relationship and identifying the person with whom such relationship exists.

- ☐ Neither Contractor nor any of its officers, directors, or executive employees maintain a financial or familial relationship with any person acting for, or employed by, the City of Staunton, Staunton City Council, School Board, or Staunton Public Schools.
- ☐ The following individuals currently maintain a **financial** relationship with Contractor.

City Employee's Name: _____

Position with City: _____

Nature of Relationship: _____

- ☐ The following individuals currently maintain a **familial** relationship with Contractor.

City Employee's Name: _____

Position with City: _____

Nature of Relationship: _____

Contractor

Date

By: _____

Name: _____

Title: _____