## BID NO. PUR-1557 INVITATION TO BID ISSUED ON BEHALF OF THE BOARD OF COUNTY COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND BY

## THE WASHINGTON COUNTY PURCHASING DEPARTMENT 100 WEST WASHINGTON STREET, SUITE 3200 HAGERSTOWN, MD 21740 PHONE: 240-313-2330 FAX: 240-313-2331

#### DATE ISSUED: June 14, 2022

#### **ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING**

## PRE-BID CONFERENCE/TELECONFERENCE

#### DATE/TIME AND LOCATION:

Wednesday, June 22, 2022 at 1:00 P.M. (EDT/EST) Washington County Public Annex 145 IKO Way Hagerstown, MD 21740

**SUBMIT BIDS TO:** 

Washington County Purchasing Department Washington County Administration Complex 100 West Washington Street Third Floor, Suite 3200 Hagerstown, MD 21740

#### **BID SUBMISSION DEADLINE AND TELECONFERENCE BID OPENING TIME:**

No later than 2:00 P.M. (EDT/EST), Wednesday, July 13, 2022

**BID OPENING LOCATION:** 

Washington County Administration Complex Conference Room 2001 Second Floor, 100 West Washington Street Hagerstown, MD 21740

If indicated below ( $\sqrt{}$ ) and not waived by the County, Bidders shall be required to provide the following:

- ▲ A Bid Bond, in the amount of five (5%) percent of the bid on a bid of \$100,000 or more for construction contracts and on a bid of \$50,000 or more for contracts for services, supplies, or construction related services. See "Bid Bonds – Section 2" of the General Conditions and Instructions to Bidders.
- ▲ A Performance Bond for a bid award of \$100,000 or more on construction contracts and on contracts for services, supplies, or construction related services. See "Bid Bonds Section 2" of the General Conditions and Instructions to Bidders.
- \_\_\_\_\_A Labor and Material Bond for a bid award of \$100,000 or more on construction contracts and on contracts for services, supplies, or construction related services. See "Bid Bonds Section 2" of the General Conditions and Instructions to Bidders.

## PUR-1557

# **ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING**

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# PURCHASING DEPARTMENT DIVISION OF BUDGET & FINANCE

#### PUR-1557

## **ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING**

#### **INVITATION TO BID**

The Board of County Commissioners of Washington County, Maryland will accept sealed bids for "ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING". Bid documents are available immediately from the Washington County website: <u>https://www.washco-md.net/purchasing-department/purch-open-invites/</u>, for assistance you may contact the Washington County Purchasing Department, Washington County Administration Complex, 100 West Washington Street, Third Floor, Suite 3200, Hagerstown, MD 21740. Direct all inquiries to Rick F. Curry, CPPO – Director of **Purchasing**, at telephone 240-313-2330

All bids must be enclosed in a sealed opaque envelope marked "SEALED BID – (PUR-1557) **ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING**" and be received and time stamped by the Washington County Purchasing Department, Washington County Administration Complex, 100 West Washington Street, Third Floor, Suite 3200, Hagerstown, Maryland, 21740, no later than 2:00 P.M., (EDT/EST), Wednesday, July 13, 2022 after which time they will be publicly opened and read aloud in the in the Washington County Administration Complex, Second Floor Conference Room 2001. Bids received after this time will be returned unopened. All interested parties are invited to be present. For those bidders who wish to hear a reading of the bids please call 240-313-2330 to receive instructions prior to this teleconference. *Facsimile Bids or any electronic bid submission will not be accepted*.

A Site Visit will be held on Wednesday, June 22, 2022 immediately following the Pre-Bid Conference/Teleconference, at 145 IKO Way. All interested bidders are requested to be present. Attendance is not mandatory but is strongly encouraged. Attendance is not mandatory but is strongly encouraged. Bidders who wish to participate in the teleconference, please call 240-313-2330 for further instructions.

<u>NOTE</u>: All Bidders must enter the Washington County Administration Complex through either the front door at the 100 West Washington Street entrance or through the rear entrance (w/blue canopy roof) which is handicap accessible and must use the elevator to access the Purchasing Department to submit their bid and/or to attend the Pre-Bid Conference. Alternate routes are controlled by a door access system. The new measures took effect Tuesday, February 14, 2017. The general public will be subject to wand search and will be required to remove any unauthorized items from the building prior to entry. Prohibited items include but are not limited to: Weapons of any type; Firearms, ammunition and explosive devices; Cutting instruments of any type - including knives, scissors, box cutters, work tools, knitting needles, or anything with a cutting edge, etc.; Pepper spray, mace or any other chemical defense sprays; and Illegal substances.

100 West Washington Street, Room 3200 | Hagerstown, MD 21740-4748 | P: 240.313.2330 | F: 240.313.2331 | TDD: 711

# WWW.WASHCO-MD.NET

Washington County shall make positive efforts to utilize Disadvantaged Business Enterprises for its supplies and services and shall allow these sources to maximum feasible opportunity to compete for contracts. The Board of County Commissioners does not discriminate on the basis of race, color, national origin, sex, religion, age and disability in employment or the provision of services. Individuals requiring special accommodations are requested to contact the undersigned at 240-313-2330 Voice, TTY Dial 711 to make arrangements no later than five (5) calendar days prior to the Pre-Bid Conference and/or Bid Opening.

The Board of County Commissioners of Washington County, Maryland, reserves the right to accept or reject any or all bids and to waive formalities, informalities and technicalities therein. The Board reserves the right to contact a Bidder for clarifications and may, at its sole discretion, allow a Bidder to correct any and all formalities, informalities and technicalities in the best interest of Washington County.

By Authority of:

Hurry

Rick F. Curry, CPPO Director of Purchasing

## **BOARD OF COUNTY COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND**

#### **GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS**

Supply and Service Contracts

#### **INTRODUCTION**

The general rules and conditions which follow, along with all other documents consisting of this "Bid Document," apply to all purchases and become a definite part of each formal invitation to bid, purchase order, contract, or other award issued by the Washington County's Director of Purchasing (hereinafter "Director of Purchasing"), unless otherwise specified. Bidders or their authorized representatives are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting bids; failure to do so will be at the Bidder's own risk and they cannot secure relief on the plea of error. Bidders are advised that all costs related to preparing and/or submitting a Bid or Proposal shall be borne by the Bidder.

Satisfactory evidence of authority to bind the firm by the person signing the Bid when submitted by partnerships or corporations may be requested by the County prior to making any award. Anyone signing a Bid as an agent shall include evidence of his/her authority to do so.

Subject to Maryland State and Washington County, Maryland (hereinafter "County") laws and all rules, regulations and limitations imposed by legislation of the Federal Government, bids on all advertisements and invitations issued by the Washington County Purchasing Department shall bind bidders to applicable conditions and requirements set forth herein unless otherwise specified in the Invitation to Bid. Should there be a conflict in laws between states, State of Maryland law shall prevail.

Should there be a conflict between the general bid conditions and the supplemental bid conditions (if any), the supplemental bid conditions shall prevail.

## **GENERAL CONDITIONS OF BIDDING**

- 1. Bids Binding for Ninety (90) Days: Unless otherwise specified all formal bids submitted shall be binding for ninety (90) calendar days following bid opening date, unless the bidder, upon request of the Director of Purchasing, agrees to an extension.
- 2. Bids for All or Part: Unless otherwise specified by the County or by the Bidder, the County reserves the right to make award on all items, or on any of the items according to the best interests of the County. Bidder may restrict his/her bid to consideration in the aggregate by so stating, but should name a unit price on each item bid upon; any bid in which the bidder names a total price for all the articles without quoting a price on each and every separate item, may be rejected at the option of the County.
- 3. **Catalogs:** Each Bidder shall submit where necessary or when requested by the Director of Purchasing, catalogs, descriptive literature, and detailed drawings, fully detailing features, designs, construction, finishes and the like necessary to fully describe the materials or work they propose to furnish.

- 4. **Collusive Bidding:** The Bidder certifies that his/her bid is made without any previous understanding, agreement or connection with any person firm, or corporation making a bid for the same project, without unlawful prior knowledge of competitive prices, and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action.
- 5. Competency of Bidder: No proposal shall be accepted from, or contract awarded to any person, firm or corporation that is in arrears or is in default to Washington County upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said County, or had failed to perform faithfully any previous contract with the County. The Bidder, if requested, must present within forty-eight (48) hours evidence satisfactory to the Director of Purchasing of performance ability and possession of necessary facilities, pecuniary resources and adequate insurance to comply with the terms of these specifications and contract documents.

The successful Bidder shall actively cooperate in all matters pertaining to the proper compliance of this contract and shall come to the office of the Director of Purchasing whenever requested in connection with the performance of this contract.

The successful Bidder shall inform the Director of Purchasing of any and all circumstances which may impede the progress of the work or inhibit the performance of the contract including, but not limited to bankruptcy, dissolution or liquidation, merger, sale of business, assignment, etc.

The County may examine the Bidder's and any first-tier subcontractor's records to determine and verify compliance with the contract. The Bidder and any first-tier subcontractor must grant the County access to these records at all reasonable times during the contract term and for three (3) years after final payment. If the contract is supported to any extent by Federal or State funds, the appropriate Federal or State authorities may also examine these records. The Bidder must include the preceding language of this paragraph in all first-time subcontracts.

- 6. **Completeness:** All information required by Invitation to Bid must be supplied to constitute a proper bid. The County shall not be responsible for the premature opening of Bids if not properly addressed or identified.
- 7. Conditional Bids: Qualified bids are subject to rejection in whole or in part.
- 8. **Confidentiality:** Firms shall give specific attention to the identification of those portions of their proposals that they deem to be confidential, proprietary information or trade secrets and provide any justification why such materials, upon request, should not be disclosed by the County under the Access to Public Records Act, State Government Article, Title 10, Sections 10-611 to 10-628, Annotated Code of Maryland.
- **9.** Errors in Bids: When an error is made in extending total prices, the written unit bid price shall govern. In the absence of written prices, the unit bid price shall govern. Carelessness in quoting prices, or in preparation of bid, otherwise, will not relieve the Bidder. *Erasures or changes in bids must be initialed*.
- 10. General Guaranty: Bidder agrees to:
  - a. Save the County, its agents, and employees harmless from liability of any nature or kind for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented, invention, article or appliance furnished or used in the performance of the contract which the Bidder is not the patentee, assignee, licensee or owner.

- b. Protect the County against latent defective material or workmanship and to repair or replace any damages or marring occasioned in transit or delivery.
- c. Furnish adequate protection against damage to all work and to repair damages of any kind, to the building or equipment, to their own work or to the work of other contractors, for which their worker is responsible due to the negligence in the course and scope of the employment.
- d. Pay for all permits, licenses and fees and give all notices and comply with all laws, ordinances, rules and regulations of the County and State of Maryland.

## 11. Illegal Immigrants:

- a. The Bidder shall comply with the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification, and nondiscrimination. Under the INA, the Bidder may hire only persons who may legally work in the United States (i.e., citizens and nationals of the U.S.) and aliens authorized to work in the U.S. The Bidder shall verify the identity and employment eligibility of anyone employed or to be employed, including completion of the Employment Eligibility Verification Form (I-9). The Bidder shall establish appropriate procedures and controls to ensure that no services under this Contract will be performed by any worker who is not legally eligible to perform such services or for employment.
- b. Failure by the Bidder or his/her Sub-Contractors to comply with the provisions of Section 11.a. herein will be grounds for termination of the Contract.
- Insurance: Liability insurance on all major divisions of coverage for each and every Bidder and 12. subcontractor shall be required for the length of the contract. Bidder and subcontractor must supply evidence of insurance upon request. Each Bidder agrees to assist in every manner possible in the reporting and investigation of any accident, and upon request, agrees to cooperate with all interested insurance carriers in the handling of any claims by securing and giving evidence and obtaining the attendance of witnesses as required for any claim or suit. The Bidder shall be prepared to show evidence of insurance as required under Washington County's Insurance Requirements for Independent Contractors Policy, included herein, prior to the execution of any contract. The Bidder, if requested, shall provide the Certificate of Insurance to the Purchasing Department within ten (10) calendar days after receiving a request for it. Failure to provide an acceptable Certificate of Insurance within the time frame stated above shall be cause to terminate the contract(s). The certificate shall state that such insurance is in force and cannot be cancelled or released except upon thirty (30) days prior written notice to the County. If any of the stated coverages expire during the term of this contract, the Bidder shall deliver renewal certificates to the County at least ten (10) calendar days prior to the expiration.
- 13. Interpretations, Discrepancies, Omissions: Should any Bidder find discrepancies in, or omissions from the documents or be in doubt of their meaning, he/she should at once request, in writing, an interpretation from:

Rick F. Curry, CPPO – Director of Purchasing Washington County Purchasing Department Washington County Administration Complex 100 West Washington Street, Suite 3200

#### Hagerstown, MD 21740 FAX: 240-313-2331 or send questions in Microsoft Word platform via e-mail to: purchasingquestions@washco-md.net

All necessary interpretations will be issued to all Bidders in the form of addenda to the specifications, and such addenda shall become part of the contract documents. Exceptions as taken in no way obligates the County to change the specifications. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under his/her bid as submitted. The County shall assume no responsibility for oral instructions or suggestions. <u>ORAL ANSWERS WILL NOT BE BINDING ON THE COUNTY</u>. Requests received after 4:00 P.M. on the date included in the Supplemental Terms and Conditions may not be considered.

- 14. Landfill Tipping Fees: Disposal of items shall be at an approved sanitary landfill and any fees for same must be included in the Bidder's proposal.
- **15.** Late Bids: Formal bids or amendments thereto received by the County after the time specified for bid opening will not be considered. Bids received after the time specified for bid opening will be returned unopened.
- 16. Mailing of Bids: The County assumes no responsibility for the timely deliverance of mailed bids. Ample time should be allowed for the transmittal of bids by mail, and postmarks indicating the date of mailing will not be considered as evidence of intent to submit bids in proper time for the opening.
- 17. Maryland Buy American Steel Act: In accordance with the Annotated Code of Maryland -State Finance and Procurement Article, Sections 17-301 – 17-306, Washington County is defined as a Public Body and as such shall require a Bidder or subcontractor to use or supply only American Steel products in the performance of a contract as stated in the above referenced Sections.
- 18. Multiple Bids: No Bidder shall be allowed to offer more than one (1) price on each item even though he/she may feel that there are two (2) or more types or styles that will meet specifications. Bidders must determine for themselves which to offer. If said Bidder should submit more than one (1) price on any item, all prices for that item may be rejected at the discretion of the Director of Purchasing.
- 19. Officers Not to Benefit: No member of the elected governing body of Washington County, or members of his or her immediate family, including spouse, parents, or children, or any person representing, or purporting to represent any member or members of the elected governing body shall receive or be promised directly or indirectly, any financial benefit, by way of fee, political contribution, or any other similar form of remuneration and/or on the account of awarding and/or executing the contract and that upon request of the County, as a prerequisite to payment pursuant to the terms of this contract, there will be furnished to the requester, under oath, answers to any interrogatories related to a possible conflict of interest as herein embodied. The Bidder, to the best of his/her knowledge, whether he/she be an officer, director, partner or any of its employees directly involved in obtaining contracts with the State, or any County or other subdivision of the State, has not been convicted of bribery or conspiracy to bribe under the laws of any State or Federal Government. Any contract made or entered into where it is discovered that violation of the intent of this provision exists shall be declared null and void and all monies received by the Bidder shall be returned to the County.

- 20. Payment Terms: Bid prices are to be net thirty (30) calendar days; all discounts are to be deducted and reflected in net prices. Term discounts of less than twenty (20) calendar days will not be considered in connection with any prompt payment discount offered, time will be computed from date of receipt of correct invoice or receipt and acceptance of shipment, whichever is later.
- Procurement Policy Manual: This bid is administered according to Washington County's 21. Procurement Policy Manual adopted by the Board of County Commissioners of Washington County, Maryland on June 25, 2013 and effective July 1, 2013. The contents of the aforementioned Manual may be requested from the Washington County Purchasing Department at 240-313-2330 https://www.washco-md.net/wpweb site at: found on the or may be content/uploads/ProcurementPolicyManual2013FinalDraftrevised3-5-2022.pdf.
- 22. **Proposal Forms:** Bids shall be submitted only on the forms provided by the County. The Bidder shall submit one (1) original bid on the forms provided with original signature, sealed to the County for that purpose. All bids must be enclosed in a sealed, opaque envelope marked with the title of the bid and be received in the Washington County Purchasing Department promptly on or before, time, date, and place stipulated on the Invitation to Bid. <u>NO</u> bids received after such stipulated time and date will be considered by the County. *Facsimile Bids will not be accepted*.
- 23. Registration with Maryland Department of Assessments and Taxation: Prior to contracting, private corporations must either be incorporated in the State of Maryland or registered with the Maryland Department of Assessments and Taxation as a foreign corporation and must be in good standing. Proof of such standing is required prior to the start of the contracting process and good standing shall be maintained for the duration of the contract. The website for the State Department of Assessments and Taxation is: <u>http://dat.maryland.gov/Pages/sdatforms.aspx#BNE</u>, and the phone numbers for the State Department of Assessments and taxation are: (410) 767-1340 or (888) 246-5941.
- 24. Reservations: The County or its authorized agent reserves the right to reject any or all bids and to waive any informality or deficiency in bids received whenever such rejection or waiver is in the best interest of the County. The County also reserves the right to reject the bid of a Bidder who has previously failed to perform properly or complete on time contracts of a similar nature, or the Bid of a Bidder who investigation shows is not in a position to perform the contract. The County reserves the right to waive minor differences in specifications provided these differences do not violate the specifications intent nor affect the operation for which the items are being purchased, nor increase estimated maintenance and repair cost to the County. The County reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination as shall, in its judgment, be in the best interest of the County.
- 25. **Response to Invitation:** In the event you cannot submit a bid on our requirements, as set forth in the "Invitation to Bid", please return the Bid with an explanation as to why you are unable to bid on these requirements. Because of the large number of firms listed on the County's lists of Bidders, it is necessary to delete from these lists the names of those persons, firms or corporations who fail to respond after having been invited to bid on a commodity or commodities for three (3) successive bid openings.
- 26. Substitutions: All equipment is to be supplied in exact accordance with the specifications. Any Bidder who contemplates offering a product that differs from that specified must obtain the County's written approval prior to bid opening. Substitution requests must be received in the

Purchasing Department, no later than the date/time specified in the Supplemental Terms and Condi Conditions. Requests received after the specified date/time will not be considered. All such decisions will be considered final and not subject to further recourse.

## 27. Taxes-Responsibility for Payment, Exemptions, Forms to be Filed, etc.:

- a. The County is exempt from State of Maryland Sales Tax. The County's Maryland Sales Tax Exemption Number is 3000129 2. However, the Bidder is responsible for making any necessary inquiries and investigations with regulating state agencies to obtain a determination of tax exemptions in his/her bid.
- b. The Bidder is responsible for and by submitting a Bid agrees to pay all retail sales, income, real estate, sales and use, transportation, and special taxes applicable to and assessable against any materials, equipment, processes and operations incident to or involved in the Project. The Bidder is responsible for ascertaining and acquainting his/herself with such taxes and making all necessary arrangements to pay same.
- c. The Successful Bidder shall complete a W-9 Vendor Information form (provided by the County) and return it to the Director of Purchasing.
- d. The County hereby reserves the right to withhold payment under this Contract until the Bidder and any subcontractor performing any duties under this Contract have furnished or caused to be furnished the Comptroller of the State of Maryland with all properly completed forms required by the said Comptroller and until all of said retail sales and/or use taxes due the State of Maryland by the Bidder have been paid and the Bidder exhibits a release or receipt from the Comptroller evidencing such payment.
- e. The Bidder is hereby advised of Section 1-106(b)(3) of the Code of Public Local Laws of Washington County, MD: "If a bidder has not paid all taxes owed to the County or a municipal corporation in the County, the County Commissioners may reject the bidder's bid."
- **28.** Withdrawal of Bids: A written request for the withdrawal of a bid or any part thereof may be granted if the request is received by the County prior to the specified time of opening.

#### **BID BONDS**

- 1. Bid Deposit Bid Bond, Certified or Cashier's Check: When required, each bid shall be accompanied by a bid bond signed by a surety company licensed to do business in the State of Maryland, or by a cashier's check, certified check or Treasurer's check drawn on a responsible bank doing business in the United States in the amount of five (5%) percent of the total Bid and shall be made payable to the Board of County Commissioners of Washington County, Maryland. When computing the amount of Bid for Check purposes, DO NOT deduct for trade-ins. U.S. Postal Money Orders are acceptable in lieu of checks.
- 2. Performance/Labor and Material Bonds: The successful Bidder(s) on this bid must furnish the required bonds as indicated on the bid cover, made out to the Board of County Commissioners of Washington County, Maryland, prepared on forms contained herein, or in his/her absence, on an approved form, as security for the faithful performance of his/her contract, within ten (10) calendar days of his/her notification that his/her bid has been accepted. The surety thereon must be such surety company or companies as are authorized and licensed to transact business in the State of Maryland. Attorneys in fact who sign bonds must file with each bond a certified copy of his/her power of attorney to sign bonds. The successful Bidder or Bidders upon failure or refusal to furnish within ten (10) calendar days after his/her notification the required bonds shall forfeit to the County, as liquidated damages his/her bid deposit. The Performance Bond shall be in the amount of one hundred (100%) percent of the contract price covering faithful performance of the contract; and the Labor and Materials Payment Bond shall be in the amount of one hundred (100%) percent of the required bond shall be in the amount of the contract price as security for payment of all persons performing labor and furnishing materials in connection therewith.

# SPECIFICATIONS REFERENCES

- 1. Formal Specifications: The Bidder shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission but shall fully complete every part as the true intent and meaning of the specifications and drawings. Whenever mention is made herein, of any article, material, or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, A.S.T.M. regulations or similar expressions, the requirements of these laws, ordinances, etc., shall be construed to meet or exceed specification requirements and current established noise levels for specific equipment, materials, and/or services being furnished under this contract. All deviations from the specifications must be noted in detail by the Bidder, in writing, at the time of submittal of the formal bid. The absence of a written list of specification deviations at the time of submittal of the bid will hold the Bidder strictly accountable to the County to the specifications as written. Any deviation from the specifications as written not previously submitted, as required by the above, will be grounds for rejection of the material and/or equipment when delivered.
- 2. Samples: The Purchasing Department reserves the right to retain or destroy the samples submitted for the purpose of evaluation and will be free from any redress or claim on the part of the Bidder if any samples are lost or destroyed. Bidders shall make all arrangements for delivery of samples to the place designated, as well as the removal of samples. Cost of delivery and removal of samples shall be borne by the Bidder. Upon notification by the Purchasing Department that a sample is available for pickup, it shall be removed within thirty (30) calendar days at the Bidder's expense, or the Director of Purchasing shall dispose of same at his/her discretion. All sample packages shall

be marked "Sample for Purchasing Department" and each sample shall bear the name of the Bidder, item number, bid number, and shall be carefully tagged or marked in a substantial manner. Failure of the Bidder to clearly identify samples as indicated may be considered sufficient reason for rejection of bid.

Trade Names/Substitutions: In cases where an item is identified by a manufacturer's name, trade 3. name, catalog number, or reference it is understood that the Bidder proposes to furnish the item so identified and does not propose to furnish an "equal/substitution" unless submission of an "equal/substitution" is stated otherwise as permissible. Any Bidder who contemplates offering a product that differs from that specified must obtain the County's written approval by submission of his/her request no later than the deadline for receipt of substitution requests as stated in the Supplemental Terms and Conditions. The reference to the above catalog is intended to be descriptive but not restrictive and only to indicate to the prospective Bidder articles that will be satisfactory. Bids on makes and catalogs will be considered, provided each Bidder clearly states on the face of his/her proposal exactly what he/she proposes to furnish, and forwards with his/her bid, a cut, illustration, or other descriptive matter which will clearly indicate the character of the article covered by his/her bid. The Director of Purchasing hereby reserves the right to approve as an equal, or to reject as not being an equal, any article the Bidder proposes to furnish which contains major or minor variations from specification requirements but may comply substantially therewith. If no particular brand, model, or make is specified, and if no data are required to be submitted with the bid, and after award and before manufacture or shipment, the successful Bidder may be required to submit working drawings or detailed descriptive data sufficient to enable the Director of Purchasing to judge if each requirement of the specifications is being complied with.

#### AWARD

- 1. Award or Rejection of Bids: For contracts of purchase, the contract shall be awarded to the lowest, responsive and responsible Bidder complying with all the provisions of the Invitation, provided the bid price is reasonable and it is to the best interest of the County to accept it. For contracts of sale, the contract shall be awarded to the highest, responsive and responsible Bidder complying with all the provisions of the Invitation, provided the bid price is to the best interest of the bid price is to the best interest of the County to accept it.
- 2. Notice of Award: A written award (or Acceptance of Bid) mailed (or otherwise furnished) to the successful Bidder within the time for acceptance as specified herein shall be deemed to result in a binding contract without further action by either party. The bid with respect to all items accepted and all papers accompanying the same, the general conditions and instructions to Bidders, the specifications, and other papers and documents referred to in any of the foregoing shall constitute the formal contract, unless otherwise specified, between the Bidder and the County.
- 3. Political Contribution Disclosure: In accordance with Maryland Code, <u>State Finance and</u> <u>Procurement Article</u>, §17-402, the Bidder shall comply with Maryland Code, <u>Election Law Article</u>, Title 14, which requires that every person that enters into contracts, leases, or other agreements with the State, a county, or any incorporated municipality, or their agencies during a calendar year in which the person receives in the aggregate \$100,000 or more, shall file with the State Administrative Board of Election Laws a statement disclosing contributions in excess of \$500 made during the reporting period to a candidate for elective office in any primary or general election. The statement shall be filed with the State Administrative Board of Election Laws: (1) before a purchase or execution of a lease or contract by the State, a county, an incorporated

municipality or their agencies and shall cover the preceding two (2) calendar years; and (2) if the contribution is made after the execution of a lease or contract, then twice a year, throughout the contract term, on: (a) February 5, to cover the 6-month period ending January 31; and (b) August 5, to cover the 6-month period ending July 31.

- 4. "Requirements" Contract Bid Quantities: On "Requirements" bids, acceptance shall bind the County to pay for, at unit bid prices, only quantities ordered and satisfactorily delivered. All stated quantities are estimated requirements and do not constitute a minimum or maximum.
- 5. Responsibility/Qualifications of Bidder: The County may make such investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the County that such Bidder is properly qualified to carry out the obligation of the contract and to complete the work contemplated therein. Conditional bids will not be accepted. In determining responsibility, the following qualifications, in addition to price, shall be considered by the Director of Purchasing on contracts of purchase and on contracts of sale (if applicable):
  - a. The ability, capacity and skill of the Bidder to perform the service required.
  - b. The character, integrity, reputation, judgment, experience and efficiency of the Bidder.
  - c. The quality of performance of previous contracts or services.
    - d. The Bidder's previous and present compliance with laws and ordinances relating to the contract or service.
    - e. The sufficiency of the financial resources and ability of the Bidder to perform the contract or provide the service.
    - f. The quality, availability and adaptability of the supplies, or services, to the particular use required.
    - g. The ability of the Bidder to provide future maintenance and service for the use of the subject of the contract.
    - h. Whether the Bidder is in arrears to the County on a debt or contract or is a defaulter on surety to the County.
    - i. Such other information as may be secured having a bearing on the decision to make the award.
    - j. In determining a Bidder's responsiveness, the Director of Purchasing shall consider material deviations from the advertised specifications which materially affect price, quantity, quality or limit the Bidder's liability.
- 6. Specific Bid Quantities: Where quantities are specifically stated, acceptance will bind the County to order quantities specified and to pay for, at contract prices, all such supplies or services delivered that meet specifications and conditions of the contract. However, the County will not be required to accept delivery of any balances unordered, as of the contract expiration date, unless Bidder

furnishes the Director of Purchasing with a statement of unordered balances not later than ten (10) calendar days after the termination date of the contract.

7. **Tie Bids:** If two (2) or more Bidders shall be tied for the lowest bid on a purchase contract, quality and service being equal, the contract shall be awarded to a local Bidder. If there is no local Bidder, or more than one local Bidder, the County shall award the contract to one (1) of the Bidders by drawing lots in public.

# **CONTRACT PROVISIONS**

- 1. Availability of Funds: A contract shall be deemed executory only to the extent of appropriations available to each County department/agency for the purchase of such articles. The County's extended obligation on those contracts that envision extended funding through successive fiscal periods shall be contingent upon actual appropriations for the succeeding fiscal year.
- 2. **Contract Alterations:** No alterations or variables in the terms of a contract shall be valid or binding upon the County unless made in writing and signed by the County or its authorized agent.
- 3. **Default:** The contract may be cancelled or annulled by the County in whole or in part by written notice of default to the Bidder upon non-performance or violation of contract terms. An award may be made to the next low Bidder, or, articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting Bidder (or their surety) shall be liable to the County for costs to the County in excess of the defaulted contract prices: Provided, that the Bidder shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the Bidder to deliver materials or services within the time stipulated on his/her bid, unless extended in writing by the Director of Purchasing, shall constitute contract default. In the event that a Bidder exempted from posting a Bid or Performance Guarantee fails to execute and perform any contract awarded to them, they shall forfeit the right to Bid on any future County contract for a period of time determined by the Director of Purchasing and they shall be liable for any costs incurred by the County as a result of his/her default.
- 4. **Guarantee:** All work, supplies, and/or materials and requirements described in the specifications including any modifications thereto which may be made in accordance with the direction and/or approval of the County Director of Purchasing shall be Guaranteed/Warranted for a period of one (1) year from the date of final acceptance by the County as follows, unless indicated otherwise in this contract:
  - a. Against all faulty or imperfect materials and/or equipment and against all imperfect, careless and/or unskilled workmanship.
  - b. Against injury or undue deterioration from proper and usual use of the goods and/or services.
  - c. Removal and replacement with proper materials, equipment, and/or services and reexecute, correct or repair without cost to the County, any materials, equipment, and/or services found to be improper, imperfect, defective or fails to perform as specified.
  - d. Make good all damage caused to other work, materials and/or equipment due to such required removal, replacement and/or re-execution.

e. Shall comply with any and all guarantee/warranties of whatever nature referred to in other portions of the contract specifications.

Any warranties whether expressed or implied shall not reduce the risk of the seller's/ manufacturer's obligation to the County against latent defect which may be found during the rated life of the supplies and/or materials and requirements described in the specifications including any approved modifications.

- Intergovernmental Purchasing: The following Agencies/Jurisdictions shall be able to purchase, 5. if applicable, directly from contracts resulting from this Invitation to Bid (ITB): Washington County Board of Education and all of its public schools, Hagerstown Community College, Municipalities of Washington County, and public or quasi-public agencies that receive County money and are exempt from taxation under Section 501(c)(3) of the Internal Revenue Code, i.e., Washington County Volunteer Fire and Rescue Companies. While this ITB is prepared on behalf of the County, it is intended to apply for the benefit of the above-named agencies/jurisdictions as though they were expressly named throughout the document. Each of these agencies/ jurisdictions may purchase from the successful Bidder under the same terms and conditions of the contract with the County, in accordance with each agencies/jurisdiction's respective laws and regulations, or an agency may choose not to procure from the successful Bidder at the agency's sole discretion. If one of the above-named agencies/jurisdictions elects to purchase under the contract, the price shall be determined by using unit costs and other pertinent costs provided in the offer. Any special discounts unique to a particular agency/jurisdiction shall be stated. Bidder shall also submit the attached "Provisions for Other Agencies" form, if included in this bid.
- 6. New Goods, Fresh Stock: All contracts, unless otherwise specifically stated, shall produce new commodities, fresh stock, latest model, design, or pack.
- 7. Non-Discrimination: No Bidder who is the recipient of County funds or who proposes to perform any work or furnish any goods under this agreement shall discriminate against any worker, employee or applicant or any member of the public because of religion, race, sex, color or national origin, age, marital status, physical or mental handicap, nor otherwise commit an unfair employment practice. Bidder further agrees that this article will be incorporated by Bidder in all contracts entered into with suppliers of materials or services, Bidders and subcontractors and all labor organizations, furnishing skilled, unskilled and craft union skilled labor, or who may perform any such labor or services in connection with this contract.
- 8. Non-Liability: The Bidder shall not be liable in damages for delay in shipment or failure to deliver when such delay or failure is the result of fire, flood, strike, act of God, act of government, act of an alien enemy or by any other circumstances which, in the Director of Purchasing's opinion, is beyond the control of the Bidder. Under the circumstances, however, the County may in its discretion, cancel the contract.
- 9. Placing of Orders: Orders against contracts shall be placed with the Bidder on a Purchase Order executed and released by the Director of Purchasing.
- 10. Subletting of Contract: It is mutually understood and agreed that the Bidder shall not assign, transfer, convey, sublet, or otherwise dispose of their contract or their rights, title or interest therein, or their power to execute such contract, to any other person, firm or corporation, without the previous written consent of the County Director of Purchasing, but in no case shall such consent relieve the Bidder from his/her obligations, or change the terms of the contract.

- 11. Termination of Contracts: Contracts shall remain in force for full periods specified and until all articles ordered before date of termination shall have been satisfactorily delivered and accepted and thereafter until all requirements and conditions shall have been met, unless:
  - a. Terminated prior to expiration date by satisfactory deliveries of entire contract requirements.
  - b. Extended upon written authorization of the Director of Purchasing and accepted by Bidder, to permit ordering of unordered balances or additional quantities at contract prices and in accordance with contract terms.
- 12. Termination for Convenience: The performance of work under this Contract may be terminated by the County in accordance with this clause in whole, or from time to time in part, whenever the County shall determine that such termination is in the best interest of the County. The County shall pay all reasonable expenses associated with this Contract that the Contractor has incurred up to the date of termination, and all reasonable expenses associated with termination of the Contract; provided, however, the Contractor shall not be reimbursed for any anticipatory profits that have not been earned up to the date of termination.

# **DELIVERY PROVISIONS**

- 1. **Delivery:** Delivery shall be required to the place designated in the specifications or on the proposal form. All prices must be FOB Destination, Inside Delivery. The weight, count, measure, etc. shall be determined at the points of delivery. The Bidder shall be required to furnish proof of delivery in every instance. Bulk materials are to be placed on skids or pallets. No help for unloading shall be provided by the County. Suppliers shall notify their shippers accordingly.
- 2. Delivery Failures: Failure of a Bidder to deliver within the time specified, or within a reasonable time as interpreted by the Director of Purchasing or failure to make replacements of rejected articles when so requested, immediately or as directed by the Director of Purchasing shall constitute authority for the Director of Purchasing to purchase in the open market articles of comparable grade to replace the articles rejected or not delivered. On all such purchases, the Bidder shall reimburse the County, within a reasonable time specified by the Director of Purchasing, for any expense incurred in excess of contract prices or the County may deduct such amount from monies owed the defaulting Bidder. Such purchases shall be deducted from contract quantities.
- 3. Inspections: Inspection and acceptance of materials or supplies shall be made after delivery. Final inspection shall be conclusive except as regards latent defects, fraud, or such gross mistakes as amount to fraud. Final inspection and acceptance or rejection of the materials or supplies shall be made as promptly as practicable, but failure to inspect and accept or reject materials or supplies shall not impose liability on the County for such materials or supplies as are not in accordance with the specifications. All delivered materials shall be accepted subject to inspect to inspection and physical count.
- 4. Hazardous Safety Data Sheets: Any hazardous substances as defined under the Department of Labor Occupational Safety and Health Standard for General Industry (29-CFR-1910.1200) and State of Maryland Law and Regulations on "Access to Information About Hazardous and Toxic Substances", MDSH Article 89, Section 28-49-D, being delivered to Washington County as a

result of this Invitation to Bid shall be accompanied by a current "Hazardous Data Safety Sheet" or item may not be accepted.

5. **Packing Slips or Delivery Tickets:** All shipments or deliveries shall be accompanied by Packing Slips or Delivery Tickets and shall contain the following information for each item delivered. Bidders are cautioned that failure to comply with these conditions shall be considered sufficient reason for refusal to accept the goods.

The Purchase Order Number The Name of the Article and Stock Number (Supplier's) The Quantity Ordered The Quantity Back Ordered The Name of the Contractor

- 6. **Responsibility for Materials Shipped:** The Bidder shall be responsible for the materials or supplies covered by this contract until they are delivered at the designated point and the Bidder shall bear all risk on rejected materials or supplies after notice of rejection. Rejected materials or supplies must be removed by and at the expense of the Bidder promptly after notification of rejection, unless public health and safety require immediate destruction or other disposal of rejected delivery. Upon failure of the Bidder to remove materials or supplies within ten (10) calendar days after date of notification, the County may return the rejected materials or supplies to the Bidder at the Bidder's risk and expense or dispose of them as its own property.
- 7. **Testing:** The cost of testing a representative sample of an order or shipment for acceptance shall be borne by the County. However, if the order and shipment is rejected for failure to meet the requirements of the specifications or purchase description, the cost of testing shall be charged to the Bidder.
- 8. Time of Delivery: Deliveries shall be accepted between 8:00 A.M. and 3:00 P.M. on weekdays only, unless stated otherwise in the bid document. No deliveries shall be accepted on Saturdays, Sundays or County Holidays, unless otherwise arranged by an individual Department/Agency.

#### PUR-1557

# **ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING**

## SUPPLEMENTAL TERMS AND CONDITIONS

- 1. <u>AWARD</u>: The Board of County Commissioners reserve the right to award the contract to the responsive, responsible lowest Bidder based upon the Total Lump Sum Bid. In the event that all responsive, responsible bids exceed the budget for this project, the County reserves the right to award the contract in a descending priority order not to exceed the budget for this project. The contract will not be split between multiple Bidders. Bidders must bid on all buildings to be considered responsive. It is the County's intent to issue a purchase order (which shall serve as a Notice to Proceed) within thirty (30) calendar days after submission of bid. Carelessness in bid prices, or in preparation of bid otherwise, will not relieve the Bidder. Erasures or changes in bids must be initialed.
- 2. <u>ACCESS TO SITES</u>: The successful Bidder shall coordinate all efforts of the work and access to the site with the County's authorized representative, Mr. Danny Hixon, Deputy Director of Public Works Buildings, Grounds and Facilities 240-313-2700.
- 3. <u>BIDDER'S QUALIFICATIONS</u>: A Bidder, if requested, shall submit evidence that the company maintains a permanent place of business, that the company has had at least five (5) successful years of experience as a roofing contractor, has available or can obtain personnel, and has equipment and financial resources to undertake and perform the Contract properly and expeditiously if the Contract is awarded to him/her. Each firm submitting a proposal shall be licensed to operate in Washington County.
- 4. **BIDDERS RESPONSIBILITY:** Each Bidder submitting a bid for this work shall first examine the site, verify any dimensions pertinent to the work, and thoroughly be satisfied to the conditions under which he/she will operate or that shall in any manner affect any work under this Contract. The Bidder shall accept the site as he/she finds it. All proposals shall take into consideration all conditions that may affect the work. No allowance shall be made to any Bidder for negligence in this respect.
- 5. **DISPUTES:** In cases of disputes as to whether or not an item or service quoted or delivered meets specifications, the decision of the County Commissioners or authorized representative shall be final and binding on both parties. The County's Director of Purchasing may request in writing, the recommendation of the head of the County agency using the item or materials, or other objective sources.
- 6. **EXAMINATION OF SITE:** The County will provide a tour of the building, on June 22 immediately following the pre-bid meeting for the purpose of making a visual survey. Before submitting a bid, each Bidder shall visit the site and shall be responsible for knowledge of the conditions affecting the work. The act of submitting a bid is to be considered acknowledgement of the Bidder that he/she has inspected the site and is familiar with the conditions and requirements and shall submit his/her bid accordingly.
- 7. **EXCEPTIONS:** The submission of a bid shall be considered an agreement to all the items, conditions, and specifications provided herein and in the various bid documents unless specifically noted otherwise in the proposal.

- 8. **FORM OF PROPOSAL:** All bids must be submitted on the forms provided herein.
- **9. INSTALLATION:** The roofing system shall be installed per the manufacturer's recommendations and industry standard practices. All costs associated with installation shall be included in the bid price.
- **10. INSURANCE:** Upon request and prior to execution of the contract, the successful Contractor shall show Evidence of Insurance as outlined in the attached copy of *Insurance Requirements for Independent Contractors*.
- 11. <u>INTERPRETATION, DISCREPANCIES, OMISSIONS</u>: Should any vendor find discrepancies in, or omissions from, the documents, or in his/her investigation of the site conditions, or be in doubt of their meaning, he/she should at once request, in writing, an interpretation from:

Rick F. Curry, CPPO – Director of Purchasing Washington County Purchasing Department Washington County Administration Complex 100 West Washington Street, Suite 3200 Hagerstown, MD 21740 FAX: 240-313-2331; or send questions in Microsoft Word platform via e-mail to: <u>purchasingquestions@washco-md.net</u>

All necessary interpretations will be issued to all vendors by the Washington County's Director of Purchasing in the form of addenda to the specifications, and such addenda shall become part of the Contract Documents. Exceptions as taken in no way obligates the County to change the specifications. Failure of any vendor to receive any such addendum or interpretation shall not relieve such vendor from any obligation under his/her bid as submitted. The County will assume no responsibility for oral instructions or suggestions. <u>ORAL ANSWERS WILL NOT BE BINDING ON THE COUNTY</u>. Requests received after **4:00 P.M., (EDT/EST), Wednesday, June 29, 2022 may** not be considered. Every interpretation made by the County will be made in the form of an addendum. If issued, addenda will be sent by the Director of Purchasing to all interested parties.

- 12 **LANDFILL FEES:** Disposal of items shall be at an approved landfill and any fees for same shall be included in the Bidders proposal.
- **13.** <u>LIQUIDATED DAMAGES</u>: Liquidated damages shall be applied at the rate of two hundredfifty (\$250.00) dollars per consecutive calendar day for each day the Contractor fails to complete the work as specified herein.
- 14. <u>LUMP SUM BID</u>: A lump sum bid is being requested for the work. The total sum for the work shall include the cost of any and all permits licenses and/or fees, the cost of all applicable seals and other taxes required by Local, State and Federal laws, the cost of required bonds and insurances, the cost of all material, labor, tools, equipment, transportation, landfill user fees, superintending and other services and facilities of every nature whatsoever or as may be necessary to complete the project as described in the specifications.
- **15. PAYMENT:** Payment will be made after final inspection, approval and acceptance of the work by the County's Representative. Upon final acceptance of the work, the invoice for payment shall

be submitted to the Washington County Division of Public Works, 100 West Washington Street, Hagerstown, Maryland 21740. Payment will be made within thirty (30) calendar days upon receipt of the invoice, in the amount stipulated on the Form of Proposal.

16. **QUALIFICATION:** The County may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidders shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any bid if the evidence submitted by or investigation of, such Bidder fails to satisfy the County that such Bidder is properly qualified to carry out the obligation of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

# 17. <u>RESPONSIBILITY OF CONTRACTOR</u>:

- a. Each Bidder submitting a bid for this work shall first examine the site(s) and thoroughly satisfy himself/herself to the conditions under which he/she shall operate or that shall in any manner affect any work under his contract.
- b. The Contractor shall accept the site(s) as he/she finds it. All proposals shall take into consideration all conditions that may affect the work. No allowance shall be made to any Contractor for negligence in this respect.
- c. Prior to contracting, private corporations must either be incorporated in the State of Maryland or registered with the Maryland Department of Assessments and Taxation as a foreign corporation and must be in good standing. Proof of such standing is required prior to the start of the contracting process and good standing shall be maintained for the duration of the contract. The website for the State Department of Assessments and Taxation is: <a href="http://dat.maryland.gov/Pages/sdatforms.aspx#BNE">http://dat.maryland.gov/Pages/sdatforms.aspx#BNE</a>, email address is <a href="http://dat.charterhelp@maryland.gov">sdat.charterhelp@maryland.gov</a>, and phone numbers are: (410) 767-1340 or (888) 246-5941.
- 18. <u>TIME OF COMPLETION</u>: By submission of bid, the Bidder agrees to commence work under this Contract upon receipt of the Notice to Proceed (issuance of Purchase Order) and prosecute the work diligently. The Bidders shall complete the project within one hundred fifty (150) calendar days. To account for long lead times in material procurement for insulation and the roofing membrane, the Bidder shall provide proof of material order placement to the County. Once verification that both orders have been placed, the contract calendar day will pause. Order placement is defined as having an approved submittal acknowledged for production/delivery by the manufacturer/supplier. The contract period will resume when both items have been received, and the Bidder shall provide signed bill of lading delivery receipts to the County.
- **19. PAYMENT FOR STORED MATERIALS:** Materials shall be so stored as to assure the preservation of their quality and acceptability for the work. When requested in writing by the Bidder and approved by the County, payment allowance will be made for nonperishable material to be incorporated in the Work delivered and stockpiled at the work site or other approved site.

The Bidder must submit with the request a list of all such materials and their location. The Bidder shall submit backup invoices, bills of lading, title documents, or such other documentation, satisfactory to the County. The Bidder must submit with the request proof of insurance in the amount of the payment requested to be maintain on the materials until such time as the materials

are incorporated into the Work. Only those materials for which the Bidder can transfer clear title to the County will be qualified for payment.

Stored material payment will allow up to one hundred (100) percent of the invoiced cost of the material plus freight charges to the Bidder when such material is delivered and stockpiles at the Project site, provided, that all such material will have been tested by the County and found to have met the Specifications or have been accepted under an approved certification program prior to such an allowance.

Material for which an allowance is requested shall be stored in an approved manner in areas where damage is not likely to occur. If any of the stored materials are lost, stolen, or become damaged in any manner, the Bidder shall be responsible for replacing or replacing of such damaged materials. The Bidder expressly agrees to assume and bear the risk of all loss, theft, or damage to the materials. The value of the lost, stolen or damaged material will be deducted from the Bidder's subsequent request for payment until replacement has been accomplished.

Material, for which payment has been made, either wholly or partially, shall not be removed from the approved location until such time that it is to be incorporated in the Work, unless authorized by the County.

The following prerequisites must also accompany the written request for payment:

- Consent of Surety specifying the material type and the Item(s) in which the material is to be used:
- Validated invoices showing that payment for the material has been made by the Bidder;
- A notarized statement from the Bidder attesting that the invoices, as submitted do not include charges and/or fees for placing, handling, erecting or any other charges and/or markups other than the actual material cost, sales tax(s), if applicable, and freight charges;
- Bills of lading showing delivery of the material; and
- Inspection test reports, certifications and/or a written statement from the Inspector attesting to the inspection and approval of the material.
- **20.** <u>WARRANTY</u>: TPO membrane roof system manufacturer shall provide a written weather tightness warranty for a maximum of twenty-five (25) years against leaks in roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions. Refer to the special provision Thermoplastic Membrane Roofing for more information.
- 21. **WORKING HOURS:** The normal number of working hours per day on this contract will be limited to nine (9) daytime hours, Monday through Friday, unless otherwise specified or authorized by the County in writing. The County reserves the right to accept or reject exception to working hours.

| POLICY TITLE:        | Insurance Requirements for<br>Independent Contractors |
|----------------------|---|
| ADOPTION DATE:       | August 29, 1989                                       |
| EFFECTIVE DATE:      | September 1, 1989                                     |
| FILING INSTRUCTIONS: |   |

#### I. <u>PURPOSE</u>

To protect Washington County against liability, loss or expense due to damaged property, injury to or death of any person or persons and for care and loss of services arising in any way, out of, or in connection with or resulting from the work or service performed on behalf of Washington County.

#### II. <u>ACTION</u>

The following should be inserted in all Independent Contractor Contracts:

"The Contractor shall procure and maintain at his sole expense and until final acceptance of the work by the County, insurance as hereinafter enumerated in policies written by insurance companies admitted in the State of Maryland, have A.M. Best rating of A- or better or its equivalent, and acceptable to the County."

1. **Workers Compensation:** The Contractor agrees to comply with Workers Compensation laws of the State of Maryland and to maintain a Workers Compensation and Employers Liability Policy.

| Minimum Limits Required: |                                     |
|--------------------------|-------------------------------------|
| Workers Compensation -   | Statutory                           |
| Employers' Liability -   | \$100,000 (Each Accident)           |
|                          | \$500,000 (Disease - Policy Limit)  |
|                          | \$100,000 (Disease - Each Employee) |

2. **Comprehensive General Liability Insurance:** The Contractor shall provide Comprehensive General Liability including Products and Completed Operations.

<u>Minimum Limits Required</u>: \$1,000,000 combined single limit for Bodily Injury and Property Damage.

Such insurance shall protect the County, its agents, elected and appointed officials, commission members and employees, and name Washington County on the policy as additional insured against liability, loss or expense due to damaged property (including loss of use), injury to or death of any person or persons and for care and loss of services arising in any way, out of, or in connection with or resulting from the work of service performed on behalf of Washington County.

## 2. **Comprehensive General Liability Insurance** (continued)

The Contractor is ultimately responsible that Subcontractors, if subcontracting is authorized, procure and maintain at their sole expense and until final acceptance of the work by the County, insurance as hereinafter enumerated in policies written by insurance companies admitted in the State of Maryland, have A.M. Best rating of A- or better or its equivalent, and acceptable to the County.

3. **Business Automobile Liability:** The Contractor shall provide Business Auto Liability including coverage for all leased, owned, non-owned and hired vehicles.

Minimum Limits Required: \$1,000,000 combined single limit for Bodily Injury or Property Damage.

**Certificate(s) of Insurance:** The Contractor shall provide certificates of insurance requiring a 30 day notice of cancellation to the Insurance Department, Board of County Commissioners of Washington County prior to the start of the applicable project.

Approval of the insurance by the County shall not in any way relieve or decrease the liability of the Contractor. It is expressly understood that the County does not in any way represent that the specified limits of liability or coverage or policy forms are sufficient or adequate to protect the interest or liabilities of the Contractor.

All responsibility for payment of any sums resulting from any deductible provisions, corridor, or selfinsured retention conditions of the policy or policies shall remain with the Contractor.

**General Indemnity:** The Contractor shall indemnify, defend and save harmless the Board of County Commissioners of Washington County, its appointed or elected officials, commission members, employees and agents for any and all suits, legal actions, administrative proceedings, claims, demands, damages, liabilities, interest, attorneys fees, costs and expenses of whatsoever kind of nature, whether arising before or after final acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the Contractor, or any one acting under its direction, control or on its behalf in connection with or incident to its performance of the Contract.

| Revision Date:  | August 27, 1991 |
|-----------------|-----------------|
| Effective Date: | August 27, 1991 |
| Revision Date:  | March 4, 1997   |
| Effective Date: | March 4, 1997   |

# 2022 / 2023 HOLIDAY SCHEDULE

| Holiday  | 2022   | 2023  |  |  |  |
|--|--|---|--|--|--|
| New Year's Day   | Saturday, January 1, 2022 (Observed<br>Monday, January 3, 2022)        | Sunday, January 1, 2023 (Observed<br>Monday, January 2, 2023)         |  |  |  |
| Martin Luther King's Birthday  | Monday, January 17, 2022   | Monday, January 16, 2023  |  |  |  |
| President's Day  | Monday, February 21, 2022  | Monday, February 20, 2023   |  |  |  |
| Good Friday  | Friday, April 15, 2022   | Friday, April 7, 2023   |  |  |  |
| Memorial Day   | Monday, May 30, 2022   | Monday, May 29, 2023  |  |  |  |
| Juneteenth   | Sunday, June 19, 2022<br>(Observed Monday, June 20, 2022)              | Monday, June 19, 2023   |  |  |  |
| Independence Day   | Monday, July 4, 2022   | Tuesday, July 4, 2023   |  |  |  |
| Labor Day  | Monday, September 5, 2022  | Monday, September 4, 2023   |  |  |  |
| Veteran's Day  | Friday, November 11, 2022  | Saturday, November 11, 2023<br>(Observed Friday, November 10, 2023)   |  |  |  |
| Day Before Thanksgiving Three<br>(3) Hours Holiday Pay – Early<br>Closure*   | Thursday, November 23, 2022  | Thursday, November 22, 2023   |  |  |  |
| Thanksgiving Day   | Thursday, November 24, 2022  | Thursday, November 23, 2023   |  |  |  |
| Friday after Thanksgiving  | Friday, November 25, 2022  | Friday, November 24, 2023   |  |  |  |
| Day Before Christmas Eve Three<br>(3) Hours Holiday Pay – Early<br>Closure*  | Friday, December 23, 2022<br>(Observed Thursday, December 22,<br>2022) | Saturday, December 23, 2023 (Observed<br>Thursday, December 21, 2023) |  |  |  |
| Christmas Eve  | Saturday, December 24, 2022 (Observed<br>Friday,<br>December 23, 2022) | Sunday, December 24, 2023 (Observed<br>Friday, December 22, 2023)     |  |  |  |
| Christmas Day  | Sunday, December 25, 2022 (Observed<br>Monday,<br>December 26, 2022)   | Monday, December 25, 2023   |  |  |  |
| Day Before New Year's Eve Three<br>(3) Hours Holiday Pay – Early<br>Closure* | Friday, December 30, 2022 (Observed<br>Thursday,<br>December 29, 2022) | Saturday, December 30, 2023 (Observed<br>Thursday, December 28, 2023) |  |  |  |
| New Year's Eve   | Saturday, December 31, 2022 (Observed<br>Friday, December 30, 2022)    | Sunday, December 31, 2023 (Observed<br>Friday,<br>December 29, 2023)  |  |  |  |

\* The County will be CLOSING at 1:00 PM on the day before Thanksgiving, the day before Christmas Eve, and the day before New Year's Eve.

#### **BID BOND**

| KNOW  | ALL        | PERSONS                | BY       | THESE        | PRESENTS,                    | that     | we,      | the      | undersigned, |
|---|------------|------------------------|----------|--------------|------------------------------|----------|----------|----------|--------------|
| as Principal, andas Surety, are hereby held and                         |            |                        |          |              |                              |          |          |          |              |
| firmly bo   | und unto   | the Board of G         | County   | Commissio    | oners of Washing             | ton Co   | unty, M  | larylan  | d as OWNER   |
| in the penal sum of for the payment of which, well and truly to be made |            |                        |          |              | uly to be made,              |          |          |          |              |
| we hereby   | y jointly  | and severally b        | oind ou  | rselves, suc | cessors and assig            | gns.     |          |          |              |
| Signed, this day of   |            |                        |          | ay of        | , 2022. The Condition of the |          |          |          |              |
| above ob  | ligation i | s such that whe        | ereas th | e Principal  | has submitted to             | Washi    | ngton (  | County   | Board of     |
| County C  | ommissi    | oners a certain        | BID, a   | ttached her  | eto and hereby n             | nade a p | oart her | eof to e | enter into a |
| contract i  | n writing  | g, for <b>Contract</b> | No. P    | UR-1557, I   | Roof Membrane                | Replac   | cement   | at 145   | IKO Way      |
| Building  |            |                        |          |              |                              |          |          |          |              |

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attachment hereto (Properly completed in accordance with said BID) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor 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 any 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:\_\_\_\_\_

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and authorized to transact business in the State where the project is located.

*Bid Bond* **Roof Membrane Replacement at 145 IKO Way Building** PUR-1557 Page 23

## PUR-1557 AGREEMENT

## BY AND BETWEEN BOARD OF COUNTY COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND

#### AND

#### XXXX

#### I. PARTIES

This Agreement ("Agreement") is made and entered into this day of , 2022, by and between the Board of County with an effective date of Commissioners of Washington County, Maryland, a body corporate and politic and a political "County"), (hereinafter the and Maryland subdivision of the State of corporation а

(hereinafter the "Contractor").

#### II. WORK EFFORT

- A. The Contractor hereby agrees to undertake the work efforts, generally and specifically defined within the Washington County Invitation to Bid dated June 14, 2022 and all addenda (collectively the "ITB") and the Contractor's Proposal dated \_\_\_\_\_\_\_, 2022 (the "Bid"), the contents of said ITB and Bid are incorporated herein by reference, and to adhere to, comply with and respond to all performance requirements, conditions, restrictions and provisions stated therein. If there is a conflict or discrepancy between the ITB and the Bid, then the terms, conditions and provisions of the ITB shall control, prevail, and supersede the terms and conditions of the Bid.
- B. The Contractor agrees to comply with all applicable federal, State, and local laws in the conduct of the work hereunder.

#### III. SCHEDULE

The Contractor may commence work within ten (10) days upon receipt of written notice to proceed from the County, such notice being contingent upon the execution of this Agreement by the County and the Contractor. The work shall be completed in an expeditious manner and in such sequence as agreed upon between the Contractor and the County and as set forth in the accepted Project Schedule as contained in the ITB.

Failure to maintain the scheduled level of effort as proposed and prescribed and/or deviation from the aforesaid Project Schedule without prior approval of the County shall constitute a ground for issuance of a Termination Notice in accordance with Section IV of this Agreement, except in cases in which the County agrees in writing that circumstances beyond the control of the Contractor shall warrant alteration, adjustment, or deviation from the schedule.

## **IV. TERMINATION**

The County may, upon written notice to the Contractor, terminate the performance or work under this Agreement, in whole or part, in accordance with the following criteria:

- A.1 Except as provided in A.2 below, if the Contractor shall default in performance of this Agreement in accordance with its terms and fails to cure the default within a period of ten (10) days after receipt from the County of a notice specifying the default, the County may terminate this Agreement.
- A.2 If the Contractor fails to provide an approved replacement as required by the ITB within one (1) working day of the departure of the individual being replaced, the County shall have the right to terminate this Agreement, immediately, without notice or opportunity to cure.
- B. If the County shall determine that termination is in the best interest of the County the County may terminate the Agreement. Any termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the basis for the termination, the extent to which performance of work is terminated, and the effective date of such termination.

If after termination of this Agreement or any part thereof for default under "A.1" or "A.2" above it is determined that the Contractor was not in default pursuant to "A.1" or "A.2", or that failure to perform satisfactorily is due to causes beyond the control and without fault or negligence on the part of the Contractor, the Notice of Termination shall be deemed to have been issued under subparagraph "B" above, and the rights and obligations of the parties involved shall be governed and resolved accordingly.

Upon receipt of a Notice of Termination and except as otherwise directed by the County, the Contractor shall stop work under this Agreement on the date and to the extent specified in the Notice of Termination; shall take all necessary or appropriate steps to limit disbursements and minimize costs; and shall furnish a report, as of the date of receipt of notice of suspension or termination, of the status of all activities conducted under the terms of this Agreement, including the work effort, funds, results accomplished, conclusions resulting there from and such other matters as the County may require.

Notwithstanding the above, the Contractor shall not be relieved of liability to the County for damages sustained by virtue of any breach of this Agreement by the Contractor. The County may withhold any payments to the Contractor for the purpose of set-off until such time as the exact amount of damages due to the County from the Contractor is determined.

## V. DISPUTES

Except as otherwise provided in this Agreement, any dispute concerning a question of fact arising under this Agreement which is not disposed of by agreement between the Contractor and County shall be decided by the County Administrator, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. Either party may appeal the decision of the County Administrator to any court of competent jurisdiction under the rules for judicial review of agency decisions.

# VI. AUDITS

- A. The Contractor shall maintain books, records, documents and other evidence directly pertinent to the performance under this Agreement and any federal, State or local law, rule, or regulation, in accordance with accepted professional practice and appropriate accounting procedures and practices. The County, or any of its duly authorized representatives, shall have access to such books, records, documents and other evidence for the purpose of inspection, audit and copying. The Contractor will provide proper facilities for such access and inspection.
- B. Audits conducted pursuant to this provision shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the American Institute of Certified Public Accountants. The Contractor agrees to the disclosure of all information and reports resulting from access to records pursuant to subparagraph (A) above. Where the audit concerns the Contractor, the auditing agency will afford the Contractor an opportunity for an audit exit conference and an opportunity to comment on the pertinent portions of the draft audit report. The final audit report will include the pertinent written comments, if any, of the audited parties.
- C. Records under subparagraph (A) above shall be maintained and made available during performance under this Agreement and until three (3) years from the date of final completion of the project. In addition, those records which relate to any dispute or litigation, or the settlement of claims arising out of such performance, or costs or items to which an audit exception has been taken, shall be maintained and made available until three (3) years after the date of resolution of such dispute, litigation, claim or exception.

#### VII. DEFECTIVE WORK

The performance of services or County acceptance of required reports shall not relieve the Contractor from the obligation to correct any defective work, whether previously or subsequently noted, and all incomplete, inaccurate, or defective work shall be remedied by the Contractor on demand, within a reasonable time, and at no cost to the County. "Defective work" includes, without limitation, such matters as erroneous tabulations, incomplete surveys, maps, or reports and incorrectly assembled reports, publications, etc. caused by error or omission, for a period of twelve (12) months after the final report delivery by the Contractor.

With regard to any construction resulting from services rendered to the County by the Contractor, any applicable statute of limitations shall commence to run, and any alleged cause of action shall be deemed to have accrued not later than the relevant Date of Substantial Completion of the Work, and as to any acts or failures to act occurring after the relevant Date of Substantial Completion, not later than the date of issuance of the final Certificate for Payment.

## **VIII. CHANGES**

The County may, from time to time, require changes in the scope of the services of the Contractor to be performed hereunder. Any such change, including any increase or decrease in the amount of the compensation to the Contractor, shall be incorporated in a written change order to this Agreement and payment or adjustment effected as set forth in Section XIV of this Agreement.

# IX. WAIVERS

The failure of the parties to enforce, at any time, the provisions of this Agreement or to exercise any option that may be provided herein shall in no way be construed to be a waiver of such provisions nor in any way to affect the validity of this Agreement or any part thereof or the right of the parties to enforce thereafter each and every provision.

# X. COUNTY FURNISHED DATA

All information, data, reports, records, and maps as exist and identified by the Contractor, available to the County without significant cost, and necessary for the work, shall be furnished to the Contractor without charge by the County. The County shall cooperate with the Contractor in every reasonable manner in carrying out the planning work, providing, however, that the needs of the Contractor for such support are made known to the County in advance of such need.

The County will not provide clerical assistance to the Contractor for this Project and County personnel will not be asked to undertake surveys, analysis, tabulations, summaries, etc., of contractor-produced data or documentation. However, County employees are free to participate in contractor-conducted surveys as questionnaire recipients or survey groups for the purpose of providing information and opinions.

## XI. DATA RELEASE

The type and quantity of data to be provided by the Contractor as the product of this effort is defined in the incorporated Bid and/or SCOPE OF WORK, and the County reserves the right to use, duplicate and disclose this data, in whole or in part, in any manner for any purpose whatsoever and to authorize others to similarly do so. The Contractor shall not release the results of this work or any reports or other material pertaining to it without the express written consent of the County except to comply with appropriate State and federal requirements. In such instances, the Contractor shall confer with the County before doing so. Materials approved for release by the Contractor cannot be distributed for profit.

The Contractor may publish information pertaining only to its services rendered under this Agreement but shall not release copies of its documentation or final report to any other parties without the prior written approval of the County.

## XII. REPORTS

Reports are to be provided as specified in the ITB.

#### XIII. MEETINGS

When requested by the person established as the primary contact for the task being performed, selected employees of the Contractor shall attend meetings, conferences, and presentations with County staff, public agencies, private organizations, and others concerned with the Project.

# XIV. PAYMENT

Payment will be made after final inspection, approval and acceptance of the work by the County's Representative. Upon final acceptance of the work, the invoice for payment shall be submitted to the Washington County Division of Public Works, 100 West Washington Street, Hagerstown, Maryland 21740. Payment will be made within thirty (30) calendar days upon receipt of the invoice, in the amount stipulated on the Form of Proposal.

In the event that changes in the general scope of effort are mutually agreed upon by the parties, the degree of change of scope in terms of man-hours (amount and type) will be negotiated to a satisfactory solution between the parties and payment or credit for this adjustment will be made part of this Agreement by written change order to the purchase order to this Agreement.

## XV. METHOD OF PAYMENT

The Contractor will, at the designated time set forth in the project schedule incorporated into this Agreement, submit on its standard form an invoice for services rendered under this Agreement. The invoices shall indicate the percentage completion of each of the major tasks and the total amount due for the billing period. In addition, the Contractor shall submit a monthly report that shall indicate progress during the billing period of each of the principal tasks, and the status of the various work products that the Contractor is required to furnish as part of the Agreement.

The Contractor will submit the original and two copies of the invoice directly to the Washington County Division of Public Works, 100 West Washington Street, Hagerstown, Maryland 21740. This invoice will be reviewed and verified for work accomplished as set forth in the statement of work and schedule (Sections II and III of this Agreement) and, when certified as acceptable, will be forwarded to the County Finance Officer for payment.

In event of dispute or defective work (Section V and VII of this Agreement), the County reserves the right to withhold payment until such time as the dispute is resolved, the defective work corrected, or settlement is achieved through other means.

#### XVI. PERSONNEL

The Contractor represents that it has or will secure, at its own expense, all necessary personnel required to perform the services under this Agreement. Such personnel shall not be employees of or have any contractual relationship with agencies providing funds for the Project. Prior to removal/replacement or attempted removal/replacement of personnel, the Contractor agrees to obtain the County's written approval of such personnel removal/replacement. The Contractor's failure to obtain the County's written approval of such personnel removal/replacement will constitute grounds for the County to terminate this Agreement pursuant to Section IV. The County reserves the right to reject any of the Contractor's personnel, including any replacement personnel, at any time, without explanation or recourse. If, at any time, and in its sole discretion, the County determines that the services provided under and pursuant to this Agreement by any of the Contractor's personnel are not satisfactory, the County will notify the Contractor in writing after which the Contractor will immediately withdraw such personnel and, within one (1) working day, furnish replacement personnel who possess the required qualifications and who will perform satisfactory services hereunder.

# XVII. EQUAL OPPORTUNITY EMPLOYMENT AND DBE ASSURANCES

#### A. Equal Opportunity Employment

The Contractor agrees and affirms that it accepts and will conform to Maryland anti-discrimination law, as follows:

The Contractor shall not:

(1)... fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, sexual orientation, age, national origin, marital status, or disability unrelated in nature and extent so as to reasonably preclude the performance of the employment; or

(2)... limit, segregate or classify his employees or applicants for employment in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of the individual's race, color, religion, sex, sexual orientation, age, national origin, marital status, or disability unrelated in nature and extent so as to reasonably preclude the performance of the employment.

The Contractor will comply with the regulations relative to non-discrimination on federally assisted programs of the U.S. Department of Transportation ("DOT") Title 49, Code of Federal Regulations ("CFR"), Part 21, as amended from time to time ("Regulations") and incorporated herein and made a part hereof by reference.

The Contractor, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices, when the Agreement covers a program set forth in Appendix B of the Regulations.

In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin. The Contractor will provide all information and reports required by the Regulations or directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the County, the FAA, or the MAA, to be pertinent for ascertaining compliance with such Regulations, orders, and instructions. Where any information required of the Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor will so certify to the County, the FAA, or the MAA, as appropriate, and will set forth the Contractor's efforts made to obtain the information.

In addition, the Contractor further certifies that it now complies and will continue to comply with all federal, state, and local laws and regulations pertaining to equal opportunity and equal employment practices.

In the event of the Contractor's non-compliance with the non-discrimination provisions of this Agreement, the County will impose such sanctions as the County, the FAA, and/or the MAA may determine to be appropriate, including, but not limited to, (a) withholding of payments to the Contractor under this Agreement until the Contractor complies, and/or (b) cancellation, termination, or suspension of this Agreement, in whole or in part.

#### B. <u>DBE Assurances</u>

It is the policy of the DOT that DBE, as defined in 49 CFR Part 26, as amended from time to time, will have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this Agreement. Consequently, the DBE requirements of 49 CFR Part 26, as amended from time to time, apply to this Agreement. The Contractor agrees to ensure that DBE, as defined in 49 CFR Part 26, as amended from time to time, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this Agreement. In this regard, the Contractor will take all necessary and reasonable steps in accordance with 49 CFR Part 26, as amended from time to time, to ensure that DBE have the maximum opportunity to compete for and perform contracts. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT-assisted contracts.

#### C. Prompt Payment

The Contractor agrees to pay each subcontractor under this Agreement for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the Contractor receives from the County. The Contractor agrees further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above-referenced time frame may occur only for good cause following written approval of the County. This clause applies to both DBE and non-DBE subcontractors.

#### **XVIII. CONFLICT OF INTEREST**

- A. No officer or employee of the County and no member of its governing body, and no other public official of the governing body of the locality or localities in which the work is situated or being carried out, or of other local public agencies, who exercises any functions or responsibilities in review or approval of the undertaking or carrying out of this work, during his tenure or one year thereafter shall have any personal interest, direct or indirect, apart from his official duties, in this Agreement or the proceeds thereof.
- B. The Contractor covenants that it has presently no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. The Contractor further covenants that in the performance of this Agreement no person having such interest shall be employed.

#### XIX. EXECUTION OF AGREEMENT

This Agreement may be simultaneously executed in several counterparts, each of which shall be deemed to be an original having identical legal effect. This Agreement shall be construed to bind the parties hereto in accordance with the Constitution and laws of the State of Maryland

#### XX. COUNTY SAVED HARMLESS/INSURANCE REQUIRED

## A. Professional Liability

The Contractor shall defend, indemnify, and save the County harmless from all claims, suits, judgments, expenses, actions, damages and costs of every name and description arising out of or resulting from the negligent performance of the professional services of the Contractor, its servants or agents, under this Agreement.

Monies to become due the Contractor under this Agreement as may be considered necessary by the County shall be retained by the County until such suits or claims for damages shall have been settled or until the Contractor furnishes to the County satisfactory evidence of insurance coverage with respect to such suits or claims.

B. General Liability

The Contractor shall defend, indemnify and save the County harmless from all claims, suits, judgments, expenses, actions, damages and costs of every name and description to which the County may be subject or put by reason of injury to persons (bodily injury, including death, or any personal injury) or property damage as a result of its work, caused or alleged to be caused by negligence or fault on the part of the Contractor, its servants, or agents (other than that arising out of Contractor's professional services).

Monies to become due the Contractor under the Agreement as may be considered necessary by the County shall be retained by the County until such suits or claims for damages shall have been settled or until the Contractor furnishes to the County satisfactory evidence of insurance coverage with respect to such suits or claims.

- C. The Contractor shall not hold the County liable for any injuries to employees, servants, agents, subcontractors or assignees of the Contractor arising out of or during the course of services relating to this Agreement.
- D. The Contractor will provide to the County evidence of insurance coverage satisfactory to the County providing coverage, including but not limited to, coverage in the amount of \$1,000,000 for the liabilities arising out of those matters mentioned in subparagraph (A), (B) and (C) of this section. and shall name the Board of County Commissioners of Washington County, Maryland, as additional insureds under the Contractor's general liability policy.

## XXI. COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that it has not employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee working for the Contractor, to solicit or secure this Agreement, and that it has not paid or agreed to pay any person, partnership, corporation, or other entity, other than a bona fide employee, any fee or any other consideration contingent on the making of this Agreement. For breach or violation of this warranty the County shall have the right to terminate this Agreement without liability, or, in its discretion, to deduct from the Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

## XXII. SUBCONTRACTING OR ASSIGNMENT

The benefits and obligations hereunder shall inure to and be binding upon the parties hereto and their respective successors, provided that any such successor to the Contractor, whether such successor be an individual, partnership, corporation, or other legal entity is acceptable to the County, and neither this Agreement nor the services to be performed thereunder shall be subcontracted, assigned or otherwise disposed of, either in whole or in part, except with the prior written consent of the County.

#### XXIII. DELAYS AND EXTENSIONS OF TIME

The Contractor agrees to prosecute the work continuously and diligently and no charges or claims for damages shall be made by it for any delays or hindrances, from any cause whatsoever during the progress of any portion of the services specified in this Agreement. Such delays or hindrances, if any, may be compensated for by an extension of time for such reasonable period as the County may decide. Time extensions will be granted only for excusable delays such as delays beyond the control and without the fault or negligence of the Contractor.

## XXIV. CHANGES, ALTERATIONS OR MODIFICATIONS IN THE SERVICES

The County shall have the right, at its discretion, to change, alter or modify the services provided for in this Agreement and such changes, alterations, or modifications may be made even though it will result in an increase or decrease in the services of the Contractor or in the cost thereof. Such changes, alterations, or modifications to the services provided for in this Agreement shall be made by written change orders.

Any such change, alteration or modification which either separately or in combination results in a change in the scope of services or an increase in the amount payable to the Contractor will be processed by a written change order requisition and is effective only when the change order is issued.

## XXV. AVAILABILITY OF DATA

Each party hereto shall make available to the other party, without cost, all nonproprietary technical data under its control reasonably necessary to the performance of the services required under this Agreement.

#### **XXVI. OWNERSHIP OF DOCUMENTS**

The Contractor agrees that all data including but not limited to reports, drawings, studies, specifications, estimates, maps, photographs, and computations prepared by or for it under the terms of this Agreement shall at any time during the performance of the services be made available to the County upon request and shall become and remain the property of the County upon termination or completion of the services contemplated herein. The County shall have the right to use the same without restriction or limitation and without compensation to the Contractor other than that provided in this Agreement.

## XXVII. DISSEMINATION OF INFORMATION

During the term of this Agreement, the Contractor shall not release any information related to the performance of the services under this Agreement nor publish any final reports or documents without the prior written approval of the County.

# **XXVIII. SANCTIONS UPON IMPROPER ACTS**

If the Contractor, or any of its officers, partners, principals, members or agents, or if an employee of the Contractor acting with its acquiescence, is convicted of a crime arising out of or in connection with the procurement of this Agreement or the services or any payment under it, the Agreement may be terminated as provided in Section IV. In the event of a conviction occurring after the expiration or termination of this Agreement, the Contractor shall be liable for the refund of all fees or profit paid under the Agreement. The rights and remedies set forth herein shall be in addition to, and the exercise thereof shall in no way be considered or construed as a waiver of, any other rights or remedies granted or available to the County.

## XXIX. RESPONSIBILITY OF CONTRACTOR

- A. The Contractor shall perform the services with that standard of care, skill, and diligence normally provided by a Contractor, Architect or Engineer in the performance of services similar to the services hereunder.
- B. Notwithstanding any review, approval, acceptance or payment for the services by the County, the Contractor shall be responsible for professional and technical accuracy of its work, design, drawings, specifications and other materials furnished under this Agreement.
- C. If the Contractor fails to perform the services, or any part of the services, in conformance with the standards set forth in subparagraph A above, and such failure is made known to the Contractor within two (2) years after expiration of this Agreement, it shall, if required by the County, perform at its own expense and without additional cost to the County, those services necessary for the correction of any deficiencies or damage resulting, in whole or in part, from the Contractor's failure. This obligation is in addition to and not in substitution for other remedies available to the County under Section IV and the terms and conditions of this Agreement.
- D. The Contractor shall be required to furnish, upon request by the County, proof that it has the financial capacity to provide the services and that it is financially able, through its own resources or through a qualified surety, to protect the County from errors and omissions that might arise from the direct performance of the services or the performance of the services by third parties relying on the completed design or work product.

## XXX. CHOICE OF LAW

- A. This Agreement was made and entered into in the State of Maryland and is to be construed under the laws of the State of Maryland. As to the Contractor, this Agreement is intended to be a contract under seal and a specialty.
- B. The laws of the State of Maryland and Washington County shall govern the resolution of any issue arising in connection with this Agreement, including, but not limited to all

questions concerning the validity of this Agreement, the capacity of the parties to enter therein, any modification or amendment thereto, and all rights and obligations of the parties hereunder.

C. The parties agree that any legal proceedings arising out of this Contract shall be litigated in the Circuit Court for Washington County, Maryland, if appropriate, or otherwise, any court of competent jurisdiction in the State of Maryland.

## XXXI. COMPLIANCE WITH LAWS

The Contractor hereby represents and warrants

- A. That it is qualified to do business in the State of Maryland and that it will take such action as, from time to time hereafter, may be necessary to remain so qualified;
- B. That it is not in arrears with respect to the payment of any monies due and owing the County, or any department or agency thereof, including but not limited to the payment of taxes and employee benefits, and that it shall not go into arrears during the term of this Agreement;
- C. That it shall comply with all federal, State and local laws, ordinances, and legally enforceable rules and regulations applicable to its activities and obligations under this Agreement;
- D. That it shall procure, at its expense, all licenses, permits, insurance and governmental approval, if any, necessary to the performance of its obligations under this Agreement;
- E. That the facts and matters set forth hereafter in the Affidavit and Signature Page attached to this Agreement and made a part hereof are true and correct.

In addition to any other remedy available to the County, breach of any of subparagraphs A through E of this Section shall, at the election of the County, be grounds for termination as provided for in Section IV herein, provided, however, that failure of the County to terminate this Agreement shall not be considered or construed as a waiver of such breach nor as a waiver of any rights or remedies granted or available to the County.

## XXXII. NOTICE OF POLITICAL CONTRIBUTIONS

The Contractor agrees, in accordance with Md. Code, <u>State Finance and Procurement Article</u>, §17-402, to comply with the political contribution reporting requirements under Md. Code, Title 14, <u>Election Law Article</u>, as amended from time to time, to which the Contractor may be subject.

## XXXIII. TRADE RESTRICTION

The Contractor, by submission of an offer and/or execution of a contract/agreement, certifies as follows:

A. It is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative ("USTR");
- B. It has not knowingly entered into any contract or subcontract for the Project with a person that is a citizen or national of a foreign country on said USTR list; nor is it owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
- C. It has not procured any product nor subcontracted for the supply of any product for use on the Project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of the DOT in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said USTR list for use on the Project, the FAA may direct through the Sponsor cancellation of this Agreement at no cost to the County.

Further, the Contractor agrees that if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the Sponsor if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor knowingly rendered an erroneous certification, the FAA may direct through the Sponsor cancellation of this Agreement or any subcontract for default at no cost to the Government. Nothing contained in the foregoing will be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of the Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America; and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

IN WITNESS WHEREOF, The parties have caused this Agreement <u>**PUR-1557**</u> to be executed by affixing hereon their respective seals and signatures of the proper officers.

# **APPROVED AND AGREED TO:**

XXXXX ATTEST: BY: \_\_\_\_\_(SEAL) Signature Officer Name and Title (Printed) Printed Name and Title Address \_\_\_\_\_ **BOARD OF COUNTY COMMISSIONERS** ATTEST: **OF WASHINGTON COUNTY, MARYLAND** Jeffery A. Cline, President BY: Krista L. Hart, Clerk Recommended for approval: Andrew Eshleman, Public Works Director Approved as to form and legal sufficiency:

Kirk Downey County Attorney

Contract Agreement Roof Membrane Replacement at 145 IKO Way Building PUR-1557 Page 36

#### **PERFORMANCE BOND**

Board of County Commissioners of Washington County, Maryland

BOND NO.\_\_\_\_\_

CONTRACT NO. PUR-1557

Date Bond Executed: \_\_\_\_\_, 2022

KNOW ALL MEN BY THESE PRESENTS, that we\_\_\_\_\_

(Here insert full name and address or legal title of Contractor, including zip code)

a corporation organized and existing under the laws of the State of Maryland and authorized to do business in the State of Maryland, hereinafter called the "**Principal**" and

(Here insert full name and address or legal title of Surety, including zip code)

a corporation organized and existing under the laws of the State of \_\_\_\_\_\_ and authorized to do business in the State of Maryland, hereinafter called the "Surety", are held and firmly bound unto the Board of County Commissioners of Washington County, Maryland, a body corporate and politic and a political subdivision of the State of Maryland, hereinafter called the "County", the sum of \_\_\_\_\_\_ *Dollars and* \_\_\_\_\_\_ *Cents* 

(\$\_\_\_\_\_\_) lawful money of the United States for the payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, personal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into or will enter into a contract with the County for the Construction of the **Roof Membrane Replacement at 145 IKO Way Building (Contract No. PUR-1557, hereinafter the "Contract"), in Washington County, Maryland**, which contract and work to be done thereunder and the specifications accompanying the same shall be deemed a part hereof and incorporated by reference herein to the same extent as if fully set forth.

NOW, THEREFORE, during the original term of said Contract, during any extensions thereto that may be granted by the County, and during the guarantee and warranty period, if any, required under the Contract, unless otherwise stated therein, this Performance Bond shall remain in full force and effect unless and until the following terms and conditions are met:

- 1. Principal shall well and truly perform the Contract; and
- 2. Principal and Surety shall comply with the terms and conditions in this Performance Bond.

Whenever Principal shall be declared by the County to be in default under the Contract, the Surety may, within 15 days after notice of default from the County, notify the County of its election to either promptly proceed to remedy the default or promptly proceed to complete the contract in accordance with and subject to its terms and conditions. In the event the Surety does not elect to exercise either of the above stated options, then the County thereupon shall have the remaining contract work completed, Surety to remain liable hereunder for all expenses of completion up to but not exceeding the penal sum stated above.

The Surety for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications accompanying the same shall in any way affect its obligations on this Performance Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder of the specifications accompanying the same.

This Performance Bond shall be governed by and construed in accordance with the laws of the State of Maryland and any reference herein to Principal or Surety in the singular shall include all entities in the plural who or which are signatories under the Principal or Surety heading below.

IN WITNESS WHEREOF, Principal and Surety have set their hands and seals to this Performance Bond. If any individual is a signatory under the Principal heading below, then each such individual has signed below on his or her own behalf, has set forth below the name of the firm, if any, in whose name he or she is doing business, and has set forth below his or her title as a sole proprietor. If any partnership or joint venture is a signatory under the Principal heading below, a duly authorized member and/or partner of each such partnership or joint venture, has set forth below his or her title as a general partner, limited partner, or member of joint venture, whichever is applicable. If any corporation is a signatory under the Principal or Surety heading below, then each such corporation has caused the following: the corporation's name to be set forth below, a duly authorized representative of the corporation to affix below the corporation's seal and to attach hereto a notarized corporate resolution or power of attorney authorizing such action, and each such duly authorized representative to sign below and to set forth below his or her title as a representative of the corporation. If any individual acts as a witness to any signature below, then each such individual has signed below and has set forth below his or her title as a witness. All of the above has been done as of the Date of Bond shown above.

| Signed, and sealed this | day of | , 2022.                            |
|-------------------------|--------|------------------------------------|
| WITNESS:                |        |                                    |
|                         |        | (Typed Name of Principal)          |
|                         | BY:    | (SEAL)                             |
| WITNESS:                |        | (Typed Name and Title)             |
|                         |        | (Typed Name of Surety)             |
|                         | BY:    | (SEAL)                             |
|                         |        | (Typed Name and Title)             |
|                         |        | (Name of Local Agent)              |
|                         | (      | )(Telephone Number of Local Agent) |

# LABOR AND MATERIAL PAYMENT BOND

Board of County Commissioners of Washington County, Maryland

BOND NO. \_\_\_\_\_

# CONTRACT NO. PUR-1557

Date Bond Executed: \_\_\_\_\_, 2022

KNOW ALL MEN BY THESE PRESENTS, that we

(Here insert full name and address or legal title of Contractor, including zip code)

a corporation organized and existing under the laws of the state of Maryland and authorized to do business in the State of Maryland, hereinafter called the **"Principal"** and

(Here insert full name and address or legal title or Surety, including zip code)

a corporation organized and existing under the laws of the State of \_\_\_\_\_\_\_, and authorized to do business in the State of Maryland, hereinafter called the "Surety", are held and firmly bound unto the Board of County Commissioners of Washington County, Maryland, a body corporate and politic and a political subdivision of the State of Maryland, hereinafter called the "County", for the use and benefit of claimants as hereinafter defined, in the Penal Sum of \_\_\_\_\_\_\_ Cents

(\$\_\_\_\_\_\_) lawful money, for the payment of which Penal Sum we bind ourselves, our heirs, executors, administrators, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into or will enter into a contract with the County, for the **Roof Membrane Replacement at 145 IKO Way Building (Contract No. PUR-1557), in Washington County, Maryland.** The contract and all items incorporated into the contract, together with any and all changes, extensions of time, alterations, modifications, or additions to the contract or to the work to be performed thereunder or to the Plans, Specifications, and Special Provisions, or any of them, or to any other items incorporated into the contract shall hereinafter be referred to as the "Contract".

WHEREAS, it is one of the conditions precedent to the final award of the Contract that these presents be executed.

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and materials furnished, supplied, and reasonably required for use in the performance of the Contract, then this obligation shall be null and void, otherwise it shall remain in full force and effect, subject to the following conditions:

1. A **Claimant** is defined to be any and all of those persons supplying labor and materials (including lessors of the equipment to the extent of the fair market value thereof) to the Principal or its subcontractors and sub-subcontractors in the prosecution of the work provided for the Contract, entitled to the protection provided by Md. Code Ann., State Finance and Procurement Article, § 17-101, *et seq.*, as may be amended from time to time.

2. The above-named Principal and Surety hereby jointly and severally agree with the County that every claimant as herein defined, who has not been paid in full may, pursuant to and when in compliance with the provisions of the aforesaid State Finance and Procurements Article, § 17-101, *et seq.*, as may be amended from time to time, sue on this Bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant and have execution thereon. The County shall not be liable for the payment of any costs or expenses of any such suit.

The Surety hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications accompanying the same shall in any way affect its obligations on this Payment Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or the Specifications.

This Payment Bond shall be governed and construed in accordance with the laws of the State of Maryland and any reference herein to the Principal or Surety in the singular shall include all entities in the plural who or which are signatories under the Principal or surety heading below.

| IN        | WITNESS WHEREOF, | the Principal and Surety | have set their | hands and | seals to this Pa | ayment |
|-----------|------------------|--------------------------|----------------|-----------|------------------|--------|
| Bond this | day of           | , 2022.                  |                |           |                  |        |

WITNESS:

(Typed Name of Principal)

BY:\_\_\_\_\_(SEAL)

(Typed Name and Title)

WITNESS:

(Typed Name of Surety)

BY: \_\_\_\_\_(SEAL)

(Typed Name and Title)

(Name of Local Agent)

(

(Telephone Number of Local Agent)

# SUBCONTRACTORS LISTING

All bidders will name below the Item or Items he proposes to sublet, their dollar value, the name of the subcontractor or subcontractors and check the "Minority Business Enterprise" column if the named subcontractor so considers itself as per the definition contained elsewhere herein these specifications. The sub-contractor's listing shall be submitted along with the bid.

| ITEM<br>NO. | DOLLAR<br>VALUE | SUBCONTRACTOR | MINORITY<br>BUSINESS<br>ENTERPRISE |
|-------------|-----------------|---------------|------------------------------------|
|             |                 |               |                                    |
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|             |                 |               |                                    |

# **NOTICE OF AWARD**

TO: \_\_\_\_\_

PROJECT Description: **Roof Membrane Replacement at 145 IKO Way Building** to include but not be limited to: Remove the existing membrane roof system on the Public Facility Annex Building, renovation of the existing roofing system, removal of existing sky lights, new TPO roof system with replacement of wall cap. The building is located at 145 Iko Way, Hagerstown, Maryland 21740.

The OWNER has considered the BID submitted by you for the above-described WORK in response to its Advertisement for Bids dated June 14, 2022 and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$\_\_\_\_\_.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S PERFORMANCE BOND, PAYMENT BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS and CERTIFICATE OF INSURANCE within ten (10) calendar days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this \_\_\_\_\_\_ day of \_\_\_\_\_\_, 2022.

| Bo<br>100 V<br>Ha                  | bard of County Comr<br>Washington County,<br>West Washington Stro<br>agerstown, Maryland<br>Owner | nissioners of<br>Maryland<br>eet, Room 1101<br>21740-4735 |         |
|------------------------------------|---|---|---------|
| By                                 |   |   |         |
| Title                              |   |   |         |
|                                    | ACCEPTANCE OF   | NOTICE  |         |
| Receipt of the above NOTICE OF AWA | RD is hereby acknow   | vledged   |         |
| By(Print Name)                     | this the  | day of  | , 2022. |
| By (Signature)                     | Title   |   |         |
|                                    |   |   |         |

Notice of Award **Roof Membrane Replacement at 145 IKO Way Building** PUR-1557 Page 42



Page 43

BOARD OF COUNTY COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND Washington County Administration Building 100 West Washington Street, Room 226

Hagerstown, Maryland 21740-4735

# **NOTICE TO PROCEED**

| TO:   |  |  |
|---|--|--|
|   |  |  |
| Project Title   |  |  |
| Bid No  | Contract No  | Project No   |
| Type of Project/Co  | onstruction  |  |
| Amount of Contra  | ct = \$  |  |
| You are hereby give   | ven Notice to Proceed to comme   | nce work on the above project on or before,  |
|   | , and shall fully complete a   | ll of the work of said project within  |
| consecutive calend  | lar/working days thereafter. You                                       | ar completion date is therefore,   |
| The Contract prove<br>each consecutive consec | ides for an assessment of the sun<br>calendar/working day after the ab | n of \$ as liquidated damages for<br>ove established project completion date that the work remains |
| Issued this   | day of   | ,  |
|   |  | By(Signature)  |
|   |  | Name &<br>Title Printed  |
|   | ACCEPT   | ANCE OF NOTICE   |
| Receipt of the fore   | egoing Notice to Proceed is hereb                                      | by acknowledged for (Contracting Firm)   |
|   |  | this day of  |
|   |  |  |
|   |  | By (Signature)   |
|   |  | Name &<br>Title Printed  |
| <i>Notice to Proceed</i><br><b>Roof Membrane Rej</b><br>PUR-1557  | blacement at 145 IKO Way Building                                      |  |

# SIGNATURE TO BIDS

# NOTE: Bidders shall use this page as a cover page when submitting his/her bid.

Each bid must show the full business address and telephone number of the Bidder and be signed by the person legally authorized to sign contracts. All correspondence concerning the bid and contract, including notice of award, copy of contract and purchase order, will be mailed or delivered to the address shown on the bid in the absence of written instructions from the Bidder to the contrary. Bids by partnerships must be signed in the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing, who shall also state the names of the individuals composing the partnership. Bids by corporations must be signed with the name of the corporation, followed by the signature and designation of the officer having authority to sign. When requested, satisfactory evidence of authority of the officer signing in behalf of the corporation shall be furnished. Anyone signing the bid as agent shall file satisfactory evidence of his/her authority to do so.

All documents, materials, or data developed as a result of this contract are the County's property. The County has the right to use and reproduce any documents, materials, and data, including confidential information, used in or developed as a result of this contract. The County may use this information for its own purposes or use it for reporting to Federal agencies. The Bidder warrants that it has title to or right of use of all documents, materials, or data used or developed in connection with this contract. The Bidder must keep confidential all documents, materials, and data prepared or developed by the Bidder or supplied by the County. All erasures and/or changes shall be initialed by the individual making modifications to the Bid.

BIDDER MUST SIGN HERE AND RETURN THIS PAGE AND THE BID FORM IN ADDITION TO SUBMITTING ANY DOCUMENTS CALLED FOR BY THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS, SPECIFICATIONS, AND ANY OTHER DOCUMENTS HEREIN CONTAINED.

By signing here, Bidder does hereby attest that he/she has read fully the general conditions and instructions, specifications, and any other documents herein contained, and does understand them and will furnish and deliver all labor and materials in accordance with the specifications for the price as listed on the Bid form.

Bidder acknowledges receipt of Addenda by initialing the following:

Addendum No. 1 \_\_\_\_\_ Addendum No. 4 \_\_\_\_\_

Addendum No. 2 \_\_\_\_\_ Addendum No. 5 \_\_\_\_\_

Addendum No. 3 \_\_\_\_\_\_ Addendum No. 6 \_\_\_\_\_\_

# AFFIRMATION REGARDING COLLUSION

# I AFFIRM THAT:

Neither I nor, to the best of my knowledge, information, and belief, the below stated business has:

- (a) Agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the accompanying quote or offer that is being submitted;
- (b) In any manner, directly or indirectly, entered into any agreement of any kind to fix the quote price or price Bid of the Contractor or Offeror or of any competitor, or otherwise taken any action

in restraint of free competitive quoting in connection with the contract for which the accompanying quote offer is submitted.

# AFFIRMATION REGARDING BRIBERY CONVICTIONS

# I FURTHER AFFIRM:

Neither I nor, to the best of my knowledge, information, and belief, the below business (as is defined in Section 16-101 (b) of the State Finance and Procurement Article of the Annotated Code of Maryland), or any of its officers, directors, partners, or any of its employees directly involved in obtaining or performing contracts with public bodies (as is defined in Section 16-101(f) of the State Finance and Procurement Article of the Annotated Code of Maryland), has been convicted of, or has had probation before judgment imposed pursuant to Criminal Procedure Article, Section 6-220 of the Annotated Code of Maryland, or has pleaded nolo contendere to a charge of, bribery, attempted bribery, or conspiracy to bribe in violation of Maryland law, or of the law of any other State or federal law, **except as follows** (indicate the reasons why the affirmation cannot be given and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of person(s) involved, and their current positions and responsibilities with the business):

| BIDDER'S COMPANY / FIR  | M:                                    |  |
|-------------------------|---------------------------------------|--|
| Address:                |                                       |  |
| Authorized Signature:   |                                       |  |
| Name and Title Printed: |                                       |  |
| Telephone & Fax Number: |                                       |  |
| E-Mail Address:         |                                       |  |
| Date:                   | Federal Employer's Identification No. |  |

*For Informational Purposes Only:* Has your company/firm been certified by the State of Maryland as a Minority Business Enterprise? (Please check below.)

\_\_\_\_\_Yes \_\_\_\_\_No

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Form of Proposal Roof Membrane Replacement at 145 IKO Way Building PUR-1557 Page 46

| Price                            | res)                                 |                   |           |           | ures)  |                   |           |           |   | ures)           |           |                     |                                       |           | ires)     |           |           |                            |                       | ires) |
|----------------------------------|--------------------------------------|-------------------|-----------|-----------|--|-------------------|-----------|-----------|---|-----------------|-----------|---------------------|---------------------------------------|-----------|-----------|-----------|-----------|----------------------------|-----------------------|-------|
| Total                            | \$<br>(Figure                        |                   |           |           |  | <del>6</del>      | (Figu     |           |   |                 | \$(Figu   | )                   |                                       |           | \$(Fior   |           |           | \$                         | (Figu                 |       |
| Unit Price                       | \$<br>(Figures)                      |                   |           |           | \$ (Figures) (Figures) (Figures) (Figures)     |                   |           |           |   | \$<br>(Figures) |           |                     | \$                                    | (Figures) |           |           |           |                            |                       |       |
| Qty                              |                                      | LUMP              | MINE      | 100       |  |                   |           |           |   | 100             |           |                     |                                       | 200       |           |           |           |                            |                       |       |
| Unit                             | L.S.                                 |                   |           |           | S.F.   |                   |           | S.F.      |   | L.F.            |           |                     |                                       |           |           |           |           |                            |                       |       |
| Description / Written Unit Price | Roof Membrane Replacement – Base Bid | Dollars (written) | Cents per | (written) | Repair Metal Deck – Unit Price Allowance No. 1 | Dollars (written) | Cents ner | (written) | Replace Metal Deck – Unit Price Allowance No. 2 | Dollars         | (written) | Cents per (written) | Blocking – Unit Price Allowance No. 3 | Dollars   | (written) | Cents per | (written) | TOTAL LIM SUM RASE BID AND | UNIT PRICE ALLOWANCES |       |
| ITEM                             |                                      |                   |           |           |  | Ċ                 | 7         |           |   |                 | ŝ         |                     |                                       |           | 4         |           |           |                            |                       |       |

PUR-1557 ROOF MEMBRANE REPLACEMENT AT 145 IKO WAY BUILDING FORM OF PROPOSAL

# ATTACHMENT A



# **ROOF REPLACEMENET AT 145 IKO WAY BUILDING**

# **SCOPE OF WORK / SPECIFICATIONS**

# PART 1 – GENERAL

# 1.1 WORK INCLUDES:

A. Remove the existing membrane roof system on the Public Facility Annex Building, renovation of the existing roofing system, removal of existing sky lights, new TPO roof system with replacement of wall cap. The building is located at 145 Iko Way, Hagerstown, Maryland 21740.

# **1.2** <u>**RELATED REQUIREMENTS**</u>:

- A. Remove existing membrane roof and insulation down to the deck. Inspect the deck and replace any and all damaged sections, patch and repair openings and vapor barrier.
- B. Coordinate the County the removal of outdated or unused roof mounted equipment.
- C. Remove skylights and roof penetrations and specified and infill openings with roof decking.
- D. Install roof insulation, equipment blocking and flashing.
- E. Install a 0.60" white TPO fully adhered roof system with all necessary accessories.
- F. Flash all vertical surfaces. Flash all plumbing vents with pre-formed TPO vent boots. Flash all irregular roof penetrations with TPO pitch pockets and sealer.
- G. Install new metal parapet coping, drip edges, gutters and fascia.
- H. Install new metal roof steps.
- I. Permits shall be responsibility of the Contractor.

# WASHINGTON COUNTY GOVERNMENT 145 IKO WAY ROOF REPLACEMENT

W.C. GOVERNMENT BID NO. PUR-1557

# **BFM PROJECT NO. 21032**

# **SPECIFICATION & DRAWING INDEX**

#### **SPECIFICATION INDEX**

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Directory

1 page

# **DIVISION 1 - GENERAL REQUIREMENTS**

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| Section 06 11 40 - Wood Blocking and Curbing                    | 06 11 40-1 - 06 11 40-6  |
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#### **DIVISION 23 - MECHANICALS**

# **DRAWING INDEX**

- C-0.0 Cover Sheet
- A-1.1 Roof Plan
- A-1.2 Roof Details
- A-1.3 Roof Details & Notes
- A-1.4 Roof Elevations
- ME-1.0 Mechanical / /Electrical Demo Plan

#### DIRECTORY

## ROOF REPLACEMENT WASHINGTON COUNTY GOVERNMENT 145 IKO WAY BFM No. 21032

#### <u>OWNER</u>

#### WASHINGTON COUNTY BOARD OF COUNTY COMMISSIONERS

100 West Washington Street Andrew Eshleman, Director, Public Works Hagerstown, MD 21740

Telephone: 240-313-2252

#### CONSULTANT OF RECORD

MEP ENGINEER

LS GRIM 19922 Jefferson Blvd. Hagerstown, MD 21742 Les Grim, PE, Principal

Telephone: 301-797-1702

#### ARCHITECT

BUSHEY FEIGHT MORIN ARCHITECTS INC.473 North Potomac StreetHagerstown, MD 21740Michael L. Gehr, Principal

Telephone: 301-733-5600

E-mail: <u>lsgrim@lsgrim.com</u>

E-mail: mgehr2@BFMArchitects.com

#### 1.03 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow normal daily business operations.
- B. Construction Operations: Limited to areas noted on Drawings and as stated in the Pre-Proposal Meeting.
- C. Existing Emergency Building Exits shall be usable at all times during Construction.
- D. Time Restrictions for Performing Exterior Work: 6:00 AM to 6:00 PM Monday thru Friday. Weekend work must be approved by Owner prior to work, minimum 48 hours' notice.
- E. Owner Custodial hours are from 7 AM to 4 PM Monday thru Friday. If access is needed at other times, then Contractor shall pay overtime for Custodial services for any interior work that needs to be performed.
- F. Construct Work in phases to accommodate Owner's occupancy requirements during the construction period, coordinate construction schedule and operations with project superintendent, Owner and School's onsite representative.
- G. At no time will use of tobacco or alcohol be permitted on site. In addition, no "statement" clothing will be permitted to be worn on site. If the Owner or Architect discovers the Contractor, employee of Contractor or subcontractor in violation of these items, immediate expulsion from job site will be enforced.
- H. No firearms will be permitted on site.
- I. Criminal Record: The Contractor shall be responsible to notify the Owner's representative and security of any employee having a criminal record. Such information shall be kept confidential.

#### 1.04 OWNER OCCUPANCY

- A. The Owner will occupy the premises during construction for their normal business operation activities.
- B. The Owner may contract for work independent of the specified scope of work. The Contractor shall cooperate and coordinate with the Owner and other Contractors.
- C. Cooperate with Owner to minimize conflict, and to facilitate Owner's usage and operations.
- D. Schedule the Work to accommodate this requirement and not interfere with Owner's operations.
- E. Protect interior areas as necessary; maintain existing exits unless otherwise indicated.
- F. Provide not less than 72 hrs notice to Owner of activities that will affect Owner's operations.

#### 1.05 WORK SEQUENCE

- A. Construct Work in phases to accommodate Owner's occupancy requirements during the construction period, coordinate construction schedule and operations with project superintendent, Owner, and Facility's onsite representative.
- B. Roof replacement work to occur afterhours (second shift) during normal facility of the Day Reporting Center operations, or other occupied areas at the facility. The contractor shall pay for any incurred costs for custodial coverage during these times directly to the Owner. Note the Owner has a 4 hr minimum charge per day for overtime, and this includes custodial coverage for mechanical unit operational control.

C. If work occurs during long term breaks, normal construction hours are permitted. Note custodial coverage may be needed if Owner is on a 4-day week or holiday. Contractor is responsible for any hourly fees associated with access to building interior during off hours when Custodial coverage is not provided, typical minimum is 4 hrs.

# 1.06 WORK BY CONTRACTOR.

- A. Work under this contract includes:
  - 1. Furnish and install specified roofing and related components by the roofing contractor at the Washington County Government facility at 145 IKO Way located in Hagerstown, (Washington County), Maryland.
  - 2. Disconnection and re-connection of mechanical equipment by a licensed mechanical subcontractor or removal of equipment as identified, all electrical work shall be performed by licensed electrical subcontractor.
  - 3. Removal and reinstallation of all fixtures mounted on metal fascia that will be removed and replaced by qualified personnel licensed to perform such work.
- B. Protection:
  - 1. Contractor shall be responsible for the full and adequate protection of the Owner's facilities, existing roof systems, personnel, equipment, products and materials, as well as protection of its own employees and equipment. Contractor shall comply with all applicable federal, state, and local OSHA, EPA, and NIOSH requirements. Lawns, shrubbery, paved areas, and buildings shall be protected from damage. Repair damage at no extra cost to Owner.
  - 2. Daily Housekeeping:
    - a. Prior to leaving the site daily the roofing contractor shall remove all trash from the roofing project and grounds such as paper, insulation or pieces and all other trash/scrap generated by the roofing crew. All subcontractors shall remove all trash generated by their respective work daily.
    - b. The site will be acceptable to the project superintendent prior to the crew departing the site, the project superintendent and the subcontractor foreman shall conduct a daily walk to make sure the roof and grounds are left in a satisfactory condition.
    - c. Roofing contractor shall protect existing roof systems by placing temporary plywood walkways in areas of access.
    - d. The contractor will provide interior protection and dust control means to areas that are open to the existing structural deck or areas where dust mitigation is required.
  - 3. The roofing contractor shall perform appropriate inspections, surveys including Pre-Job photo/video documentation, and file timely notifications to proper authorities prior to starting roof renovation or demolition activities. Inspectors, project planners, project managers, sub-contractors and workers involved in the roof project shall have no less than 5 years of training, licenses and registrations.
  - 4. Contractor will provide a full-time superintendent employed by the prime contractor for not less than 10 years. Superintendent will be the first person on the project and the last one to leave each day.
  - 5. For single ply membrane roofing; the roofing system manufacturer shall provide inspections at interim points of 25%, 50%, 75%, and 100% completion points.
- C. Scope of Work: Single Ply Membrane.
  - Roof Replacement Areas:
    - a. Due to size of this project, the building will be occupied during the roof replacement. Coordinate with the Owner for staff relocation will be required.
  - 2. Contractor shall supply all labor, transportation, material, apparatus, tools, and permits necessary for removal and replacement of the existing roof systems

1.

- a. All roofing applications shall be in accordance with specifications and details.
- b. Contractor shall verify roof construction and square footage and location of roof mounted equipment.
- c. Provide manufacturer's product data and material safety data sheets for all materials used including metal work, ladders, etc... All product and safety data sheets shall show the same product name as it appears on the materials that are installed.
- d. No materials containing asbestos shall be provided to the job or the site.
- 3. The roofing contractor is responsible for ensuring all, new or existing roof drains, scuppers and downspouts included in the specified roof replacement work are free flowing. The Contractor shall flush drains to verify they are free flowing prior to the project start and at project completion. The contractor shall notify Owner if any roof drains / downspouts are found slow flowing or inoperative prior to the project start.
- 4. Contractor shall verify all vent pipes being flashed are in working order. Contractor shall notify the Owner if any vents are clogged.
- 5. Complete removal and disposal of existing roofing system including but not limited to membrane, flashings, metal flashings, scuppers, downspouts, gutters, insulation, wood blocking and accessories down to the underlying structural roof deck.
- 6. Prepare the roof substrate prior to installing the new roof system.
  - a. Replace or repair existing defective decking on an additional per square foot cost in excess of the Base Bid quantity described per this Section for the unit prices below and as indicated on the Bid Form of Proposal.
  - b. Remove and dispose of obsolete rooftop curbs, pitch pockets and miscellaneous penetrations. Caution shall be exercised for attachment of new materials and removal of existing items from deck surface. Install new roof decking or metal plating over opening.
    - 1) Install 1/8 inch steel plate over openings less than 2 by 2 ft. and 1/4 inch steel plate over openings larger than 2 by 2 ft but less than 4 ft in any direction, otherwise use metal deck.
    - 2) Lap plate over decking minimum 6-inches on all sides.
    - 3) Mechanically attach plating to decking a minimum of 12-inches o.c.
    - 4) Owner shall identify items to be removed.
  - c. Install pressure treated wood blocking as required to match new insulation heights at wall junctions, roof edges, and penetrations and as indicated on detail drawings.
  - d. Install and secure preformed 45-degree pressure-treated wood cants at horizontal / vertical interfaces of expansion joint and non-wall supported deck details.
  - e. Raise existing roof curbs and plumbing vent stacks to minimum 8-inches above the new roof surface.
  - f. (N/A) Replace all existing roof drain bowl and overflow (if present) assemblies. Replace with new cast iron roof drain bowl and related accessories; and remove and replace all lead flashings. Insulate cast iron bowls, raise or lower roof drain bowl assemblies as required to accommodate the new roof system elevation, and installation of new roof drain where noted. Work shall include plumbing connections and accessories, insulating back to existing piping. Do not cut structural deck except at new drain locations.
  - g. At existing A/C pipe penetration curbs, install new detail for piping through roof deck per manufacturer's recommendation. These include any curbs that have the plastic tops which shall not remain. Work includes reworking existing Freon and electrical conduit lines as required to accommodate new curb installation and raising height as necessary

SUMMARY OF WORK

including recharging Freon lines. A/C and electrical work shall be performed by licensed HVAC and electrical subcontractors.

- 7. Install new roof insulation system (tapered/non-tapered).
  - a. Average total minimum thickness at any roof area must achieve minimum average R-30 for roofs above enclosed building areas. Therefore, min. 2" thickness of base insulation at roof drains.
  - b. Provide min. 5.25" total thickness of flat stock insulation at steep sloped (sloped structure and deck) areas where applicable.
  - c. Provide 1/8 inch per foot tapered insulation system over the existing 1/8 inch sloped structure deck to achieve a total of 1/4 inch per foot slope.
  - d. At steep slopes where applicable, provide 2 x materials for backnailing at 10'- 0" foot on center intervals maximum or as needed per manufacturer's requirements.
    - Metal roof deck areas:

e.

- Provide pull test to ensure I-90 rating can be achieved. If adhered to the existing decking, otherwise provide mechanical fasteners with 3" dia. Metal plates per FM I-90 spacings to fasten 1<sup>st</sup> layer of insulation. (Caution: Items can be tight to underside of deck. Contractor to verify in field.)
- 2) Prime metal deck and install min. 2.6" thick tapered polyisocyanurate insulation. After priming metal deck with a water-based primer at 150 sq ft per gal. Adhere base layer of insulation to metal deck with solvent free insulation adhesive at 2 gal per 100 sq ft. All other layers adhered with insulation adhesive including tapered insulation.
- f. (N/A) Install and adhere 4 by 4 ft. tapered insulation sumps at roof drain locations.
- g. Install tapered polyisocyanurate insulation saddles and crickets with minimum 1/2-inch per foot slope.
  - 1) Install tapered insulation between roof drains, scuppers and along valley lines to provide positive water drainage. Adhere insulation in full application of insulation adhesive.
  - 2) Tapered insulation saddle and cricket slope shall equal a minimum of twice the roof slope.
  - 3) The contractor is responsible for the elimination of ponding water along valley lines.
- h. Provide flat stock polyisocyanurate insulation at steep sloped metal deck areas were shown on plan. Provide 2 x material for backnailing.
- i. Install coverboard.
  - 1) Install 1/4" gypsum board cover board for single ply membrane application.
  - 2) Install and adhere tapered edge strips where blocking height exceeds insulation height.
  - 3) Install and adhere preformed 45-degree fibered cants at all horizontal / vertical interfaces at projections and wall supported details.
- j. Adhere cover board and accessories, tapered edge and cant strips in full application of insulation adhesive or low rise foam adhesive per manufacturer's requirements. Walk boards into adhesive immediately after installation to achieve solid contact.
- Single-Ply Membrane installation: Install 60 mil single ply, polyester reinforced TPO membrane set in single ply bonding adhesive (use of self-adhered sheet permitted). Roll sheet with roller to fully bond sheet to insulation. Heat weld seams.
- 9. Install new curb details.

- 10. Remove all capped curbs that are not being used.
- 11. Install all sheet metal details per specifications SMACNA requirements and standards.
  - a. Install new minimum 24-gauge stainless steel metal flashings at all metal flashing locations unless specified otherwise.
  - b. Edge metal to be .050 aluminum. Color to be selected (match original material).
  - c. Install new stainless-steel expansion joint and area divider metal cover.
  - d. Install new .040 Aluminum metal counterflashings. Cut-in new reglet joints.
  - e. Install new stainless-steel pitch pocket assembly.
  - f. Install new slip metal counter flashing detail at non-removable unit locations.
  - g. Install miscellaneous metal flashings and related accessories.
- 12. Install the following new details where applicable:
  - a. Wall Flashing on Wall Supported Deck
  - b. Piping through Roof Deck
  - c. Scupper and Downspout
  - d. Hooded Pitch Pocket with Grout
  - e. Metal Sleeve and Storm Collar
  - f. Plumbing Vent Flashing
  - g. Wood Curb
  - h. Metal Curb
  - i. Roof Hatch
  - j. Expansion Joint
  - k. Daily Waterstop / Tie- In
  - 1. Gauge & Thickness Guide (Minimum)
- 13. Install new walkway pads at roof access points, around all large HVAC equipment and at top and bottom of ladder/stair access points.
- 14. Raise curbs at A/C condensing units as needed.
- 15. Repair all dented exhaust fan and vent hoods. Remove hoods and pound out depressions with a mallet to return hood to its original shape. Re-install hood and paint entire unit assembly. Do not paint over existing data plates.
- 16. Clean roof and brick wall areas of all old supports, brackets, etc. and fill all holes; remove all asphalt and adhesive smears, new or existing.
- 17. Provide and install new metal fascia roof edge at all locations around perimeter of the roof. Provide extension of metal fascia to match as required. Color to be selected.
- 18. Where shown, install two (2) metal step assemblies with new OSHA approved systems. Must comply with OSHA new access assemblies. Paint all exterior ladders/steps.
- 19. Replace condensate refrigerant piping insulation on all stand-alone condensing units on replacement roof areas.
- 20. Provide new scuppers where shown. Modifications to roof edge and parapet conditions exist.
- 21. Remove existing cast concrete coping and discard. Provide new wood blocking. Cover with roofing membrane extending up and over coping plate. Provide new metal coping with standing seam joints with continuous cleats both sides (no exposed fasteners).

#### 1.07 REGULATORY REQUIREMENTS

- A. Regulatory requirements: By reference of the following standards the contractor shall install the roof system in accordance to the following standards:
  - 1. Underwriters Laboratories (UL)
    - a. UL Classified Fire Rating UL 790, Class A
  - 2. Factory Mutual FM 4470 Class I Standards with
- 01 01 00-6

SUMMARY OF WORK

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- a. FM 1-90 Insulation and Base Sheet Attachment requirements
- b. FM 1-90 Wind Loading wind loading requirements
- 3. Single Ply Membrane TPO System ASTM D6878.

#### 1.08 DISPOSAL OF MATERIALS

- A. The contractor shall be responsible for the removal and disposal of roofing materials at no additional cost to the Owner.
- B. During the construction period, the Contractor shall, on a daily basis, place all of his waste materials and "non-broomable" debris into containers.
- C. Provide magnetic sweep to the ground area adjacent to the building and on all parking lot and asphalt areas including walkways and all areas where roofing activities occurred from ground including but not limited too the access path to get to the building / work area. Provide magnetic sweep of the roof area as well.
- D. Upon completion of the Work and before acceptance and final payment is made, the Work shall be cleaned of all rubbish, excess materials, false work, temporary structures, and equipment; and all parts of the Work shall be left in a neat, presentable condition, satisfactory to the Owner. This Work shall be considered incidental to the overall project and no additional compensation will be allowed.

#### 1.09 UNIT PRICES

A. Refer to Section 01 20 00 – Price and Payment Procedures.

#### 1.10 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work as required for a complete and total installation.
- C. Indicate variation of Bid Price for Alternates described below and list in Bid Form Document or any supplement to it which requests a difference in Bid price by adding to the Base Bid Price.
- D. Bids will be evaluated on Base Bid Price and any of the alternates that the Owner chooses based on the available funds.
- E. Cost as indicated shall include all material, labor, equipment and all other costs need to perform the work and install in accordance with the drawings, specifications and manufacturer's instructions.
- F. Alternates: Refer to Section 01 20 00.

#### 1.11 WARRANTY

- A. Upon project completion and Owner acceptant, effective upon complete payment the Contractor shall issue a guarantee against defective workmanship and materials for a period of two (2) years.
- B. Manufacturer's standard 25 year No Dollar Limit total system warranty.
  - 1. Manufacturer will warrant all materials installed. No exclusions.
  - 2. Manufacturer will inspect the roofing system in years 2, 5, 10, 15, and 20; and shall perform any preventive maintenance and housekeeping as necessary.
  - 3. Manufacturer will provide a written report with photographs with each inspection.
- C. Warranty shall be inclusive of all systems used.

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|----------------------------|--|
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#### 1.12 MANUFACTURER'S INSPECTION

- A. Qualified manufacturer's installation or warranty representative to provide inspections at 0%, 25%, 50%, 75% and 100% of project completion. Submit reports to the Owner/ Architect within seven (7) days of the inspection/site visit.
- B. Owner reserves the right to have a 3<sup>rd</sup> party perform inspection services. If this is required, it shall be at contractor's cost if there are questions about the performance of the roof installation.
- C. Other warranties as noted per specification section.

#### 1.13 CORE CUT AND INFRARED DATA

- A. Core Cut Data:
  - 1. Roof Area No. 1: Bump out .045 mil fully adhered EPDM, 3" polyiso insulation, metal deck sloped.
  - 2. Roof Area No. 2: Main .045 mil fully adhered EPDM, 3" polyiso insulation, metal deck sloped.
  - 3. Roof Area No. 3: Conference Room .060 mil fully adhered EPDM with <sup>1</sup>/<sub>2</sub>" dens deck
  - 4. Roof Area No. 4: Connector .045 mil fully adhered EPDM, 3" polyiso insulation, metal deck sloped.
  - 5. Roof Area No. 5: Back .045 mil fully adhered EPDM, 3" polyiso insulation, metal deck sloped.
- B. Infrared Data:
  - 1. Building was scanned in October 2016. There were multiple small areas of wet insulation scattered about the roof surface.

#### PART 2 PRODUCTS

Not Used

#### PART 3 EXECUTION

Not Used

#### END OF SECTION

#### 1.01 SECTION INCLUDES

- A. Contract Description.
- B. Contractor use of site and premises.
- C. Owner occupancy.
- D. Work by Contractor.
- E. Regulatory requirements.
- F. Disposal of materials.
- G. Unit prices.
- H. Alternates.
- I. Warranty.
- J. Manufacturer's inspection.
- K. Core/Infrared data.

#### 1.02 CONTRACT DESCRIPTION

- A. Contract Type: Stipulated Sum Price and Unit Prices.
  - 1. INTENTION OF PLANS AND SPECIFICATIONS: The intent of the Drawings and Specifications is to describe the Work that the Contractor undertakes, in full compliance with the Contract, and it is understood that the Contractor will furnish all materials, machinery, equipment, tools, supplies, transportation, labor, permits and all other incidentals necessary to the satisfactory execution and completion of the work. The plans and specifications are complementary, and what is called for by either is as binding as if called for by both.
- B. Plans and Specifications:
  - 1. Contractor must notify architect of any omissions, contradictions, or conflicts. Architect will provide necessary corrections or additions to plans and specifications by addendum. If Contractor does not so notify architect of any such condition, it will be assumed that the contractor has included the necessary items in his proposal to complete this specification.
  - 2. It is the intent that this be a completed project as far as the contract documents set forth. It is not the intent that different phases of work on this project be delegated to various trades and subcontractors by the contract documents. The roofing contractor must make their own contracts with various subcontractors, setting forth the work these subcontractors will be held responsible for. The roofing contractor alone will be held responsible for the work of his / her subcontractor for the completed project. The roofing contractor is required to have his subcontractor comply with all Owner and OSHA safety and security requirements.
  - 3. If the contractor feels a conflict exists between what is considered good roofing practice and these specifications the contractor shall state in writing all objections 7 days prior to submitting quotations.
  - 4. Roofing contractor shall have his own supervision on site at all times when his subcontractors are present.
  - 5. Owner is not aware that any flashing or existing roof materials containing asbestos exists and has not performed any studies. Contractor shall remove any asbestos containing material above roof deck if found and is responsible to verify.

01 01 00-1

#### 1.01 SECTION INCLUDES

- A. Schedule of Values.
- B. Extra Work
- C. Unauthorized Work

#### 1.02 RELATED SECTIONS

- A. Section 00 20 00 Form of Proposal. Contract sum/price including alternates and unit prices.
- B. Section 01 20 00 Price and Payment Procedures.
- C. Section 01 30 00 Submittals: Schedule of Values.
- D. Section 01 60 00 Material and Equipment: Product substitutions.

#### 1.03 SCHEDULE OF VALUES

- A. Submit typed schedule on Owner's form for Application and Certification for Payment, and Continuation Sheet. Contractor's electronic media printout will be considered.
- B. Submit Schedule of Values in triplicate within 15 days after date established in Notice to Proceed.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds, and insurance.
- D. Revise schedule to list approved Change Orders, with each Application for Payment.
- E. Include, as a separate line item, the amount of allowance included in the Contract for Unit Cost Allowances. Identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.

#### 1.04 EXTRA WORK

A. Change orders will not be approved for any reason other than items that were totally unforeseen. Any unforeseen items should be immediately brought to the attention of the project superintendent. No extra work can be performed unless authorized by Owner.

#### 1.05 UNAUTHORIZED WORK

A. Work performed which is not provided for in the Contract, and Work done beyond limits shown on the Plans or as directed, or Extra Work done without written authorization will be considered unauthorized, shall be at the expense of the roofing contractor, and will not be measured or paid for by the Owner. Work so done maybe ordered, removed, and replaced at the roofing contractor's expense.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

#### END OF SECTION

Wash. Co. Gov. 145 IKO Way Roof Replacement CONTRACT CONSIDERATIONS

01 01 90-1

## 1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of Applications for Payment.

## 1.02 RELATED SECTIONS

- A. Section 00 52 13 Owner/Contractor Agreement: Contract Sum/Price and unit prices, amounts of Progress Payments and Retainage, and time schedule for submittals.
- B. Section 00 72 13 General Conditions: Progress Payments and Final Payment.
- C. Section 01 01 90 Contract Considerations: Schedule of Values.
- D. Section 01 02 80 Change Order Procedures: Procedures for changes to the Work.
- E. Section 01 20 00 Price and Payment Procedures.
- F. Section 01 30 00 Submittals: Submittal procedures.
- G. Section 01 70 00 Contract Closeout: Final Payment.

# 1.03 FORMAT

- A. Owner's form for Application and Certification for Payment and Continuation Sheet.
- B. For each item, provide a column for listing: Item Number; Description of work; Scheduled Value, Previous Applications: Work in Place and Site Stored Materials under this Application: Authorized Change Orders; Total Completed and Stored to Date of Application; Percentage of Completion; Balance to Finish; and Retainage.
- C. Utilize Table of Contents to identify each line item with number and title of the major specification section.

## 1.04 PREPARATION OF APPLICATIONS

- A. Present required information in typewritten form or on approved electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for site stored products.
- D. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.
- E. Prepare Application for Final Payment as specified in Section 01 70 00.

#### 1.05 SUBMITTAL PROCEDURES

- A. Submit five (5) copies of each Application for Payment. (4 copies to Owner, 1 copy to LS Grim/BFM)
- B. Submit an updated construction schedule with each Application for Payment.
- C. Payment Period: Submit at intervals stipulated in the Agreement.
- D. Submit under transmittal letter specified in Section 01 30 00.

#### 1.06 SUBSTANTIATING DATA

- A. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

## PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

(Not Used)

#### END OF SECTION

#### 1.01 SECTION INCLUDES

- A. Submittals.
- B. Documentation of change in Contract Sum/Price and Contract Time.
- C. Change procedures.
- D. Construction Change Authorization Directive.
- E. Stipulated Sum change order.
- F. Unit price change order.
- G. Time and material change order.
- H. Execution of change orders.
- I. Correlation of Contractor submittals.

#### 1.02 RELATED SECTIONS

- A. Section 00 52 13 Owner/Contractor Agreement Forms: Monetary values of established Unit Prices and percentage allowances for Contractor's overhead and profit.
- B. Section 00 72 13 General Conditions: Governing requirements for changes in the Work, in Contract Sum/Price, and Contract Time.
- C. Section 01 01 90 Contract Considerations: Schedule of Values.
- D. Section 01 02 70 Applications for Payment: Payment applications.
- E. Section 01 60 00 Material and Equipment: Product options and substitutions.
- F. Section 01 70 00 Contract Closeout: Project Record Documents.

#### 1.03 SUBMITTALS

- A. Submit name of the individual authorized to receive change documents and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Change Order Forms: Owner's Change Order form.

# 1.04 DOCUMENTATION OF CHANGE IN CONTRACT SUM/PRICE AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

- C. On request, provide additional data to support computations:
  - 1. Quantities of products, labor, and equipment.
  - 2. Taxes, insurance and bonds.
  - 3. Overhead and profit.
  - 4. Justification for any change in Contract Time.
  - 5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs, and for work done on a time and material basis, with additional information:
  - 1. Origin and date of claim.
  - 2. Dates and times work was performed, and by whom.
  - 3. Time records and wage rates paid.
  - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

#### 1.05 EXTRA WORK

A. Change orders will not be approved for any reason other than items that were totally unforeseen. Any unforeseen items should be immediately brought to the attention of the project superintendent. No extra work can be performed unless authorized by Owner.

#### 1.06 UNAUTHORIZED WORK

A. Work performed which is not provided for in the Contract, and Work done beyond limits shown on the Plans or as directed, or Extra Work done without written authorization will be considered unauthorized, shall be at the expense of the roofing contractor, and will not be measured or paid for by the Owner. Work so done maybe ordered, removed, and replaced at the roofing contractor's expense.

#### 1.07 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by Owner's General Conditions and any supplemental instructions.
- B. The Architect/Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within seven (7) working days.
- C. The Contractor may propose a change by submitting a request for change to the Architect/ Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 60 00.

#### 1.08 CONSTRUCTION CHANGE AUTHORIZATION

- A. Architect/Engineer may issue a document, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work and will designate method of determining any change in Contract Sum/Price or Contract Time.
- C. Promptly execute the change in Work.

01 02 80-2 CHANGE ORDER PROCEDURES

Wash. Co. Gov. 145 IKO Way Roof Replacement

#### 1.09 STIPULATED SUM CHANGE ORDER

A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.

#### 1.10 UNIT PRICE CHANGE ORDER

- A. For predetermined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.
- B. For unit costs or quantities of units of work which are not predetermined, execute Work under a Construction Change Authorization.
- C. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

#### 1.11 TIME AND MATERIAL CHANGE ORDER

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Architect/Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- C. Maintain detailed records of work done on Time and Material basis.
- D. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

#### 1.12 EXECUTION OF CHANGE ORDERS

A. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

#### 1.13 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum/Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise subschedules to adjust time for other items of work affected by the change and resubmit.
- C. Promptly enter changes in Project Record Documents.

#### PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

(Not Used)

# END OF SECTION

Wash. Co. Gov. 145 IKO Way Roof Replacement

#### CHANGE ORDER PROCEDURES

01 02 80-3

## 1.01 SECTION INCLUDES

- A. Coordination.
- B. Cutting and Patching.
- C. Preconstruction and Site Mobilization Conference.
- D. Progress Meetings.
- E. Pre-installation conferences.
- F. Construction mobilization.
- G. Schedules.
- H. Final Inspection.
- I. Coordination Drawings
- J. Closeout procedures.

#### 1.02 RELATED SECTIONS

- A. Section 01 04 10 Project Coordination.
- B. Section 01 04 50 Cutting and Patching.
- C. Section 01 70 00 Contract Closeout.

#### 1.03 PROJECT COORDINATION ADMINISTRATOR

A. Project Coordination Administrator: Owner.

#### 1.04 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

- E. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owners partial occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- 1.05 CUTTING AND PATCHING
  - A. Refer to Section 01 04 50.

#### 1.06 PRECONSTRUCTION AND SITE MOBILIZATION CONFERENCE

- A. Architect/Engineer will schedule a conference after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer, Contractor, Contractor's Superintendent and major subcontractors.
- C. Agenda:
  - 1. Execution of Owner-Contractor Agreement.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of Subcontractors, list of products, and Schedule of Values.
  - 5. Designation of personnel representing the parties in Contract, and in field, and the Architect/Engineer.
  - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
  - 7. Scheduling and Progress Schedule.
  - 8. Submittals in accordance with paragraphs 1.06.D & E in Section 01 30 00.
  - 9. Safety Plan
  - 10. Walkover Inspection
  - 11. (N/A) Mortar Color Selection (Re-pointing).
  - 12. Pre-Condition Survey: To be provided to Owner with photographs to note preexisting leaks condition.

#### 1.07 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at bi-weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
  - 1. Architect will record minutes and distribute within seven (7) working days after the progress meeting to the Owner, Consultants, and General Contractor.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of Work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems which impede planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Review of off-site fabrication and delivery schedules.
  - 7. Maintenance of progress schedule.
  - 8. Corrective measures to regain projected schedules.

COORDINATION AND MEETINGS

- 9. Planned progress during succeeding work period.
- 10. Coordination of projected progress.
- 11. Maintenance of quality and work standards.
- 12. Effect of proposed changes on progress schedule and coordination.
- 13. Other business relating to Work.
- 14. Develop punch list items requiring correction.

#### 1.08 PRE-INSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a pre-installation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Architect/Engineer seven (7) days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes, and distribute copies within seven (7) working days after conference to participants, with two (2) copies to Architect/Engineer and two (2) copies to the Owner.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

#### 1.09 CONSTRUCTION MOBILIZATION

- A. Cooperate with the Administrator in allocation of mobilization areas of site, for access, traffic, and parking facilities.
- B. During construction, coordinate use of site and facilities through the Administrator.
- C. Comply with Administrator's procedures for intra project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- D. Comply with instructions of the Administrator for use of temporary utilities and construction facilities.
- E. Coordinate filed engineering and layout work under instructions of the Administrator.

#### 1.10 SCHEDULES

- A. Submit bar chart preliminary progress schedule. During project provide a roof plan marked with day to day synopsis of areas projected to be roofed for the 2 week period between Progress Meetings. Provide at Pre-Construction Meeting and at each Progress Meeting updated accordingly.
- B. After review, revise and resubmit schedule to comply with revised Project schedule.
- C. During progress of Work, revise and resubmit with Applications for Payment.
- D. At each meeting provide roof plan with marked day to day activities.

#### 1.11 FINAL INSPECTION

A. Schedule and administer meetings throughout progress of the Work at bi-weekly intervals.

- B. Make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
  - Architect will record minutes and distribute within seven (7) working days after 1. the progress meeting to the Owner, Consultants, and General Contractor.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting. 1.
  - Final Inspection:
    - Will be scheduled by upon job completion. a.
    - b. Attendance:
      - Project Superintendent. 1)
      - 2) Roofing Contractor / other subcontractors.
      - Representative of Owner 3)
      - 4) Architect
    - c. Minimum agenda:
      - 1) Walkover inspection.
      - 2) Identification of problems, which may impede issuance of warranty.

#### 1.12 COORDINATION DRAWINGS

- Provide information required by Administrator for preparation of coordination drawings. A.
- B. Review drawings prior to submission to Architect/Engineer.

#### 1.13 **CLOSEOUT PROCEDURES**

- Notify Administrator when Work is considered ready for Substantial Completion. A. Accompany Architect on preliminary inspection to determine items to be listed for completion or correction in Contractor's notice of Substantial Completion.
- B. Comply with Architect's instructions to correct items of Work listed in executed Certificates of Substantial Completion and for access to Owner occupied areas.
- C. Notify Architect and Owner when Work is considered finally complete.
- D. Comply with Administrator's instructions for completion of items of Work determined by the Architect/Engineer's final inspection.

#### PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

(Not Used)

# END OF SECTION

#### 1.01 SECTION INCLUDES

- A. Schedule of values.
- B. Applications for payment.
- C. Change procedures.
- D. Defect assessment.
- E. Alternates.
- F. Unit Prices.
- G. Cash Allowances.

#### 1.02 SCHEDULE OF VALUES

A. Refer to Section 01 01 90 - Contract Considerations.

#### 1.03 APPLICATIONS FOR PAYMENT

A. Refer to Section 01 02 70 – Applications for Payment.

#### 1.04 CHANGE PROCEDURES

- A. Refer to Section 01 02 80 Change Order Procedures.
- B. Field Directive: Architect/Engineer may issue directive, signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

#### 1.05 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Owner/Architect/Engineer, it is not practical to remove and replace the Work, the Owner/Architect/Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain (at the Owner's Option), but unit sum/price will be adjusted to new sum/price at discretion of Owner/Architect/Engineer.
- D. Defective Work (at the Owner's Option) will be partially repaired to instructions of Architect/Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Owner/Architect/Engineer.
- E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Owner/Architect/Engineer to assess defects and identify payment adjustments is final.
- G. Non-Payment for Rejected Products: Payment will not be made for rejected products for any of the following:

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- 1. Products wasted or disposed of in a manner that is not acceptable.
- 2. Products determined as unacceptable before or after placement.
- 3. Products not completely unloaded from transporting vehicle.
- 4. Products placed beyond lines and levels of required Work.
- 5. Products remaining on hand after completion of the Work.
- 6. Loading, hauling, and disposing of rejected products.

#### 1.06 ALTERNATES

- A. Alternates quoted on the Bid Form will be reviewed and accepted or rejected at the Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work as applicable for a complete and total installation.
- C. Indicate variation of Bid Price for Alternates described below and list in Bid Form Document or any supplement to it which requests a difference in Bid price by adding to the Base Bid Price.
- D. Bids will be evaluated on Base Bid Price and any of the alternates that the Owner chooses based on the available funds.
- E. Cost as indicated shall include all material, labor, equipment and all other costs need to perform the work and install in accordance with the drawings, specifications and manufacturer's instructions.
- *F.* Schedule of Alternates: *TBD*

#### 1.07 UNIT PRICES

- A. Materials and its installation cost which may be required for additional roof deck or roof edge repair have been included in the Base Bid cost and are identified within the proposal form.
- B. Measurement methods delineated in individual specification sections complement criteria of this section. In event of conflict, requirements of individual specification section govern.
- C. Take measurements and compute quantities. Owner and Architect/Engineer will verify measurements and quantities.
- D. Unit Quantities: Quantities and measurements indicated in Bid Form are for contract purposes only. Actual quantities provided shall determine payment. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit sum/prices contracted.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and incidentals; erection, application or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect/Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- G. Measurement of Quantities:
  - 1. Weigh Scales: Inspected, tested, and certified by applicable State Weights and Measures department within past year.
  - 2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.

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- 3. Metering Devices: Inspected, tested, and certified by applicable State department within past year.
- 4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- 5. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- 6. Measurement by Area: Measured by square dimension using mean length and width or radius.
- 7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
- 8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
- H. The following unit prices shall be identified in the Form of Proposal and shall be included within the Base Bid that they are associated.
  - Unit prices are required on the following items to provide for the addition or deletion of work if the Architect's estimated quantities vary more than 10 percent (±) from the actual work required. Unit prices shall include all supervision, labor, equipment, materials, markup, overhead and profit as required. These prices are based on performance during the period of the contract. Unused quantities shall be credited from the contract at the end of the project per the unit price cost.
  - 2. The purpose of these Unit Prices is for corrective work that has not been included within the Contract Documents unless otherwise noted.
  - 3. Prior to utilizing materials from the unit price quantities, the Owner and Architect shall provide prior approval.
  - 4. Unit Price Schedule:

a.

- Unit Price No. 1 Repair Metal Deck (100 sf allowance)
  - Description: Includes material and labor to patch / repair existing metal deck per Section 05 31 20 as deemed necessary by the Owner/ Architect. Base Quantity to be provided by contract is 100 s.f.
  - 2) Unit of Measure: Square Feet.
- b. Unit Price No. 2 Replace Metal Deck (100 sf allowance)
  - 1) Description: Includes material and labor to replace existing metal deck per Section 05 31 20 as deemed necessary by the Owner/ Architect. Base Quantity to be provided by contract is 100 s.f.
  - 2) Unit of Measure: Square Feet.
- c. Unit Price No. 3 Blocking (200 lf allowance)
  - Description: Includes material and labor and all other costs for 2x8 blocking due to deterioration or damage or additional blocking would be required not specifically called for on the Drawings and Specification. Base Bid Quantity to be provided by contract is 2,000 l.f.
- d. Unit of Measure: Lineal Feet

#### 1.08 CASH ALLOWANCES

A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts; delivery to site, installation, and applicable taxes.

- B. Costs Not Included in Cash Allowances but Included in Contract Sum/Price: General Contractor overhead, profit, and bond.
- C. Architect/Engineer Responsibilities:
  - 1. Consult with Contractor for consideration and selection of products, and suppliers.
  - 2. Select products in consultation with Owner and transmit decision to Contractor.
  - 3. Prepare Change Order.
- D. Contractor Responsibilities:
  - 1. Assist Architect/Engineer in selection of products, suppliers, and installers.
  - 2. Obtain proposals from suppliers and installer and offer recommendations.
  - 3. On notification of selection by Architect/Engineer, Owner, execute purchase agreement with designated supplier and installer.
  - 4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
  - 5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Differences in costs will be adjusted by Change Order.
- F. Allowances Schedule:
  - 1. **TBD**.
- PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

#### 1.01 SECTION INCLUDES

- A. Submittal procedures.
- B. Proposed products list.
- C. Shop drawings.
- D. Product data.
- E. Samples.
- F. Manufacturers' instructions.
- G. Manufacturers' certificates.

#### 1.02 RELATED SECTIONS

- A. Section 01 01 90 Contract Considerations: Schedule of Values.
- B. Section 01 40 00 Quality Requirements: Manufacturers' field services and reports.
- C. Section 01 70 00 Contract Closeout: Contract warranty and manufacturer's certificates closeout submittals.

#### 1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Architect/Engineer accepted form. Provide one copy to Owner at time of submission to Architect/Engineer.
- B. Sequentially number the transmittal forms in accordance with Architect's submittal schedule. Re-submittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Architect/Engineer at business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Architect/Engineer review stamps.
- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

#### 1.04 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Owner-Contractor Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

#### 1.05 SHOP DRAWINGS

- A. Submit in the form of one reproducible transparency and three opaque reproductions.
- B. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 01 70 00 Contract Closeout.

#### 1.06 PRODUCT DATA, MSDS SHEETS AND OTHER DATA

- A. Submit electronically in pdf. format. All submittals shall bear the **contractor's review stamp** that indicates the submitted material complies with specification. Refer to submittal list at the end of the section.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01 70 00 Contract Closeout.
- D. The Contractor shall provide at Pre-Construction meeting approved insulation samples, product data sheets shall accompany samples and be transmitted to the Architect's office.
  - 1. Polyisocyanurate insulation board
  - 2. High density fiberboard
  - 3. Manufacturer's tapered insulation plan per roof section.
  - 4. Product data sheets on ALL materials including roof materials, masonry products, paint, caulks, fasteners, adhesives, etc.
  - 5. MSDS sheets for all materials. (MSDS must have same name as material that is installed).
  - 6. Mortar color selection samples.
  - 7. Emergency Contact List.
  - 8. Superintendent's credentials for approval.
  - 9. Sample 20 Year NDL Total System Warranty.
  - 10. Schedule of Values line item per specification and subsequent materials within spec section.
  - 11. Pre-Job Survey video/photo documentation (minimum of 3 copies)
- E. The Contractor shall provide prior to Pre-Construction meeting to the Owner / Architect:
  - 1. Their Site Specific Safety Plan.
  - 2. OSHA 300 logs.
  - 3. Sub-contractor Roles and Responsibilities signed.
  - 4. Payment and performance bonds for 100% of the Contract Price. The contract price is defined as proposal price of the contract. The penal amount of the performance bonds shall be 100% of the proposal price including all labor and all material. Performance Bond will be provided by the contractor that is awarded the contract.
  - 5. Insurance certificate with Owner named as the additionally insured.
  - 6. Properly executed Contractor Agreement.

- F. The Contractor shall provide upon completion of tear-off to the Owner:
  - 1. Waste Manifest signed by the plant after the work is complete.
  - 2. The Contractor shall provide upon project completion to the Owner: Fully executed Final Waiver of Lien from Contractor, subcontractor, subcontractor's laborers and material men, and Sub-Subcontractors of Subcontractor.
  - 3. Two (2) year Contractor's Installation Warranty.

#### 1.07 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect/Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number or samples specified in individual specification Sections; one of which will be retained by Architect/Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

#### 1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

#### 1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product but must be acceptable to Architect/Engineer.

#### PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

#### 1.01 SECTION INCLUDES

- A. General Requirements.
- B. Quality control and control of installation.
- C. Tolerances
- D. References.
- E. Mock-up requirements.
- F. Testing and inspection services.
- G. Manufacturers' field services.
- H. Examination.
- I. Preparation.

#### 1.02 GENERAL REQUIREMENTS

- A. Contractor shall:
  - 1. Submit an affidavit attesting the subcontractor has in place and fully implemented a written Health, Safety and Environmental plan and the plan is compliant with all applicable Federal, State, and local regulations.
  - 2. Be experienced in single ply membrane heat welded roofing systems for a 5-Years minimum.
  - 3. Be acceptable to Owner.
  - 4. Be manufacturer certified or an approved Subcontractor to install manufacturer's products.
  - 5. Has not been in Chapter 7 bankruptcy during the last ten (10) years.
  - 6. Provide list of at least 5 projects available for inspection employing the same roof system within a 100 mile radius.

#### 1.03 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

#### 1.04 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

#### 1.05 REFERENCES

- A. For products or workmanship specified by association, trades, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

#### 1.06 MOCK-UP REQUIREMENTS

- A. Tests will be performed under provisions identified in this section and identified in respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be comparison standard for remaining Work.
- D. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Architect/Engineer.

#### 1.07 TESTING AND INSPECTION SERVICES

- A. Contractor will employ and pay for specified services of an independent firm to perform testing and inspection.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Architect/Engineer.
  - 1. Laboratory: Authorized to operate at Project location.
  - 2. Laboratory Staff: Maintain full time registered Engineer, specialist on staff to review services.
  - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Architect/Engineer or Owner.
- D. Reports will be submitted by independent firm to Owner/Contractor/Architect and Engineer

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indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
  - 1. Notify Architect/Engineer and independent firm 24 hours prior to expected time for operations requiring services.
  - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Owner/Architect/Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
- H. Agency Responsibilities:
  - 1. Test samples of mixes submitted by Contractor.
  - 2. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
  - 3. Perform specified sampling and testing of products in accordance with specified standards.
  - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  - 5. Promptly notify Architect/Engineer and Contractor of observed irregularities or nonconformance of Work or products.
  - 6. Perform additional tests required by Architect/Engineer.
  - 7. Attend preconstruction meetings and progress meetings.
- I. Agency Reports: After each test, promptly submit copies of report to Owner/Construction Manager/Architect/Engineer and to Contractor. When requested by Architect/Engineer, provide interpretation of test results. Include the following:
  - 1. Date issued.
  - 2. Project title and number.
  - 3. Name of inspector.
  - 4. Date and time of sampling or inspection.
  - 5. Identification of product and specifications section.
  - 6. Location in Project.
  - 7. Type of inspection or test.
  - 8. Date of test.
  - 9. Results of tests.
  - 10. Conformance with Contract Documents.
- J. Limits On Testing Authority:
  - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  - 2. Agency or laboratory may not approve or accept any portion of the Work.
  - 3. Agency or laboratory may not assume duties of Contractor.
  - 4. Agency or laboratory has no authority to stop the Work.

#### 1.08 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions

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of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

- B. Submit qualifications of observer to Owner/General Contractor/Architect/Engineer 30 days in advance of required observations. Observer subject to approval of Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

#### PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify utility services are available, of correct characteristics, and in correct locations.

#### 3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

#### 1.01 SECTION INCLUDES

- A. Temporary Controls:
  - 1. COVID-19 Procedures
  - 2. Barriers,
  - 3. Protection of Installed Work.
  - 4. Interior Protection
  - 5. Security
- B. Construction Facilities:
  - 1. Progress cleaning.
  - 2. Site Conditions
  - 3. Site Signage
  - 4. Restoration and Cleaning
  - 5. Removal of Utilities, Facilities, and Controls

#### 1.02 RELATED SECTIONS

- A. Section 01 01 00 Summary of Work
- B. Section 01 70 00 Contract Closeout: Final cleaning.

#### 1.03 COVID-19 PROCEDURES

- A. Follow established CDC, OSHA, and Owner's standards. Refer to Owner's Guidelines in Section 00 20 00.
- B. Maintain a daily log of all construction personnel on site.
- C. No construction personnel to be permitted on site if sick or showing signs/symptoms of the COVID-19 virus. Recommend daily temperature of employees and record on log.
- D. Employees shall NOT congregate at one location on breaks/lunch time. Maintain social distancing.
- E. If the performance of work requires close working areas where social distancing cannot be maintained all personnel shall have mask covering mouth and nose.
- F. Clean all tools, equipment and ladders on a daily basis with disinfectant.

#### 1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection for plant life designated to remain. Replace damaged plant life.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

#### 1.05 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.
- G. Contractor shall repair all damages caused by roofing operations or other work per this contract to existing building/grounds or newly installed work, including damage to paying and exterior grounds. Provide like materials.

#### 1.06 INTERIOR PROTECTION AND RESTORATION

- Protect and cover fixed items, furniture, equipment, appliances, fixtures, bookcases, etc. A. within the building below the work areas.
- B. At the Owner's direction, remove portable furniture, equipment, appliances, fixtures, materials, stock, etc. within the building below the work area to an adjacent area for protection.
- C. Consult Pre-Job Survey if any questions arise due to previous conditions or claims of damage by re-roofing operations upon completion of the work to compare the current condition to the original condition.

#### 1.07 SECURITY

- Provide security and facilities to protect Work, and existing facilities, and Owner's A. operations from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.
- C. Provide Owner with current list of accredited persons.

#### 1.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

#### 1.09 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 including but not limited to: Field measurements and material quantities.
- B. Existing Conditions:
  - 1. Building space directly under roof area covered by this specification will be utilized by on-going operations.
  - 2. Access to roof shall be as outlined in pre-construction meeting.
  - 3. Move air-conditioning condensing units and other equipment as required to install roofing materials complete and in accordance with plans and specifications. When units and equipment are to be moved, they shall be carefully disconnected and removed to a protected area so as not to damage any part or component thereof. Reconnect units in such a way that they are restored to the prior work/ operating condition. Guard against dust, dirt and odors from entering the building during HVAC equipment relocation by field fabricating temporary covers and/or seals.
  - 4. A mechanical and/or electrical company licensed to perform such work shall perform all disconnection and re-connection. Subcontractor shall include in his price, cost for adjustments to roof drains to appropriate elevations to conform to new roof specifications. Work including new drain installation shall be performed by licensed plumbing company as pre-qualified in Washington County.
  - 5. All work shall be the responsibility of the roofing contractor unless otherwise noted. All work shall be considered that of what is necessary to complete the Scope of Work as noted in the bid documents.
  - 6. Existing roof top equipment shall NOT be set upon, used as a work bench or shelf for of storage materials. Clean asphalt and adhesives from units upon completion of work. Replace all damaged to units.
- C. Waste Disposal:
  - 1. Do not re-use, re-cycle or dispose of material manufacturer's product containers except in accordance with all applicable regulations. The user of manufactured products is responsible for proper use and disposal of product containers.
  - 2. Use of dumpster and set up shall be as approved by WCPS. Protect sidewalks, paving and adjacent landscaping and building.
- D. Safety Requirements:
  - 1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements. Contractor and subcontractors shall follow OSHA and Owner safety programs.
  - 2. Comply with federal, state, local and Owner fire and safety requirements.
  - 3. Advise project superintendent whenever work is expected to be hazardous to Owner, employees, and/or operators.
  - 4. A crewman with two-way communication (i.e., radio, mobile phone) shall be maintained by the contractor as a floor area guard whenever tear-off work is being conducted and when roof decking is being repaired or replaced. Aisle ways shall have traffic cones and safety tape put up to warn and/or divert personnel from walking beneath areas under construction. Floor guard shall be maintained until base ply is completely installed.
  - 5. The contractor, whenever power tools, roofing kettles, fuels, solvents, torches, and open flames are being used shall maintain fire extinguishers within easy access.
  - 6. Roofing contractor is required to have an OSHA approved fall protection plan in place prior to the start of work. The roofing contractor shall include in his proposal all safety railing and barricades to protect his crews. The roofing

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contractor shall present a safety plan prior to the pre-construction meeting. All fall protection shall conform to state and federal regulations as outlined in OSHA CODE OF FEDERAL REGULATION 29 PART 1926.500 SUB PART M. The awarded roofing subcontractor shall submit a safety plan to the Contractor for submittal to the Owner containing to each item listed below as it pertains to the specific project.

- E. Fall Protection: Fall protection is required whenever subcontractors are working on a surface that has an unprotected side or edge that is six (6) feet or more above a lower level. An unprotected edge is one that has a parapet wall that is less than 39 inches in The slope of the roof dictates which fall protection system or systems may be height. used.
  - Low Slope Roofs (Slope is less than or equal to 4 in 12.) On low slope roofs, 1. employees shall be protected from falling by guardrail systems, personal fall arrest systems, or a combination of warning line system and guardrail system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet or less in width, the use of a safety monitoring system alone is permitted.
  - 2. Steep Roofs - (Slope is greater than 4 in 12.) On steep roofs, employees shall be protected from falling by guardrail systems with toe boards or personal fall arrest systems.
  - 3. Warning Line System
    - When mechanical equipment (mechanical equipment meaning all motor a. or human-propelled, wheeled equipment used for roofing work except wheelbarrows and mop carts) is not being used, the warning line shall be erected no less than six (6) feet from the roof edge.
    - When mechanical equipment is being used, the warning line shall be b. erected not less than six (6) feet from the roof edge that is parallel to the direction of mechanical equipment operation and not less than ten (10) feet from the roof edge, perpendicular to the direction of the mechanical equipment operation.
    - Stanchions shall be set not further than 12 feet apart. c.
    - d. Warning lines shall be a height of 39 inches at the highest point and 34 inches at the lowest point, including sag. They shall be flagged at not more than six (6) foot intervals with high visibility material.
    - e. All employees working outside the warning line and within six (6) feet of the roof edge must wear a full safety harness with the "0" ring located in the rear. A six (6) foot shock-absorbing lanyard with rollout protection also must be used. This lanyard is to be located between the lifeline and the harness. In cases where work outside the warning line is to be performed, a Safety Monitoring System or an approved OSHA fall protection system may be used. (See section below).
- F. Safety Monitoring System
  - 1. A documented competent person monitors the safety of all employees on a roofing or sheet metal crew and warns them when it appears to the monitor that they are unaware of a hazard or are acting in an unsafe manner. The competent person must be on the same roof as, and within visual sighting distance of, the employees and must be close enough to verbally communicate with the employees.
  - 2. Only used on low slope roofs that are 50 feet or less in width if no other fall prevention system is installed. Can be used on low slope roofs of any width if combined with a warning line system.
  - No mechanical equipment shall be used with this system. 3. 4.

Parapet Wall Clamp-On Guardrail System

## CONSTRUCTION FACILITIES AND **TEMPORARY CONTROLS**

Wash. Co. Gov. 145 IKO Way Roof Replacement

- a. Used on roofs where the parapet wall is less than 39 inches.
- b. Clamp-on posts must be spaced eight (8) feet or less apart.
- c. Top rail positions 42 inch plus or minus 3 inches high.
- d. Mid-rail between the top rail and top of the parapet wall at 21 inches.
- e. If a section of the railing has to be removed to perform work, lifelines, and safety harnesses with six (6) foot lanyards must be used while working in the unprotected area.
- f. If 1/4 inch steel cable is used at the top and mid-rail, the top cable must be flagged at no more than six (6) foot intervals with a highly visible material.
- G. Guardrail Systems
  - 1. Top edge of top rail shall be 42 inches plus or minus 3 inches above the working surface.
  - 2. Mid-rails are required if there is no wall or parapet wall at least 21 inches higher. When used, mid-rails shall be installed at a height midway between the top edge of the guardrail and the working level.
  - 3. Guardrail posts shall be at least two (2) inch by four (4) inch lumber spaced not more than eight (8) feet apart on centers.
  - 4. The top rail shall be at least two (2) by four (4) inch lumber. The intermediate rail shall be at least one (1) inch by six (6) inch lumber.
  - 5. Toe boards shall be a minimum of 3-1/2 inches in vertical heights.
  - 6. When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place. When guardrail systems are used at holes or skylights, they shall be erected on all unprotected sides or edges of the hole.
  - 7. When guardrail systems are used at holes or skylights, they shall be erected on all unprotected sides or edges of the hole.
  - 8. When guardrail systems are used around holes used for ladder access, they shall be provided with a gate or be so offset that a person cannot walk directly into the hole.
  - 9. Manila, plastic or synthetic rope used for top rails or mid-rails shall be inspected as frequently as necessary to ensure that it continues to meet OSHA strength requirements.
- H. Catch Platforms
  - 1. Catch platforms consist of ladder jack scaffolding with guardrails, mid-rails and toe boards or welded tube scaffolding with guardrails, mid-rails and toe boards.
  - 2. Both of the above scaffolds must have platform that extend two (2) feet wide or better beyond the eave with no gap.
- I. Personal Fall Arrest System
  - 1. Only full body harnesses with either shock-absorbing lanyard or lifelines, or a combination thereof, shall be used when required. All snap hooks shall be of the locking variety.
  - 2. Personal fall arrest systems shall be rigged such that employees can neither freefall more than six (6) feet or contact any lower level.
  - 3. Self-retracting lifelines shall automatically limit free-fall distance to two feet or less.
- J. Covers
  - 1. Cover for holes in floors, roofs, and other surfaces shall be capable of supporting, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.

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CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- 2. Covers shall be secured when installed to prevent accidental displacement by the wind, equipment or employees.
- 3. All covers shall be color-coded or marked with the work "HOLE" or "COVER".
- 4. Covers shall not be stood on, sat on, nor have any materials placed upon them.
- K. Environmental Requirements:
  - 1. Do not work in rain, snow, or in presence of water.
  - 2. Do not work in temperatures below 40 degrees F.
  - 3. Do not install materials marked "KEEP FROM FREEZING" when daily temperatures are scheduled to fall below 40 degrees F.
  - 4. Do not perform masonry work below 40 degrees F.
  - 5. Remove any work exposed to freezing.
  - 6. The roofing contractor will use some or all of the following methods to minimize disruptions to building occupants and operations due to odor and will be performed at no additional cost to the Owner.
    - a. Divert air intake from work area by attaching scoops or temporary ductwork.
    - b. Temporarily shut down or block air intakes.
    - c. Install temporary charcoal filters.
    - d. Add odor reducing additive to asphalt tanker if hot asphalt is used.
- L. Temporary Sanitary Facilities:
  - 1. The roofing contractor shall furnish, install, and maintain temporary sanitary facilities for employee use during project construction. The suitable location will be determined at the pre-construction meeting. Remove on project completion.
  - 2. Place portable toilets in conformance with applicable laws, codes, and regulations.
- M. Odors:
  - 1. Contractor shall mitigate all odors from roofing operations from penetrating the building including, but not limited to the following:
    - a. Keep building doors and windows closed at all times, coordinate with Owner's Facility Representative.
    - b. The use of adhesive and other liquid roof components shall be down wind of any air intakes and set tankers (if hot asphalt is used) in downwind location.
    - c. Shut down of all adjacent HVAC/RTU's units; cover or seal all intakes and exhaust air opening; and provide charcoal filters secured to vent openings.
    - d. Pay attention to wind direction and working accordingly to prevent odors from entering building.
- N. Provide exhaust fans on interior to push/pull fumes out of building.

#### 1.10 SITE SIGNAGE (*N/A*)

- A. The Contractor shall provide one job sign for construction per the design and content of the sign layout included at the end of this section as noted in the index. Background color shall be white, text shall be black, accent bands shall be yellow, and flag shall be red, yellow and black with white background. The lettering shall be Series C of Standard Alphabet for Highway Signs, Public Roads Administration, Federal Works Agency.
- B. To obtain this construction sign that is compliant with the State of Maryland IAC Administrative Procedures Guide standard requirements, contact:
  - 1. Sign Shop: Maryland Correctional Enterprises (MCE)
  - 2. Email: cwbehnke@dpscs.state.md.us\
  - 3. Phone: 410-799-5102

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- 4. Fax: 410-799-7911
- C. Sign location shall be approved by the Owner and Architect.
- D. No other signs are allowed without Owner permission except those required by law.
- E. Submit shop drawing indicating content, layout, lettering, color, foundation, structure, sizes, and grades of members.
- F. Sign Materials:
  - 1. Structure and Framing: New, wood, structurally adequate.
  - 2. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inches thick, standard large sizes to minimize joints.
  - 3. Rough Hardware: Galvanized or brass.
  - 4. Paint and Primers: Exterior quality, two coats; sign background of color as selected. Adequate to withstand weathering, fading, and chipping for duration of construction.
  - 5. Contractor shall design sign and structure to withstand 60 miles/hr wind velocity.
- G. Installation:
  - 1. Install project identification sign within 14 days after receipt of Notice to Proceed.
  - 2. Erect at designated location with high public visibility adjacent to main entrance to site.
  - 3. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
  - 4. Install sign surface plumb and level, with butt joints. Anchor securely.
  - 5. Paint exposed surfaces of sign, supports, and framing.
- H. Maintenance: Maintain signs and supports clean, repair deterioration and damage.
- I. Removal: When directed, remove signs, framing, supports, and foundations at completion of project and restore area.

#### 1.11 RESTORATION AND CLEAN-UP

- A. During the construction period, the Contractor shall, on a daily basis, place all his waste materials and "non-broom-able" debris into containers.
- B. Provide magnetic sweep to the ground area adjacent to the building and on all parking lot and asphalt areas including walkways and all areas where roofing activities occurred from ground including but not limited to the access path to get to the building / work area. Provide magnetic sweep of the roof area as well.
- C. Upon completion of the Work and before acceptance and final payment is made, the Work shall be cleaned of all rubbish, excess materials, false work, temporary structures, and equipment; and all parts of the Work shall be left in a neat, presentable condition, satisfactory to the Owner. This Work shall be considered incidental to the overall project and no additional compensation will be allowed.

### 1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

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## PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

(Not Used)

#### 1.01 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

#### 1.02 RELATED SECTIONS

- A. Section 00 11 16 Instructions to Bidders: Product options and substitution procedures.
- B. Section 01 40 00 Quality Requirements: Product quality monitoring.

#### 1.03 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

#### 1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- D. Delivery of Materials:
  - 1. Deliver materials to job-site in new, dry, unopened, and well-marked containers showing product and manufacturers name.
  - 2. Deliver materials in sufficient quantity to allow continuity of work.
  - 3. Coordinate delivery with Owner.
  - 4. Do not order project materials or start work before receiving written notice to proceed.
- E. Material Handling:
  - 1. Handle materials to avoid bending, tearing, or other damage during transportation and installation.
  - 2. Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or locate material handling equipment in areas that will hinder smooth flow of vehicular or pedestrian traffic

#### 1.05 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.
- H. Contractor shall assume full responsibility for the protection and safekeeping of products stored on premises.
- I. Storage of Materials:
  - 1. Store rolled goods on ends only.
  - 2. Discard rolls, which have been flattened, creased, or otherwise damaged. Place materials on pallets. Store rolled goods on level pallets. Do not stack pallets.
  - 3. Store materials marked "KEEP FROM FREEZING" in areas where temperatures will remain above 40 degrees F.
  - 4. For insulation, remove plastic packaging shrouds. For felt rolls, slit the top of the plastic shrink-wrap only. Cover top and sides of all stored materials with tarpaulin (not polyethylene). Secure tarpaulin. Canvas tarpaulin only to be used for material protection.
  - 5. Rooftop storage: Disperse material to avoid concentrated loading, verify exiting structural member location and loading requirements.
  - 6. Do not store materials in open or in contact with ground or roof surface.
  - 7. Store all materials on a raised platform covered with secured canvas tarpaulin (not polyethylene), top to bottom. Cover all materials when project is not in progress and maintain the ability at all times to cover the materials when required, such as during an unanticipated rain shower.

#### 1.06 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

#### 1.07 SUBSTITUTIONS

A. The Instructions to Bidders, General Conditions to the Contract, and Supplemental Conditions to the General Conditions specify restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this Section.

- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents and submit with the attached Request Form.
- D. A request constitutes a representation that the Bidder:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the Substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
  - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
  - 3. The Architect/Engineer will notify Contractor, in writing, of decision to accept or reject request.

#### PART 2 PRODUCTS

(Not Used)

### PART 3 EXECUTION

(Not Used)

## **REQUEST FOR SUBSTITUTION**

| DA  | ΓE OF R                            | EQUEST:   |  |
|-----|------------------------------------|---|--|
| PRO | DJECT:                             | Washington County Government 145 IKO Way - Roof Replacement   |  |
|     |                                    | County Project PUR- XXXX; BFM Project No. 21032;  |  |
| COl | NTRACT                             | COR:  |  |
| TEL | EPHON                              | E NO:   |  |
| FAG | CSIMILE                            | NO:   |  |
| COl | NTACT:                             |   |  |
| 1.  | Item fo                            | or which substitution is being requested:   |  |
|     |                                    |   |  |
| 2.  | Reference Specification Section:   |   |  |
| 3.  | Reference Drawing:                 |   |  |
| 4.  | . Reason for Substitution Request: |   |  |
| 5.  | . Product Comparison:              |   |  |
|     | Submi<br>results                   | t three copies of shop drawing, product data, color samples, utility requirements and certified test attesting to the proposed product equivalence. |  |
|     | a                                  | Data substantiating compliance of proposed substitution with contract documents.  |  |
|     | b                                  | Product identification, manufacturer's name, address and telephone number.  |  |
|     | c                                  | Manufacturer's literature, warranty.  |  |
|     | d                                  | Full color selection, showing colors Architect may select without additional cost.  |  |
|     | e                                  | Samples   |  |
|     | f                                  | Warranty  |  |
|     | g                                  | References of product in use.   |  |
|     | h                                  | Itemized comparison of proposed substitution with product or method specified. Highlight all differences from specified item.                       |  |
|     | i                                  | All items listed Section 01 60 00-1.7.  |  |
|     | j                                  | Cover letter stating benefits or equality of substitution and reason for substitution request.  |  |
| 6.  | If requ<br>substit                 | est is being submitted after the receipt of bids, attach price quotations of specified product and uted products.                                   |  |

MATERIAL AND EQUIPMENT

#### 1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.

#### 1.02 RELATED SECTIONS

- A. Section 01 50 00 Construction Facilities and Temporary Controls: Progress cleaning.
- B. Section 01 74 00 Warranties and Bonds.

#### 1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's inspection.
- B. Provide submittals to Architect/Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Owner will occupy portions of the building as specified in Section 01 01 00.

#### 1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean equipment and fixtures to a sanitary condition.
- C. Clean debris from roofs, gutters, downspouts, and drainage systems.
- D. Clean site; sweep paved areas, rake clean landscaped surfaces disturbed by construction.
- E. Remove waste and surplus materials, rubbish, and construction facilities from the site.

#### 1.05 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

#### 1.06 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
  - 1. Contract Drawings.
  - 2. Specifications.
  - 3. Åddenda.
  - 4. Change Orders and other Modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Material Safety Data sheets for each material used.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.

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- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction:
  - 1. Field changes of dimension and detail.
  - 2. Details not on original Contract Drawings.
- F. Delete Architect/Engineer title block and seal from all documents.
- G. Submit documents and bond material safety data sheets to Architect/Engineer with claim for final Application for Payment.

#### 1.07 OPERATION AND MAINTENANCE DATA

- A. Provide data for roofing system.
- B. Submit one (1) set electronically in pdf. format (smallest file size) for review prior to final inspection,
- C. For final submit (2) sets bound in 8-1/2" x 11", three-ring binders with durable plastic covers. Provide electronic copy of as-builts drawings in both .pdf and .dwg formats, O&M Manuals, and all other closeout submittals on a CD or thumbdrive.
- D. Each binder shall be labeled with the school name and the title, "Record Information Booklet."
- E. Make-up of the booklet:
  - 1. Part 1: Directory, listing names, addresses, and telephone number of Consultant and Contractor.
  - Part 2: Maintenance instruction arranged by system. For each system, give names, addresses, and telephone numbers of subcontractors and suppliers. List:
    a. Appropriate design criteria.
    - b. Maintenance instructions, equipment.
  - 3. Shop drawings and product data.

#### PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

(Not Used)

#### 1.01 SECTION INCLUDES

- A. Preparation and submittal.
- B. Time and schedule of submittals.
- C. Warranty.

#### 1.02 RELATED SECTIONS

- A. Section 01 70 00 Contract Closeout: Contract closeout procedures.
- B. Individual Specifications Sections: Warranties required for specific products or Work.

#### 1.03 FORM OF SUBMITTALS

- A. Bind in commercial quality, 8-1/2 x 11 inch three "D"-ring 'clear-vue' binders with hardback, cleanable, and transparent plastic covers and side binder.
- B. Label cover and side of each binder with typed or printed title WARRANTIES, with title and date of Project; name, project number; address and telephone number of Contractor; and name of Architect.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification Section in which specified, and the name of the product or work item.
- D. Directory: Provide a directory which indicates names, addresses and telephone/fax numbers of Owners, Consultants, General Contractors, Subcontractors, and Major Suppliers. Include name of contact person for each entry.
- E. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal. Include information regarding maintenance and operations of equipment and or materials as may be required by the specifications or manufacturer.

#### 1.04 PREPARATION OF SUBMITTALS

- A. Obtain warranties, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item or work. Except for items put into use with Owner's permission, the date of beginning of time of warranty shall be the Date of Substantial Completion.
- B. Verify that documents are in proper form, contain full information.

#### 1.05 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
- B. Provide draft copy of warranties and bonds for review by consultant no later then time of 50% project completion.

- C. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- D. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

#### 1.06 WARRANTY

- A. Guarantee:
  - 1. Upon project completion and Owner acceptance, effective upon complete payment the Subcontractor shall issue a guarantee against defective workmanship and materials for a period of two (2) years.
  - 2. Manufacturer's standard 25 year No Dollar Limit Quality Assistance total system warranty.
    - a. Manufacturer will warrant all materials installed. No exclusions.
    - b. Manufacturer will inspect the roofing system in years 2, 5, 10, 15, and 20 and shall perform any preventive maintenance and housekeeping as necessary.
    - c. Roof manufacturer will provide a written report with photographs with each inspection.
  - 3. Roof manufacturer must provide a report of the required inspections as noted in Section 01 01 00, Article 1.10.A.
  - 4. Other warranties as noted per specification section.

### PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

# **DIVISION 2**

# SITE WORK

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612

#### 1.01 SUMMARY

- A. Section Includes:
  - 1. Demolishing designated building equipment and fixtures.
  - 2. Demolishing designated construction.
  - 3. Cutting and alterations for completion of the Work.
  - 4. Removing designated items for reuse and Owner's retention.
  - 5. Protecting items designated to remain.
  - 6. Removing demolished materials.
- B. Related Sections:
  - 1. Section 01 50 00 Construction Facilities & Temporary Controls.
  - 2. Section 05 31 00 Steel Roof Deck
  - 3. Section 07 09 10 Preparation for Re-Roofing

#### 1.02 SUBMITTALS

- A. Section 01 33 00 Submittal Procedures: Requirements for submittals.
- B. Demolition Schedule: Indicate overall schedule and interruptions required for utility and building services.
- C. Shop Drawings:
  - 1. Indicate location of items designated for reuse and Owner's retention.
  - 2. Indicate location and construction of temporary work.

#### 1.03 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 Execution Requirements: Requirements for submittals.
- B. Project Record Documents: Accurately record actual locations of capped utilities, concealed utilities discovered during demolition, and subsurface obstructions.
- C. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists.

#### 1.04 QUALITY ASSURANCE

- A. Conform to applicable codes for demolition work, dust control, products requiring electrical disconnection and re-connection.
- B. Conform to applicable codes for procedures when hazardous or contaminated materials are discovered.
- C. Obtain required permits from authorities having jurisdiction.
- D. Perform Work in accordance with State of Maryland standard.

#### 1.05 PRE-INSTALLATION MEETINGS

- A. Section 01 03 90 Coordination and Meetings: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

#### 1.06 SEQUENCING

- A. Section 01 01 00 Summary of Work: Requirements for sequencing.
- B. Sequence demolition activities in accordance with the proposed project phasing.
- C. Owner will conduct salvage operations before demolition begins to remove materials Owner chooses to retain.

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D. Effectively cover and protect all remaining equipment and furnishings for the duration of the work. Maintain the protection as required by the Owner.

#### 1.07 SCHEDULING

- A. Section 01 04 10 Project Coordination: Requirements for scheduling.
- B. Schedule Work to coincide with phasing.
- C. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation in adjoining spaces.
- D. Perform noisy, malodorous, dusty work in accordance with the local entity having jurisdiction per their ordinance or regulations:
  - 1. Between hours of 6:00 AM to 10:00 PM Monday thru Saturday.
- E. Coordinate utility and building service interruptions with Owner.
  - 1. Do not disable or disrupt building fire or life safety systems without three days prior written notice to Owner.
  - 2. Schedule tie-ins to existing systems to minimize disruption.
  - 3. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

### 1.08 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Cease operations immediately if structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

#### PART 2 PRODUCTS

Not Used

#### PART 3 EXECUTION

#### 3.01 PREPARATION

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.
- C. Erect, and maintain temporary barriers and security devices at locations indicated, including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.
- D. Erect and maintain weatherproof closures for exterior openings.
- E. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy.
- F. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.
- G. Provide appropriate temporary signage including signage for exit or building egress.
- H. Do not close or obstruct building egress path.
- I. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.

#### 3.02 SALVAGE REQUIREMENTS

- A. Owner has first rights of refusal for all equipment and materials.
- B. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner.
- C. Tag components and equipment Owner designates for salvage.
- D. Protect designated salvage items from demolition operations until items can be removed.
- E. Carefully remove building components and equipment indicated to be salvaged.
- F. Disassemble as required to permit removal from building.
- G. Package small and loose parts to avoid loss.
- H. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.
- I. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.
- J. Deliver salvaged items to Owner. Obtain signed receipt from Owner.

#### 3.03 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Maintain protected egress from and access to adjacent existing buildings at all times.
- C. Do not close or obstruct roadways and sidewalks without permits.
- D. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer and Owner.
- E. Disconnect and remove designated utilities within demolition areas.
- F. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- G. Demolish in orderly and careful manner. Protect existing improvements and supporting structural members.
- H. Carefully remove building components indicated to be reused.
  - 1. Disassemble components as required to permit removal.
  - 2. Package small and loose parts to avoid loss.
  - 3. Mark components and packaged parts to permit reinstallation.
  - 4. Store components, protected from construction operations, until reinstalled.
- I. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- J. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- K. Remove temporary Work.

# **DIVISION 5**

## METALS

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612

#### 1.1 SUMMARY

- A. Base Bid includes 500 sf of repair and 100 sf of replacement of metal decking. Quantities shall be adjusted per Unit Prices; additional quantities are as needed. Provide line items on Schedule of Values to indicate.
- B. The contract provides an allowance for unit costs for 100 sf of both repair and replacement. Provide as line items on the Schedule of Values.

#### 1.2 Related Sections:

- A. Section 01 01 00 Summary of Work
- B. Section 02 22 50 Demolition
- C. Section 07 09 10 Preparation for Re-Roofing
- D. Section 07 22 00 Roof and Deck Insulation
- E. Section 07 54 10 Thermoplastic Membrane Roofing

#### 1.3 **REFERENCES**

- A. AISI (American Iron and Steel Institute) cold formed steel design manual.
- B. ASTM A36/A36M Carbon Structural Steel.
- C. ASTM A446 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip process, Structural (Physical) Quality.
- D. ASTM A525 Steel Sheet, Zinc-Coated, Galvanized by the Hot-Dip Process.
- E. ASTM A611 Steel, Cold-Rolled Sheet, Carbon, Structural.
- F. AWS D1.1 (American Welding Society) Structural Welding Code.
- G. SDI (Steel Deck Institute) Design Manual for Composite Decks, Form Decks, Roof Decks, Cellular Metal Floor Deck with Electrical Distribution.
- H. SSPC (Steel Structures Painting Council) Painting Manual.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Design metal deck in accordance with SDI Design Manual.
- B. Calculate to structural limit stress design and maximum vertical deck deflection of L/240.
- C. Design Lateral deflection of diaphragm not to exceed 1/500 of the height of the wall or story height.

#### 1.5 SUBMITTALS

- A. Section 01 33 00 Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate deck plan, support locations, projections, openings and reinforcement, pertinent details, and accessories. Indicate temporary shoring of decking where required.

- C. Product Data: Submit deck profile characteristics and dimensions, structural properties, finishes.
- D. Manufacturer's Installation Instructions: Submit manufacturer's installation instructions for specific and special installation and sequence.

### 1.6 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum 5 years documented experience.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 Product Requirements: Product storage and handling requirements.
- B. Cut plastic wrap to encourage ventilation.
- C. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

#### 1.8 FIELD MEASUREMENTS

A. Verify that field measurements are as shown on drawings and confirmed by shop drawings.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Sheet Steel: ASTM A446, Grade B Structural Quality; with G60 galvanized coating conforming to ASTM A525.
- B. Sheet Steel: ASTM A611, Grade C, unfinished.
- C. Bearing Plates and Angles: ASTM A36 steel, unfinished.
- D. Welding Materials: AWS D1.1.
- E. Shop and Touch-Up Primer: SSPC 15, manufacturer's standard.
- F. Touch-Up Primer for Galvanized Surfaces: SSPC 20 Type I Inorganic.

### 2.2 ACCESSORIES

- A. Flute Closures: Closed cell foam rubber, 1 inch thick; profiled to fit tight to the deck.
- B. Sump Pans, Sump Plates, Valley Strips, Eave Strips: Fabricated of metal of same type and finish as deck.

### 2.3 FABRICATION

- A. Metal Roof Deck: Sheet steel, configured as follows: (Match existing, verify in field)
  - 1. Span Design: multiple
  - 2. Minimum Metal Thickness Excluding Finish: 22 gage
  - 3. Minimum Section Properties (per foot width): S = .198 in., I = .169 in.
  - 4. Minimum Allowable Diaphragm Shear: 200 plf.
  - 5. Nominal Height: 1-1/2 inch, fluted profile to SDI WR (Type B)
  - 6. Formed Sheet Width: 36 inch
  - 7. Side Joints: lock seam
  - 8. Flute Sides: plain vertical face
- B. Related Deck Accessories: Metal closure strips, cover plates, cant strips, 22 gage thick galvanized sheet steel; of profile and size as indicated.
- 05 31 20-2

STEEL ROOF DECK

- C. Fasteners: Galvanized hardened steel, self-tapping.
- D. Weld Washers: Mild steel, uncoated, 3/4 inch outside diameter, 1/8 inch thick.

### PART 3 — EXECUTION

#### 3.1 EXAMINATION

A. Section 01 40 00 – Quantity Requirements: Examination.

#### 3.2 INSTALLATION

- A. Erect metal deck in accordance with SDI Manual.
- B. Bear deck on masonry or concrete support surfaces with 4 inches minimum bearing. Align and level.
- C. Bear deck on steel supports with 1-1/2 inch minimum bearing. Align and level.
- D. Fasten deck to steel support members at ends and intermediate supports with <sup>3</sup>/<sub>4</sub>" puddle welds (through weld washers if 24 ga. or thinner) at 12" o.c. maximum, parallel with the deck flute and at every other transverse flute.
- E. Weld in accordance with AWS D1.1.
- F. Contractor has option to use mechanical fastening in lieu of puddle welds. Submit fastener for approval.
- G. Mechanically clinch male/female side laps at 24 inches oc maximum.
- H. Reinforce steel deck openings from 6 to 24 inches in size with  $2 \times 2 \times \frac{1}{4}$  inch steel angles. Place framing angles perpendicular to flutes, extend minimum two flutes beyond each side of opening and puddle weld to deck at each flute. Openings larger than 24" to 48" shall be reinforced with  $4 \times 3 \times \frac{5}{16}$  inch steel angle framed to structure.
- I. Install 6 inch minimum wide sheet steel cover plates, of same thickness as deck, where deck changes direction. Puddle weld 12 inches oc maximum.
- J. Install sheet steel closures and angle flashings to close openings between deck and walls, columns, and openings.
- K. Install single row of foam flute closures above walls and partitions perpendicular to deck flutes.

# **DIVISION 6**

## WOOD AND PLASTIC

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612

#### 1.01 SECTION INCLUDES

- A. This section includes the materials and installation procedures for assemblies fabricated from wood.
  - 1. Base Bid includes all blocking needed to increase roof edge, openings, curbs, area dividers, cants, and equipment etc...heights due to new insulation thicknesses and backnailing.
  - 2. Blocking in wall and roof openings
  - 3. Per Base Bid, provide 2,000 l.f. of repair/replacement of existing wood blocking in addition to Item No. 1. Show this as an additional line for this section on the Schedule of Values.
  - 4. Unit Prices apply if additional or less quantities are required per Base Bid for miscellaneous repairs of existing unforeseen conditions.
  - 5. Include in contract an Allowance by Unit Cost for 200 l.f. and shall be included on the Bid Form.
- B. Preservative treatment of wood.

#### 1.02 RELATED SECTIONS.

- A. Section 01 01 00 Summary of Work.
- B. Section 02 22 50 Demolition.
- C. Section 05 31 20 Steel Roof Deck.
- D. Section 07 09 10 Preparation for Re-Roofing.
- E. Section 07 54 10 Thermoplastic Membrane Roofing.
- F. Section 07 62 00 Sheet Metal Flashing and Trim.

#### 1.03 REFERENCES

- A. ALSC (American Lumber Standards Committee) Softwood Lumber Standards.
- B. APA (American Plywood Association).
- C. AWPA (American Wood Preservers Association) C1 All Timber Products Preservative Treatment by Pressure Process.
- D. AWPA (American Wood Preservers Association) C20 Structural Lumber Fire Retardant Treatment by Pressure Process.
- E. NFPA (National Forest Products Association).
- F. RIS (Redwood Inspection Service).
- G. SPIB (Southern Pine Inspection Bureau).
- H. WCLIB (West Coast Lumber Inspection Bureau).
- I. WWPA (Western Wood Products Association).
#### 1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
  - 1. umber Grading Agency: Certified by ALSC.
  - 2. Plywood Grading Agency: Certified by APA.

## 1.05 SUBMITTALS

A. Product Data: In accordance with Section 01 30 00, submit manufacturer's certification for pressure-treated and fire-treated lumber.

#### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Lumber Grading Rules: WCLIB and WWPA.
- B. Miscellaneous Framing: Stress Group D, S.P.F. species, 19 percent maximum moisture content, pressure preservative treat when wood is in contact with concrete, masonry or metal.
- C. Plywood: APA Grade C-C-X; unsanded.
  - 1. Fire Retardant Treated: Locations as indicated in Drawings or as listed below.
  - 2. Tongue and Groove: As indicated in Drawings.
- D. Particle board: Will not be acceptable.
- E. Wood blocking: minimum 2 by 4 inch nominal.
- F. Tapered wood for coping drainage: Western Reds Cedar, rabbeted bevel siding, select knotty, 3/4 inch by 10 inches.
- G. Wood cant: 4 by 4 inch cut on bias.
- H. Free floating fascia cant: Tapered wood strip.
- I. Wood sheathing boards: Match the existing thickness x existing width needing replaced. SPF No. 2, free from warping and visible decay.

#### 2.02 ACCESSORIES

- A. Fasteners and Anchors:
  - 1. Fasteners: Hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.
- B. Fasteners:
  - 1. Fasteners and connectors for ACQ or copper azoles pressure treated wood shall be of hot-dipped galvanized steel, stainless steel or fluorocarbon coated (excluding one-half inch diameter or greater steel bolts).
    - a. Do not use standard carbon steel, aluminum or electroplated galvanized fasteners.
    - b. Fasteners and connectors used together shall be of same of same type.
    - c. Hot-dipped galvanized fasteners shall meet or exceed ASTM A153 requirements.
      - 1) Connectors shall meet or exceed ASTM A653, Class G185 sheet with 1.85 ounces or zinc coating per square foot minimum.
    - d. Type 300 Series stainless steel fasteners are required for maximum corrosion resistance, such as below grade and saltwater exposure.

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WOOD BLOCKING AND CURBING

- e. Hot dipped galvanized fasteners are acceptable for above grade applications.
- f. Tremco/Olympic fasteners are recommended for use with treated wood.
  - 1) Other proprietary (fluorocarbon) coated fasteners are acceptable but consult the manufacturer for specific information.
- 2. Wood to wood:
  - a. Acceptable manufacturers:
    - 1) Type 300 Series stainless steel fastener.
    - 2) Hot-dip galvanized fastener.
    - 3) Olympic/Olympic No. 12-11 Standard Roofing Fastener, with CR-10 fluorocarbon coating by Tremco.
    - 4) Approved equal by Owner.
    - 5) Length:
      - a) Use the shortest fastener that will penetrate the wood blocking 1-1/4 inch.
      - b) Use the shortest fastener that will penetrate the top of the wood decking a minimum of 1-inch. Fasteners shall not penetrate the underside of wood plank decking.
- 3. Wood to concrete:
  - a. Acceptable manufacturers:
    - 1) Deckfast #14 screw, by Construction Fasteners, Inc., Wyomissing, PA.
    - 2) Insul-Fixx #14, by SFS Stadler, Brunswick, OH.
    - 3) Insul-Tite #14, by Burlington Mfg. Corp., Archbold, OH.
    - 4) Olympic Fastener #14-10, by Olympic Manufacturing Group, Agawam, MA.
    - 5) Tapcon -1/4-inch dia., Phillips flat head anchor, by ITW Buildex, Itasca, IL.
    - 6) Roofgrip #14-10, by ITW Buildex, Itasca, IL.
    - 7) Rawl Drive or Rawl Spike, by the Rawlplug Co., Inc., New Rochelle, NY.
    - 8) Rawl Deck #14 Deck Screw, by the Rawlplug Co., Inc., New Rochelle, NY.
    - 9) Approved equal by Owner.
    - Length: Sufficient to provide 1 to 1-1/2-inch embedment.
  - Wood to concrete, pre-cast plank and cementitious wood fiber decks:
    - a. Acceptable manufacturers:
      - 1) Olympic Fasteners NTB-1H with locking wire barbs.
      - 2) Approved equal by Owner.
      - 3) Length: Sufficient to provide 2-inch embedment into deck without penetrating underside of decking.

#### 2.03 FACTORY WOOD TREATMENT

b.

4.

- A. Wood Preservative (Pressure Treatment) EPA Approved: AWPA Treatment C1 using water borne preservative with 0.060 L.I.S. CF retainage.
  - 1. Products treated with "CCA" (chromated copper arsenate) will not be permitted.
  - 2. "ACQ" (amine copper qust) or "CBA" (copper baron azole) treated products will be acceptable.
- B. Fire Treatment: Shall be equal to Hoover Treated Wood Products, Inc. of Milford, VA (804) 633-5021 Pyro-Guard Complying with AWPA Type A fire retardant treatment and shall have a flame spread rating of 25 or less when tested in accordance with ASTM E-84.
  - 1. Interior Fire retardant treated lumber and plywood shall have an equilibrium moisture content of not over 28% when tested in accordance with ASTM D-3201 at 92% relative humidity.
  - 2. Each piece of fire retardant treated lumber and plywood shall be manufactured under Underwriters Laboratories and shall bear the UL Qualification label for

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surface burning characteristics in the 30 minute E-84 flame test and also indicate kiln drying after treatment (KDAT).

#### PART 3 EXECUTION

#### 3.01 FRAMING

- A. Set members level and plumb, in correct position.
- B. Place horizontal members, crown side up.
- C. Construct curb members of single pieces.
- D. Space framing and furring 16 inches oc.
- E. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.
- F. Coordinate curb installation with installation of decking and support of deck openings, and parapet construction.

#### 3.02 SHEATHING

- A. Install sheathing in accordance with applicable code.
- B. Fasten sheathing in accordance with applicable code.
- C. Secure roof sheathing with longer edge (strength axis) perpendicular to framing members and with ends staggered and sheet ends over bearing.
- D. Use sheathing clips between sheets between roof framing members. Install solid edge blocking between sheets. If tongue and groove fully engage tongue and groove edges.
- E. Secure wall sheathing with long dimension perpendicular to wall studs, with ends over firm bearing and staggered.
- F. Place building paper horizontally over wall sheathing; weather lap edges and ends.

#### 3.03 INSTALLATION

#### A. Wood Blocking:

- 1. Mechanically attach horizontal blocking to deck. Install fasteners in two (2) rows staggered. Do not exceed 24 inch spacing in any one (1) row. Within 8 feet of outside corners, do not exceed 12 inch spacing in any one (1) row. Offset blocking layers 12 inches, weave corners.
- 2. Blocking thickness: Equal to final insulation thickness.
- 3. Blocking width: minimum 4 inches nominal and 1/2 inch wider than metal flanges.
- 4. Countersink fastener heads.
- 5. Wood blocking fastening pattern:



- B. Metal Roof Edge:
  - 1. Replace existing wood blocking and taper strip when defective.
  - 2. Mechanically attach wood blocking. Offset blocking layers 12 inches; weave corners.

- a. Blocking thickness: Equal to final insulation thickness including tapered edge strips (if required).
- b. Blocking width: 6 inches nominal.
- Install tapered wood strip over free floating metal fascia deck brackets. Nail two (2) rows at a spacing not to exceed 12 inches from each side of deck brackets. Miter corners.
- C. Walls: Mechanically attach wood blocking to flashing base.
  - 1. Offset blocking layers 12 inches; weave corners.
  - 2. Blocking thickness: Equal to final insulation thickness including tapered edge (if required).
- D. Wood curbs:
  - 1. Mechanically attach wood blocking to deck at all wood curb locations. Minimum 2 fasteners per section. Offset blocking layers 12 inches, weave corners.
  - 2. Blocking thickness: Equal to final insulation thickness.
  - 3. Blocking width: 6 inches nominal.
- E. Area Divider / Expansion joint:
  - 1. Install horizontal and vertical blocking.
    - a. Vertical blocking:
      - 1) Thickness: 2 inches, nominal.
      - 2) Height: 8 inches above final surface of roofing.
    - b. Horizontal blocking:
      - 1) Thickness: Equal to final insulation thickness, including tapered edge.
      - 2) Width: 6 inches.
    - c. Install and secure preformed 45-degree wood cants. Nail two (2) rows staggered to horizontal and vertical blocking. Spacing in any one (1) row shall not exceed 24 inches.
- F. At metal sleeve and storm collar:
  - 1. Mechanically attach wood blocking to deck at all storm collar locations. Minimum 2 fasteners per section.
    - Offset blocking layers 12 inches, weave corners.
      - a. Blocking Thickness: Equal to final insulation thickness.
      - b. Blocking Width: 6 inches, normal
- G. Hot stack pipe detail and collar:

2.

- 1. Mechanically attach wood blocking to deck at all hot stack locations minimum 2 fasteners per section.
- 2. Mechanically attach flange to wood blocking 3 inches o.c. staggered.
- 3. Offset blocking layers 12 inches, weave corners.
  - a. Blocking thickness: Equal to final insulation thickness including tapered edge (if required).
  - b. Blocking width: 6 inches.
- 4. Maintain insulating dead air space at blocking.
- H. Penetration pocket locations:
  - 1. Mechanically attach wood blocking to structural deck at all pitch pan locations; minimum 2 fasteners per section.
  - 2. Offset blocking layers 12 inches; weave corners.
    - a. Blocking thickness: Equal to final insulation thickness including tapered edge (if required).
    - b. Width: 6 inches.
- I. I-beam locations:

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- 1. Install horizontal and vertical blocking around column.
- 2. Vertical blocking at column:
  - a. Thickness and type: 3/4 inch thick plywood.
  - b. Height: 8 inches, above final surface of roofing.
- 3. Horizontal blocking:
  - a. Thickness: Equal to final insulation thickness including tapered edge.
  - b. Height: 8 inches above final surface of roofing.
- 4. Mechanically attach horizontal blocking to deck, 2 fasteners per section.
- 5. Install wood cants to blocking. Mechanically attach two (2) rows staggered to horizontal and vertical blocking. Do not exceed 24 inch spacing in any one (1) row

### END OF SECTION

# **DIVISION 7**

## **THERMAL AND MOISTURE CONTROL**

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612

#### PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section Includes:
  - 1. Water test roof and overflow drains, plumbing vents and storm drain lines.
  - 2. Remove and discard full extent of built-up and single-ply roofing membranes, insulation, base flashings, and related sheet metal flashings and trim down to the surface of the metal decks.
  - 3. Remove and discard roof drains.
  - 4. Temporary Roofing
  - 5. Vapor Barrier
  - 6. Temporarily remove and reconnect rooftop mechanical units, exhaust fans, hatch/ curb assemblies and electrical conduits to allow for roofing system replacement.
  - 7. Provide new scupper openings.

### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
  - 1. Section 01 01 00 Summary of Work.
  - 2. Section 01 20 00 Price and Payment Procedures.
  - 3. Section 01 50 00 Construction Facilities and Temporary Controls.
  - 4. Section  $02\ 22\ 50$  Demolition.
  - 5. Section 06 11 40 Wood Blocking and Curbing.
  - 6. Section 07 54 10 Thermoplastic Membrane Roofing.

#### 1.03 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

#### 1.04 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Existing Asphalt Roofing System: Glass and wood fiber insulation and multiple ply and modified bitumen asphalt built-up roof
- C. Roof Re-Cover Preparation: Existing roof deck is to remain and be prepared for reuse.
- D. Roof Tear-Off: Removal of existing membrane roofing systems to the level of the structural roof deck.
- E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- F. Remove and Salvage: Detach items from existing construction and deliver them to Owner's storage area within school complex.
- G. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- H. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled

#### 1.05 SUBMITTALS

- A. Photographs: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as having been damaged by re-roofing operations. Submit before Work begins.
- B. Qualification Data: For refrigerant recovery technician.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of exterior stair tower, hoists and cranes.
  - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress.
  - 6. Coordination of government personnel continuing occupancy of existing building.
  - 7. Means of protection for items to remain and items in path of waste removal from building.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestoscontaining material, by a landfill facility licensed to accept hazardous wastes.

#### 1.06 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Roofing system demolition shall be performed by an experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning membrane roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Re-roofing Conference: Conduct conference at Project Site.
  - 1. Meet with the Owner, Architect, roofing system manufacturer's representative; roofing installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects re-roofing including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing system tear-off and replacement including, but not limited to, the following:
    - a. Re-roofing preparation, including membrane roofing system manufacturer's written instructions.
    - b. Temporary protection requirements for existing roofing system that is to remain during and after installation.
    - c. Temporary protection of the area below the work taking place.
    - d. Existing roof drains and roof drainage during each stage of re-roofing, and roof drain plugging and plug removal requirements.
    - e. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - f. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
    - g. Structural loading limitations of deck during re-roofing.h. Base flashings, special roofing details, drainage, penetra
    - h. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-roofing.

PREPARATION FOR RE-ROOFING Wash. Co. Gov. 145 IKO Way Roof Replacement

- i. HVAC shutdown and sealing of air intakes.
- j. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
- k. Governing regulations and requirements for insurance and certificates if applicable.
- 1. Existing conditions that may require notification of Architect before proceeding. Review areas where existing construction is to remain and requires protection.
- m. Review hazardous waste removal, handling and disposal procedures.

### 1.07 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately below re-roofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
  - 1. Coordinate work activities daily with Owner so Contractor can place protective dust or water leakage covers over sensitive equipment, collections, furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area.
  - 2. Before working over mechanical penetrations for fans and ducts, notify Owner to evacuate occupants from below the affected area. Verify that occupants below the work area have been evacuated before proceeding with work over the impaired deck area.
- B. Protect building to be re-roofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from re-roofing operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
  - 1. The results of an analysis of test cores from existing membrane roofing system are available for Contractor's reference.
  - 2. Construction Drawings and Project Manual for existing roofing system are provided for Contractor's reference. Contractor is responsible for conclusions derived from existing documents.
- E. Weather Limitations: Proceed with re-roofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
- F. Hazardous Materials: It is not expected that hazardous materials such as asbestoscontaining materials will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work. Existing and temporary roofing will be left no less watertight than before removal.
  - 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

#### 1.08 SPECIAL CONDITIONS

- A. The Contractor is responsible for conducting work so normal routines, activities and procedures at the building are not disturbed. No work may take place over occupied sections of the Building. Coordinate work with the Owner's Representative.
- B. The Owner's Site Representative shall have the power to order the permanent removal from the premises any employee of the Contractor for interference with the building's operation or for incompetence. Furthermore, The Owner's Site Representative shall have the power to stop work if the Representative believes the work is not progressing in accordance with the Contract Documents or membrane manufacturer's specifications. The Contractor shall immediately comply with this order.

- C. Coordinate with the mechanical contractor to disconnect, remove, reroute and reconnect all conduit lines to all roof top equipment. Mechanics performing electrical and freon work must be licensed in the State of Maryland. Prior to disconnection, test the units in the presence of the Owner's Representative and provide a written report verifying the operating conditions.
- D. Hazardous Materials: Limited asbestos testing has been performed on the roofing materials. The contractor is responsible for complying with all local, state and federal regulations related to the disturbance and/ or removal of these materials.

#### 1.09 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

#### PART 2 PRODUCTS

#### 2.01 VAPOR BARRIER AND TEMPORARY ROOFING MATERIALS

- A. Glass-Fiber Ply Sheets: ASTM D 2178, Type VI, asphalt-impregnated, glass-fiber felt.
- B. Asphalt Primer: ASTM D 41. Water-based, polymer modified, asphalt primer.
- C. Roofing Asphalt: ASTM D 312-95a performance requirements, Type III or IV as recommended by built-up roofing system manufacturer for application.
  1. Asphalt must have the "no smell" additive.
- D. Solvent Free Adhesive: One part, solvent free, asbestos-free, low-odor elastomeric roof mastic specifically formulated for compatibility and use with roofing membrane and flashings.

#### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Owner and Architect.

#### 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/ Systems: Maintain services/ systems indicated to remain and protect them against damage during selective demolition operations.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 01 01 00 Summary of Work.
- B. Service/ System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/ electrical systems serving areas to be selectively demolished.
  - 1. The Owner will arrange to shut off indicated services/systems when requested by Contractor.

#### 3.03 PREPARATION

A. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with re-roofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

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PREPARATION FOR RE-ROOFING

- B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- C. Protections: Provide temporary barricades and other protection required to protect general public from injury and damage building due to selective demolition work.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
- D. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
- E. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
- F. Water test existing storm drain lines and water test again after new drains are installed. Prior to any demolition, water test all roof drains, storm drain lines and drain lines in work and material storage areas with 3/4 inch diameter garden hose flowing at maximum capacity. Report all blockages to Owner and Architect in writing. All blocked drain lines discovered after demolition has begun, including removal of gravel, will be cleaned out and made free-draining at no cost to the Owner.
- G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
  - 1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.
- H. Verify that rooftop utilities and service piping have been shut off before beginning the Work.

### 3.04 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day and obtain authorization to proceed.
- B. Roof Tear-Off: Remove existing roofing other roofing system components down to the top level of the structural and roof deck.
  - 1. Remove no more existing roofing than can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
  - 2. Remove existing roofing membranes, insulation, flashings, copings, counterflashings, gravel stops, drip edges, and roof accessories.
  - 3. Remove existing roofing systems down to existing roof deck.
  - 4. Remove roof drain bodies.
  - 5. Schedule and sequence demolition of roofing systems and flashings so that the specified replacement roofing systems and flashings can be installed within the same day as demolition or sooner if rain is expected. Provide temporary weather protection during interval between demolition and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
  - 6. On flat roof areas, seal tie-in between existing and new roofing with positive watertight seal that is capable of resisting ponding water to 2 inch or maximum depth possible due to tear-off sequence. Where practical, raise edge of existing roofing above height required to prevent water from flowing into insulation or building.
- C. Rooftop Mechanical Equipment: Remove equipment without releasing refrigerants.
- D. Remove all electrical conduit, piping and appurtenances which interfere with the installation of the new roofing and coating systems. Coordinate work with the Owner's Representative to ensure services have been maintained by new service prior to demolition of existing services.

- E. Patch all fastener holes and openings in steel decks. Cover fastener holes with tape.
- F. Use removal methods to prevent damage to roof deck during tear off operations. Contractor shall repair, at no additional cost to Owner, unsound decking which the Owner's Representative or Engineer determines was damaged due to tear off operations.
- G. Remove all abandoned mechanical equipment, electrical conduit, piping and appurtenances which interfere with the installation of the new roofing system. Most items are shown on the Drawing. Coordinate work with the Owner's Representative to ensure electrical services have been disconnected.
- H. Disconnect all mechanical equipment, electrical conduit, piping and appurtenances as required to raise units for roofing installation and to reroute conduits/ piping to configurations shown on Drawing. Reinstall/ reroute conduits/ piping through watertight enclosures as shown on Drawing. All existing pitch pans shall be eliminated and the use of new pitch pans is not permitted. Coordinate shut-down work with the Owner's Representative to ensure electrical services have been disconnected. Cover any holes and openings left in deck as specified in Division 7 Sections. Reconnect equipment when flashing installation is completed.
- I. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit an accurately detailed report to the Owner's Representative and Engineer in writing. Pending receipt of directive from Owner, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

### 3.05 SUBSTRATE PREPARATION AND TEMPORARY ROOF INSTALLATION

- A. Inspect existing roof decks after tear-off of existing roofing system.
- B. Verify that existing roof deck is sound and without deterioration or loss of solid structural consistency.
- C. Replace damaged roof deck with similar material.
- D. At areas of gypsum deck (BUR and single ply systems) install vapor barrier/temporary roof by mechanically attaching a base sheet to existing roof deck and mopping one (1) layer of a waterproof premium ply sheet in full mopping of hot asphalt.

#### 3.06 EXISTING BASE FLASHINGS

- A. Remove existing base flashings around parapets, curbs, walls, and penetrations.
  - 1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings as specified in Section 07 62 00 Sheet Metal Flashing and Trim.

#### 3.07 SCUPPER OPENINGS (if applicable)

- A. Remove existing sheet metal overflow scuppers.
- B. Remove any adjacent existing half or cut brick units from existing scupper opening. Patch, repair and close existing scupper opening with salvaged whole brick units. Match mortar joint profile.
- C. Remove and salvage brick from new scuppers as indicated on the Drawings. Provide a 12 inch wide by 3 inch height scupper opening.
- D. Fabricate sheet metal scupper per Spec Section 07 62 00.
- 3.08 STEEL DUCT SUPPORTS (If applicable)
  - A. Trim existing steel angle supports for ductwork, etc...as needed to accommodate raised curb height. Weld new 3 inch by 3 inch by 1/8 inch plate to the bottom of the steel angle support over new curb coping.

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PREPARATION FOR RE-ROOFING

#### 3.09 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

#### 3.10 DISPOSAL

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Government's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - 4. Storage or sale of demolished items or materials on-site is not permitted.
- B. Burning: Do not burn demolished materials.
- C. Transport and legally dispose of demolished materials off Owner's property.

## END OF SECTION

#### PART 1 – GENERAL

#### 1.1 SECTION INCLUDES

- A. Gypsum based, cover board and polyisocyanurate roof insulation board types, accessory materials and applications. Roof section application and layout requirements.
- 1.2 RELATED DOCUMENTS
  - A. Drawings and contract documents, including Section 01 01 00 Summary of Work, apply to this section.

#### 1.3 RELATED SECTIONS

- A. Section 01 01 00 Summary of Work
- B. Section 02 22 50 Demolition
- C. Section 05 31 20 Steel Roof Deck
- D. Section 05 50 00 Metal Fabrications
- E. Section 06 11 40 Wood Blocking and Curbing
- F. Section 07 09 10 Preparation for Re-Roofing
- G. Section 07 54 10 Thermoplastic Membrane Roofing
- H. Section 07 62 00 Sheet Metal Flashing and Trim
- I. Section 07 90 00 Joint Sealers
- J. Section 23 16 00 Roof Drains

#### 1.4 REFERENCES

- A. ASTM C 208 Cellulose Fiber Insulating Board
- B. ASTM C 1289 Polyisocyanurate Insulating Board
- C. UL Roofing and Materials Directory 2003, Underwriters Laboratories Inc.
- D. Factory Mutual Global Approval Guide
- E. RIC/TIMA Technical Bulletin 281-1 Roof Insulation Specimen Conditioning Procedure, The Roof Insulation Committee of the Thermal Insulation Manufacturers Association, Mt. Kisco, NY.

#### 1.5 SUBMITTALS

- A. Submit in accordance with Section 01 30 00.
- B. Contractor shall provide at Pre-Construction meeting approved insulation samples.
- C. The following shall be submitted for each and all materials used per this section, including fasteners and adhesives.
  - 1. Product data sheets shall accompany samples.
  - 2. MSDS sheets shall match the name on the product data submitted.
  - 3. Shop Drawings for tapered insulation plans.
  - 4. Manufacturer's tapered insulation plan per roof section.

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5. Cover board as approved by roofing system manufacturer.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery of Materials:
  - 1. Deliver materials to jobsite in new, dry, unopened and well-marked containers showing product and manufacturers name.
  - 2. Deliver materials in sufficient quantity to allow continuity of work.
  - 3. Coordinate delivery with project superintendent.
  - 4. Do not order project materials or start work before receiving written notice to proceed. No work shall commence without signed contracts.
  - 5. The facilities staff shall not sign any material deliveries.
- B. Storage of Materials:
  - 1. Store rolled goods on ends only. Place materials on pallets. Do not stack pallets.
  - 2. Store materials marked "KEEP FROM FREEZING" in areas where temperatures will remain above 40° F.
  - 3. For insulation, remove plastic packaging shrouds. Cover top and sides of all stored materials with tarpaulin (not polyethylene). Secure tarpaulin.
  - 4. Rooftop storage: Disperse material to avoid concentrated loading.
  - 5. Do not store materials in open or in contact with ground or roof surface.
  - 6. Store all materials on a raised platform covered with secured canvas tarpaulin (not polyethylene), top to bottom. Cover all materials when project is not in progress and maintain the ability at all times to cover the materials when required, such as during an unanticipated rain shower.
  - 7. Contractor shall assume full responsibility for the protection and safekeeping of products stored on premises.
- C. Material handling:
  - 1. Handle materials to avoid bending, tearing, or other damage during transportation and installation.
  - 2. Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or situate material handling equipment in location that will hinder smooth flow of vehicular or pedestrian traffic.

## 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Environmental requirements:
  - 1. Do not work in rain, snow, or in presence of water and high wind conditions.
  - 2. Do not work in temperatures below  $40^{\circ}$  F.
  - 3. Do not install materials marked "KEEP FROM FREEZING" when daily temperatures are scheduled to fall below 40° F.
- B. Remove any work exposed to freezing.
  - 1. Advise Owner when volatile materials are to be used near air ventilation intakes so Owner can use some or all of the following methods to minimize disruptions to building occupants and operations:
    - a. Divert air intake from work area by attaching scoops or temporary ductwork.
    - b. Temporarily shut down or block air intakes.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. Comply with quality control, references, specifications, and manufacturer's data. Products containing asbestos are prohibited on this project. Use only asbestos-free products.
- B. Use products with personal protection. User must read container label and material safety data sheets prior to use.

#### 2.2 ACCEPTABLE MANUFACTURERS

- A. Use only approved Polyisocyanurate board. Acceptable manufacturers include:
  - 1. Hy-Therm AP by Celotex
  - 2. ENERGY-2 by Johns Manville
  - 3. ISO95+GL by Firestone
  - 4. AC Foam-II by Atlas
  - 5. Approved equal by Owner.
- B. Single Ply Membrane Cover Board.
  - 1. Securock Roof Sheathing
  - 2. DensDeck Prime Sheathing

#### 2.3 MATERIALS

- A. Base, Tapered and Flat Polyisocyanurate Board Insulation:
  - 1. FS HH-I-1972 (1) Class 1, factory-tapered polyisocyanurate.
  - 2. Black, glass fiber reinforced, non-asphaltic facer
  - 3. Dimensions: 4 by 4 feet x minimum 1 inch thick. For existing metal decks start at 2 inch minimum.
    - a. The insulation thickness shall be adjusted as required to meet or exceed the roof insulation systems specified R-Value requirement (R30 avg).
  - 4. Tapered polyisocyanurate insulation will be installed generally as a 4-way tapered layout or as shown on roof plan drawing.
  - 5. Provide factory-tapered insulation boards fabricated to the following slopes:
    - a. 1/4-inch rise per 12 inch run
    - b. At existing deck areas as shown on the plans at 1/8-inch rise per 12 inch run where noted or when existing deck has 1/8-inch slope integral with structure.
  - 6. Provide flat stock insulation boards for steep slopes in decks of <sup>1</sup>/<sub>4</sub> inch per foot slope or more.
    - a. Provide at minimum 2 layers to achieve R30 R-value. The first layer shall be at least 2 inches thick, mechanically attached; and a second layer of 3 <sup>1</sup>/<sub>2</sub> inches adhered to the first layer.
- B. Tapered Polyisocyanurate Saddle and Cricket Insulation:
  - 1. FS HH-I-1972 (1) Class 1, tapered isocyanurate.
  - 2. Black, glass fiber reinforced, non-asphaltic facer
  - 3. Dimensions: 4 by 4 feet.
  - 4. Provide factory-tapered insulation boards fabricated to slope of twice (2 times) the roof system slope, with a minimum of 1/2 inch per foot.
- C. Cover Board:
  - 1. Gypsum based cover board, 0.25 inch, R-value Negligible.
  - 2. Dimensions: 4 x 4 feet, non-combustible, water resistant gypsum core with embedded glass mat facers complying with ASTM C1177.

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- D. Tapered Edge Strips: ASTM C 208, asphalt-coated fiberboard, tapered from 1-5/8 inch to 1/8 inch; dimensions: 12" x 48".
- E. Fibered Cant Strips:
  - 1. ASTM C 208-95, asphalt-coated fiberboard, factory fabricated.
  - 2. Dimensions: 4 by 4 inch cut on bias.
- F. Insulation Roof Board Adhesive:
  - 1. Base Insulation layer mechanically fastened.
  - 2. Adhesive Gypsum Deck: Low rise foam FAST adhesive.
- G. Insulation Adhesive Primer: Low-VOC, water-based, polymer modified asphalt primer.
- H. Roof Insulation Accessories: As recommended by insulation manufacturer for intended use and compatible with membrane roofing.

### PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify conditions as satisfactory to receive work.
- B. Do not begin roofing until all unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions.
- C. Verify that work of other trades penetrating existing roof deck or requiring men and equipment to traverse existing roof deck has been approved by Owner, manufacturer, and roofing contractor.
- D. Check existing projections, curbs, and deck for inadequate anchorage, foreign material, moisture, or unevenness that would prevent quality and execution of new roofing system.

## 3.2 GENERAL WORKMANSHIP

- A. All work performed by contractor shall conform to this specification.
- B. The presence and activity of the manufacturer's representative, architect's representative, and/or Owner's representative shall in no way relieve contractor of contract responsibilities or duties.
- C. Substrate: Free of foreign particles prior to laying roof insulation.
- D. Wrapper and packaging materials: Not to be included in roofing system.
- E. Insulation: Form continuous insulation joints over existing decking.
- F. Install insulation boards in courses parallel to roof edges.
- G. Firmly butt each insulation board to surrounding boards. Do not jam or deform boards. Install cover board layer with a minimum <sup>1</sup>/<sub>4</sub>" gaps between each.
- H. Eliminate open joints and uneven surfaces in polyiso base insulation.
  - 1. Maximum insulation gap: 1/4 inch.
  - 2. Fill insulation board joint gaps larger than 1/4 inch with roof insulation.
  - 3. Maximum elevation variation between boards at joints: 1/8 inch.
- I. Cut and fit insulation boards where roof deck intersects vertical surfaces. Cut board 1/4 inch from vertical surface.
- J. Stagger joints at least 6 inches.
- K. Filler size: 18 inches in length or width, minimum.

## 3.3 PREPARATION

- A. Protection:
  - 1. Contractor shall be responsible for protection of property during course of work. Lawns, shrubbery, paved areas, and building shall be protected from damage. Repair damage and/or clean marred areas at no extra cost to owner.
  - 2. Provide at site prior to commencing removal of debris, a dumpster or dump truck to be located adjacent to building where directed by owner.
  - 3. Roofing, flashings, membrane repairs, and insulation shall be installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather.
  - 4. At start of each work day drains within daily work area shall be plugged. Plugs to be removed at end of each workday or before arrival of inclement weather. Preparation work shall be limited to those areas that can be covered with installed roofing material on same day and before arrival of inclement weather.
  - 5. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Move equipment and ground storage areas as work progresses.
  - 6. Protect building surfaces at set-up areas with tarpaulin. Secure tarpaulin. Remove dumpster from premises when full and empty at approved dumping or refuse area. Deliver empty dumpster to site for further use. Upon job completion, dumpster shall be removed from premises. Spilled or scattered debris shall be cleaned-up immediately. Removed material to be disposed from roof as it accumulates.
  - 7. At end of each working day, seal removal areas with water stops along edges to prevent water entry.
  - 8. Provide clean plywood walkways and take other precautions required to prevent tracking of aggregate/debris from existing membrane into new work area where aggregate/debris pieces can be trapped within new roofing membrane. Contractor shall instruct and police workmen to ensure that aggregate/debris is not tracked into new work areas on workmen's shoes or equipment wheels. Discovery of entrapped aggregate/debris within new membrane is sufficient cause for its rejection.
- B. Asphalt heating: N/A
  - 1. Use low burner flames during initial meltdowns. Circulate asphalt after initial meltdown.
  - 2. Maximum asphalt temperature: 25 degrees F below the flash point.
  - Avoid prolonged heating of asphalt at high temperatures. Reduce the asphalt temperature to below 500 degrees F if asphalt is not being used for periods of 4 hours or more.
  - 4. Kettle: Free of contaminants.
  - 5. Application rates: Bitumen quantities for water stop/tie-offs, flashings, miscellaneous detail applications, and minimum kettle capacity are not included in application rates. Mopping rate 25 pounds per 100 square feet plus or minus 20 percent.
  - 6. Heat and apply asphalt in accordance with equiviscous temperature (EVT) melted as recommended by NRCA. Temperature shall be EVT plus or minus 25 degrees at point of application. Discard bitumen that does not fall within this standard.
- C. Surface preparation:
  - 1. Remove existing roofing and insulation to existing roof deck.
  - 2. Sweep clean existing roof deck.
  - 3. Install pressure treated wood nailers as required to match new insulation height.
  - 4. Prime existing deck.
  - 5. Install backnailing 2x @ 10'-0" o.c. on steep sloped deck areas. Per manufacturer's NRCA acceptable roofing standards.

## 3.4 INSTALLATION

- A. Install new tapered roof insulation system. Comply with roofing manufacturer's written instructions for installing roof insulation.
  - 1. General Requirements:
    - a. The minimum insulation average R-Value requirement for the project is R-30. The installed insulation thickness shall be adjusted as required to meet or exceed the roof insulation systems specified R-Value requirement min. thickness.
    - b. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards.
    - c. Fill gaps exceeding 1/4 inch with insulation.
    - d. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    - e. Install minimum 2" base layer insulation system in application of low rise foam insulation adhesive with beads at 4" o.c per manufacturer's recommendations. Let adhesive rise. Walk insulation boards into adhesive immediately after placement to achieve solid contact.
    - f. Install self-adhered waterproof vapor barrier or 2 ply vapor barrier set in adhesive.
    - g. Install remaining layers of insulation to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
    - h. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water. Provide minimum 4x4 sump (min. insulation thickness 2-1/2")
    - i. At steep slope conditions, provide 2x wood blocking at 10 foot spacings on center for backnailing. Total height to match insulation thickness. Note blocking shall run horizontally across slope with cap sheets running perpendicular to slope.
- B. Install base and tapered polyisocyanurate insulation system.
  - 1. Install tapered polyisocyanurate insulation with 1/4 inch per foot slope except where 1/8 inch per foot slope is shown.
  - 2. Minimum insulation thickness as required to meet the specified insulation system R-Value requirement.
  - 3. Install 4 by 4 ft. tapered insulation sumps at roof drain locations and 2 by 2 ft tapered insulation sumps at scupper locations (excluding overflow roof drains and scuppers).
  - 4. Adhere tapered insulation layers, tapered edge and cant strips in full application of solvent free insulation adhesive. Walk boards into adhesive immediately after installation to achieve solid contact.
- C. Install base insulation layer.
  - 1. At existing Cementitious Wood Fiber Deck (if applicable):
    - a. Adhere insulation to the existing deck with a uniform and continuous application of Low Rise Foam Adhesive with bead at 4" o.c. Prime deck surface before application of adhesive.
    - b. Install self-adhered waterproof vapor barrier or 2 ply vapor barrier in hot asphalt.
  - 2. At Existing Metal Deck Areas: mechanically fasten and adhere insulation: Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
    - a. Remove existing insulation by backing out each metal fastener and removing the insulation.
    - b. Clean roof deck and wall surfaces of dust, debris and other substances detrimental to roofing installation according to roof system manufacturer's

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written instruction. Remove sharp protections. Sweep deck clean prior to installing new roof system.

- c. Duct tape all existing holes.
- d. Mechanically attach new insulation with one (1) fastener per 2 sq. ft.
  - 1) Fasten first layer of insulation according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
  - 2) Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.
- e. Install all subsequent layers with a uniform and continuous application of insulation adhesive or hot asphalt.
  - 1) Where underside of metal deck is exposed, use colored fastener to match exposed deck color or paint exposed fasteners once installed.
- D. Install tapered insulation saddles and install tapered insulation saddles or crickets to promote positive drainage along valley lines between roof drains and scuppers, along walls, at high side of roof curbs and as instructed at Pre-Construction Meeting.
  - 1. Install tapered polyisocyanurate insulation with minimum 1/2-inch per foot slope.
  - 2. Tapered insulation saddle and cricket slope shall equal a minimum of twice the roof slope.
  - 3. Saddle widest width shall equal or exceed 1/3 of the distance between the roof drains or scuppers.
  - 4. Contractor is responsible for the elimination of ponding water along valley lines.
  - 5. Adhere tapered insulation to base tapered insulation layer with a uniform and continuous application of insulation adhesive.
- E. Install insulation on steep slopes similar with the use of 2 layers of insulation to meet the min R-value.
- F. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing manufacturer.
  - 1. Fasten cover boards according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
  - 2. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.
  - 3. Adhere insulation over bottom layer insulation with a uniform and continuous application of insulation adhesive and walk into place and roll with weighted roller.
- G. Install tapered edge strips.
  - 1. Install tapered edge strips where blocking height exceeds insulation height.
  - 2. Adhere tapered edge strips over top layer insulation with a uniform and continuous application of insulation adhesive.
- H. Install fibered cant strips.
  - 1. Adhere 45 degrees and continuous cants (4 by 4's) at intersections of horizontal and vertical flashing surfaces as recommended by system manufacturer with a uniform and continuous application of solvent free insulation adhesive.

## END OF SECTION

## PART 1 GENERAL

#### 1.01 SUMMARY

- A. This section includes the materials and application procedures for a Thermoplastic Polyolefin (TPO) Single Ply Roofing System.
- B. Other Manufacturers' System may be considered as a substitution as noted if such substitution meets or exceeds performance standards as specified per this section and as approved by Owner.

#### 1.02 RELATED DOCUMENTS

A. Drawings and contract documents, including Section 01 01 00 Summary of Work, apply to this section.

#### 1.03 RELATED SECTIONS INCLUDE THE FOLLOWING:

- A. Section 05 31 20 Steel Roof Deck
- B. Section 06 11 40 Wood Blocking and Curbing
- C. Section 07 09 10 Preparation for Re-Roofing
- D. Section 07 22 20 Roof and Deck Insulation
- E. Section 07 54 51 Fluid Applied Membrane Roofing and Flashing
- F. Section 07 62 00 Sheet Metal Flashing and Trim

#### 1.04 REFERENCES

- A. ASTM American Society for Testing and Materials, West Conshohocken, PA.
- B. NRCA National Roofing Contractors Association, Chicago, IL
- C. UL Underwriter's Laboratory, Northbrook, IL.

#### 1.05 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 6878 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

#### 1.06 PERFORMANCE REQUIREMENTS

- A. General: Install a watertight, fully adhered single ply thermoplastic roofing system with compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movement, and exposure to weather.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to FMG 1-A-90.
- D. SPRI Wind Design Standard: Manufacture and install copings and roof-edge flashings tested according to SPRI ES-1.

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- E. Flashings and Fastening: Comply with requirements of Section 07 62 00 Sheet Metal Flashing and Trim. Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:
  - 1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.
  - 2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
  - 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
  - 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
- F. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

## 1.07 SUBMITTALS

- A. Product Data: For each type of product specified to be used in the new system installation. Include data substantiating the materials comply with the requirements.
- B. Materials Safety Data Sheets: For each type of product specified to be used in the new system installation. Name on data sheets shall match the actual product data sheet.
- C. Shop Drawings:
  - Insulation cricket Shop Drawings per Section 07 22 00 indicating drainage pattern to provide positive slope to roof drains or scuppers. Drawing should indicate average R-value of each roof section for the insulation systems to be installed. Field verify dimensions and drain locations prior to submitting information to the insulation manufacturer to obtain the shop drawings
  - 2. Base sheet fastening patterns, indicating the fastener spacing requirements for compliance with FMG requirements in the field, perimeter and corners.
  - 3. Roof plan, prepared or approved by the roofing system Manufacturer, indicating extent of field, perimeter and corner of each roof section.
  - 4. Base flashings and built-up terminations detailed to meet requirements of NRCA requirements.
- D. Samples for Verification: For the following products:
  - 1. 12-by-12-inch squares of ply sheets, flashing backer sheets and flashing sheets.
  - 2. 12-by-12-inch squares of each roof insulation.
  - 3. 3 lb of aggregate surfacing material.
  - 4. Six insulation fasteners of each type, length, and finish.
- E. Pull-out test results of proposed fasteners for use in gypsum decks. Include letter from the roof membrane manufacturer stating fastener pull-out test results are acceptable and indicating the base sheet lapping requirements and fastener spacing requirements for compliance with FMG requirements.
- F. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system, and that the Installer has been an "NDL" Certified Roofing System Installer for at least five (5) years.
  - 1. Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.

- G. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in Article 1.06.
  - 1. Submit evidence of meeting performance requirements and components are compatible.
- H. Qualification Data: For Installer and Roof System Manufacturer.
  - 1. Contractor shall provide references from five (5) building owners for similar roofing systems of comparable size (+/- 25 percent) within the past five (5) years.
  - 2. Contractor shall provide a listing of tradesmen with work experience with similar roofing systems, identifying specific projects performed in the last five (5) years.
  - 3. Provide letter from Manufacturer that the installer is certified to install this system.
- I. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
  - 1. Indicate that bulk roofing asphalt materials delivered to Project comply with requirements. Include quantity and statistical and descriptive data for each product. Submit certificate with each load before it is used.
  - 2. Include continuous log showing time and temperature for each load of bulk asphalt, indicating date obtained from manufacturer, where held, and how transported before final heating and application on roof.
- J. Research/ Evaluation Reports: Evidence of roofing system's compliance with building code in effect for Project from a model code organization acceptable to authorities having jurisdiction.
- K. Maintenance Data: For roofing system to include in maintenance manuals.
- L. Warranties: Provide copies of warranties as specified stating obligations, remedies, limitations, and exclusions of warranty.
- M. Inspection Report: Copy of roofing system manufacturer's inspection reports of completed roofing installation including daily reports.

## 1.08 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
  - 1. Installer must have at least five (5) years of experience installing the specified roofing systems.
  - 2. Installer must maintain a full-time supervisor/ foreman who is fluent in English and on job site whenever any Contractor Representative is at the site.
  - 3. Foreman shall be experienced in installing roofing systems similar to type and scope required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer that has UL and FMG approval for roofing system identical to that used for this Project.
- C. Install replacement roofing in accordance with Manufacturer's specifications and details. More stringent requirements of this Section and Drawing shall govern unless they conflict with Manufacturer's warranty requirements. In this case, the Contractor is responsible for notifying the Owner of all such conflicts.
- D. The Roofing System Manufacturer's Representative shall provide site inspections at the following intervals during the project 0, 25, 50, 75, & 100 percent completion as noted per Section 01 01 00, Article 1.12.A. They must be present during the actual installation of insulation, roof membrane, flashings, and accessory components. The Manufacturer's rep

must have experience with the manufacturer for a minimum of five years and shall be knowledgeable of current roofing standards. A report of the inspection shall be submitted in pdf. format within 7 days of the inspection.

- E. Source Limitations: Obtain components for roofing system from roofing system manufacturer.
- F. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
  - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- G. Pre-installation Conference: Conduct conference at Project site. Comply with requirements in Section 01 03 90. Review methods and procedures related to roofing system including, but not limited to, the following:
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.

## 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Store roofing materials in a clean, dry, warm, well-ventilated, weather-tight location according to roofing system manufacturer's written instructions. Store rolls of sheet materials on end on pallets or other raised surfaces. Do not double-stack rolls.

- D. Do not leave unused sheet materials on the roof overnight or when roofing work is not in progress unless protected from weather and moisture and unless maintained at a temperature exceeding 50 deg F.
- E. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- F. Handle and store roofing materials and place equipment in a manner to avoid significant or permanent deflection of deck or structural supporting members.

### 1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed. Single Ply Systems shall not be installed during periods of precipitation.
- B. Applications that involve known or severe exposures require a complete review by the manufacturer before their acceptance. This includes, but is not limited to, unusual building exposure to wind, unusual roof slope, unusual roof use, unusual exposure to contaminants, openings in the structure (greater than 10% of the wall surface), which could be left open in a storm, roofs subject to positive pressure conditions and roofs greater than 45 feet in height. For roofs subject to special job conditions, contact an authorized manufacturer's agent.
- C. Provide positive retaining barricades on ground below work areas to prevent injury to pedestrians.
- D. Protect adjacent building surfaces from spilling and splattering of roofing materials. Clean all spilled and splattered materials at once.
- E. The Owner's Site Representative shall have the power to order the permanent removal from the premises any employee of the Contractor for interference with the building's operation or for incompetence or violation of the Owner's polices. Furthermore, The Owner's Site Representative shall have the power to stop work if the Representative believes the work is not progressing in accordance with the Contract Documents or membrane manufacturer's specifications. The Contractor shall immediately comply with this order as soon as area being worked is watertight.

#### 1.11 WARRANTY

- A. Section 01 74 00 Contract Closeout: Requirements for warranties.
- B. Warranty, General:
  - 1. Warranties specified shall be in addition to, and run concurrently with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  - 2. Warranties specified in this Section include the following components and systems specified in other sections supplied by the roofing system Manufacturer, and installed by the roofing system Installer:
    - a. Sheet metal flashing and trim, including roof penetration flashings.
    - b. Manufactured copings, roof edge, counterflashings, and reglets.
    - c. Roof curbs, hatches, and penetration flashings.
    - d. Roof and parapet expansion joint assemblies.
    - e. Metal roof, wall, and soffit panels and trim (if applicable).

- C. Warranty: Manufacturer's standard or customized form, without monetary limitation (NDL), in which manufacturer agrees to repair or replace components of the membrane roofing system that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
  - Failures include, but are r
    - a. Roof leaks.
    - b. Warranty coverage includes roofing membrane, base flashings, roofing membrane accessories, roof insulation fasteners, cover boards, walkway products and other components of the roofing system.
      - 1) Membrane failures including rupturing, cracking, or puncturing.
      - 2) Deterioration of membranes, coatings, metals, metal finishes, and other associated materials beyond normal weathering.
  - 2. Qualified Installer Requirement: Installer must meet requirements of Article 1.08.A.
  - 3. Installation Inspection Requirement: By Manufacturer's Roofing Inspector in accordance with requirements per Section 01 01 00, Article 1.12.A and Article 1.08 of this section.
  - 4. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum. Inspections to occur in Years 2, 5, 10, 15, and 20 following completion.
  - 5. Warranty Period: 25 years from date of completion of roofing work.
- D. Installer's Warranty: Submit roofing Installer's warranty signed by Installer, covering the Work of this Section and related Sections indicated above, including all components of the single ply membrane roofing system such as single ply membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor barriers, and walk pads and other products, for the following warranty period: 2 years from date of Substantial Completion.

## PART 2 - PRODUCTS

## 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Tremco Incorporated
  - 2. Firestone
  - 3. Carlisle
  - 4. Johns Manville
  - 5. IKO Industries
  - 6. Other manufacturers systems that may be considered if the system meeting or exceeds the specified requirements as approved by Owner / Architect.

## 2.02 THERMOPLASTIC ROOF MEMBRANE MATERIALS

- A. TPO Field Membrane:
  - 1. Flexible thermoplastic polyolefin roofing membrane with polyester weft-inserted reinforcement.
  - 2. Exceeds the performance requirement of ASTM D 6878.
  - 3. Thickness: 60 mil
  - 4. Surface Color:
    - a. White (gray underside). Color to be selected from manufacturer's standard.

- B. TPO Field Membrane Adhesive: Cold applied adhesive, elastomeric, asbestos free, Low-VOC TPO bonding adhesive.
- C. Vapor Barrier: (N/A) Self-adhering vapor barrier, Class 1 vapor retarder, non-slip UV resistant; SBS modified bitumen adhesive, factory laminated to tri-laminate woven, high density polyethylene top surface; equal to Firestone's V-Force Vapor Barrier Membrane.
  1. Refer to Section 07 09 10 for 2 ply set in hot asphalt.
- D. Slip Sheet: (N/A) Red Rosin paper.
- E. Base Sheet: (N/A) Non-perforated, waterproof asphalt coated, polyester/glass scrim/ glass mat tri-laminate reinforcement coated sheet, meeting ASTM D 4601, Type II sheet. Asbestos free. Equal to Firestone's MB Base Sheet or as required by system manufacturer.
- F. Base Sheet Primer: (N/A) As required by system manufacturer. Low-VOC, low odor, spray applied.
- G. Provide manufacturer's recommendation flashings and other roof accessories.

### 2.03 BASE FLASHING MATERIALS

- A. Base Flashing Sheets:
  - 1. TPO Perimeter Sheet
    - a. Flexible thermoplastic polyolefin roofing membrane with polyester weftinserted reinforcement.
    - b. Thickness: 60 mil
    - c. Exceeds the performance requirement of ASTM D 6878.
    - d. Surface Color: Match roof membrane color.
  - 2. Approved equal by Owner/Architect.
- B. Base Flashing Primer:
  - 1. Asphalt primer water-based, polymer modified.
  - 2. Low VOC compliant asphalt primer: Solvent-based asphalt primer.
- C. Base Flashing Adhesive:
  - 1. TPO Single Ply Bonding Adhesive: Elastomeric, asbestos free solvent based adhesive.
  - 2. Approved equal by Owner/Architect.
- D. Membrane Coated Metal Flashing:
  - 1. TPO Coated Metal:
    - a. .060 mil thick membrane laminated to 0.023" (minimum) G90, 24gauge, hot dipped galvanized steel with back wash coat of .0001" clear acrylic.
    - b. White Sheet Metal Stock
      - 1) Size: 4' by 10' per sheet
- E. Flashing Accessories:
  - 1. Cover Strip:
    - a. TPO Cover Strip
      - 1) Reinforced TPO Flashing Membrane
      - 2) Roll Size: 6" by 108' by 40 mil thick.
  - 2. 2-Piece Drain Flashing Membrane:
    - a. TPO Flashing Membrane
      - 1) Unreinforced TPO membrane
      - 2) Roll Size: 24" by 30" by 55 mil thick.
  - 3. Vent Pipe Boots: (Manufacturer's standard)
    - a. TPO Prefabricated Flashing Boots
      - 1) Unreinforced TPO membrane
      - 2) Pipe Size as required:

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- a) Small 1 inch to 4 inches
- b) Large 4 inches to 8 inches
- b. TPO Field Fabricated Boots
  - 1) TPO Flashing Membrane
  - 2) Unreinforced TPO membrane
  - 3) Roll Size: 24" by 30" by 55 mil thick.

#### 4. Corners: a.

- TPO Prefabricated Universal Corners
  - 1) Unreinforced TPO membrane
  - 2) Size: 3-1/2 inches (nominal) to all edges
- 5. Drain Sealant:
  - a. Waterblock sealant as recommended by system manufacturer.
  - b. Urethane sealant as recommended by system manufacturer.
  - c. Or approved equal by Owner.

### 2.04 MEMBRANE FASTENERS AND PLATES

- A. All screw type fasteners shall be a minimum #15 shank diameter for membrane securement. Hex head fasteners are not permitted for insulation or membrane securement. Length as required to engage deck.
- B. Factory coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate, tested by manufacturer for required pull-out strength, and acceptable to roofing system manufacturer.

#### 2.05 ACCESSORY MATERIALS

- A. Metal cleaner: Mineral spirits
- B. TPO Membrane cleaner: Acetone by others.
- C. Termination bar:
  - 1. Aluminum, with caulk receiver: 1/4 by 1 inch
  - 2. Primer: Non-Porous Primer per roof system manufacturer's specification.
  - 3. Caulking: One part urethane caulk per roof system manufacturer's specification
  - 4. Compressible tape: Teflon tape per roof system manufacturer's specification
- D. Temporary Tie-in Materials.
  - 1. Three ply application of sheeting bond and roof fabric mesh
  - 2. Foam Pack by others.
- E. Pitch Pan Fill:
  - 1. Base fill: ASTM C928-92a, rapid hardening non-shrink grout.
  - 2. Top fill: Two-part polyurethane, two compartment (1:1 ratios), solvent free, low odor urethane sealant, two-color for reliable mixing.
- F. Air Seal:
  - 1. Backer Rod by others: Joint backing rod, closed cell polyethylene, non-bleeding neoprene, or butyl.
  - 2. Foam Pack by others.
- G. Scuppers:
  - 1. Pre-fabricate assembly with TPO membrane covered metal.

#### 2.06 WALK PADS

A. TPO Walkway Roll:

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- 1. A gray thermoplastic membrane which is comprised of a thermoplastic olefin. TPO Walkway Roll is reinforced with a high strength, wick resistant polyester fabric and has a serrated, slip resistant surface. TPO Walkway Roll is asbestos free and exceeds the performance requirements of ASTM D 6878.
- 2. Roll Size: 3' by 60' by 80 mil thick.
- 3. Color: Gray

## PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with installer present, for compliance with requirements.
  - 1. Verify that roof openings and penetrations are set in place and braced.
  - 2. Verify that roof drains are properly clamped into position.
  - 3. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at roof penetrations and terminations and match the thickness of insulation required.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drainage systems, conductors, and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

#### 3.03 JOB CONDITIONS

- A. Prior to the use of any TPO roofing material, consult Material Safety Data Sheets for applicable cautions and warnings.
  - 1. Do not use oil or bituminous base roof cement with TPO materials.
  - 2. Do not install TPO membrane directly in contact with new or resaturated asphalt.
  - 3. Do not expose membrane or accessories to temperatures of 180°F or above.
  - 4. Do not allow waste products (petroleum grease, oil or solvents, etc.) or direct steam venting to come in contact with the TPO roofing system. Any exposures not typical for normal roofing installation must be presented to the Roof Manufacturer for assessment of any impact on the performance of the roofing system.
  - 5. Do not install TPO membrane directly in contact with coal tar roof surfaces.
  - 6. Install polyethylene vapor barrier ply under new insulation layer when mechanically attached TPO membrane system is installed over existing coal tar roofs.
  - 7. Ponding conditions will adversely affect performance of the roofing system. Where positive drainage does not exist, water removal from roof surface should be facilitated by lowering drains, and/or installing additional drains, tapered insulation, or an approved lightweight insulating concrete slope system.

#### 3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install thermoplastic roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Thermoplastic Roofing".
- B. Install roofing system per manufacturer's published specifications manual.

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- C. Coordinate installation of roofing system components so insulation and roofing plies are not exposed to precipitation or remain exposed at the end of the workday or when rain is forecast.
- D. Provide water cutoffs at end of each day's work to cover exposed ply sheets and insulation. Water tightness of the water cutoffs is the Contractor's responsibility.
- E. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
- F. Remove and discard temporary seals before beginning work on adjoining roofing.
- G. Substrate-Joint Penetrations: Prevent adhesive from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

### 3.05 INSULATION INSTALLATION

- A. Coordinate installing roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installing roofing insulation.
- C. Refer to Section 07 22 00 Roof and Deck Insulation for detailed requirements.

### 3.06 HOT AIR WELDING EQUIPMENT

- A. Manufacturer's TPO seams can only be made by the hot-air welding process. When the membrane is properly fused, the hot-air heat welding process produces seams that are as strong as the TPO membrane itself. The following information is presented as a guide to assist Contractors in utilizing hot-air heat welding equipment. Prior to actual selection and operation of the hot-air heat welding equipment, refer to the manufacturer's operating instructions. The operation of hot-air heat welding equipment, and the results obtained utilizing this equipment, are the responsibility of the roofing Contractor.
  - 1. Leister Variant Automatic Welder
    - a. Power Requirements: 220 volts, 30 amp, 7500 watts single phase.
    - b. Power cord and plugs: #10 wire with 3-prong twist plug. #10 wire may be used up to 150' in length. For longer lengths, consult an electrician for line voltage drop.
    - c. Element: 4500 Watts
    - d. Adjustment Tools: Adjustable wrench, various metric box wrenched, various metric allen wrenches, screwdrivers, 40mm nozzle only.
    - e. Additional Weight: A 45lb. Supplemental weight is required for the automatic welder. It shall rest on the aluminum housing over the rear wheels when the welder is being used.
  - 2. Leister "Triac" Hand Welder
    - a. Power requirements: 115 volts, 15 amps, and 1800 watts single phase.
    - b. Power cord #12. Check with electrician for line voltage drop for length over 200'.
    - c. Element: 1600 Watt
    - d. Accessories: 40mm nozzle, various silicone and metal rollers.
  - 3. Power Generators
    - a. If a power generator is used only for the automatic welder, a minimum of 220 volts, 30 amps and 7500-watts unit is required. If additional items are used such as hand welder, screw guns or other equipment, increased generator capacity is required. A minimum 220 volt, 30 amp and 1000 watts generator is recommended.

## 3.07 ADHERED TPO ROOF MEMBRANE INSTALLATION

- A. Install membrane according to roofing system manufacturer's written instructions, starting at low point of roofing system. Place ply sheets to ensure water will flow over or parallel to, but never against exposed edges. Shingle in direction to shed water.
  - 1. Install sheet according to ASTM D 5036.
  - 2. Install air seal where required at perimeter, curbs and penetration flashings.
  - 3. Manufacturer's TPO membrane shall be fully adhered to properly installed and prepared substrate surface. The surface shall be clean, dry, smooth, and free from contamination.
  - 4. The roof perimeters and corners may require additional design to develop the necessary resistance for wind conditions in excess of gale force winds. Contact manufacturer for additional information if the building is located where winds may exceed standard warranty conditions or special code provisions are required.
  - 5. The membrane shall be cut to fit neatly around all penetrations and roof projections.
  - 6. The roofing membrane shall be unrolled and positioned with a minimum 3-inch overlap. Laps shall be shingled with, or run parallel to, the slope of the roof.
- B. TPO Field Membrane Application using TPO Single Ply Bonding Adhesive:
  - 1. Install (60 mil) Reinforced TPO field membrane sheets. (Self-adhered membrane permitted)
  - Install TPO field sheets using TPO Single Ply Bonding Adhesive. Stir the TPO Single Ply Bonding Adhesive thoroughly. Do not thin adhesive with solvents. Apply bonding adhesive to both substrate and membrane surfaces at a rate of 50 to 60 square feet per gallon per side.
  - 3. Begin field membrane installation at low point of deck. Allow sheet to overhang roof edge a minimum of 1-1/2 inches below lower edge of wood nailer.
  - 4. Position roll of TPO sheeting in a manner, which provides sufficient material to facilitate flashing. The roofing membrane shall be unrolled and positioned square with the roof edge. Laps shall be shingled with, or run parallel to, the slope of the roof. Overlap side laps 3 inches and end laps minimum three (3) inches. Install succeeding rolls in same manner. Avoid wrinkles. Reposition sheet when necessary. Do not stretch material unevenly.
  - 5. Fold sheet back so one-half (1/2) of the underside of the sheet is exposed. Ensure the sheet fold is smooth with no wrinkles or buckles.
  - 6. Over the properly installed and prepared surface, TPO Single Ply Bonding Adhesive shall be applied using approved solvent-resistant roller or power roller equipment. The adhesive shall be applied in a smooth even coating with no globs, puddles, voids or similar irregularities. Only areas that can be completely covered in the same day shall be coated with adhesive. The surface with adhesive coating shall be allowed to become tacky prior to installing the roof membrane. Do not allow adhesive to fully dry prior to placing membranes. If the surface dries to the point that if no longer feels tacky re-apply bonding adhesive to substrate at the specified application rate and allow to flash off again to the proper drying condition.
    - a. Drying time of the adhesive increases with the presence of higher humidity or cooler temperatures.
  - 7. Bonding adhesive shall not be applied to lap (seam) areas that are to be welded to flashings or adjacent membrane sheets by means of hot air welding procedures. If contamination occurs, remove any contaminates prior to hot air welding seams.
  - 8. When the surface is ready, roll the TPO membrane onto the adhesive coated substrate avoiding wrinkles.

- 9. Using a push broom or membrane roller and positive downward pressure, brush down the bonded half of the membrane sheet to achieve maximum contact.
- 10. Fold back the unbonded half of the sheet and repeat bonding procedure.
- 11. Apply adjoining sheets in same manner, lapping edges a minimum of 3".
- 12. Any wrinkles found in the splice area or that impedes the flow of water drainage, must be cut out, laid flat and repaired using TPO membrane and standard hot air seam welding procedures.
- 13. Remove and replace all sheets that are not fully bonded.
- 14. Mechanically attach membrane sheets at roof perimeter and penetrations. Fasteners shall have 2 3/8 inch diameter barbed metal plates. Fasteners shall be placed a minimum of 12 inches on center and 1-1/8 inch from sheet edge in a true and straight.
- 15. Minimize foot traffic on freshly applied TPO membrane until adhesive is fully cured.
- 16. Membrane Seaming:
  - a. All edge surfaces to be seamed by hot air welding. Surfaces must be wiped with solvent using clean rags.
  - b. Heat-weld laps with approved welding equipment. Adjust welding speed and temperature base upon ambient conditions and material.
- 17. Membrane End Laps:
  - a. Continuous End Lap Detail
    - 1) Overlap the previous membrane course of field membrane a minimum of 2". Heat weld membrane lap.
  - b. Staggered End Lap Detail
    - 1) Offset staggered end laps a minimum of 5'.
    - Overlap the previous course of field membrane a minimum of 2". Heat weld membrane lap.
  - c. Abutted End Lap Detail
    - 1) Gap width between membrane sheets shall not exceed 1/8 inch.
    - 2) Install 6-inch wide cover strip over end lap. Cut cover strip corners round. Heat-weld cover strip centered over end lap.
- 18. Heat-weld a 4" round field cut TPO flashing membrane (unreinforced) centered over each T-joint on 60-mil thick or greater membrane.
- C. Perimeter/Projection Attachment:
  - 1. Mechanically attach roofing membrane at roof perimeters, curbs, and pipe/stack penetrations greater than 12" in diameter, on both sides of expansion joints and other areas where the membrane must be anchored to prevent movement, stress or damage to the roofing membrane.
  - 2. Provide mechanical attachment at deck angle changes in excess of 2"/12" (including drain sump areas).
  - 3. Follow the recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, and 1-29 (dated May 2004 or latest edition).
- D. Roof Drain Detail: (N/A)
  - 1. Prepare substrate around each roof drain to prevent membrane bridging or distortion and to provide a smooth transition from the roof surface to the drain clamping ring.
  - 2. Remove existing flashing and bituminous materials from drain components down to bare clean metal.
  - 3. Install tapered edge strip around drain to create approximate 48 by 48 inch sump. Miter corners.
  - 4. Install minimum 1/2 inch bead of drain sealant over entire drain bowl rim (approximately 1/2 tube per drain).

- 5. Install 2-piece drain flashing detail.
  - a. Terminate field membrane along outside edge of sump. Install target patch consisting of unreinforced TPO flashing membrane over drain sump and past drain bowl rim. Extend flashing a minimum of 3" outside of the sump area and heat weld to field sheet.
- 6. Clamp flashing collar to drain. Fully compress drain sealant between the new membrane and the drain bowl rim forming a solid seal between the two. Evenly compress the assembly to avoid cracking or breaking the clamping ring. Replace cracked or broken drain clamping rings.
  - a. All bolts and/or clamps must be in place in order to provide constant, even compression. Missing drain bolts and clamps shall be replaced.
- 7. Neatly cut membrane within drain at rim. Membrane to extend 1 inch into bowl.
- 8. For working drains, remove drain plug upon completion of work each day.
- 9. Plug new drains to prevent water entry until service connection is completed.
- E. Membrane Seaming:
  - 1. Clean seam areas, overlap roofing membrane and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
  - 2. All surfaces shall be clean and dry. Ensure both mating surfaces are free of debris and no moisture is present on the splicing surfaces.
    - a. Using a clean rag saturated with appropriate cleaner, thoroughly clean seam area at least 4 inches wide on both sheets. Change rags frequently to avoid depositing previously removed materials.
  - 3. Using an approved automatic heat welding machine or hand held heat gun and steel roller, continuously weld a minimum 1 1/2" wide seam. Minimum width of welded lap shall be 1-1/2 inch when using an automatic welder. Hand welds shall be a minimum of 2-inches wide. Only approved Automatic Walker Welders shall be used to weld seams (see Hot Air Welder Equipment).
  - 4. Special attention must be paid to areas where multiple layers of TPO membrane (3 or more) come together (T-joints).
    - a. If probing these areas reveals the presence of voids or cold welds on 45 mil membrane, install a 4" round field cut TPO flashing membrane (unreinforced) to the formed T-joint.
    - b. A 4" round field cut TPO flashing membrane (unreinforced) is required at each T-joint on 60 mil or greater membrane.
  - 5. Allow hot air welder to warm up. Insert the nozzle tip of the hot air welder into seam area. Move nozzle at a steady speed along the seam area, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated TPO roof membrane lap.
  - 6. Test lap edges with probe to verify seam weld continuity.
    - a. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
    - b. All welded seams must be manually checked for voids or seal deficiencies by probing the entire seam area with a dull cotter key extractor after the seam has cooled. Properly constructed laps will not separate at the lap interface when tested. In addition, there must be destructive testing performed at the beginning of every workday and every time there is an interruption in the welding process (i.e. Power failure, welder shut down and job site conditions change). All deficiencies must be repaired.
      c. Repair tears, voids, and lapped seams in roofing membrane that does not
    - c. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.

F. TPO Membrane End Lap Details:

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- 1. Continuous End Lap Detail
  - a. Abut end laps. Gap width between membrane sheets shall not exceed 1/8 inch.
  - b. Install 6-inch wide cover strip membrane centered over end lap. Cut cover strip corners round. Heat-weld cover strip over end lap.
- 2. Staggered End Lap Detail
  - a. Offset staggered end laps a minimum of 5'.
  - b. Abut end laps. Gap width between membrane sheets shall not exceed 1/8 inch.
  - c. Install 6-inch wide cover strip membrane centered over end lap. Cut cover strip corners round. Heat-weld cover strip over end lap.
- 3. Heat weld TPO cover strip.
  - a. All surfaces must be clean and dry.
  - b. For heat welding, allow the hot air welder to warm up. Insert the nozzle tip of the hot air welder into the seam area. Move nozzle at a steady speed along the seam area, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated TPO Roof Membrane lap.
  - c. Minimum width of all welded lap shall be 1.5"
- 4. Field test heat welded to assure proper construction. Perform field test after lap area cools to ambient temperatures. Properly constructed laps will not separate at the lap interface when tested.

### 3.08 GENERAL FLASHING REQUIREMENTS AND STRIPPING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Clean existing asphalt from vertical surfaces where flashings will be applied. Prime as recommended by system manufacturer. Contractor's option to provide plywood sheathing to cover. Do not cover existing thru wall flashing.
- C. Clean seam areas, overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.
- D. All flashings shall be installed as shown on the detail drawings. All TPO membrane flashings shall be installed concurrently with the roof membrane as the project progresses. No temporary flashings shall be allowed without prior written approval of the authorized manufacturer's agent. If any water is allowed to enter under the new roofing due to incomplete flashings, the affected area shall be removed and replaced at Contractor's expense.
- E. Flashings shall not be applied over existing thru-wall flashings or weep holes. All flashings shall extend a minimum of 8-inches above roof level unless previously accepted by Owner and an authorized manufacturer's agent. All existing flashings shall be removed before applying a new flashing. Install flashings in a neat and uniform manner with a "rounding" of all exposed corners. Care should be taken to ensure that the flashing does not bridge where there is a change of direction.
- F. Flash all pipes with TPO Pre-fabricated Flashing Boots where possible. Field fabricate pipe flashings with TPO Flashing Membrane (unreinforced flashing) per standard Manufacturer's Roofing Systems details when a pre-molded flashing is not feasible.
- G. Fabricate all metal flanged flashings using TPO Membrane Coated Metal. Hot air weld a 6inch wide TPO cover strip to flashing membrane and coated metal flange.

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- H. Mix adhesive vigorously by hand to achieve a homogeneous blend. DO NOT use electrical equipment or open flame near adhesive. Do not thin adhesive with solvents.
- I. Base Flashings Adhered in manufacturer's TPO Single Ply Bonding Adhesive:
  - 1. Install all new TPO flashing details per manufacturer's specifications, recommendations and standard detail drawings.
    - a. Base flashing system shall consist of fully adhered (60 mil) TPO Perimeter Sheet membrane or (60 mil) Reinforced TPO Field membrane and adhered in Single Ply Bonding Adhesive.
    - b. All flashings shall be installed as shown on the detail drawings and per manufacturer's standards. All membrane flashings shall be installed concurrently with the roof membrane as the project progresses.
    - c. Flashings shall not be applied over existing thru-wall flashings or weep holes. All flashings shall extend a minimum of 8-inches above roof level unless previously accepted by Owner and an authorized Tremco agent. All existing flashings shall be removed before applying a new flashing.
    - d. Apply TPO Single Ply Bonding Adhesive in full coverage to both the substrate and to the back side of the TPO flashing membrane.
    - e. The TPO base flashing membrane shall be fully adhered to a dry, smooth solvent-resistant and compatible substrate using approved bonding adhesive.
    - f. When the TPO membrane has been cut to correct width and length, embed the flashing into the substrate adhesive, taking care to avoid wrinkles.
    - g. Over properly prepared surface, TPO Single Ply Bonding adhesive shall be applied using approved solvent-resistant roller or power roller equipment.
      - 1) The adhesive shall be applied at a rate of 1-gallon per every 50 to 60 square feet per side. The adhesive shall be applied in a smooth even coating with no globs, puddles, voids or similar irregularities. Coverage will vary based on substrate porosity.
      - Allow adhesive to dry to a tacky feel when touched with the back side of a dry finger before bonding membrane to substrate.
         Drying time of the adhesive increases with the presence of higher humidity or cooler temperatures.
      - 3) Do not allow adhesive to fully dry prior to placing membranes. If the surface dries to the point that if no longer feels tacky, re-apply bonding adhesive and allow to flash off to the proper drying condition.
    - h. Position TPO Flashing membrane in intended location and fold back. Apply TPO Single Ply Bonding Adhesive in full coverage to both the vertical substrate and to the back side of the flashing membrane. Allow adhesive to dry to a tacky feel when touched with the back side of a dry finger before bonding membrane to substrate. Place the flashing membrane onto the vertical substrate and pressure roll to assure positive contact. Do not allow TPO Single Ply Bonding Adhesive to contaminate TPO membrane and flashing lap areas. Remove adhesive from lap areas. Heat-weld overlap seams of TPO flashing and field membrane. Bonding adhesive shall not be applied to lap (seam) areas that are to be welded to flashings or adjacent membrane sheets by means of hot air welding procedures. If contamination occurs, remove any contaminates prior to hot air welding seams.

- i. Care should be taken to ensure that the flashing does not bridge where there is a change of direction.
- j. Apply consistent pressure to entire surface of elastomeric sheeting using a steel hand roller to achieve full adhesion of the sheet to the flashing substrate. Ensure complete bond and continuity without wrinkles or voids.
- k. Clean seam areas and weld side and end laps to ensure a watertight seam installation
- 1. The top of the installed flashing shall be fastened under metal counterflashing, coping cap, or through wall metal reglet. The maximum distance between fasteners for TPO flashings shall be 8 inches through flat bar or 12 inches through metal reglet. Install Flash (TF) Tape between masonry walls and top edge of TPO flashing membrane prior to fastening.
- m. Install TPO prefabricated universal corners for sealing all inside and outside corners.
- n. Fabricate all metal flashings with flanges using TPO Membrane Coated Metal. Secure flange to wood blocking as specified. Heat-weld a 6-inch wide (reinforced) TPO cover strip to flashing membrane and coated metal flange.
- J. TPO Coated Metal Edge Flashing:
  - 1. Fabricate and install manufacturer's TPO coated metal flashing to comply with details and project drawings and the recommendations of SMACNA Sheet Metal Manuals for fabrication and Factory Mutual Loss Prevention Data Sheet I-49.
  - 2. All metal work shall be completed in conjunction with the roofing and flashing operation to provide a daily watertight condition.
  - 3. Metal shall be installed to provide adequate resistance to bending and to allow for normal thermal expansion and contraction. Allow for minimum 1/4 inches space between metal joints.
  - 4. Metal flashing shall have a minimum 3 inches wide nailing flange and hemmed metal edge. Flange shall be no wider than underlying blocking. Metal flashing shall be fastened to solid wood blocking with annular ring nails, 4 inches o.c. Fasteners shall penetrate the wood a minimum of 1-1/4 inches.
  - 5. Continuous metal hook strips are required on all metal fascias that exceed 4 inches. Each hook strip shall be fastened 12 inches o.c. into wood blocking or masonry wall. Hook strips should be continuous and at least 22-gauge. They should be secured with annular threaded nails long enough to penetrate the wood 1 1/4 inches. The nail head should be 3/16 inches minimum. When screws are used, they should be No. 8 minimum long enough to penetrate wood 3/4 inches or metal 3/8 inches. Screws should be 24 inches apart in Zone 1 and 16 inches apart in Zone 2 (refer to FM I-49). Screws should be either corrosion-resistant steel or treated to resist corrosion. When an existing metal panel wall has no hook strip, the fascia metal should be fastened directly to the wall with No. 8 galvanized sheet metal screws, through neoprene washers, spaced 24 inches in Zone 1 and 16 inches in Zone 2.
  - 6. All gravel stops and drip edges with a face larger than 4 inches shall be installed using a continuous 22 gauge hook strip fastened 12 inches o.c. using galvanized annular ring nails.
  - 7. Fasten TPO coated metal flashings 4 inches o.c. to treated wood nailers using galvanized annular ring nails.
  - 8. Install TPO membrane coated metal flashings over field membrane. Flange of flashing component shall be at the same level as the insulation or other substrate to which the membrane will be applied.
- 9. Install adjacent pieces of coated metal flashing with 1/4 inches gap. Apply a 2 inches wide continuous strip of foil tape over the gap to act as a bond breaker. Hot air weld a 6 inches strip of TPO membrane, over the foil tape, to each piece of flashing to form a watertight splice.
- 10. Hot air weld a 6-inch wide TPO cover strip to field membrane and coated metal edge flashing.
- K. Prefabricated Pipe Boots:
  - 1. Remove existing pipe flashing.
  - 2. Install plates and fasteners that secure field sheet as close to the penetration as possible.
  - 3. Each boot is stepped in increments that will fit standard pipes. The top of the boot should be cut around the "step" which allows a stretch fit between the top of the boot over the stack.
  - 4. Place the boot over the vent pipe.
  - 5. Pull the flange down to the roof, stretching the collar portion around the vent pipe.
  - 6. Inside the top of the boot shall be caulked to prevent water entry and a stainless steel hose clamp must be installed to secure the top edge of the boot to the vent pipe.
  - 7. The flange of the boot is pre-scored and shall be cut at the circular score and then heat-welded (minimum 2") onto the TPO field membrane.
  - 8. Do not split the boot. If the boot cannot be installed intact, use field fabricated flashing per manufacturer's details.
  - 9. Manufacturer's vent pipe boots can only be installed by hot-air heat welding.
- L. Prefabricated Universal Corners
  - 1. The manufacturer's TPO prefabricated corners must be used for sealing the corners of all pitch pans, curbs, and walls. They are uniform in shape and size and provide water tightness at corners formed by TPO coated metal and flashing membrane.
  - 2. The corners shall be cut at the scored lines to form either an inside or outside corner.
  - 3. Use per heat welding techniques to fully weld the corner to the flashing following published manufacturer's specifications and details.
  - 4. Universal Corners can only be installed by hot-air heat welding.
- M. TPO Pitch Pans with Grout:
  - 1. Fabricate pitch pan using TPO membrane coated metal. Sides: 4 inches high, hemmed to outside at top edge. Flange: 4 inches wide, completely around periphery. Rivet all joints. Clearance between projection and pitch pan: 2 inches on all sides. Set flange in sealant.
  - 2. Pack gap between roof-penetrating element and deck with compressible insulation.
  - 3. Nail flange to wood blocking 3 inches o.c., staggered.
  - 4. Strip-in flange with a 6-inch wide TPO cover strip heat welded to field membrane and coated metal edge flashing.
  - 5. Install TPO prefabricated corners.
  - 6. Fill pitch pan to within 1 inch from top with non-shrink grout. Allow to set firm.
  - 7. Fill pitch pan with pourable sealer. Double fill if necessary.
  - 8. Fabricate and install storm collar with drawband over pitch pan. Tighten drawband.
  - 9. Wipe clean top of storm collar and projection with metal cleaner. Prime surface with metal primer.
- N. TPO Metal sleeve with Storm Collar:
  - 1. Fabricate sleeve flashing using TPO membrane coated metal. Height: 8 inches. Flange width: 4 inches. Flange to extend completely around flashing periphery. Solder all inside joints.
  - 2. Apply a heavy 3/8 inch bead of sealant to roofing surface receiving metal flange.

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- 3. Nail flange to wood blocking 3 inches o.c., staggered.
- 4. Strip-in flanges with a 6-inch wide TPO cover strip heat welded to field membrane, and coated metal edge flashing.
- 5. Install TPO prefabricated corners.
- 6. Fabricate storm collar with bolted connection. Cover sleeve flashing 3 inches minimum. Tighten bolts.
- 7. Wipe clean top of storm collar and projection with metal cleaner. Prime surface with metal primer. Caulk projection/sheet metal interface. Provide watershed. Tool neatly.

# 3.09 WALKWAY PAD APPLICATION

- A. Install walkway pads at roof access points and around large mechanical equipment.
- B. Heat weld walkway pad to field membrane.
  - 1. Clean, smooth membrane ply surface with soap and water. Allow drying. All surfaces must be clean and dry prior to walkway application.
  - 2. For heat welding, allow the hot air welder to warm up. Insert the nozzle tip of the hot air welder to the attachment area. Move nozzle at a steady speed, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the TPO Walkway Roll to the roof membrane.
    - a. Minimum width of welded lap shall be 2.0" and 6.0" long when performing hand welds.
    - b. Spot weld Walkway Roll to roof membrane. Attachment of walkway roll should not impede drainage.
  - 3. Field test heat welded laps to assure proper construction.
  - 4. Perform field test after lap area cools to ambient temperatures. Properly constructed heat welds will not separate at the lap interface when tested.

#### 3.10 DAILY WATERSTOP/TIE-INS

- A. Install Tie-in at Single Ply Membranes:
  - 1. At the completion of each day's work or before the onset of inclement weather, a watertight temporary seal must be established by the roofing applicator at any loose edge of membrane.
  - 2. Remove dirt and debris from tie-in area. Width: 24 inches.
  - 3. Install "deadman" insulation filler at insulation staggers.
  - 4. Install temporary seal or flashing strip to ensure that moisture does not flow beneath or damage any completed section of the new roofing system.
  - 5. Set in adhesive or seam tape.
  - 6. Membrane contaminated with the sealant or flashing used as a night seal must be cut away and discarded prior to resumption of work.
- B. Install Tie-in at existing BUR systems:
  - 1. Remove embedded gravel/debris from top ply of felt along termination. Width: 24 inches.
  - 2. Remove dirt and debris from tie-in area. With: 24 inches.
  - 3. Adhere 12 and 18-inch wide ply sheets from exposed deck to existing roofing with a continuous 1/16 thick application of tie-off mastic. Glaze cut-off with surfacing mastic. Extend 18-inch wide felt 3 inches either side of 12-inch felt.
  - 4. Install "deadman" insulation filler at insulation staggers.
  - 5. Extend new roofing membrane at least 24 inches onto prepared area of adjacent existing roofing.
  - 6. Attach TPO membrane ply lap over underlying membrane with adhesive and/or membrane fasteners and seam plates.

- 7. Apply spray foam over leading edge of tie-in ply lap and exposed membrane fasteners and seam plates.
- 8. Remove temporary connection at beginning of next workday by cutting membrane evenly along edge of existing roof system. Remove" deadman" insulation fillers.

# 3.11 FIELD QUALITY CONTROL

- A. Roof Manufacturer's Representative shall perform inspections and shall perform roof tests and inspections, prepare start up, interim, and final reports per Article 1.8.D. Roofing Inspector's quality assurance inspections shall comply with criteria established in ARMA/NRCA's "Quality Control Guidelines for the Application of Membrane Roofing."
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion. Notify Architect and Owner 72 hours in advance of date and time of inspection.
- C. Repair or remove and replace components of built-up roofing where test results or inspections indicate that they do not comply with specified requirements.
  - 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

#### 3.12 PROTECTING AND CLEANING

- A. Protect roofing membrane from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to project superintendent.
- B. Prior to performing work or when it becomes necessary for other trades to work on a completed roof area that may cause damage the new roof, the roofing membrane and flashing shall be protected from physical damage.
  - 1. Proper and adequate protection includes installing a slip-sheet in the work area overlaid with plywood or OSB Board in order to dissipate the effects of traffic on the finished roof surface and to prevent impact damage to the system caused by dropped tools and or use of construction equipment.
- C. If damage does occur to the roof system it must be immediately repaired in order to preserve the integrity of the roof insulation.
- D. Membrane Repair:
  - 1. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair base flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
  - 2. Clean the membrane when repairing "in-service" membrane as it is necessary to remove accumulated field dirt. The membrane is properly prepared by scrubbing with a scrub brush and warm soapy water, rinsing with clear water, drying with clean cloths, then wiping with a clean cotton cloth dipped in manufacturer's splice wash.
  - 3. Install Repair Patch:
    - a. Repair damaged membrane with like material.
    - b. The repair material must extend a min. of 2" beyond the boundary of the affected area in all directions. Example: A pinhole will require a min. 4" x 4" patch.
    - c. Round all corners of the repair piece.
  - 4. Multiple Repairs:

- a. If the membrane is damaged in more than six (6) locations within a 100 ft<sup>2</sup> area, new membrane extending 6" beyond the border of the damaged area must be installed over existing membrane in accordance with published Firestone specifications.
- b. Secure the replacement membrane in the same manner as the existing membrane.
- c. Contact a Manufacturer's Technical Representative with questions on how to address comprehensive damage.
- E. Clean over spray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- F. Contractor shall be responsible for vehicles and other property that is contaminated by cold adhesive overspray or drippage.

# END OF SECTION

# PART 1 GENERAL

#### 1.1 SUMMARY

- A. This Section includes fluid-applied polyurethane coating at difficult flashing locations or as noted on drawings.
  - 1. Roof membrane coating preparation. (N/A)
  - 2. Application of reinforced fluid-applied roof membrane flashings.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Requirements:
  - 1. Section 01 01 00 Summary of Work
  - 2. Section 05 50 00 Metal Fabrication
  - 3. Section 06 11 40 Wood Blocking and Curbing
  - 4. Section 07 22 20 Roof and Deck Insulation
  - 5. Section 07 54 10 Thermoplastic Membrane Roofing
  - 6. Section 07 62 00 Sheet Metal Flashing and Trim
  - 7. Section 07 92 00 Joint Sealants
  - 8. Section 09 90 00 Paints and Coatings

# 1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
  - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. FM Approvals Listing: Provide fluid-applied roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a fluid-applied hybrid roofing system, and that are listed in FM Approvals'
  "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
  - 1. Fire/Windstorm Classification: Class 1A-90.
  - 2. Hail Resistance Rating: SH.
  - 3. RoofNav Assembly: #314323-314305-0.
- D. Flashings: Comply with requirements of 07 62 00 Sheet Metal Flashings and Trim. Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations of the following:
  - 1. FMG 1-49 Loss Prevention Data Sheet for Perimeter Flashings.
  - 2. FMG 1-29 Loss Prevention Data Sheet for Above Deck Roof Components.
  - 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
  - 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.

- E. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- F. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- G. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.

# 1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Roofing Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.
- C. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.
- D. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- E. Existing to Remain: Existing items of construction that are not indicated to be removed.

# 1.5 MATERIALS OWNERSHIP

A. Demolished materials shall become Contractor's property and shall be removed from Project site.

#### 1.6 SUBMITTALS

- A. Product Data:
  - 1. For each type of product specified
  - 2. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents. Provide Factory Mutual Global assembly compliance and UL listing.
- B. Shop Drawings: Include details and attachments to other work for Base flashings and terminations indicating details meeting requirements of NRCA and FMG required by this Section.
- C. Samples for Verification: 8-by-10-inch square of fluid-applied hybrid roofing materials, including base sheet and flashing sheet, of color specified.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- E. Warranties: Unexecuted sample copies of special warranties. And upon completion executed copies of approved warranty forms
- F. Maintenance Data: To include in maintenance manuals.

# 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of three years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and the following:
  - 1. Qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section with UL listed and FM Global approved products, with minimum five years experience in manufacture of specified products in successful use in similar applications.
  - 1. Approval of Other Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
    - a. Product data, including certified independent test data indicating compliance with requirements.
    - b. Samples of each component.
    - c. Sample submittal from similar project.
    - d. Project references: Minimum of five installations of specified products not less than five years old, with Owner and Architect contact information.
    - e. Sample warranty.
- C. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be an authorized full-time technical employee of the manufacturer.
- D. Roofing Pre-installation Conference: Conduct conference at Project site to comply with requirements of this system and review methods and procedures related to roofing system.
  - 1. Meet with Owner; roofing materials manufacturer's representative; roofing Installer including project manager and foreman; and installers whose work interfaces with or affects roofing including installers of roof accessories and roofmounted equipment requiring removal and replacement as part of the Work.
  - 2. Review methods and procedures related to preparation, including membrane roofing system manufacturer's written instructions.
  - 3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
  - 4. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect coating.
  - 5. Review HVAC shutdown and sealing of air intakes.
  - 6. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review existing conditions that may require notification of Owner before proceeding.

# 1.8 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately below roofing area. Conduct roofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
- B. Protect building, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from roofing operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Weather Limitations: Proceed with coating preparation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
  - 1. Store all materials prior to application at temperatures between 60 and 90 deg. F.
  - 2. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer. Do not apply materials when air temperature is below 50 or above 110 deg. F.
  - 3. Do not apply roofing in snow, rain, fog, or mist.

# 1.9 WARRANTY

- A. Manufacturer's Warranty: Written warranty in which Manufacturer agrees to repair roof installations that fail due to defects in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Membrane failures including rupturing, cracking, or puncturing due to a manufacturing or installation defect.
    - b. Deterioration of membranes, coatings, metals, metal finishes, and other associated materials beyond normal weathering.
  - 2. Limit of Warranty Coverage: Not to exceed original purchase price of manufacturer's materials, except that manufacturer may elect to apply the limit amount toward the purchase of replacement application within the first 5 years following completion of roofing work.
  - 3. Qualified Installer Warranty Requirement: Installer must meet requirements of Quality Assurance Article.
  - 4. Installation Inspection Warranty Requirement: By Roofing Inspector in accordance with requirements of Article 3.9 below.
  - 5. Warranty Period: 25 years from date of completion of roofing work.
- B. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum. Inspections to occur in Years 2, 5, 10, 15, and 20 following completion.
- C. Installer's Warranty: Submit roofing Installer's warranty covering the Work of this Section and related Sections indicated above, including all components of the roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products for the following warranty period: 2 years from date of Substantial Completion.

#### PART 2 PRODUCTS

#### 2.1 MANUFACTURER

- A. A fluid applied membrane roofing and flashing system must be compatible with and approved by the roofing system manufacturers requirements.
- B. The fluid applied membrane flashing system shall be compatible with and follow requirements based on Tremco's Alpha Guard Bio as noted below.
- C. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com.
  - 1. Product must be approved and meet the requirements by the roof system manufacturer for Section 07 54 10.

#### 2.2 MATERIALS

- A. General: Roofing materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system. (Maintain membrane color.)
- B. Temporary Roofing Materials: Selection of materials and design of temporary roofing is responsibility of Contractor.
- C. Adhesives: Provide adhesive and sealant materials recommended by roofing manufacturer for intended use and compatible with built-up roofing.

#### 2.3 ROOF MEMBRANE PLY (N/A)

- A. Non-perforated, asphalt-coated, polyester/fiberglass/polyester reinforced sheet, dusted with fine mineral surfacing on both sides and meets the requirements of ASTM D 4601, Type II tri-laminate ply of polyester/fiberglass/polyester Tremco Product –Composite Supreme Ply or equal. Sheet must be a waterproof sheet.
  - 1. One (1) plies.
  - 2. Properties:

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|-----|------------------|------------------|-----------------------|
| a.  | Weight           | 31 lbs per SQ    | ASTM D 228-90a (1996) |
| b.  | Thickness        | 51 mils          | ASTM D 146-97         |
| c.  | Tensile Strength | 303 lbf/in MD    | ASTM D 5147 (@ 77°F)  |
|     | -                | 287 lbf/in XMD   |                       |
| d.  | Elongation       | 5.9 % lbf/in MD  | ASTM D 5147 (@ 77°F)  |
|     | -                | 6.6 % lbf/in XMD |                       |
| e.  | Asphalt          | 10.0 lb/SQ       | ASTM D 228-90a        |
| f.  | Tear Strength    | 480 lbf MD       | ASTM D 5147 (@ 77°F)  |
|     | c                | 458 lbf XMD      |                       |
|     |                  |                  |                       |

#### 2.4 COVER BOARD

- A. Gypsum Based Cover Board : Per Section 07 22 20.
- 2.5 ROOF INSULATION
  - A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated per section 07 22 20

# 2.6 FLUID-APPLIED ROOFING MEMBRANE COATING

- A. Polyurethane Elastomeric Fluid-Applied System: Two-coat reinforced fluid-applied roofing membrane formulated for application over prepared existing roofing substrate.
- B. Polyurethane Roof Coating Base Coat: Two-part catalyzed low-odor polyurethane roof base coating formulated for direct application and for use with fiber reinforcement in conjunction with a compatible top coat.
  - 1. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 1 g/L.
  - 2. Combustion Characteristics, UL 790: Class A.
  - 3. Bio-Based Content: Not less than 20 percent.
  - 4. Percent solids, by volume, ASTM D 2697: 100.
  - 5. Percent solids, by weight, ASTM D 1644: 100.
- C. Polyurethane Roof Coating Top Coat: Two-part catalyzed low-odor polyurethane roof top coating formulated for direct application over compatible reinforced base coat.
  - 1. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 6 g/L.
  - 2. Combustion Characteristics, UL 790: Class A.
  - 3. Bio-Based Content: Not less than 20 percent.
  - 4. Percent solids, by volume, ASTM D 2697: 100.
  - 5. Percent solids, by weight, ASTM D 1644: 100.
  - 6. Water Vapor Transmission, ASTM E 96, Wet Cup: 0.020 perm-in (1.32 g/m2/day).
- D. Polyester Reinforcing Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings.
  - 1. Tensile Strength, ASTM D 1682: Not less than 50 lbf. (222 N).
  - 2. Elongation, ASTM D 1682: Not less than 60 percent.
  - 3. Tear Strength, ASTM D 1117: Not less than 16 lbf. (70 N).
  - 4. Weight: 3 oz. /sq. yd. (102 g/sq. m).

# 2.7 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and fluid-applied roofing system.
- B. Structural Concrete/Masonry Primer: Two-component, 100 percent solids, epoxy penetrating primer for concrete deck surfaces.
- C. Metal Surface Primer: Single-component, water-based primer to promote adhesion of base coat to metal surfaces.
- D. Asphaltic Surfaces Primer: Single-component, multi-substrate primer to promote adhesion of base coat to surfaces recommended by manufacturer.
- E. Single-Ply Membrane Primer: Single-component primer designed to promote adhesion of base coat to existing membrane surfaces.
- F. Joint Sealant: Single component, high solids, moisture curing polyurethane sealant recommended by coating manufacturer.
- G. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

# PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of fluid-applied flashings and new roofing systems:
  - 1. Prepare written report listing detrimental conditions to performance of the flashing system.
  - 2. Verify compatibility with and suitability of substrates.
  - 3. Verify that substrates are visibly dry and free of moisture.
  - 4. Verify that roofing membrane surfaces have adequately aged to enable proper bond with base coat.
  - 5. Verify that roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications of impending roof system failure.
  - 6. Application of fluid-applied flashings indicates acceptance of the surfaces and conditions.

#### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing manufacturer's written instructions. Remove sharp projections.
- B. Protect existing roofing system that is indicated to remain, and adjacent portions of building and building equipment.
  - 1. Comply with warranty requirements of existing roof membrane manufacturer.
  - 2. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
  - 3. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
  - 4. Maintain temporary protection and leave in place until replacement roofing has been completed.
- C. Shut down air intake equipment in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with re-coating work that could affect indoor air quality or activate smoke detectors in the ductwork.
  - 1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.
- D. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
  - 1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

#### 3.3 FLUID-APPLIED MEMBRANE ROOFING INSTALLATION, GENERAL – (NOT USED)

- A. Install roofing membrane according to roofing manufacturer's written instructions.
  - 1. Commence installation of roofing in presence of manufacturer's technical personnel.
- B. Coordinate installation of roofing so insulation and other components of roofing not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

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- 1. Provide tie-offs at end of each day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement with joints and edges sealed.
- 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
- 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Substrate-Joint Penetrations: Prevent fluid-applied materials and adhesives from penetrating substrate joints, entering building, or damaging built-up roofing components or adjacent building construction.
- D. Ensure deck is in sound condition, free of grease, oils, coatings, dust, curing compounds and other contaminants.
  - Remove oil, grease, and asphalt residue with trisodium phosphate. Use steam for 1. oil contaminated surfaces in conjunction with a strong emulsifying detergent. Rinse thoroughly.

#### 3.4 INSULATION & COVER BOARD INSTALLATION – (NOT USED)

- A. Install insulation board in accordance with Section 07 22 20.
- B. Apply one (1) layer of 1/4" Dens Deck roof board adhered to insulation board.
- C. Set in insulation adhesive.
- 3.5 BASE SHEET INSTALLATION - (NOT USED)
  - Refer to sections 07 54 00 as required as part of typical roofing installation. A.
  - Install base sheet starting at low point of roofing. Align base sheet without stretching. B. Shingle side laps of base a minimum of 4 inches. Shingle in direction to shed water. Extend base sheets over edges and terminate above cants.
    - Embed base sheet in solvent free cold-applied membrane adhesive applied at rate 1. required by roofing manufacturer, to form a uniform membrane without ply sheets touching.
  - C. Extend base flashing up walls or parapets a minimum of 8 inches above roofing and 6 inches onto field of roofing.
  - D. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
    - Seal top termination of base flashing with specified sealant. 1.
    - 2. Seal top termination of base flashing with a strip of glass-fiber fabric set in asphalt roofing cement and a metal termination bar.
  - E. Install stripping according to roofing manufacturer's written instructions where metal flanges and edgings are set on roofing.
    - Flashing Sheet Stripping: Install flashing sheet stripping in specified cold 1. adhesive and extend onto roofing membrane.

#### 3.6 **ROOFING COATING PREPARATION**

- Membrane Surface Preparation: A.
  - Remove pavers from roofing membrane. Store and protect pavers for reuse. 1. Discard cracked pavers.
  - 2. Remove blisters, ridges, buckles, roofing membrane fastener buttons projecting above the membrane, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.

- 3. Repair membrane at locations where irregularities have been removed.
- 4. Broom clean existing substrate.
- 5. Substrate Cleaning: Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 2,000 psi. Allow to dry thoroughly.
- 6. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
- 7. Verify adhesion of new products.
- B. Flashing and Detail Preparation: Repair existing / install new flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.
  - 1. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.
  - 2. Roof Drains: Remove drain strainer and clamping ring. Grind metal surfaces down to clean, bare, metal.
  - 3. Broom clean existing substrate.
  - 4. Substrate Cleaning: Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 2,000 psi. Allow to dry thoroughly.
  - 5. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
  - 6. Verify adhesion of new products.

# 3.7 FLUID-APPLIED FLASHING APPLICATION

- A. Fluid-Applied Flashing and Detail Base Coat Application: Complete base coat and fabric reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane. Apply base coat in accordance with manufacturer's written instructions.
  - 1. Extend coating minimum of 8 inches up vertical surfaces and 4 inches onto horizontal surfaces.
  - 2. Back roll to achieve minimum wet mil coating thickness of 48 mils unless otherwise recommended by manufacturer; verify thickness of base coat as work progresses.
  - 3. Embed fabric reinforcement into wet base coat. Lap adjacent flashing pieces of fabric minimum 3 inches along edges and 6 inches at end laps.
  - 4. Roll surface of fabric reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
  - 5. Roof Drains: Install base coat onto surrounding membrane surface and metal drain bowl flange. Install target piece of fabric reinforcement immediately into wet base coat and roll to fully embed and saturate fabric. Reinstall clamping ring and strainer following application of top coat. Replace broken drain ring clamping bolts.
  - 6. Allow base coat to cure prior to application of top coat.
  - 7. Following curing of base coat and prior to application of top coat, sand raised or exposed edges of fabric reinforcement.
- B. Fluid-Applied Flashing and Detail Top Coat Application: Apply top coat uniformly in a complete installation to flashings.

- 1. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.
- 2. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces 4 inches. Install top coat over field base coat and spread coating evenly.
- 3. Back roll to achieve wet mil thickness of 32 mils unless otherwise recommended by manufacturer.
- 4. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.

#### 3.8 FLUID-APPLIED MEMBRANE APPLICATION (N/A)

- Base Coat: Apply coating base coat to asphaltic base sheet surfaces in accordance with A. manufacturer's written instructions.
  - 1. Apply base coat on prepared and primed surfaces and spread coating evenly.
  - 2. Back roll to achieve minimum wet mil coating thickness of 48 mils unless otherwise recommended by manufacturer; verify thickness of base coat as work progresses.
  - 3. Embed fabric reinforcement into wet base coat. Lap adjacent fabric reinforcement minimum 3 inches along edges and 6 inches at end laps.
  - 4. Roll surface of fabric einforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
  - Allow base coat to cure prior to application of top coat. 5.
  - Following curing of base coat and prior to application of top coat, sand raised or 6. exposed edges of fiberglass reinforcement.
- B. Fluid-Applied Flashing Application: Per article 3.7.
- C. Top Coat: Apply top coat uniformly in a complete continuous installation to flashings and field of roof.
  - Prime base coat prior to application of top coat if top coat is not applied within 1. 72 hours of the base coat application, using manufacturer's recommended primer.
  - Apply top coat to flashings extending coating up vertical surfaces and out onto 2. horizontal surfaces (min. 4 inches). Install top coat over field base coat and spread coating evenly.
  - Back roll to achieve wet mil thickness of 32 mils unless otherwise recommended 3. by manufacturer.
  - Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours. 4.

#### 3.9 FIELD QUALITY CONTROL

- Roof Inspection: Contractor shall engage roofing system manufacturer's technical A. personnel to inspect roofing installation and submit report to the Architect. Notify Architect or Owner 48 hours in advance of dates and times of inspections. Inspect work as follows:
  - Upon completion of preparation of first component of work, prior to application 1. of re-coating materials.
  - Following application of re-coating to flashings and application of base coat to 2. field of roof.
  - 3. Upon completion of re-coating but prior to re-installation of other roofing components.
- B. Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
- С. Arrange for additional inspections, at Contractor's expense, to verify compliance of replaced or additional work with specified requirements.

# 3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

# END OF SECTION

# PART 1 – GENERAL

# 1.1 SUMMARY

A. This section includes flashing details, metals and installation instructions included on all roof sections covered under the scope of work.

# 1.2 RELATED DOCUMENTS

A. Drawings and contract documents, including Section 01 01 00 - Summary of Work, apply to this section.

# 1.3 RELATED SECTIONS

- A. Section 02 22 50 Demolition
- B. Section 05 31 20 Steel Roof Deck
- C. Section 05 50 00 Metal Fabrications
- D. Section 06 11 40 Wood Blocking and Curbing
- E. Section 07 09 10 Preparation for Re-Roofing
- F. Section 07 22 20 Roof and Deck Insulation
- G. Section 07 54 10 Thermoplastic Membrane Roofing
- H. Section 07 54 51 Fluid Applied Membrane Roofing and Flashing
- I. Section 07 90 00 Joint Sealers
- J. Section 09 90 00 Paints and Coatings

#### 1.4 **REFERENCES**:

- A. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
- B. ASTM American Society for Testing and Materials, West Conshohocken, PA.
- C. NRCA National Roofing Contractors Association, Chicago, IL
- D. UL Underwriter's Laboratory, Northbrook, IL.

# 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Provide Shop Drawings indicating proposed detail for each flashing condition or termination not specifically shown on the Drawing. Details must be similar to those shown on the Drawings and be permanently watertight without relying on sealant. Obtain Architect's approval prior to installing detail work in field.
- C. Samples for Initial Selection: Provide manufacturers' standard color charts for each type of sheet metal flashing and trim indicated with factory-applied color finishes.
- D. Samples for Verification: Provide full-sized samples of the following items. Fabricate from specified sheet metal.
  - 1. Counterflashings: One, 6 inch long sample of each profile. Include specified joint.
  - 2. Coping: One, 12 inch long sample of each profile. Include specified joint and mitered corner.

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- 3. Gravel Stop: One 6 inch long sample of each profile. Include specified joint.
- 4. Penetration Flashing: One full-size sample each of boot/ rain shield and vent pipe flashing.
- 5. Overflow Scupper: One full-size sample of overflow scupper liner.
- 6. Expansion Joint Cover: One, 12 inch long sample of each profile. Include specified joint.
- 7. Divider Curb Covers: One, 12 inch long sample of each profile. Include specified joint.

# 1.6 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Meet with Owner, if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
- C. Review methods and procedures related to sheet metal flashing and trim.
- D. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
- E. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

# 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

# 1.8 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leak proof, secure, and noncorrosive installation.

# 1.9 PERFORMANCE REQUIREMENTS

1.

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Fabricate and install roof edge flashing and copings capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49:
  - Wind Zone 2: For velocity pressures of 31 to 45 lbf/sq. ft.: 90-lbf/sq. ft. perimeter uplift force, 120-lbf/sq. ft. corner uplift force, and 45-lbf/sq. ft. outward force.
- C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base

engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

- 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

#### 1.10 WARRANTY

A. Special Project Warranty: Sheet Metal Flashing and Trim is included in Roofing Installer's Warranty in Section 07 54 10.

#### 1.11 **PROJECT CONDITIONS:**

- A. The following details are included in the low-slope roof section involved with this roofing project:
  - 1. Wall Flashing on Wall Supported Deck
  - 2. Wall Flashing for Non Wall Supported Deck
  - 3. Roof Drain
  - 4. Pitch Pocket with Grout
  - 5. Metal Sleeve and Storm Collar
  - 6. Plumbing Vent Flashing
  - 7. Wood Curb
  - 8. Metal Curb
  - 9. Daily Waterstop / Tie- In
  - 10. Gauge & Thickness Guide (Minimum)
  - 11. Miscellaneous metal flashings and related accessories.

#### PART 2 – PRODUCTS

#### 2.1 FREE FLOATING FASCIA/GRAVEL STOP

A. .050 Formed Aluminum Fascia with galvanized metal cant continuous; continuous galvanized retainer; 10' lengths, min. 4" joint splice plates; 8" max. nominal face. Provide pre-formed corners (inside/outside), extenders and other components as needed. Finish to match existing. ANSI/SPRI ES-1 F.M. approved.

#### 2.2 METAL COPING

A. Metal Copings: Aluminum, .050 inch thick, shaped as indicated, with continuous cleat both sides with turned seam joints. Include cover plates to conceal and weatherseal joints and attachment flanges. Provide extruded closure plates as required and mitered, welded corners. Finish color to match existing. ANSI/SPRI ES-1 F.M. approved. Provide 20 year finish warranty. No exposed fasteners permitted.

#### 2.3 METAL FLASHINGS

- A. Stainless Steel Metal Flashings:
  - 1. Type 304, ASTM A 167-88, mill rolled number 2D finish.
  - 2. Minimum Gage: Twenty-four (24).
  - 3. Solder: ASTM B32-89, alloy grade 60A. Neutralize flux after soldering.
- B. Two-Piece Counterflashings:
  - 1. Re-use existing counterflashing receiver where applicable.
  - 2. New counterflashing shall match existing receiver type.

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#### SHEET METAL FLASHING AND TRIM

- C. Roof Drain and Plumbing Stacks Flashing:
  - 1. Flashings: As recommended by roof membrane manufacturer.
- D. Details not addressed in specification shall be in accordance with Architectural Sheet Metal Manual, as issued by Sheet Metal and Air Conditioning Contractors' National Association, Inc., (SMACNA).

# 2.4 DOWNSPOUTS & SCUPPERS BOXES

- A. Downspouts Metal to match the roof edge, formed, 22 ga. minimum, rectangular, 3" x 3" width min. (match existing size). Provide straps as required to support from existing structural component, minimum spacings 8'-0" o.c.; complete with formed elbows and off sets of size and metal thickness according to SMACNA guidelines. Finish to match trim, gutter metal panels, etc..
- B. Downspout Boots: Refer to Section 05 50 00 or 23 16 00.
- C. Scuppers Boxes: Metal to match the roof edge, formed, 22 ga. minimum,

# 2.5 GUTTERS

Gutters: Formed of same material of roofing panels, match profile of cable trim. Complete with end pieces, outlet, tubes, and other special pieces as required. Fabricate in longest lengths. Possible of size and metal thickness per SMACNA's guidelines. Furnish gutter supports. Spaced a maximum of 36" o.c. from same materials as gutters. Provide wire ball strainers of compatible metal at outlets. Color to match roof panels.

# 2.6 ACCESS LADDER

A. Roof Ladder (bolted to wall per Section 05 50 00 with cage as applicable).

# 2.7 MECHANICAL FASTENERS

- A. Stainless sheet steel to wood blocking:
  - 1. FS FF-N-105B (3) Type II, Style 20, roofing nails; galvanized steel wire, flat head, diamond point, round, barbed shank.
  - 2. Length: Sufficient to penetrate wood blocking 1-1/4 inches minimum.
- B. Aluminum sheet metal to wood blocking:
  - 1. FS FF-N-105B (3) Type II, Style 20, roofing nails; 6061-t913 alloy wire, flat head, diamond point, round, barbed shank
  - 2. Length: Sufficient to penetrate wood blocking 1-1/4 inches.
- C. Termination bar to masonry/concrete:
  - 1. Lead masonry anchors.
  - 2. Length: Sufficient to provide 1-1/4 inches embedment minimum.

# 2.8 ACCESSORY MATERIALS

- A. Elastomeric mastic for fascia cover plate: One Part Urethane Caulk.
- B. Asphaltic mastic: Roof mastic.
- C. Metal cleaner: Mineral spirits
- D. Pipe supports: Triangle Pipe Supports
- E. Drawband:
  - 1. Gold Seal stainless steel worm gear clamp by Murray Corporation, Cockeysville, MD.
  - 2. Power-Seal stainless steel worm drive clamps by Breeze Clamp Company, Saltsburg, PA.

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- F. Termination bar:
  - 1. Aluminum, with caulk receiver: 1/4 by 1 inch
  - 2. Primer: Non-Porous Primer.
  - 3. Caulking: One Part Urethane Caulk
  - 4. Compressible tape: Teflon Tape.
- G. Pitch Pan Materials:
  - 1. Base fill: ASTM C928-92a, rapid hardening non-shrink grout.
  - 2. Top fill: Solvent Free Flashing Adhesive.
  - 3. Pourable Sealer: One Component Poly Urethane Sealant, gun grade, moisture cured, resists UV and Ozone.
- H. Membrane Accessories Flashings: As recommended by roofing membrane manufacturer.
- I. Heat Pump/Condenser Risers Equal to Diversitech #HPR-65 Pressure Injection Molded Polypropylene with butyl mastic on top and bottom.

# 2.9 FLASHING MATERIALS

- A. TPO Flashing Sheeting. (per manufacturer's requirements)
  - 1. TPO flashing sheeting compounded from TPO elastomer laminated to high strength polyester reinforcing scrim and meets the requirements of ASTM D 5019, Type I, Grade II, TPO flashing sheet; thickness .045-inch.
  - 2. Flashing Adhesive: One-part, bonding adhesive solvent-free, asbestos-free, low-odor elastomeric roof mastic specially formulated for compatibility and use with specified roofing membranes and flashings.
- B. Stripping ply for flashings ply laps:
  - 1. Reinforcing Mesh.
    - a. Glass-Fiber Fabric: Woven glass reinforcement treated with organic resin and complying with ASTM D 1668, Type III.
    - b. Size: 6 inches minimum.
  - 2. Adhesive: Solvent Free Flashing Adhesive.
- C. Stripping ply for 2-ply stripping of metal flange flashings:
  - 1. Base layer of 2-ply stripping ply:
    - a. Base Ply Felt.
      - 6 inches, minimum.
  - 2. Top layer of 2 ply stripping ply:
    - a. Base Ply Felt.
    - b. 3 inches beyond base layer (9 inches minimum).
    - Stripping ply adhesive: Cold Applied Adhesive
  - 4. Primer for metal flanges:
    - a. Water based Primer.
    - b. Low (VOC) Volatile Primer.
- D. Flashing Sealant Tape:
  - 1. Teflon Tape: Flexible butyl based sealant tape.
  - 2. Dimensions: 1/8 inch by 1 inch.
- E. Asphalt Primer:

3.

- 1. Water-Based Asphalt Primer: Water-based, polymer modified, asphalt primer
- 2. Low VOC Compliant Asphalt Primer: Solvent-based asphalt primer.
- F. Solvent-Free Elastomeric Roofing Mastic: One-part, solvent-free, asbestos-free, low-odor elastomeric roof mastic specially formulated for compatibility and use with specified roofing membranes and flashings.

- G. Asphalt Roofing Mastic: One-part, asbestos-free, cold-applied mastic specially formulated for compatibility and use with specified roofing membranes and flashings and meets the requirements of ASTM D 4586, Type II, Class 1.
- H. Flashing Coating: Solar-reflective, high solids acrylic latex elastomeric roof coating formulated for compatibility and use with specified membranes and flashings, asbestos free.
  - 1. Prime as recommended by manufacturer, acrylic coating primer, asbestos free.

# PART 3 – EXECUTION

# 3.1 GENERAL FLASHING REQUIREMENTS

- A. Install TPO Flashing using flashing adhesive compatible coverboard set in hot asphalt:
  - 1. Adhere TPO sheeting completely to flashing surface, cant, and roofing with a <sup>1</sup>/<sub>4</sub> inch notched trowel at 1 gallon per 12 sq. ft. of flashing adhesive, immediately embed elastomeric sheeting into the flashing adhesive.
  - 2. Apply consistent pressure to entire surface of TPO sheeting using a steel hand roller to achieve full adhesion of the sheeting to the flashing substrate. Ensure complete bond and continuity without wrinkles or voids. Lap sheeting ends 6 inches. Adhere laps with flashing adhesive.
  - 3. Seal horizontal edges of sheeting to roof surface and vertical edges of sheeting with reinforcing membrane embedded in a base course of flashing adhesive mastic and a top course of TPO flashing adhesive.
  - 4. TPO membrane sheeting width: sufficient to extend at least 6 inches beyond toe of cant onto new roof.
  - 5. Secure top edge of flashing membrane with metal termination bar and Teflon Tape. Fasten bar 6 to 8 inches o.c. Seal termination bar with three-course reinforcing mesh and asphaltic mastic as required.
- B. Two Ply stripping for metal flanges:
  - 1. Set flange in asphalt mastic. Seal flange with two stripping plies embedded between alternate applications of stripping adhesive/bitumen. Extend first ply 3 inches beyond flange; second ply 3 inches beyond first ply.

# 3.2 SURFACING TREATMENT ON FLASHINGS

- A. Surfacing Treatment for Flashings: If flashings are soiled during course of work.
  - 1. Clean and prepare surface as required by roofing system manufacturer. Prime surface as recommended.
  - 2. Apply coating over stained area of the flashing membrane surfaces. Install two applications at an approximate rate of 1 gallon per square per coat.

# 3.3 FLASHING INSTALLATION

- A. Pre-engineered, Metal Fascia Gravel Stop (Free Floating Fascia) Fascia System:
  - 1. Install new roofing to blocking edge to replace defective blocking. Nail with spiral or annular shank nails, 8 inches on center.
  - 2. Install extruded aluminum free-floating fascia system according to manufacturer's published instructions.
    - a. Install new Free Floating Metal Extender Fascia as required to accommodate new wood blocking thickness.
    - b. Use pre-fabricated corers.
    - c. Minimum fascia length: 24 inches, 2 deck brackets minimum.
    - d. Adhere sheeting to cant and roofing in a uniform and continuous application of flashing adhesive.

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- e. Seal horizontal and vertical edges of sheeting with reinforcing membrane embedded in a base course of elastomeric flashing adhesive.
- B. Wall flashings reglet counterflashing:
  - 1. Extend new roofing to top edge of cant.
  - 2. Install elastomeric base flashing described in general flashing requirements section.
  - 3. Secure top edge of flashing membrane to vertical substrate with termination bar secured 6 to 8 inches o.c. maximum.
  - 4. Fabricate and install new counterflashing.
  - 5. Install counterflashing into reglet joint and secure with lead wedges 8 inches o.c. maximum.
  - 6. Wipe clean metal surfaces of flashing joint with metal cleaner. Prime metal joint surfaces with metal primer. Allow to dry.
  - 7. Caulk flashing joint. Provide watershed. Tool neatly.
- C. Wall flashings surface mounted counterflashing:
  - 1. Extend new roofing to top edge of cant.
  - 2. Install elastomeric base flashing described in general flashing requirements section.
  - 3. Secure top edge of flashing membrane to vertical substrate with termination bar secured 6 to 8 inches o.c. maximum
  - 4. Wipe top of bar clean with metal cleaner. Prime metal surface to receive sealant with metal primer. Allow to dry.
  - 5. Caulk top of bar. Provide watershed. Tool neatly.
  - 6. Fabricate and install new counterflashing.
  - 7. Install surface mount counterflashing with flashing tape. Mechanically fasten 8 inches o.c. maximum.
  - Wipe clean metal surfaces of flashing joint with metal cleaner. Prime metal joint surfaces with metal primer. Allow to dry. Caulk flashing joint. Provide watershed. Tool neatly.
- D. Two-piece reglet mounted counterflashing:
  - 1. Extend new roofing to top edge of cant.
  - 2. Install elastomeric base flashing described in general flashing requirements section.
  - 3. Secure top edge of flashing membrane to vertical substrate with termination bar secured 6 to 8 inches o.c. maximum
  - 4. Re-use existing counterflashing receiver where applicable.
  - 5. When wall flashings are completed, attach counterflashing by sliding it in at the outside open end of the receiver. Once counterflashing is locked into receiver, insert fasteners through all prepunched holes.
  - 6. Stagger counterflashing joints and receiver joints 6" minimum with 1/4" gap between each joint. Neatly trim length of counterflashing section to fit.
  - 7. After counterflashing is installed, attach each joint plate to the bottom of the counterflashing while lifting upward and locking it to the top of the receiver. Tap the top of Joint plate at receiver with rubber mallet to lock together.
  - 8. Once entire system is installed, prime receiver with non-porous primer and apply a bead of reglet joint sealant.
- E. Wall flashing(s) for non-wall-supported deck:
  - 1. Install horizontal and vertical blocking.
  - 2. Install wood cants to blocking.
  - 3. Extend new roofing to top edge of cant.
  - 4. Install elastomeric base flashing described in general flashing requirements section.
  - 5. Secure top edge of flashing membrane to substrate with spiral or annular shank nails, with 1-inch cap, 8 inches o.c.

- 6. Install vinyl water barrier over joint opening. Allow barrier to drape down into the joint opening down to the deck. Nail both sides of barrier 4 inches o.c.
  - Insert fiberglass batt insulation into expansion joint opening; fill entire opening.
- 8. Install counterflashing over expansion joint into reglet and secure with lead wedges 8 inches o.c.
- 9. Wipe clean metal surfaces of flashing joint with metal cleaner. Prime metal joint surfaces with metal primer. Allow to dry.
- 10. Caulk flashing joint. Provide watershed. Tool neatly.
- F. Expansion joint(s): (N/A)

7.

- 1. Extend new roofing to top edge of cant.
- 2. Install elastomeric base flashing described in general flashing requirements section.
- 3. Install vinyl water barrier over joint opening. Allow barrier to drape down into the joint opening down to the deck. Nail both sides of barrier 4 inches o.c.
- 4. Insert fiberglass batt insulation into expansion joint opening; fill entire opening.
- 5. Secure top edge of flashing membrane to substrate with spiral or annular shank nails, with 1-inch cap, 8 inches o.c.
- 6. Center and attach base sheet liner to top of curb and drape down each side of vertical curb 1-inch minimum.
- 7. Fabricate and install expansion joint cover to curb.
  - a. Bevel curb top for drainage:
  - b. Mechanically fasten to vertical portion of curb with neoprene-grommetted screws 18 inches o.c.
  - c. Overlap sections 1 inch. On the top face, form a standing seam.
- G. Area Dividers: (N/A)
  - 1. Extend new roofing to top edge of cant.
  - 2. Install elastomeric base flashing described in general flashing requirements section.
  - 3. Secure top edge of flashing membrane to substrate with spiral or annular shank nails, with 1-inch cap, 8 inches o.c.
  - 4. Fabricate and install expansion joint cover to curb
    - a. Bevel curb top for drainage
    - b. Mechanically fasten to vertical portion of curb with neoprene-grommetted screws 18 inches o.c.
    - c. Overlap sections 1 inch.
- H. Curb flashings:
  - 1. Remove mechanical equipment from curb when applicable.
  - 2. Raise curb to accommodate new insulation height.
  - 3. Install new roofing to top edge of cant.
  - 4. Install elastomeric base flashing described in general flashing requirements section.
  - 5. Secure top edge of flashing to substrate with termination bar; mechanically fasten 8 inches o.c. maximum.
  - 6. Wipe top of bar clean with metal cleaner. Prime metal surface to receive sealant with metal primer. Allow to dry.
  - 7. Caulk top of bar. Provide watershed. Tool neatly.
  - 8. Fabricate and install counterflashing.
  - 9. Reinstall mechanical equipment onto curb. Refasten.
- I. Slip metal counterflashing:
  - 1. Install new roofing to top edge of cant.
  - 2. Install elastomeric base flashing as described in general flashing requirements section.
  - 3. Secure top edge of flashing to substrate with termination bar; mechanically fasten 8 inches o.c. maximum.

- 4. Wipe top of bar clean with metal cleaner. Prime metal surface to receive sealant with metal primer. Allow to dry.
- 5. Caulk top of bar. Provide watershed. Tool neatly.
- 6. Fabricate and install sheet metal counterflashing behind existing metal coping cap, counterflashing, or water table. Fasten counterflashing every 12 inches o. c. using lead masonry anchors or appropriate fastener for other substrate as determined by superintendent.
- J. Roof drain flashing: (N/A)
  - 1. Install tapered edge strip around drain to create approximate 48 by 48 inch sump. Miter corners. Seal toe of tapered edge to drain rim with reinforcing membrane embedded between alternate courses of asphalt mastic.
  - 2. Install roofing system into sump and onto drain rim.
  - 3. Plug drain to prevent water entry until service connection is completed.
  - 4. Prime the bottom side of the flashing membrane.
  - 5. Apply adhesive for adhering flashing.
  - 6. Set single piece flashing 36 by 36 inch in mastic centered over drain.
  - 7. Clamp flashing collar to drain in bed of sealant.
  - 8. Neatly cut membrane within drain at rim. Membrane to extend 1 inch into bowl.
  - 9. Prime with primer.
  - 10. Install two (2) ply stripping. Stripping shall not extend under clamping ring.
  - 11. For working drains, remove drain plug upon completion of work each day.
- K. Plumbing vent flashing:
  - 1. Wedge plumbing vent tight against deck.
  - 2. Apply liquid flashing.
  - 3. Apply 1/16-inch uniformly thick layer of adhesive to surface receiving metal flange.
  - 4. Fabricate and install plumbing vent flashing. Flange: 4 inches wide minimum, extend completely around periphery of vent flashing. Set flange into adhesive.
  - 5. Prime metal flange with primer.
  - 6. Pipe outside diameter greater than 2 inches: Bend inside pipe 1-inch minimum with pliers or rubber/plastic mallet.
  - 7. Pipe outside diameter 2 inches or less: Cut at vent top; fabricate and install integral cap.
- L. Metal sleeve with storm collar:
  - 1. Apply 1/16-inch uniformly thick layer of adhesive to surface receiving metal flange.
  - 2. Fabricate and install sleeve flashing. Height: 8 inches. Flange width: 4 inches. Flange to extend completely around flashing periphery. Solder all joints. Double solder vertical joints.
  - 3. Nail flange to wood blocking 3 inches o.c., staggered.
  - 4. Prime flange with primer.
  - 5. Install two (2) ply stripping described in general flashing requirements section.
  - 6. Fabricate storm collar with bolted connection. Cover sleeve flashing 3 inches minimum. Tighten bolts.
  - 7. Wipe clean top of storm collar and projection with metal cleaner. Prime surface with metal primer. Caulk projection/sheet metal interface. Provide watershed. Tool neatly.
- M. Pitch pans with grout:
  - 1. Fabricate pitch pans. Sides: 4 inches high, hemmed to outside at top edge. Flange: 4 inches wide, completely around periphery. Solder all joints. Clearance between projection and pitch pan: 2 inches Set flange in mastic.
  - 2. Pack gap between roof-penetrating element and deck with compressible insulation. Seal with reinforcing membrane embedded between alternate courses of asphalt mastic.
  - 3. Nail flange to wood blocking 3 inches o.c., staggered.

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- 4. Prime metal flange, projection, and pitch pan interior with asphalt primer.
- 5. Install two (2) ply stripping described in general flashing requirements section.
- 6. Fill pitch pan to within 1 inch from top with non-shrink grout. Allow to set firm.
- 7. Fill pitch pan with specified mastic. Double fill if necessary.
- 8. Fabricate and install umbrella with drawband over pitch pan. Tighten drawband.
- 9. Wipe clean top of umbrella and projection with metal cleaner. Prime surface with metal primer.
- N. Access Ladder and Cage: (per Section 05 50 00)
  - 1. Install roof access ladder and related components where specified.
    - a. All fastening, design, and height requirements to comply with local, state and Federal codes for access ladders.
    - b. Mount ladder guard per manufacturer's instruction.
  - 2. Attach ladder to masonry wall.
  - 3. Install walk pad under leg support.
- O. Through Wall Counterflashing
  - 1. Fabricate through-wall counterflashing to dimensions shown on drawings. All joints to be soldered.
  - 2. Form through-wall flashing with integral counterflashing receiver to extend through brick masonry and up interior masonry back-up wall 4 inches min.
  - 3. Set vertical leg of counterflashing in full bed of butyl sealant and secure with term bar 6" o.c.
  - 4. Prime masonry back-up wall and vertical leg of counterflashing.
  - 5. Provide continuous 8 inch wide self adhering modified bitumen interior vertical leg and onto back-up wall. Provide 4-inch wide end laps on modified bitumen.
  - 6. Insert counterflashing into receiver.
  - 7. Extend new roofing to top edge of cant.
  - 8. Install elastomeric base flashing described in general flashing requirements section.
  - 9. Secure top edge of flashing membrane to vertical substrate with termination bar secured 6 to 8 inches o.c. maximum.
  - 10. Wipe top of bar clean with metal cleaner. Prime metal surface to receive sealant with metal primer. Allow drying.
  - 11. Caulk top of bar. Provide watershed. Tool neatly.

# END OF SECTION

# PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Preparing substrate surfaces.
- B. Sealant and joint backing.
- 1.2 RELATED SECTIONS
  - A. Section 07 22 20 Roof and Deck Insulation
  - B. Section 07 54 10 Thermoplastic Membrane Roofing
  - C. Section 07 62 00 Sheet Metal Flashing and Trim

# 1.3 REFERENCES

- A. ASTM C790 Use of Latex Sealing Compounds.
- B. ASTM C804 Use of Solvent-Release Type Sealants.
- C. ASTM C834 Latex Sealing Compounds.
- D. ASTM C919 Use of Sealants in Acoustical Applications.
- E. ASTM C920 Elastomeric Joint Sealants.
- F. ASTM D1056 Flexible Cellular Materials Sponge or Expanded Rubber.
- G. ASTM D1565 Flexible Cellular Materials Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- H. SWRI (Sealant, Waterproofing and Restoration Institute) Sealant and Caulking Guide Specification.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Samples: Submit two samples, 1 x 4 inch in size illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

#### 1.5 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- 1.6 QUALIFICATIONS
  - A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
  - B. Applicator: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by manufacturer.

# 1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery of Materials:
  - 1. Deliver materials to job-site in new, dry, unopened and well-marked containers showing product and manufacturers name.
  - 2. Deliver materials in sufficient quantity to allow continuity of work.
  - 3. Coordinate delivery with project superintendent.
- B. Do not order project materials or start work before receiving written notice to proceed. No work shall commence without signed contracts.
- C. Storage of Materials:
  - 1. Store materials marked "KEEP FROM FREEZING" in areas F.□where temperatures will remain above 40°
  - 2. Do not store materials in open or in contact with ground or roof surface.
  - 3. Store all materials on a raised platform covered with secured canvas tarpaulin (not polyethylene), top to bottom. Cover all materials when project is not in progress and maintain the ability at all times to cover the materials when required, such as during an unanticipated rain shower.
  - 4. Subcontractor shall assume full responsibility for the protection and safekeeping of products stored on premises.

# 1.8 E NVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- B. Environmental requirements:
  - 1. Do not work in rain, snow, or in presence of water.
  - 2. Do not work in temperatures below  $40^{\circ}$
  - 3. Do not install materials marked "KEEP FROM FREEZING" when daily temperatures are scheduled to fall below 40° F.
  - 4. Do not perform masonry work below  $40^{\circ}$
  - 5. Remove any work exposed to freezing.
  - 6. Coordinate with WTI superintendent when volatile materials are to be used near air ventilation intakes so owner can use some or all of the following methods to minimize disruptions to building occupants and operations:
  - 7. Divert air intake from work area by attaching scoops or temporary ductwork.
  - 8. Temporarily shut down or block air intakes.
  - 9. Provide make-up air or intake air from sources away from work area.

# 1.9 COORDINATION

- A. Coordinate work with other trades.
- B. Coordinate the work with all sections referencing this section.

#### 1.10 WARRANTY

- A. Upon Project completion and Owner's acceptance effective upon complete payment the Contractor shall issue a guarantee against defective workmanship for a period of 5 years.
- B. Manufacturer's standard form, in which manufacturer agrees to repair or replace sealants that fail in materials within the specified warranty period. Refer to Section 01 70 00.
  - 1. Silicone Sealants: 10 year
  - 2. Polyurethane Sealants: 5 year

#### PART 2 PRODUCTS

# 2.1 APPROVED MANUFACTURERS

- A. Pecora
- B. Tremco
- C. Bostik
- D. Substitutions shall be submitted in accordance with Section 01 60 00.

# 2.2 SEALANTS

- A. Polyurethane Sealant (Type B) Masonry locations: ASTM C920, Grade NS, Class A, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, non-sagging type; color as selected; Equal to Dynatrol II manufactured by Pecora.
  - 1. Elongation Capability 50 percent
  - 2. Service Temperature Range -20 to 180 degrees F
  - 3. Shore A Hardness Range 20 to 35
- B. Silicone Sealant (Type C): ASTM C920, Grade NS, Class 25, Use NT; single component, fungus resistant, chemical curing, non-sagging, non-staining, non-bleeding; color as selected; Equal to 860 manufactured by Pecora or Tremco TremSEAL S
  - 1. Elongation Capability
    - Service Temperature Range -75 to +400 degrees F
  - 3. Shore A Hardness Range 15 to 50
- C. Polyurethane Sealant:

2.

- 1. Equal to Tremco TremSEAL D and TremSEAL GP.
- 2. One part, moisture cured urethane, general purpose sealant; low modulus, non-sag resistant to UV, ozone, and moisture asbestos free.

25 percent

- 3. Color: As selected by Owner.
- D. Silicone Sealants: (Roof Locations)
  - 1. Equal to Tremco TremSEAL S.
  - 2. One part, high performance, moist curing silicone sealant; low modulus, non-sag, resistant to UV, ozone, and moisture asbestos free.

#### 2.3 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
  - 1. Primer for concrete or masonry surfaces prior to applying urethane sealants: Primer #1.
  - 2. Primer for metal surfaces prior to applying urethane sealants: Non-Porous Primer.
  - 3. Primer for non-porous materials for silicone sealants: Primer #10
  - 4. Primer for porous materials for silicone sealants: Primer #23
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: ASTM D1565; round, open cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

#### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.
- C. Do not begin work until all unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions.

#### 3.2 PREPARATION

- A. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions.
- D. Protect elements surrounding the work of this section from damage or disfiguration.

#### 3.3 GENERAL WORKMANSHIP

- A. All work performed by subcontractor shall conform to this specification.
- B. The presence and activity of the manufacturer's representative, architect's representative, and/or owner's representative shall in no way relieve subcontractor of contract responsibilities or duties.
- C. Substrate temperature shall be within 50°F to 110°F for product application. At no time shall temperature exceed 110°F during application and cure.

#### 3.4 SURFACE PREPARATION

- A. The surface of joints to receive sealants shall be free of all frost, condensation and moisture. Oil, grease dirt, chalk, particles of mortar, dust, loose mill scale, caulking and other foreign substances shall be removed from surfaces of joints to be in contact with the sealant. Oil and grease shall be removed with solvent and surfaces shall be wiped dry with clean clothes. All surfaces shall be ground free of existing sealants, caulking and abraded to clean mortar or stone.
- B. Remove loose particles present or resulting from grinding, abrading or blast cleaning by sweeping particles out with a dry brush, blowing out joints with oil free compressed air or by vacuuming joints prior to solvent cleaning.
- C. Clean only as much area that can be primed, packed and caulked in a single day.

#### 3.5 INSTALLATION OF BACKER-ROD MATERIAL

- A. When using backup material comprised of tubular or rod stock, avoid lengthwise stretching of the material. Do not twist or braid backer material.
- B. Installation tool:
  - 1. Do not puncture the exterior skin or surface of the backer material.
  - 2. For installation of backup material, provide a blunt-surfaced tool of wood or plastic, having shoulders designed to ride on the adjacent finished surface and a protrusion of the required dimensions to assure uniform depth of backup material below the sealant.
  - 3. Do not use a screwdriver or similar tool for this purpose.

4. Using the approved tool, smoothly and uniformly place the backup material to the depth indicated on the drawings or otherwise required, compressing the backer material 25% to 50% and securing a positive fit. Do not insert the depth of the backer material beyond 1/2".

# 3.6 INSTALLATION OF SEALANTS

- A. Prior to start of installation of each joint, type according to the details on the drawings and verify that the required proportion of width of joint to depth of joint ration has been secured.
  - 1. One-part general purpose sealant joint size criteria:
    - a. Minimum size of joint shall be four times the anticipated movement.
    - b. Joint depth to be 1/4 inch for joints 1/4 inch to 2 inch in width.
    - c. Maximum joint size approximately 1 1/4" width x 3/8" depth in a single application.
- B. Equipment
  - 1. Apply sealant under pressure with power actuated hand gun or manually operated hand gun, or by other appropriate means.
  - 2. Use guns with a nozzle of proper size, and providing sufficient pressure to completely fill the joints as designed.
  - 3. If multi-component sealants are used, a two blade mixing paddle is required in the mixing process.
- C. Thoroughly and completely mask joints where the appearance of primer or sealant on adjacent surfaces would be objectionable.
- D. Temperature: Install all work of this section when substrate surface temperature is above 40°F and below 140°F unless the applicator obtains prior approval from the sealant manufacturer to install material outside of this temperature range.
- E. Moisture: Do not apply work of this section on surfaces which are wet, damp, or have frost.
- F. Install the sealant in strict accordance with the manufacturer's recommendations, thoroughly filling joints to the recommended width and depth.
- G. Dry tool exposed joints to force material against backing material causing the caulking to obtain full surface contact with the joint interfaces. Finished joint will have a slightly concave surface, be uniform and neatly finished.
- H. Cleaning up:
  - 1. Remove masking tape immediately after joints have been tolled.
  - 2. Keep clean adjacent surfaces free from excess sealant as the installation progresses, using solvent or cleaning agent recommended by the sealant manufacturer.
  - 3. Upon completion of the work of this section, promptly remove from the job site all debris, empty containers, and surplus material derived from this portion of the work.

#### 3.7 ADJUSTING AND CLEANING

- A. Repair of deficiencies:
  - 1. Installations of details noted as deficient during final inspection must be repaired and corrected by applicator, and made ready for re-inspection, within five (5) working days.

- B. Clean-up:
  - 1. Immediately upon job completion, roof membrane, flashing surfaces, ground and surrounding areas shall be cleaned of debris.

# 3.8 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Section 01 60 00.
- B. Protect sealants until cured.

# END OF SECTION

# **DIVISION 9**

# **FINISHES**

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612 PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section includes surface preparation and field application of paints. Paint all exposed structural steel supports, fans, ladders, ventilators, equipment, etc... or as directed by Owner.
- 1.02 RELATED SECTIONS:
  - A. Section 05 50 00 Metal Fabrications
  - B. Section 07 54 10 Thermoplastic Membrane Roofing
  - C. Section 07 62 00 Sheet Metal Flashing and Trim
  - D. Section 07 90 00 Joint Sealers

#### 1.03 REFERENCES

- A. ASTM D16 Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D4442 Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
- C. NACE (National Association of Corrosion Engineers) Industrial Maintenance Painting.
- D. NPCA (National Paint and Coatings Association) Guide to U.S. Government Paint Specifications.
- E. PDCA (Painting and Decorating Contractors of America) Architectural Specifications Manual.
- F. SSPC (Steel Structures Painting Council) Steel Structures Painting Manual.

#### 1.04 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

#### 1.05 SUBMITTALS

- A. Product Data: Submit data on all finishing products.
- B. Samples: Submit two color chip selection charts/wheels illustrating range of colors and textures available for each surface finishing product scheduled.
- C. Submit material safety data sheets for all products used.
- D. Manufacturer's Installation Instructions: Submit special surface preparation procedures and substrate conditions requiring special attention.
- E. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

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- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

# 1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow when relative humidity is outside the humidity ranges, or moisture content of surfaces exceed those required by the paint product manufacturer.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior, unless required otherwise by manufacturer's instructions.

# 1.08 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for finishes.

# PART 2 PRODUCTS

# 2.01 PAINTS AND COATINGS

- A. Manufacturers: Paint
  - 1. Duron Inc.
  - 2. Sherwin Williams.
  - 3. ICI Paint Stores
  - 4. PPG Architectural Finishes.
- B. Manufacturers: Primer Sealers
  - 1. Duron Inc.
  - 2. Sherwin Williams
  - 3. PPG Architectural Finishes.
- C. Aluminum Coating: Type I, heat reflective, non-fibered, aluminum pigmented roof coating that meets the requirements of ASTM D 2824, 2 coats.
- D. Manufacturers: Epoxy Paint:
  - 1. PPG Architectural Finishes.
  - 2. Sherwin Williams.
  - 3. Benjamin Moore.

# 2.02 COMPONENTS

- A. Coatings: Ready mixed, except field-catalyzed coatings. Prepare coatings:
  - 1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
  - 2. For good flow and brushing properties.
  - 3. Capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.
- C. Patching Materials: Latex filler.
- 09 90 00-2

PAINTS AND COATINGS

# D. Fastener Head Cover Materials: Latex filler.

# PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verify that surfaces or substrate conditions are ready to receive Work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop applied primer for compatibility with subsequent cover materials.
- D. Coordinate with other trades, ensure all joints are sealed and caulked. Prime paint at joints when necessary before finish coats.

#### 3.02 PREPARATION

- A. Surfaces: Correct defects and clean surfaces, which affect work of this section. Remove existing coatings that exhibit surface and/or loose defects.
- B. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- C. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- D. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- E. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- G. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

#### 3.03 EXISTING WORK

A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

#### 3.04 APPLICATION

- A. Apply products in accordance to manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

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PAINTS AND COATINGS

- C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- D. Sand wood and metal surfaces lightly between coats to achieve required finish.
- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

# 3.05 CLEANING AND SCHEDULE

- A. Collect waste materials that may constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Steel (Ferrous Metals) Normal and atmospheric conditions (All structural and misc. steel).
  - 1. First coat touch up primer: PPG 6-212 3.6 mwf/coat.
  - 2. Second and third coats: PPG Speedhide all-purpose house paint. Low-gloss, oil alkyd 4.0 mwf/coat.
- C. Zinc Coated Metal Galvanized Steel
  - 1. Location: All exterior zinc coated or galvanized steel miscellaneous metals and lintels.
  - 2. System: Urethane/Acrylic
    - a. Surface: Preparation SPG-9E
    - b. Primer: Pitt-Tech 90-708 @ 5.1 WFT
    - c. Finish (2 coats): Manor Hall 75-line @ 3.2 WFT per coat.
- D. Roof top equipment paint all exhaust fan housings, vents, and other exposed items with two coats of aluminum coating. Do NOT coat name or data plates.
- E. Ferrous Metals: (Ladders if not galvanized steel)
  - 1. 1<sup>st</sup> Coat: Primer Speedhide water base inhibitive metal primer, 90-172 white WFT 4.8 mils.
  - 2<sup>nd</sup> & 3<sup>rd</sup> Coats: Pitt-Glaze Acrylic-Epoxy Semi-glass coating, 16 line, WFT 6.0 mils. Color as selected.

# END OF SECTION
# **DIVISION 23**

# MECHANICAL

BUSHEY FEIGHT MORIN ARCHITECTS INC. 473 NORTH POTOMAC STREET HAGERSTOWN, MARYLAND 21740 301-733-5600 FAX: 301-733-5612

# PART 1 – GENERAL

# 1.01 SUMMARY

- A. This section specifies requirements for the following Scope of Work:
  - 1. Mechanical disconnection, extension, shortening, and/or reconnection shall be performed in accordance with 2018 International Mechanical Code with applicable local amendments.
  - 2. Electrical disconnection, extension, shortening, and/or reconnection shall be performed in accordance with the 2017 International National Electric Code.
  - 3. Plumbing work shall be performed in accordance with the 2018 International Plumbing Code and the Maryland State Plumbing Regulations.
  - 4. Details, not shown or specified but necessary for proper installation and operation shall be included within the work as though specified herein.

# 1.02 RELATED DOCUMENTS

- A. Drawings and contract documents, including Section 01 01 00 Summary of Work, apply to this section. Owner will specify which mechanical units and plumbing items need to be replaced, altered, or removed.
- B. Related Sections
  - 1. Section 02 22 50 Demolition
  - 2. Section 05 31 00 Steel Deck
  - 3. Section 07 09 10 Preparation for Re-Roofing
  - 4. Section 07 22 00 Roof and Deck Insulation
  - 5. Section 07 54 10 Thermoplastic Membrane Roofing
  - 6. Section 07 54 51 Fluid-Applied Membrane Roofing and Flashing
  - 7. Section 07 62 00 Sheet Metal Flashing and Trim
  - 8. Section 07 90 00 Joint Sealers
  - 9. Section 09 90 00 Paints and Coatings

# 1.03 SUBMITTALS

A. Submit manufacturer's product data and installation instructions.

# 1.04 QUALITY ASSURANCE

- A. Qualification of Manufacturers:
  - 1. Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of satisfactory production acceptable to the Engineer.
- B. Qualification of Contractors:
  - 1. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper installation of the work of this Section and of the work in the other required sections.
  - 2. Contractors are to be licensed and qualified to make mechanical installations.
- C. Codes and Standards:

a.

- 1. All equipment furnished under this Specification shall be free from defects in workmanship and materials. All equipment, systems and work shall meet the requirements of the latest edition published by the following organizations as minimum standards.
  - National Fire Protection Association.

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- b. Air Moving and Conditioning Association.
- Underwriter's Laboratories, Inc. c.
- d. American Society of Heating, Refrigeration, Air Conditioning Engineers.
- American National Standards Institute. e.
- f. Local Plumbing Regulations.
- Sheet Metal and Air Conditioning Contractors National Association. g.
- Local Gas Supplier Requirements. h.
- 2. All work shall also meet the minimum requirements of codes and standards of local and state agencies having jurisdiction.
- D. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus and drawings required to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.
- E. Permits and Inspections:
  - 1. Obtain and pay for all necessary drawings, permits and certificates required by the various governing agencies having jurisdiction. Deliver to the Architect, all permits for construction before starting work and certificates of test, inspection and approval before the date of final acceptance of the job.

# PART 2 – PRODUCTS

#### 2.01LINESET INSULATION

- Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with A. ASTM C 534, Type I for tubular materials.
  - Products: Subject to compliance with requirements, provide one of the following: 1. Aeroflex USA Inc.; Aerocel. a.
    - b. Armacell LLC: AP Armaflex.
    - RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180. c.

#### 2.02 PLUMBING MATERIALS

- A. Rain Leader Piping:
  - Poly Vinyl Chloride (PVC); DWV pipe, ASTM D2665, Schedule 40, plain ends 1.
  - 2. Socket: ASTM D2665
  - 3. Solvent Cements: per ASTM D2564
  - Tees, Wyes, Elbows, Etc.: ASTEM D2665, Schedule 40 4.
- B. Parapet Scupper: Watts Model RD-270, or Zurn Z-189. Comparable products as manufactured by Jay R. Smith, or Josam, may be submitted for review. Cast iron with nickel bronze grate.
- C. Downspout nozzle: Zurn Model Z-199, or Watts Model RD-940. Comparable product as manufactured by Jay R. Smith, or Josam may be submitted for review. (Bronze) Size as required for piping.
- D. Downspout boot:
  - 5x4 Downspout boot, Zurn Model Z91, or Watts Model RD-980. Comparable 1. product as manufactured by Josam or Jay R. Smith may be submitted for review.
  - 2. 4x3 Downspout boot, Zurn Model Z192, or Watts Model RD-970. Comparable product as manufactured by Josam or Jay R. Smith may be submitted for review.
  - Round inlet and outlet downspout boot, Zurn Model Z191-RD, or comparable 3. product as manufactured by Josam or Jay R. Smith.

4. Escutcheons: Manufactured wall, ceiling, and floor plates; deep pattern type where required to conceal protruding fittings and sleeves.

# PART 3 - EXECUTION

# 3.01 GENERAL

- A. Mechanical, electrical, and associated work shall be performed by licensed tradesman as an approved contractor, pre-qualified by Washington County Public Schools, and shall comply with the applicable code requirements.
- B. Wherever possible match the existing mechanical and electrical components.
- C. Handle, store, and protect equipment and materials to prevent damage before and during installation.

## 3.02 MECHANICAL UNITS

- A. Where mechanical fans, vents, ductwork, etc...is removed from curbs to allow roofing/flashing to be installed, re-set units and re-attach all fasteners.
- B. If units are damaged, replace units as necessary or repair minor dents in metal housing. Make sure all fasteners are re-installed.
- C. Extend all piping or connections due to increased curb heights.

# 3.03 ELECTRICAL

- A. Disconnect power feed to electrically powered units and terminate in a safe manner to allow roofing operations.
- B. Provide new junction box in vicinity of unit if existing wiring will not provide enough slack when re-setting unit on curbs.
- C. Extend wiring to unit to re-connection.
- D. Re-power unit, ensure operations.
- E. Scope also applicable to low voltage, communications, or other wiring to units or roof top equipment to allow proper installation of flashing conduit or wiring at roof penetrations.

## 3.04 PLUMBING

- A. Where existing pipe vents penetrate roof, remove existing if in deteriorated condition. Install new of similar condition.
- B. Where existing top of pipe is less than 12" above finished roof surface. Provide extension with coupling of similar material as existing pipe to exceed min. clearance.

# END OF SECTION