



PROJECT MANUAL

Project:

**2021 ROOFING REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP HIGH SCHOOL DISTRICT #121
34090 N. ALMOND ROAD
GURNEE, IL 60031**

Locations:

**WARREN TOWNSHIP HIGH SCHOOL
ALMOND ROAD CAMPUS
34090 N. ALMOND ROAD
GURNEE, IL 60031**

**O'PLAINE CAMPUS
500 N. O'PLAINE ROAD
GURNEE, IL 60031**

Prepared for:

**Warren Township High School District #121
34090 N. Almond Road
Gurnee, IL 60031
c/o Mr. Michael Engel
Assistant Superintendent for Business Services
O: (847) 548-7055
E: mengel@wthhs.net**

Prepared By:

**C. E. Crowley & Associates, Inc.
Roofing & Waterproofing Consultants
333 East IL Rte. 83, Suite #B2
Mundelein, IL 60060-4299
OFFICE/VOICE-MAIL PAGER: (847) 662-8132
MOBILE: 847-980-4598
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EMAIL: ccrowley@cecaroof.com**



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SECTION 00 0100

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AIA SHORT FORM CONTRACT FOR A STIPULATED SUM

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DISTRICT FACILITY LOCATIONS:

Almond Road Campus

34090 North Almond Road, Gurnee IL 60031

O'Plaine Campus

500 North O'Plaine Road, Gurnee IL 60031



Division 00
SECTION 00 1119

REQUEST FOR PROPOSALS

TO: Bidding Contractors

PROJECT IDENTIFICATION:

CLIENT: Warren Township High School District #121

PROJECT NAME: 2021 ROOFING WORK FOR ALMOND ROAD AND O'PLAINE CAMPUSES

CECA PROJECT ID: 021-027

DESCRIPTION OF THE WORK:

OWNER/AGENT:	WARREN TOWNSHIP HIGH SCHOOL DISTRICT #121
ADDRESS:	34090 N. Almond Road.
	Gurnee, IL 60031
PHONE:	(847) 548-7055
OWNER CONTACT:	Mr. Michael Engel
EMAIL:	mengel@wthsh.net
PROJECT NAME:	2021 ROOFING WORK FOR ALMOND ROAD AND O'PLAINE CAMPUSES
CECA JOB #:	021-027
THE WORK (Almond Campus):	All as Specified and Detailed: Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane. Inspect and repair all metal coping lap joints along all roof areas and as noted on plans. Roof repairs at approximately (20) separate areas of roof to halt existing water entry in designated areas as specified and detailed. Provide up to (10) exploratory openings at designated areas of roofing to investigate any damage to the roofing system.
THE WORK (O'Plaine Campus)	All as Specified and Detailed: Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane. Inspect and repair all metal coping lap joints along all roof areas and as noted on plans. Roof repairs at approximately (15) separate areas of roof to halt existing water entry in designated areas as specified and detailed. Provide up to (6) exploratory openings at designated areas of roofing to investigate any damage to the roofing system.

BID INFORMATION:



The Warren Township High School District #121 hereby provides 10 day minimum public notice of a request for bids from qualified contractors only for the specified 2021 Roofing Repair Work for the Almond Road and O'Plaine Campuses in Gurnee, IL. The scope of work includes repairs to the existing roofing systems including ballasted and non-ballasted EPDM roofs, sheet metal copings, and related mechanical, electrical, and plumbing disconnects and re-connects, according to specifications and drawings prepared by C. E. Crowley & Associates, Inc., Roofing/Waterproofing Consultants, of Mundelein, IL. All work will require a two year contractor warranty in addition to manufacturer warranties for specified materials.

Bidding Contractors are required to attend a **MANDATORY** Pre-Proposal Walk-through on **Monday, November 22nd, 2021** starting at **10: 30 AM**. A Pre-Proposal meeting will be held at the **Warren Township High School District #121 Offices Conference Room located at 34090 North Almond Road in Gurnee, Illinois** to discuss the scope and requirements of this project then proceed immediately to each of the roof areas within the scope of work starting at the Almond Road Campus followed by a walk-through at the O'Plaine Campus. All Requests for Information are due by Monday, November 29th at NOON to C.E. Crowley & Associates, Inc.; responses will be provided by Wednesday, December 1st at NOON. Bids are DUE and will be privately opened at the **Warren Township High School District #121 Offices at 3:00 PM on Friday, December 6th, 2021**.

All Bids must be submitted on forms provided in the Project Manuals. Bid forms may be submitted electronically to Mr. Michael Engel - WTHS District #121 (mengel@wth.net) AND simultaneously to Mr. Chuck Crowley – CECA (ccrowley@cecaroof.com). Email bids are acceptable in PDF format provided they are confirmed with an exactly matching hard-copy within 48 hours to:

ATTN: 2021 WTHS SEALED ROOF BIDS
Mr. Michael Engel
Assistant Superintendent for Business Services
Warren Township High School District #121
34090 N. Almond Road
Gurnee, IL 60031
O. (847) 548-7055
E: mengel@wth.net

The Successful Roofing Bidder will act as General Contractor for any mechanical/electrical/masonry/plumbing work required. Lump Sum Bids are requested reflecting economies of scale; however each Building/Campus must be Billed Separately. A 5% Bid Bond or Cashier's Check in the amount of 5% of the total proposal must accompany each proposal. Project Manual, including Specifications, Plans and Detail Drawings will be provided to all prospective quoting firms in attendance during the Mandatory Pre-Proposal Walk-through and as well as electronically to bidders of record. Additional copies of the Project Manuals will be available thereafter at the WTHS District #121 Offices or from C. E. Crowley & Associates, Inc., 333 East IL Route 83, Suite #B2, Mundelein, IL 60060-4299; Phone: (847) 662-8132; Fax: 847-557-1314. A deposit of \$250 per manual will be returned upon Contractors submission of a valid bid. Receipt of the deposit is REQUIRED FOR A VALID BID. There is a single manual for all Buildings and Phases of the Work.

Quoting Contractors must:

- ❖ Be licensed roofing contractors in the State of Illinois
- ❖ Not have been convicted of either bid-rigging or bid rotation under any current state and federal laws
- ❖ Have a written Sexual Harassment Policy in place and is in full conformance with current state and federal laws.
- ❖ Have signed in at the Mandatory Pre-Proposal Walk-Thru
- ❖ Be able to demonstrate qualification as a certified warranty-approved contractor with one of the Primary System Manufacturer(s) quoted for Warranty purposes prior to the date of the Bid Invitation.
- ❖ Comply with WTHS District #121 Requirements for Building Access and Security
- ❖ Comply with all other proposal instructions in the Project Manual



FORM A001

12/01/03

NOTICE TO BIDDERS (RCI) – CECA Request for Proposals – Section 00 1119

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All Bids shall be submitted on the CECA Section 00 4133 Proposal Form (RCI, Bid Proposal Form, A006), forming part of the Bid Package and shall be completed as required in the CECA Section 00 2113 Proposal Instructions (RCI, Instructions to Bidders, Form A002).

By: Charles E. Crowley, Jr., CSI, IIBEC

November 2, 2021

Design Team Lead

Date



FORM A001

12/01/03

NOTICE TO BIDDERS (RCI) – CECA Request for Proposals – Section 00 1119

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DIVISION 1

Section 00 2113

PROPOSAL INSTRUCTIONS

PROJECT IDENTIFICATION

PROJECT NAME: 2021 Roofing Work for Almond Road and O'Plaine Campuses

CECA JOB #: 021-027

SITE ADDRESS: Almond Campus - 34090 N. Almond Road, Gurnee, IL 60031

O'Plaine Campus - 500 N. O'Plaine Road, Gurnee, IL 60031

The Invitation For Bids (IFB) consists of the Notice, this Instructions To Bidders, the Bid Form, the General Conditions of the Construction Contract, the Supplemental General Conditions (if any), the Special Conditions (if any), the Forms to be used, the Scope of Work as described by the Plans and Specifications, other documents listed in the Specifications, and any addenda which may be issued, all of which request qualified bidders to submit competitive prices or bids for providing the described work on the project.

1. CONDITIONS AT SITE OR STRUCTURE:

Bidders shall visit the Project Site and shall be responsible for ascertaining pertinent local conditions such as location, accessibility, general character of the site or building, and the character and extent of existing work within or adjacent to the site. Claims as a result of failure to carry out comprehensive site inspections, will not be considered by the Owner. (See Section 7 of the General Conditions entitled "Conditions at Site.")

2. EXPLANATIONS TO BIDDERS:

Discrepancies, omissions or doubts as to the meaning of drawings and specifications shall be communicated in writing to the Design Team Lead for interpretation. Bidders must so act to assure that questions reach the Design Team Lead at least six (6) days prior to the time set for the receipt of bids to allow a sufficient time for an addendum to reach them before the submission of their bids. If, however, there are two (2) weeks or less between the first bid advertisement and the time set for receipt of bids, then bidders must submit questions in such a manner that they reach the Design Team Lead no later than three (3) days prior to the time set for receipt of bids. Any interpretation made will be in the form of an addendum to the plans and/or specifications, which will be forwarded to all bidders, and its receipt shall be acknowledged by the bidder on Bid Forms.

3. TIME FOR COMPLETION:

- (a) "Time for Completion" shall be designated by the Owner on the Invitation for Bids or other prebid documents and shall mean the number of consecutive calendar days following the issuance of the Notice to Proceed which the Contractor has to substantially complete all Work required by the Contract. In some instances, the Time for Completion may be stated in the form of a Contract Completion Date based on a stipulated date of Notice to Proceed.

Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.

- (b) When the Notice to Proceed is issued, it will state a Contract Completion Date, which has been set by the Owner based on date of the Notice to Proceed and the Time for Completion.
- (c) The Contractor, in preparing and submitting his bid, is required to take into consideration normal weather conditions. Normal weather does not mean statistically average weather, but rather means a range of weather patterns, which might be anticipated, based on weather data for the past ten (10) years, (i.e., conditions which are not extremely unusual). Normal weather conditions shall be determined from the public historical records available, such as the U.S. Department of Commerce, local Climatological Data Sheets, National Oceanic and Atmospheric Administration / Environmental Data and Information Service, National Climatic Center or National Weather Service. The data sheets to be used shall be those for the locality or localities closest to the site of the work. No additional compensation will be paid to the Contractor because of adverse weather conditions; however, an extension of time for abnormal weather will be considered by the Owner as indicated in the General Conditions.





- (d) If the Owner designates the public historical climatological records to be used, the bidder shall use those records in computing bids. If the Owner requests each bidder to indicate the records used, each bidder may select the public historical climatological records upon which he will rely in computing his bid. In the latter situation, each bidder shall designate in the space provided which of such climatological data records he used when formulating his bid. A bidder's failure to designate climatological records when submitting a bid shall not disqualify his bid, but shall constitute a waiver of the right to claim any extension of time as the result of abnormal weather. In either case, the bid submitted and the time of completion shall be presumed to have been based upon normal weather derived from the climatological records used.

4. PREPARATION AND SUBMISSION OF BIDS:

- (a) Bids shall be submitted on the forms furnished, or copies thereof, and shall be signed in ink. Erasures or other changes in a bid must be explained or noted over the signature of the bidder. Bids containing any conditions, omissions, unexplained erasures, alterations or items not called for in the proposal, or irregularities of any kind, may be rejected by the Owner as being incomplete or non-responsive.
- (b) Each bid must give the complete legal name and full business address of the Bidder and be signed by the Bidder, or the Bidder's authorized representative, with the Bidder's usual signature. Bids by partnerships must be signed in the partnership name by one of the general partners of the partnership or an authorized representative, followed by the designation or title of the person signing, and a list of the partners. Bids by corporations must be signed with the legal name of the corporation followed by the name of the state in which it is incorporated and by the signature and title of the person authorized to bind it in this matter. The name of each person signing shall be typed or printed below the signature. A signature on a bid by a person who identifies his title as "Resident," "Secretary," "Agent" or other designation without disclosing the principal firm, shall be held to be the bid of the individual signing. When requested by the Owner, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished. Trade or fictitious names may be referenced by using "t/a ____," but bids shall be in the legal name of the person or entity submitting the bid.
- (c) The Bidder must also place his or her Social Security Number (SSN) if an individual, or its Federal Employer Identification Number (FEIN) if a proprietorship, partnership, corporation, Limited Liability Company or other legal entity in the space provided on the Bid Form.

5. BID GUARANTEE:

- (a) The Total Base Bid plus all Additive Bid Items shall be accompanied by a Bid Bond payable to the Owner as obligee in an amount equal to five percent (10%) of the amount of the bid, unless waived by the Notice of Invitation for Bids. The Bid Bond must be issued by a surety company which is legally authorized by the state of the jurisdiction of the Work to do fidelity and surety business in that state. Such Bid Bond shall guarantee that the Bidder will not withdraw his bid during the period of thirty (30) days following the opening of bids, that if his bid is accepted, he will enter into a formal contract with the Owner in accordance with the Contract Between Owner and Contractor, RCI Form B003/B003SF, included as a part of the IFB Documents; that he will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond on the forms included in the IFB documents; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after he has received notice of acceptance of his bid, the Bidder shall be liable to the Owner for the difference between the amount specified in said bid and such larger amount for which the Owner may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the damage to the Owner on account of the default of the bidder in any particular hereof.
- (b) The Bid Bonds or other bid security will be returned to all except the three lowest bidders after the formal opening of bids. The remaining Bid Bonds or bid security will be returned to the bidders after the Owner and the accepted bidder have executed the Contract and the Performance Bond and the Payment Bond have been approved by the Owner.
- (c) If the required Contract and bonds have not been executed within thirty (30) days after the date of the opening of the bids, then the bond or other bid security of any bidder will be returned upon his request, provided he has not been notified of the acceptance of his bid prior to the date of such request.





6. WITHDRAWAL OR MODIFICATION OF BIDS:

Bids may be withdrawn or modified by withdrawal or modification may be made by the person signing the bid or by an individual(s) who is authorized by him on the face of the bid. Written modifications may be made on the bid form itself, on the envelope in which the bid is enclosed, or on a separate document. Written modifications, whether the original is delivered or faxed, must be signed by the person making the modification or withdrawal, and fax messages must be sent in the name of said person. Unless otherwise specified by the Bidder, the modification will be applied to the TOTAL BASE BID amount shown on the Bid Form.

7. RECEIPT OF BIDS:

- (a) Bids will be received at or before the date and the hour and at the place stipulated in the Invitation for Bids as may be modified by subsequent Addenda.
- (b) It is the responsibility of the bidder to assure that his bid and any bid modifications are delivered to the place designated for receipt of bids by the date and hour (deadline) set for receipt of bids. No bids or bid modifications submitted or offered after the date and hour designated for receipt of bids will be accepted or considered.
- (c) The Bid Officer is the Owner's representative designated to receive bids at the time and place noted in the IFB and to open the bids received at the appointed time.

8. OPENING OF BIDS:

- (a) Bids will be opened at the time and place stated in the Invitation for Bids or as modified by subsequent Addenda, and their contents publicly announced. The Bid Officer shall decide when the specified time for bid opening has arrived. No responsibility will be attached to any officer or agent for the premature opening of a bid not properly addressed and identified. Bid opening shall be no sooner than 24 hours after the time set for receipt of bids.

9. ERRORS IN BIDS:

A Bidder may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn.

The Bidder must submit to the Owner his original work papers, documents and materials used in the preparation of the bid within one day after the date fixed for submission of bids. Such work papers must be submitted in an envelope or package separate and apart from the envelope containing the bid and marked clearly as to the contents and shall be delivered to the Owner by the bidder in person or by registered mail prior to the time fixed for the opening of bids and may not be withdrawn until after the two-hour period (referred to later) has elapsed. The bids shall be opened at the time designated in the IFB, as amended by addendum. Bid opening is usually one day following the time fixed by the Owner for the submission of bids, but no sooner. Once the bids have been opened, the Bidder shall have two (2) hours after the opening of bids within which to claim in writing any mistake as defined herein and withdraw his bid. The Contract shall not be awarded by the Owner until such two-hour period has elapsed. Such mistake shall be proved only from the original work papers, documents and materials delivered to the Owner prior to bid opening. This procedure shall not apply to when the entire bid is required to be submitted on a unit price basis.

Failure of a Bidder to submit his original work papers, documents and materials used in the preparation of his bid on or before the time, date and place required shall constitute a waiver by that Bidder of his right to withdraw his bid due to a mistake.

No bid may be withdrawn under this section when the result would be the awarding of the Contract on another bid of the same Bidder or of another bidder in which the ownership of the withdrawing Bidder is more than five (5%) percent.

No Bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the Contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted. The person or firm to whom





the Contract was awarded and the withdrawing Bidder are jointly liable to the Owner in an amount equal to any compensation paid to or for the benefit of the withdrawing Bidder without such approval.

If a bid is withdrawn under authority of this section, the lowest remaining bid shall be deemed to be the low Bidder on the project.

10. REJECTION OF BIDS

The Owner reserves the right to cancel the Invitation For Bids/Request for Proposals, to reject any and all bids at its sole discretion when such rejection is in the interest of the Owner, or to reject the bid of any bidder who is determined to be not responsive or not responsible.

11. DETERMINATION OF RESPONSIBILITY

Each Bidder shall be prepared, if so requested by the Owner, to present evidence of his experience, qualifications and financial ability to carry out the terms of the Contract

Prior to award of the Contract, an evaluation will be made to determine if the low Bidder has the capability, in all respects, to perform fully the contract requirements and the moral and business integrity and reliability which will assure good faith performance, and who has been prequalified, if required. Factors to be evaluated include, but are not limited to:

- (a) sufficient financial ability to perform the contract as evidenced by the Bidder's ability to obtain payment and performance bonds from an acceptable surety;
- (b) appropriate experience to perform the Work described in the bid documents;
- (c) any judgments entered against the Bidder, or any officers, directors, partners or owners for breach of a contract for construction;
- (d) any substantial noncompliance with the terms and conditions of prior construction contracts with a public body without good cause where the substantial noncompliance is documented; or
- (e) a conviction of the Bidder or any officer, director, partner, project manager, procurement manager, chief financial officer, or owner in the last five years of a crime relating to governmental or nongovernmental construction or contracting; payment and performance bonds an acceptable surety;
- (f) any current debarment of the contractor, any officer, director or owner, from bidding or contracting by any public body of any State, any State agency, or any agency of the Federal government.

The Owner reserves the right to disqualify or refuse to accept the bid of any bidder who has been convicted, or entered a plea of guilty or *nolo contendere*, in any Federal or State court to any charge involving any unlawful, corrupt or collusive practice involving a public contract whether Federal, State, or local, or who has been determined in any judicial proceeding to have violated any antitrust, bid-rigging or collusive practice statute in connection with any public contract, or against whom such formal criminal prosecution or other judicial proceeding has been initiated.

A Bidder who, despite being the apparent low bidder, is determined not to be a responsible bidder shall be notified in writing.

12. AWARD OF CONTRACT

- (a) **Basis for Contract Award:** The Contract, if awarded, will be awarded to the lowest responsive and responsible Bidder, if any, provided his bid is reasonable and it is in the best interest of the Owner to accept it and subject to the Owner's right to reject any and all bids and to waive informality in the bids and in the bidding. The Bid Form may contain a multi-part Base Bid and may contain Additive Bid Items. Determination of the lowest responsible Bidder, if any, will be based on the Total Base Bid amount including any properly submitted bid modifications plus as many Additive Bid Items taken in sequence as the Owner in its discretion chooses to Award. In the event that the Total Base Bid from the lowest responsible bidder exceeds available funds, the Owner may negotiate the Total Base Bid amount with the apparent low Bidder to obtain a contract price within available funds.
- (b) **Informalities:** The Owner reserves the right to waive any informality in the bids when such waiver is in the interest of the Owner.





- (c) **Negotiation With Lowest Responsible Bidder:** If award of a contract to the lowest responsive and responsible Bidder is precluded because of limitations of funds, the Owner reserves the right to negotiate the Total Base Bid amount with the lowest responsive, responsible Bidder to obtain a contract price within the available funds. This may involve changes in either the features or Scope of the work included in the Base Bid. Such negotiations with the apparent low Bidder may include reducing the quantity, quality, or other cost saving mechanisms involving items in the Total Base Bid. Negotiations for Additive Bid Items are excluded. The Owner shall notify the lowest responsive and responsible Bidder that such a situation exists and the Owner and Bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable Contract can be negotiated, the changes to the Invitation for Bid documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the Contract. If an acceptable Contract cannot be negotiated, the Owner shall terminate negotiations and reject all bids.

13. CONTRACT SECURITY:

For contracts of more than \$500,000, the Standard Performance Bond (RCI Form B006) and the Standard Labor and Material Payment Bond (RCI Form B005) shall be required, as specified in the Invitation for Bids documents, unless waived in the Notice of Invitation for Bids. See the General Conditions. The Owner reserves the right to require such bonds for contracts less than \$500,000. If the Owner so elects, the requirement shall be set forth in the Invitation For Bids.

14. BUILDING PERMITS:

The successful Contractor shall apply for all applicable building permits. The Contractor shall include and pay all costs associated with the application for and payment of local building permits within the Bid. The successful Contractor shall forward all receipts for permits to the Design Team Lead & Owner.

15. BID DOCUMENTS:

Bid Documents are the property of the Owner and a deposit in an amount as stated in the Invitation for Bids is required for each set as a guarantee of the safe return of the documents within ten (10) days of bid opening. This deposit will be refunded in full on not more than two sets to each bidder who submits a prime contract bid and who returns the documents in good condition. Refund will be made on sets to non-bidders and subcontractors in the amount of half of the deposit when the sets are returned in good condition within 10 days. A non-refundable shipping charge may be required if stated in the Notice or the Invitation For Bids.

16. EQUAL EMPLOYMENT OPPORTUNITY AGREEMENT

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

- (a) The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, religion, sex, ancestry, age, citizenship status, marital status, physical or mental disability unrelated to the individual's ability to perform the essential functions of the job, association with a person with a disability, or unfavorable discharge from military service, or any other form of discrimination prohibited from time to time under the Illinois Human Rights Act.
- (b) The contractor will take affirmative action to insure the applicants are employed, and that employees are treated during employment without regard to their race, creed, color, national origin, religion, sex, ancestry, age, citizenship status, marital status, physical or mental disability unrelated to the individual's ability to perform the essential functions of the job, association with a person with a disability, or unfavorable discharge from military service, or any other form of discrimination prohibited from time to time under the Illinois Human Rights Act. Such action will include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contractor setting for the provisions of the nondiscrimination clause.
- (c) Contractor hereby agrees that this contract shall be performed in compliance with all requirements of the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq., as amended from time to time, and that the contractor and its subcontractors shall not engage in any prohibited form of discrimination in employment as defined in that Act. The contractor shall maintain, and require that its subcontractors maintain, policies of equal employment, which shall prohibit discrimination against any employee or applicant for employment on any of the grounds set forth above.





Contractors and all subcontractors shall comply with all requirements of the Act and of the rules of the Illinois Department of Human Rights with regard to posting information on employee's rights under the Act.

- (d) The contractor will, in all solicitations or advertisement for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin, ancestry, citizenship status, age, marital status, physical or mental disability unrelated to the individual's ability to perform the essential functions of the job, association with a person with a disability, or unfavorable discharge from military service, or any other form of discrimination prohibited from time to time under the Illinois Human Rights Act.
- (e) The contractor will cause the foregoing provisions to be inserted in all Sub-contracts for any work covered by this contract so that such provisions will be binding upon each sub-contractor, provided that the foregoing provisions shall not apply to contracts or sub-contractors for standard commercial supplies or raw materials.
- (f) In case of conflicting provisions, the conditions contained in this document shall prevail over the standard general conditions; special conditions, if any, shall prevail over these general conditions; and drawings and specifications shall prevail over general and special conditions.

17. SEXUAL HARASSMENT POLICY:

Pursuant to Section 2-105 (A)(4) of the Illinois Human Rights Act, the contractor and each subcontractor shall adopt and maintain written sexual harassment policies that shall include, at a minimum, the following information:

- (a) The illegality of sexual harassment;
- (b) The definition of sexual harassment under state law;
- (c) A description of sexual harassment, utilizing examples;
- (d) The contractor/subcontractor's internal complaint process, including penalties;
- (e) The legal recourse, investigative and complaint process available through the Department and Commission (of Human Rights);
- (f) Directions on how to contact the Department and the Commission; and
- (g) Protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act.

A copy of these policies shall be provided to the owner or the architect/consultant on request.

18. INSURANCE

The successful bidder shall also provide owner with a certificate of insurance for the amount specified as follows, and such certificate or certificates shall be delivered to the owner prior to the date for commencement of the work as set forth in the contract:

- (a) Compensation Insurance

Workman's compensation insurance with limits as prescribed by the laws of the State of Illinois and employer's liability insurance with minimum limits of \$100,000.

19. HOLD HARMLESS AND INDEMNIFICATION

The contractor shall assume all liability for, and shall protect, defend, indemnify and hold harmless, the owner, their officers, employees, servants and agents, from and against all claims, actions, suites, judgments, costs, losses, expenses and liabilities of whatsoever kind or nature including legal fees incurred by owner arising out of:

- (a) A. Any infringement (actual or claimed) of any patents, copyrights, or trade names by reason of any work performed or to be performed by the contractor under this contract or by reason of anything to be supplied by the contractor pursuant to this contract.
- (b) Bodily injury, including death, to any person or persons (including contractor's officers, employees, agents and servants) or damage to or destruction of any property, including the loss of use thereof: - Arising directly or indirectly





out of the use, misuse or failure of any machinery or equipment used directly or indirectly in the performance of this contract

- (c) Bidders must satisfy themselves, upon examination of these specifications, as to the intent of the specifications. After the submission of the proposal, no complaint or claim that there was any misunderstanding in regard to the items listed for bidding will be entertained from either party.
- (d) Bidders shall not include taxes in their quotations, which school districts are not subject to; namely, Retailers Occupation Tax (both State and Local), Sales Tax of any kind, Service Use Tax, and any other such applicable tax.
- (e) Each bid must be accompanied by a Certificate Regarding Sexual Harassment Policy certifying that the bidder has a written sexual harassment policy as required by section 2-105 of the Illinois Human Rights Act (775 ILCS 5/2-105). The form of the Certificate Regarding Sexual Harassment Policy is included within the bid documents. No bid shall be considered responsive unless accompanied by a Certificate Regarding Sexual Harassment Policy.
- (f) Each bid must be accompanied by a Certificate of Eligibility to Bid certifying that the bidder is not barred from bidding on public contracts due to a conviction for the violation of section 33E-3 (Bid Rigging) or section 33E-4 (Bid Rotating) or the Illinois Criminal Code or 1961 (720 ILCS 5/33E-3, 5/33E-4). The form for Certificate of Eligibility to Bid is included within the bid documents. No bid shall be considered responsive unless accompanied by the signed Certificate of Eligibility to Bid.
- (g) Each bid from a contractor with 25 or more employees must be accompanied by a Certificate of Compliance with the Illinois Drug-Free Workplace Act certifying that the bidder shall provide a drug-free workplace for employees engaged in the performance of work under the contract and that the bidder is not barred from bidding on public contracts due to a violation of the Illinois Drug-Free Workplace Act (30 ILCS 1 et seq.).
- (h) Each bid from an individual must be accompanied by the Certificate of Compliance with the Illinois Drug-Free Workplace Act certifying that the contractor shall not engage in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance in the performance of the contract and that the contractor is not barred from bidding on public contracts due to a violation of the Illinois Drug-Free Workplace Act. The forms of the Certificate of Compliance with the Illinois Drug-Free Workplace Act are included within the bid documents. No bid shall be considered responsive unless accompanied by a signed certificate where applicable. The contract award shall be subject to suspension of payments or termination, or both, if it is determined that the bidder has made false certification or that the bidder has violated the certification by failing to carry out the requirements of the Illinois Drug-Free Workplace Act.
- (i) The successful bidder must enter into an agreement using the AIA Short Form Contract for a Stipulated Sum.

20. PREVAILING WAGE- DEPARTMENT OF LABOR STANDARDS:

U.S. Department of Labor and Illinois Department of Labor standards shall apply to this work, including, but not limited to, Equal Employment Opportunity requirements, the "Illinois Prevailing Wage Act" (820 ILCS 130/0.01 et. seq.), the "Employment of Illinois Workers on Public Works Act (30 ILCS 570/0.01 et. seq.), the Illinois Human Rights Act (775 ILCS 5/1-101 et. seq.) and the Illinois Drug Free Workplace Act (30 ILCS 580/1).

- (a) The successful qualifiers, as mandated by the Prevailing Wage Act, must submit with all invoices and or pay requests a monthly certified payroll to District 131, accompanied by a certification that the records are true and accurate, the hourly rate paid to each worker is no less than the applicable prevailing wage and that the contractor is aware that knowingly filing a false certified payroll is a Class B misdemeanor.
- (b) Also, in accordance with the Prevailing Wage Act any contractor or sub-contractor, or agent or representative thereof, doing public work who neglects to keep, or cause to be kept, an accurate record of the names, occupation and actual wages paid to each laborer, worker and mechanic employed by him, in connection with the public work, or who refuses to allow access to same at any reasonable hour to any person authorized to inspect same under this Act is guilty of a Class A misdemeanor, which has a penalty of imprisonment of up to one year.

21. CRIMINAL BACKGROUND CHECKS:

In accordance with section 10-21.9 of the Illinois School Code, Warren Township High School District #121, in conjunction with the Illinois Department of Law Enforcement, is required to obtain a criminal background check for all employees working on school grounds.





As a condition for any employee of the successful qualifiers performing services on any school grounds, the successful qualifiers must submit a list of such employees, with the information required to be submitted to the Department of Law Enforcement, and a signed consent from each such employee authorizing the investigation. Suppliers agree to execute any forms or documents required for this purpose.

22. MINORITY/LOCAL-OWNED BUSINESS:

The successful bidder shall, as contemplated by Section 10-20.40 of the Illinois School Code, certify to District #121:

- (a) whether the bidder is certified by a certifying agency in the State of Illinois as (or eligible to be certified as) a minority owned business, a female owned business, or a business owned by a person or persons with disabilities as defined in the Business Enterprise for Minorities, Females and Persons with Disabilities Act [30 ILCS 575/1 et.seq.]; and
- (b) whether the bidder is a locally owned business.
- (c) For purposes of compliance with this section a “locally owned business” means a business concern where the management or daily business operations are located within a 10 mile radius of the Administrative Offices of District #121.

23. GENERAL CONDITIONS:

The General Conditions of the Construction Contract are incorporated in the bid documents. If incorporated by reference, the bidder may obtain a copy of the current edition of the General Conditions of the Construction Contract from the Design Team Lead.

24. PREBID CONFERENCE:

See the Invitation For Bids for requirements for a prebid conference and whether such conference is mandatory or optional.

25. INSPECTION OF BID DOCUMENTS:

Copies of the Invitation for Bids documents, including Plans and Specifications and the General Conditions of the Construction Contract (RCI Form B001/B001SF) will be available for review at the Design Team Lead’s office address listed below and for electronic download by all qualified bidders of record.

26. DESIGN TEAM LEAD INFORMATION:

FIRM NAME:	C. E. Crowley and Associates, Inc.
CONTACT:	Chuck Crowley
ADDRESS:	333 East Illinois Route 83 – Suite #103 Mundelein, IL 60060-4278
TELEPHONE:	847-662-8132
FAX:	847-557-1314
E-MAIL:	ccrowley@cecaroof.com



DIVISION 00
SECTION 00 4133
WTHS SD #121 PROPOSAL FORM
2021 ROOF REPAIRS

Having carefully examined the Section 00 0100 Proposal Instructions (IIBEC/RCI Form A002, Instructions to Bidders) and Bid Documents, including related Specifications, Drawings and Details, and having attended and signed in at the mandatory pre-bid conference (*if applicable*) and become familiar with all aspects, both existing and proposed, affecting the work . the following Bidder:

BIDDER:

BIDDER INFORMATION	2021 ROOFING WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES - WARREN TOWNSHIP SCHOOL DISTRICT #121	
BIDDING COMPANY:		
DATE SUBMITTED:		
CONTACT NUMBER:	()	
CONTACT E-MAIL		

The undersigned bidder proposes to furnish all labor and materials and provide all equipment and manpower necessary to perform all required work for the various parts of the construction in accordance with the above referenced documents for the considerations of the following amount(s):

PROJECT INFORMATION:

OWNER/AGENT:	WARREN TOWNSHIP SCHOOL DISTRICT #121		
ADDRESS:	34090 Almond Road		
	Gurnee, IL 60031		
PHONE:	(847) 548-7055		
OWNER CONTACT:	Mr. Michael Engel		
EMAIL:	mengel@wth.net		
PROJECT NAME:	2021 Roof Work for Almond Road & O'Plaine Campuses		
CECA JOB #:	021-027		
THE WORK (Almond Campus):	A) Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane. Repairs include application of an elastic, rubberized coating over the EPDM membrane with wrinkles or minimal tenting. **Any areas identified by Architect/Consultant as requiring replacement of damaged roofing will be repaired on a unit cost basis using contingency funds.		

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL**

	<p>B) Inspect and repair all metal coping lap joints along all roof areas and as noted on plans. Where sealant is cracked or missing, install new sealant along metal coping lap seams. At areas where the metal is damaged, remove and replace any damaged pieces and replace with new metal coping. Install new fasteners and apply sealant where missing or required to provide a watertight seam.</p> <p>C) Roof repairs at approximately (20) separate areas of roof to halt existing water entry in designated areas as specified and detailed. Repair identified areas of damaged roofing membrane including areas with cuts and ruptures around roof penetrations, mechanical curbs, and along the roof perimeter. Provide roofing patches over the damaged areas to maintain a watertight roofing system. Any additional areas identified will be repaired on a unit cost basis using contingency funds. Repairs to include Contractor 2-year- leak-free warranty. **Any additional areas identified will be repaired on a unit cost basis using contingency funds.</p> <p>D) Provide up to (10) exploratory openings at designated areas of roofing to investigate any damage to the roofing system. At areas where damage is confirmed, contingency funds will be used based on unit costs to include removal of all damaged materials to structural deck and replace with compatible roofing materials and as detailed.</p>		
THE WORK (O'Plaine Campus)	<p>All as Specified and Detailed:</p> <p>A) Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane. Repairs include application of an elastic, rubberized coating over the EPDM membrane with wrinkles or minimal tenting. **Any areas identified by Architect/Consultant as requiring replacement of damaged roofing will be repaired on a unit cost basis using contingency funds.</p> <p>B) Inspect and repair all metal coping lap joints along select areas of the roof as detailed. Where sealant is cracked or missing, install new sealant along metal coping lap seams. At</p>		



2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL

	<p>areas where the metal is damaged, remove and replace any damaged pieces and replace with new metal coping. Install new fasteners and apply sealant where missing or required to provide a watertight seam.</p> <p>C) Roof repairs at approximately (15) separate areas of roof to halt existing water entry in designated areas as specified and detailed. Repair identified areas of damaged roofing membrane including areas with cuts and ruptures around roof penetrations, mechanical curbs, and along the roof perimeter. Provide roofing patches over the damaged areas to maintain a watertight roofing system. Any additional areas identified will be repaired on a unit cost basis using contingency funds. Repairs to include Contractor 2-year- leak-free warranty. **Any additional areas identified will be repaired on a unit cost basis using contingency funds.</p> <p>D) Provide up to (8) exploratory openings at designated areas of roofing to investigate any damage to the roofing system. At areas where damage is confirmed, contingency funds will be used based on unit costs to include removal of all damaged materials to structural deck and replace with compatible roofing materials and as detailed.</p>		
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BASE BID:

Bidder Instructions: Leave no blank spaces. Indicate NO BID if no bid is submitted for work at a particular site or Item or mark N/A. Owner reserves the right to choose selected sites only from this list for award. Failure to bid all roofs/sites/phases is sufficient cause for Owner to reject the bid or any portion thereof.

ALL BASE BID WORK (both Almond Road & O'Plaine Campus) AT ONCE, as specified and detailed -- including reductions for any economies of scale achieved by performing all work at once. Including state and local taxes. Including mobilization(s), fees, general conditions, permits, contingencies, allowances, warranties -- as well as any reductions for any economies of scale achieved by performing all work at once. Including 5% Bid Bond. Including the cost of 100% Labor & Material Payment & Performance Bond (also quoted separately).

BASE BID: ALL DESIGNATED WORK AT ALL SITES at Once:

Dollars (\$) _____)

(IN WORDS -- Including state and local taxes, including any fees, general conditions, contingencies, allowances, warranties, NO bonds).

P&P Bond Cost: \$ _____

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL**

Contractor Alternate Bid, (if any. Submit fully completed Substitutions Sheet & all required engineering and documentation)

Dollars (\$ _____)

(IN WORDS -- Including state and local taxes, including mobilization, fees, general conditions, contingencies, allowances, warranties and bonds).

P&P Bond Cost: \$ _____

BY CAMPUS BY ROOF BID:

ALL WORK, BY CAMPUS/ BY ROOF AREA as specified and detailed. – Including state and local taxes, site-specific mobilization, fees, general conditions, contingencies, allowances, & warranties. Quote Bonds separately where indicated.

NOTE: Totals by Roof need not match Base Bid or By Phase Totals as each Site Total must include separate setups and contingencies.

PHASE 1 BID: ALL DESIGNATED WORK AT ALL ALMOND CAMPUS ROOFS at Once:

Dollars (\$ _____)

(IN WORDS -- Including state and local taxes, including any fees, general conditions, contingencies, allowances, warranties, NO bonds).

P&P Bond Cost: \$ _____

Contractor Alternate Bid , (if any. Submit fully completed Substitutions Sheet & all required engineering and documentation)

Dollars (\$ _____)

(IN WORDS -- Including state and local taxes, including mobilization, fees, general conditions, contingencies, allowances, warranties and bonds).

P&P Bond Cost: \$ _____

ALL PHASE 1 WORK (ALMOND CAMPUS SITE BY ROOF):

ALL PHASE I WORK (ALMOND CAMPUS SITE BY ROOF):		
2021 ALMOND CAMPUS WORK		
EPDM WRINKLE/TENTING REPAIRS		
ROOF	LF	COATING/ REPAIRS (\$)
2N	20	
2S	60	
4	30	
11	200	
12E	100	
12W	80	
21	30	
22	225	
28	25	
29	200	

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL**

TOTAL	970
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<i>COPING LAP SEAM REPAIRS</i>			
ROOF	LF	SEALANT (\$)	COPING REPAIR (\$)
ALL ROOFS	10,293		
	542		
TOTAL	10,835		

<i>MEMBRANE REPAIRS</i>		
ROOF	LOCATIONS	MATERIAL/LABOR (\$)
18	1	
19	2	
20	2	
22	2	
28	6	
TOTAL	13	

<i>EXPLORATORY OPENINGS</i>		
ROOF	SF	MATERIAL/LABOR (\$)
2N	25	
14	100	
23	100	
TOTAL	225	

PHASE 2 BID: ALL DESIGNATED WORK AT ALL O'PLAINE CAMPUS ROOFS at Once:

Dollars(\$ _____)
(IN WORDS -- Including state and local taxes, Including any fees, general conditions, contingencies, allowances, warranties, NO bonds).

P&P Bond Cost: \$ _____

Contractor Alternate Bid, (if any. Submit fully completed Substitutions Sheet & all required engineering and documentation)

Dollars (\$ _____)
(IN WORDS -- Including state and local taxes, Including mobilization, fees, general conditions, contingencies, allowances, warranties and bonds).

P&P Bond Cost: \$ _____

PHASE 2 WORK (O'PLAINE CAMPUS WORK BY ROOF):

ALL PHASE II WORK (O'PLAINE CAMPUS SITE BY ROOF):
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**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL**

2021 O'PLAINE CAMPUS WORK		
<i>EPDM WRINKLE/TENTING REPAIRS</i>		
ROOF	LF	COATING/ REPAIRS (\$)
1	600	
2	150	
3	390	
5	370	
6	100	
7	400	
8	450	
11	350	
13	575	
14	450	
15	100	
16	300	
17	60	
20	450	
22	450	
23W	1650	
23E	470	
24	350	
25	150	
27	200	
29	350	
31	200	
33	125	
35	125	
36	225	
38	225	
40	450	
41	225	
43	225	
TOTAL	10,165	

<i>COPING LAP SEAM REPAIRS</i>			
ROOF	LF	SEALANT (\$)	COPING REPAIR (\$)
ALL ROOFS	10,726		
	565		
TOTAL	11,290		

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
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<i>MEMBRANE REPAIRS</i>		
ROOF	LOCATIONS	MATERIAL/LABOR (\$)
5	5	
7	1	
8	3	
12	1	
13	1	
44	2	
TOTAL	13	

<i>EXPLORATORY OPENINGS</i>		
ROOF	SF	MATERIAL/LABOR (\$)
2	10	
7	25	
8	15	
13	10	
23	100	
TOTAL	160	

START/COMPLETE:

THE Undersigned agrees, if awarded the contract, work shall START WITHIN _____ CALENDAR DAYS OF AWARD OF BASE BID CONTRACT, weather permitting, and will be SUBSTANTIALLY COMPLETE WITHIN _____ working days of the Owner's written Notice to Proceed, but no later than ____/____/____, weather permitting.

BID CERTIFICATIONS:

In order for this bid to be considered valid, the undersigned certifies that the following submittals are attached, or will be submitted within the time frames required:

- A. 100% Labor & Material Payment and Performance Bond: Cost PER \$1000 for \$_____/ \$1,000; OR
Percent of Total Contract Price: ____%
NOTE: P&P BOND to be submitted within 7 days of Owner's Request or Bid will be considered invalid.

B. BID ATTACHMENTS:

1. Bid Bond or Certified Cashier's Check (in the amount of 5% of the Bid)
2. Unit Price Form fully completed and submitted on the attached UNIT PRICE FORM
3. AIA Schedule of Values (within 72 hours of Owner's Request) or Bid will be considered invalid.

C. THE UNDERSIGNED FURTHER CERTIFIES:

1. The undersigned has checked all of the figures contained in this proposal, HAS INITIALED WHERE INDICATED AT THE FOOT OF EACH PAGE TO INDICATE ITS VALIDITY, and further understands that the Owner will not be responsible for any errors or omissions made therein by the undersigned.

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
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2. It is understood that the Owner reserves the right to reject any or all proposals, to waive all informality in the bidding and to award a Contract for any Roof or Phase or combination of Roofs or Phases of the work or the Project as a whole, deemed by the Owner to be in their best interest.
3. That the person(s) signing this proposal is/are fully authorized to sign on behalf of the named firm and to fully bind the named firm to all the conditions and provisions thereof.
4. It is agreed that no person(s) or company other than the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal or the Contract that may be entered into as a result thereof, and that in all respects the proposal is legal and fair, submitted in good faith, without collusion or fraud.
5. It is agreed that the undersigned meets or exceeds all requirements concerning licensing and all other local, state and national laws, and that no legal requirement has been or will be violated in making or accepting this proposal, in awarding the Contract to the quoting firm, and/or in the prosecution of the Work required thereunder.
6. To be considered a bona fide offer, this proposal must be completed in full and accompanied by a bid deposit or a bid bond when required by Contract Documents or Addenda.
7. By submitting this Bid, the undersigned agrees:
 - a. To hold this Bid open for ninety (90) days from submittal date.
 - b. To accomplish the work in accordance with the Contract Documents.
 - c. The undersigned declares that the quoting firm is a licensed roofing contractor in the State of Illinois at the time of bid submittal, State License # _____, Expiring ____/____/____.
8. The undersigned FURTHER declares that the bidding firm:
 - a. Agrees to Criminal Background checks for all workers on this project, Including sub-contracted labor.
 - b. Has not have been convicted of either bid-rigging or bid rotation.
 - c. Have a written Sexual Harassment Policy in place.
 - d. Has attended a Pre-Proposal Walk-Thru
 - e. Is certified and approved with each of the Manufacturers specified for Warranty purposes.
 - f. Has complied with all other Proposal Instructions in the Project Manual.
 - g. Upon starting the work, will work continuously with fully-trained work crews of the appropriate trade for the work to be performed properly sized to the duties and schedule required without interruption as weather permits.
 - h. Will Start and Complete the work within the Time Frames quoted above for the Base Bid work.
9. All bid proposals enumerated in this Bid Proposal Form include overhead, taxes, profit, permits, safety, general conditions and all other expenses involved in the execution and completion of the work described in the Contract Documents.
10. Bid prices in this Bid EXCLUDE all applicable federal, state and local taxes.
11. This bid complies with the requirements of the Prevailing Wage Act of the State of Illinois.
12. This bid meets the requirements of the Illinois School Code and Illinois School Life Safety Act.
13. This bid complies with the requirements of the Illinois Department of Human Rights Regulations.
14. The undersigned agrees, if awarded the contract, work shall be substantially completed within THE ABOVE DECLARED START/COMPLETE working days confirmed by the Owner's Written Notice to Proceed, but within the time frame required by the Owner for the work, regardless of weather.
15. The Contractor shall have seven (7) business calendar days from the date of formal award to deliver a Payment and Performance Bond in the format detailed. Failure to do so in the time period required may be considered a material breach of the contract.
16. Named subcontractors must have a reputation of competency in their fields of work. The undersigned firm assumes responsibility for the quality of work performed by the subcontractors and agrees that, once accepted by the Owner, subcontractors may not be changed without Owners' prior written consent.
17. The undersigned agrees to submit a fully completed Schedule of Values broken down by Roof and By Part separating labor and material costs by work item by site within 72 hours of Notice of Intent to Award. Failure to do so completely and within the time required may be considered a material breach of the contract.



2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL

PROPOSED SUBCONTRACTORS:

Work Classification (Must be listed at date of bid.)	Subcontractor
Concrete Deck Repair/Replacement	
Carpentry & Millwork	
Metal Deck Repair/Replacement	
Sealants/Glazing	
Sheet metal	
Electrical	
Mechanical	
Masonry	
Landscaping/Tree Trimming/Grass/Berm Repair	
Skylights (Allowance Work)	
Demo, Removals and Carting	
Welding	
Plumbing	
Crane	
Iron Work	
Pavement/Sidewalk Repair	
Safety Anchors (Allowance Work)	
Others:	

Note: All other subcontractors shall be submitted within 14 days of START date, if requested.

ADDENDA:

Receipt of Addenda (List by number and date appearing on Addenda):

Addendum # _____	Date: _____
Addendum # _____	Date: _____
Addendum # _____	Date: _____
Addendum # _____	Date: _____
Addendum # _____	Date: _____

CONTRACTOR'S SWORN STATEMENT:

The undersigned duly sworn deposes and says on oath that the bidder has withheld no disclosures of ownership interest and the information provided herein to the best of its knowledge is current and accurate; said undersigned has not entered into any agreement with any other bidder or prospective

**2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL**

bidder, or with any other person, firm or corporation relating to the price named in said proposal or any other proposal, nor any agreement or arrangement under which any persons, firms or corporation is to refrain from bidding, nor any agreement or arrangement for any act or omission in restraint of free competition among bidders, and has not disclosed to any unauthorized person, firm or corporation the terms of this bid or the price named herein.

DATE OF BID SUBMITTAL:

NAME OF BIDDING COMPANY:

***TYPE OF CORPORATE ENTITY:**

EXECUTED BY:

ADDRESS1:

ADDRESS2:

TELEPHONE:

FAX:

E-MAIL:

STATE LICENSE NUMBER:

FEIN/SSN #:

NOTE- *Sole Proprietor/Partnership/LLC/Corporation: SIGN ONLY WHERE APPROPRIATE BELOW.

SOLE PROPRIETOR

Signature of Bidder: _____

SUBSCRIBED AND SWORN to before me this ____ day of _____, 20 ____

Notary Public

Commission Expires: _____

PARTNERSHIP/LLC

Signature of All Partners:

Name above (typed or printed) , Signature Below

Name above (typed or printed) , Signature Below

2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL

Name above (typed or printed)

SUBSCRIBED AND SWORN to before me this ____ day of _____, 20____

Notary Public

Commission Expires: _____



2021 ROOF REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP SCHOOL DISTRICT #121, GURNEE, IL

CORPORATION

Signature of Authorized Official: _____

Title: _____

Name above (typed or printed): _____

(If other than the president, attach a certified copy of that section of Corporate by-laws or other authorization by the Corporation which permits the person to execute the offer for the Corporation.)

(Corporate Seal)

Attest: _____

Secretary

SUBSCRIBED AND SWORN to before me this _____ day of _____, 20____

Notary Public

Commission Expires: _____



UNIT PRICE FORM
Section 00 4140

UNIT PRICES (For Authorized Additional Work per Specs):	UNIT PRICE
<u>WORK DESCRIPTION</u>	<u>UNIT PRICE</u>
Electrical Work:	\$ _____ / Man-hour, Licensed Electrician
HVAC/Mechanical Work:	\$ _____ / Man-hour
Roofing Work:	\$ _____ / Man-hour - Journeyman
	\$ _____ / Man-hour - Laborer
	\$ _____ / Man-hour - Apprentice
Sheet Metal Work:	\$ _____ / Man-hour - Journeyman
	\$ _____ / Man-hour - Laborer
Additional 2 x 4 Wood Blocking Installed:	\$ _____ / LF (1- 50)
	\$ _____ / LF (50-200)
	\$ _____ / LF (200-500)
	\$ _____ / LB (500+)
Additional 2 x 6 Wood Blocking Installed:	\$ _____ / LF (1- 50)
	\$ _____ / LF (50-200)
	\$ _____ / LF (200-500)
	\$ _____ / LB (500+)
Additional 2 x 8 Wood Blocking Installed:	\$ _____ / LF (1- 50)
	\$ _____ / LF (50-200)
	\$ _____ / LF (200-500)
	\$ _____ / LB (500+)
Additional 2 x 10 Wood Blocking Installed:	\$ _____ / LF (1- 50)
	\$ _____ / LF (50-200)
	\$ _____ / LF (200-500)
	\$ _____ / LF (500+)

UNIT PRICE FORM
Section 00 4140

UNIT PRICES (For Authorized Additional Work per Specs):	
<i>WORK DESCRIPTION</i>	<i>UNIT PRICE</i>
Additional 2 x 12 Wood Blocking Installed:	\$ _____ / LF (1- 50)
	\$ _____ / LF (50-200)
	\$ _____ / LF (200-500)
	\$ _____ / LB (500+)
Carpentry Work:	\$ _____ / Man-hour - Journeyman
	\$ _____ / Man-hour - Laborer
Additional Flashing Tenting Repair (Cut, install new Reinforcement Strip, install new flashing & counterflashing to match existing)	\$ _____ /LF
Metal Deck Wire-brushing and Rust-Painting	\$ _____ /SF
Metal Deck Repair	\$ _____ /SF
Metal Deck Replacement (20 ga. Type B or F Deck to match existing)	\$ _____ /Per 3'x33' Panel
Concrete Deck Repair	\$ _____ /SF
Additional Galvanized Downspouts , 4" dia.	\$ _____ /LF, installed.
Additional Galvanized Downspouts , 4" dia., 10' length, above 2nd story	\$ _____ /Story, installed.
Additional Rubber Roof Coating installation as specified, per 5 gal pail	\$ _____ /EA, installed.
Additional Rubber Roof Coating as specified, per 5 gal pail	\$ _____ /EA, NOT installed.
Additional Rubber Coating Material and Installation as Spec'd	\$ _____ /SF
Additional Urethane Coating Material and Installation as Spec'd	\$ _____ /SF
Additional Grace Hi-Temp Ice & water membrane in 3' widths, installed	\$ _____ /EA, installed.
Steel Support Posts (1/4" x 18"x4" dia with welded 8") square base plate with pre-punched holes	\$ _____ /EA, installed.
Additional Channel bar installation	\$ _____ /LF
Masonry Work:	\$ _____ / Man-hour - Mason
	\$ _____ / Man-hour - Laborer
New Concrete 12" x 24" x 3" thick concrete splashblocks	\$ _____ /EA, NOT installed.

UNIT PRICE FORM
Section 00 4140

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UNIT PRICE FORM
Section 00 4140

UNIT PRICES (For Authorized Additional Work per Specs):	
<u>WORK DESCRIPTION</u>	<u>UNIT PRICE</u>
Installation of metal deck sump pans and underdeck clamps	\$ _____ /EA, installed.
3" pipe insulation first 3' of interior roof drain piping	\$ _____ /EA, installed.
Lowering existing drainhead to deck including piping and components	\$ _____ /EA, installed.
	\$ _____ /1-20 Brick, Installed
	\$ _____ /500+ LF, Installed
	\$ _____ /1-20 LF, Installed
Additional 2-piece Stainless Steel Surface-Mount Flashing installation	\$ _____ /21-100 LF, Installed
	\$ _____ /101 and more LF, Installed
Additional Thru-Wall Flashing installation (includes brick removal & replacement	\$ _____ /1-20 LF, Installed
	\$ _____ /21-100 LF, Installed
	\$ _____ /101 and more LF, Installed
Additional 1-piece raggle-mount counterflashing	\$ _____ /1-20 LF, Installed
(installed to pre-cut 1" raggle & sealed)	\$ _____ /21-100 LF, Installed
	\$ _____ /101 and more LF, Installed

UNIT PRICE FORM
Section 00 4140

UNIT PRICES (For Authorized Additional Work per Specs):	
<i>WORK DESCRIPTION</i>	<i>UNIT PRICE</i>
Additional 1-part Polyurethane Sealant Installation	\$ _____ /1-20 LF, Installed
	\$ _____ /21-100 LF, Installed
	\$ _____ /101 and more LF, Installed
Plumbing: Additional Clamping Rings & Bolts	\$ _____ /EA, installed.
Plumbing: Additional Rodding of drains beyond 1st Cleanout	\$ _____ /EA, installed.
Plumbing: Tapping of new bolts	\$ _____ /EA, installed.
Plumbing: Installation of additional under-deck clamps	\$ _____ /EA, installed.
Plumbing: Installation of additional pipe insulation/ running foot	
---3" Dia Pipe	\$ _____ /ft, installed.
---4" Dia Pipe	\$ _____ /ft, installed.
---5" Dia Pipe	\$ _____ /ft, installed.
Additional firestopping at existing penetrations	\$ _____ /EA, installed.
	\$ _____ /1-20 LF, Installed
Additional lightning protection system	\$ _____ /21-100 LF, Installed
	\$ _____ /101 and more LF, Installed
Additional interior protection	\$ _____ /SF

OWNER'S AND CONSULTANT'S CONTRACTUAL LIABILITY PROTECTION FORM

STATE OF ILLINOIS
County of Lake

RE: WTHS Dist. #121, 2021 Roof Repair Work

The Contractor shall at all times save the

Consultant, C. E. Crowley & Associates, Inc., and the Owner, Warren Township High School District #121, and their agents, employees, officers and directors harmless against loss from liability imposed by law upon them for damages on account of bodily injuries or death suffered, or alleged to have been suffered, as a result of any accident occurring from, or by reason of, or in the course of operations under this Contract, whether occurring by reason of acts or omissions of the Contractor or any Sub-Contractor, or both.

The Contractor shall at all times save the Consultant, the Owner, and their agents, employees, officers and directors harmless against a) patent infringement lawsuits imposed upon them based on equipment or methods used by the Contractor, and b) loss from liability imposed by law upon them for damages on account of injuries to person or property suffered, or alleged to have been suffered, as a result of any accident, occurring from reasons of acts or omissions of Contractor or any Sub-Contractor, or both, insuring the Consultant and the Owner against loss from liability imposed by law upon them for damages on account of such injuries or loss.

Firm Name

Firm Address

Typed Name of Bidder or Agent

By (Authorized Signature)

Title: _____

Date: _____

Subscribed and sworn to before me this ____ day of _____, 20 ____.

My Commission Expires _____.

Signature of Notary

State of Registration

Registration Number

Non-Collusion Affidavit

STATE OF ILLINOIS

RE: Warren Township High School District #121 2021 Roofing Repair Work

The undersigned bidder or agent, being duly sworn on oath says that he has not, nor has any other member, representative or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person, persons, company, or other agent relative to the price to be bid by anyone at such letting, nor to prevent any person, persons, company, or other agent from bidding nor to induce anyone to refrain from bidding and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person, persons, company, or other agent in reference to such bidding.

He further says that no person or persons, firms or corporation has, have, or will receive directly or indirectly, any rebate, fee, gift, commission, or thing of value on account of or as an inducement of such sale.

_____ Firm Name	_____ Firm Address
_____ Typed Name of Bidder or Agent	_____ By (Authorized Signature)
_____ Title	_____ Date

Subscribed and sworn before me this _____ day _____, 20____

My Commission Expires: _____

_____ Signature of Notary	_____ State of Registration	_____ Registration No.
------------------------------	--------------------------------	---------------------------



CONTRACT CHANGE ORDER

CHANGE ORDER NO.: _____ DATE: _____ / _____ / _____

PROJECT IDENTIFICATION

PROJECT NAME: **2021 Roofing Work for Almond Road and O'Plaine Campuses**

CECA JOB #: **021-027**

Admin ADDRESS: **34090 N. Almond Road**

Street Address

Gurnee

City

IL

State

60031

ZIP Code

Site Telephone

Site Fax

CHANGE DESCRIPTION

TO: (contractor) _____

Under your contract dated _____ for work at _____

you are hereby authorized to make the following changes:

and to ☐ add to ☐ deduct from the Contract price, in accordance with the Contract documents, the sum of:

_____ / 100 Dollars \$ _____

☐ There will be an extension of _____ days for contract completion.

☐ The contract completion date was _____ and now will be _____

(Failure to include a change of time shall waive any change to the time allowed by the Contract for completion of the Work unless the parties mutually agree in writing to postpone a determination of the change to time resulting from the Change Order. Such determination may not be postponed more than 45 days from the date of approval of the Change Order by owner.)

CONTRACT COST SUMMARY

AMOUNT OF ORIGINAL CONTRACT	TOTAL ADDITIONS	TOTAL DEDUCTIONS	AMOUNT OF CONTRACT TO DATE
\$ _____	+ \$ _____	- \$ _____	= \$ _____

CHANGE AUTHORIZATION

Issued by: _____
Design Team Lead *Date*

Approved/Recommended by: _____
Owner *Date*

Accepted by: _____
Contractor *Date*



PROJECT IDENTIFICATION

CECA JOB #: 021-027

Street Address

<i>City</i>	<i>State</i>	<i>ZIP Code</i>
-------------	--------------	-----------------

Site Telephone *Site Fax*

FOUND CONDITION

Name _____

Company

AFFECTED:

DESCRIPTION OF WORK:	UNIT	QTY	EXTENSION
TOTAL			\$

☐ WITHIN Contingency

☐ EXCEEDS Contingency

This Work will add _____ days to the Contract Completion Date.

Date _____

APPROVALS

Signature
Date

<i>Company</i>	<i>Title</i>
----------------	--------------

Signature
Date

<i>Company</i>	<i>Title</i>
----------------	--------------

RFI NO.: _____ DATE: _____
FROM: _____ TO: _____

PROJECT NAME:	2021 Roofing Work for Almond Road and O'Plaine Campuses		
CECA JOB #:	021-027		
SITE ADDRESS:	34090 N. Almond Road		
	Street Address		
	Gurnee	IL	60031
	City	State	ZIP Code
	Site Telephone		Site Fax

[illegible]

SIGNED BY: _____

Signature	Name & Title	Date
-----------	--------------	------

(RESPONSE ON REVERSE SIDE)

RESPONSE

FROM: _____ **TO:** _____

[illegible]

☐ **Attachments:**

SIGNED BY: _____

Signature	Name & Title	Date
-----------	--------------	------

**(Print Recipient
Name)**

DISTRIBUTION: ☐ Design Team Lead or Consultant ☐ Owner or Owner's Representative
☒ Job Log ☐ Contractor ☐ Other Party

APPLICATION AND CERTIFICATION FOR PAYMENT

AIA DOCUMENT G702

TO OWNER:

Warren Township School District #121

34090 N. Almond Road

Gurnee, IL 60031

PROJECT:

2021 Roofing Work for Almond Road & O'Plaine

Campuses - WTHS SD #121

APPLICATION NO:

Distribution to:

OWNER

ARCHITECT

CONSULTANT

CONTRACTOR

OTHER

FROM CONTRACTOR:

VIA CONSULTANT:

CECA

333 East IL Rte. 83, Suite #B2

Mundelein, IL 60060-4299

PERIOD TO:

CECA PROJECT #(S):

021-027

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM

\$

0.00

2. Net change by Change Orders

\$

3. CONTRACT SUM TO DATE (Line 1 + 2)

\$

0.00

4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)

\$

\$0.00

5. RETAINAGE:

a. 10.00% % of Completed Work (Column D + E on G703)

\$

\$0.00

b. 0 % of Stored Material (Column F on G703)

\$

Total Retainage (Lines 5a + 5b or Total in Column I of G703)

\$

0.00

6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)

\$

0.00

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)

\$

0.00

8. CURRENT PAYMENT DUE

\$

0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)

\$

0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By:

Date:

State of:

County of:

Subscribed and sworn to before me this

day of

Notary Public:

My Commission expires:

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the application, the Architect certifies to the Owner that to the best of the Specifier's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of:

AMOUNT CERTIFIED \$

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.) Consultant:

By:

Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner		
Total approved this Month		
TOTALS	\$0.00	\$0.00
NET CHANGES by Change Order	\$0.00	

CONTINUATION SHEET

Schedule of Values

AIA DOCUMENT G703

PAGE OF PAGES

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.

APPLICATION NO:
APPLICATION DATE:

In tabulations below, amounts are stated to the nearest dollar.

PERIOD TO:

Use Column I on Contracts where variable retainage for line items may apply.

ARCHITECT'S PROJECT NO: 021-027

[illegible]

Users may obtain validation of this document by requesting of the license a completed AIA Document D401 - Certification of Document's Authenticity



INCIDENT REPORT

PROJECT INFORMATION

PROJECT NAME: 2021 Roof Work for Almond Road and O'Plaine Campuses

CECA JOB #: 021-027

Admin ADDRESS: 34090 N. Almond Road

Site Address

Gurnee

City

IL

State

60031

ZIP Code

Site Telephone

Site Fax

SUBMITTER INFORMATION

NAME: _____ **COMPANY:** _____

TEL: _____ **ADDRESS:** _____

FAX: _____

DESCRIPTION OF INCIDENT

AREA(S) WHERE INCIDENT OCCURRED: *(Provide summary description)*

☐ LEAK ☐ ACCIDENT ☐ INTERIOR DAMAGE ☐ OTHER:

AREA(S) OF WORK AFFECTED:



**WITNESS 1:**

☐ Mr.
☐ Mrs.
NAME: ☐ Ms. (First) (Last)

COMPANY: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

DESCRIPTION OF INCIDENT: *(In witness' own words)*

SIGNATURE OF WITNESS: _____ DATE: _____

WITNESS 2:

☐ Mr.
☐ Mrs.
NAME: ☐ Ms. (First) (Last)

COMPANY: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

DESCRIPTION OF INCIDENT: *(In witness' own words)*

SIGNATURE OF WITNESS: _____ DATE: _____







ATTACH PHOTOS OF INCIDENT AREA AND DESCRIBE BELOW. *(Attach additional sheets if necessary.)*

PHOTOGRAPH 1: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 2: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 3: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 4: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 5: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 6: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____

PHOTOGRAPH 7: PHOTOGRAPHER: _____ TEL: _____
COMPANY: _____



DIVISION 1
SECTION 00 5200

CONTRACTOR AFFIDAVIT AND PARTIAL RELEASE OF LIEN

THE STATE OF _____)
)
COUNTY OF _____) ss.

BEFORE ME, the undersigned authority, on this day personally appeared _____,
known to me to be a credible person and officer of _____
("Contractor") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Contractor, which has authorized me to make this affidavit, to enter into the agreements and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated _____, 20__ between Contractor and _____ ("Owner"), Contractor has supplied materials and performed labor in connection with construction of improvements upon certain real property in _____ County, _____, described as _____. Said improvements are more particularly described as construction of _____.
3. Contractor has received total payments to date in the amount of _____ Dollars (\$ _____) for all materials supplied and labor performed by Contractor in connection with the construction of the improvements during the period through _____, 20__.
4. In consideration of and conditioned upon receipt from Owner of _____ Dollars (\$ _____), Contractor hereby waives and releases any and all liens, rights and interests (whether choate or inchoate and including, without limitation, all mechanic's and materialman's liens under the constitution and statutes of the state/commonwealth of _____) owned, claimed or held by Contractor in and to the land and improvements, whether or not affixed or severable from the land or from any other portion of the improvements.
5. Contractor warrants that all costs incurred and bills owed by Contractor to others for materials supplied or labor performed in connection with the improvements through _____, 20__ have been fully paid and satisfied.

EXECUTED this _____ day of _____, 20__.

CONTRACTOR

By: _____

Title: _____

SUBSCRIBED AND SWORN TO before me the said _____ this _____ day of _____, 200__, to certify which witness my hand and seal of office.

NOTARY PUBLIC in and for _____ County, _____

My commission expires on the _____ day of _____, 20__.



DIVISION 1
SECTION 00 5220
SUPPLIER AFFIDAVIT AND PARTIAL RELEASE OF LIEN

THE STATE OF _____)
)
COUNTY OF _____) ss.

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be a credible person and officer of _____ ("Supplier") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Supplier, which has authorized me to make this affidavit, to enter into the agreements and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated _____, 20 between Supplier and _____, (_____) ["Contractor" or "Subcontractor," as appropriate], Subcontractor has supplied materials in connection with the construction of improvements upon certain real property in _____ County, _____, described as _____. Said improvements are more particularly described as construction of _____.
3. In consideration of the payment by _____ ["Contractor" or "Subcontractor," as appropriate], of the sum of _____ dollars (\$ _____), the sufficiency of which is hereby acknowledged, Supplier hereby waives and releases any and all liens, claims, rights and interests (whether choate or inchoate and including, without limitation, all mechanic's and materialman's liens under federal law or the statutes of the State/Commonwealth of _____) owned, claimed or held, or to be owned, claimed or held by Supplier in and to the Land and Improvements, whether or not affixed to or severable from the Land or from any other portion of the Improvements and/or against the Contractor, the Subcontractors, the Owner and any other person or party having any ownership interest in such Land and Improvements to the full extent of the amount set out above with regard to the work paid for by or on behalf of the Subcontractor for all materials supplied to the project through and including _____, 20__.
4. Supplier warrants that all costs incurred and bills owed by Supplier to others for materials supplied in connection with the Improvements through _____ [insert date of end of prior progress payment period] have been fully paid and satisfied. Supplier does further warrant that should any claim or lien be filed for material supplied or labor performed by virtue of Supplier's participation in the construction of said Improvements, Supplier will immediately furnish a bond for the release of each such claim or lien, obtain settlement of any such claim or lien and furnish Owner, Contractor, and Subcontractor a written full release of such claim or lien. Should Supplier be unable to obtain such release, Supplier agrees to fully indemnify and hold harmless Owner, Contractor, and Subcontractor for any and all costs, including but not limited to attorneys' fees, any of them may incur by reason of such claims or liens.

EXECUTED this _____ day of _____, 20__.

SUPPLIER

By: _____

Title: _____

SUBSCRIBED AND SWORN TO before me the said _____ this _____ day of _____, 20__, to certify which witness my hand and seal of office.

NOTARY PUBLIC in and for _____ County, _____

My commission expires on the _____ day of _____, 20__.





DIVISION 1

SECTION 01 1010

SCOPE OF WORK

1.01 SECTION INDEX:

1.02	DESCRIPTION OF THE WORK
1.03	INTENT OF SPECIFICATIONS
1.04	SPECIFICATION FORMATS AND CONVENTIONS
1.05	EXISTING HVAC AND ELECTRICAL
1.06	DEFINITIONS
1.07	REFERENCES
1.08	REGULATORY REQUIREMENTS
1.09	NOTICES AND POSTINGS
1.10	PERMITS AND FEES
1.11	SUBMITTALS FOR REVIEW
1.12	QUALIFICATIONS
1.13	QUALITY ASSURANCE
1.14	WEATHER RESTRICTIONS
1.15	JOB CONDITIONS
1.16	SAFETYCAUTIONS & WARNINGS
1.17	PRE-CONSTRUCTION MEETING
1.18	SCHEDULING
1.19	GUARANTEES/WARRANTIES
1.20	SCOPE OF WORK BY CONTRACTOR SPECIALTY
1.21	SCOPE OF WORK BY SYSTEM TYPE
1.22	SCOPE OF WORK BY OTHERS
1.23	SCOPE OF WORK BY OWNER
2.01	MATERIALS
2.02	COMPONENTS SUPPLIED BY CONTRACTOR
2.03	COMPONENTS SUPPLIED BY OWNER
3.01	GENERAL
3.02	REPAIR WORK PERFORMED BY CONTRACTOR
3.03	COATING WORK PERFORMED BY CONTRACTOR
3.04	REPLACEMENT WORK PERFORMED BY CONTRACTOR
3.05	SPECIALTY WORK PERFORMED BY CONTRACTOR
3.06	WORK PERFORMED BY OWNER
3.07	PROJECT COMPLETION AND CLOSE-OUT



1.02 DESCRIPTION OF THE WORK

A. Repair and Restoration of existing Roofing Systems on two (2) properties as described below:

1. WORK LOCATIONS/SYSTEMS

<u>Facility</u>	<u>Existing Construction</u>	<u>Scope</u>	<u>NEW WORK</u>
Almond Road Campus	A) Ballasted EPDM Roofing - Perimeter/Flashing	Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane.	Repairs include application of an elastic, rubberized coating over the EPDM membrane with wrinkles or minimal tenting. Areas identified by Architect/Consultant with extensive tenting or where seam failure is anticipated should be cut and replaced with new 60 mil EPDM and compatible flashings and re-covered with existing gravel and will be funded with contingency funds based on unit pricing.
	B) Metal Coping	Inspect and repair all metal coping lap joints along all roof areas and as noted on plans.	Where sealant is cracked or missing, install new sealant along metal coping lap seams. At areas where the metal is damaged, remove and replace any damaged pieces and replace with new metal coping. Install new fasteners and apply sealant where missing or required to provide a watertight seam.
	C) Ballasted EPDM Roofing	Roof repairs at approximately (20) separate areas of roof to halt existing water entry in designated areas as specified and detailed.	Repair identified areas of damaged roofing membrane including areas with cuts and ruptures around roof penetrations, mechanical curbs, and along the roof perimeter with compatible roofing as specified and detailed. Repairs to include Contractor 2-year- leak-free warranty. **Any additional areas identified will be repaired on a unit cost basis using contingency funds.
	D) Exploratory Openings - Ballasted EPDM Roofing	Provide up to (10) exploratory openings at designated areas of roofing to investigate any damage to the roofing system.	At areas where damage is confirmed, contingency funds will be used based on unit costs to include removal of all damaged materials to structural deck and replace with compatible roofing materials and as detailed.



<u>Facility</u>	<u>Existing Construction</u>	<u>Scope</u>	<u>NEW WORK</u>
O'Plaine Campus	<p>A) Ballasted EPDM Roofing - Perimeter/Flashing</p> <p>B) Metal Coping</p> <p>C) Ballasted EPDM Roofing</p> <p>D) Exploratory Openings - Ballasted EPDM Roofing</p>	<p>Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane.</p> <p>Inspect and repair all metal coping lap joints along all roof areas and as noted on plans.</p> <p>Roof repairs at approximately (15) separate areas of roof to halt existing water entry in designated areas as specified and detailed.</p> <p>Provide up to (6) exploratory openings at designated areas of roofing to investigate any damage to the roofing system.</p>	<p>Repairs include application of an elastic, rubberized coating over the EPDM membrane with wrinkles or minimal tenting. Areas identified by Architect/Consultant with extensive tenting or where seam failure is anticipated should be cut and replaced with new 60 mil EPDM and compatible flashings and re-covered with existing gravel and will be funded with contingency funds based on unit pricing.</p> <p>Where sealant is cracked or missing, install new sealant along metal coping lap seams. At areas where the metal is damaged, remove and replace any damaged pieces and replace with new metal coping. Install new fasteners and apply sealant where missing or required to provide a watertight seam.</p> <p>Repair identified areas of damaged roofing membrane including areas with cuts and ruptures around roof penetrations, mechanical curbs, and along the roof perimeter with compatible roofing as specified and detailed. Repairs to include Contractor 2-year- leak-free warranty. **Any additional areas identified will be repaired on a unit cost basis using contingency funds.</p> <p>At areas where damage is confirmed, contingency funds will be used based on unit costs to include removal of all damaged materials to structural deck and replace with compatible roofing materials and as detailed.</p>

2. BASE BID:

- A. ROOFING: Repair “tenting” or wrinkling of EPDM membrane and flashings around the designated roof perimeters. Apply coating of elastic, reflective rubber coating over the areas of wrinkled or stretched EPDM membrane per manufacturer written instructions. Repairs to the existing EPDM membrane along select areas of the roof perimeter experiencing wrinkling and tenting of the membrane. Repairs include application of an elastic, rubberized coating over the EPDM membrane with wrinkles or minimal tenting.**
- B. Inspect and repair all metal coping lap joints along all roof areas and as noted on plans. Where sealant is cracked or missing, install new sealant along metal coping lap seams. At areas where the**



- metal is damaged, remove and replace any damaged pieces and replace with new metal coping. Install new fasteners and apply sealant where missing or required to provide a watertight seam.
- C. Roof repairs at approximately (20) separate areas of roof at the Almond Road Campus and (15) separate areas at the O'Plaine Campus to halt existing water entry in designated areas as specified and detailed. Repair identified areas of damaged roofing membrane including areas with cuts and ruptures around roof penetrations, mechanical curbs, and along the roof perimeter. Provide roofing patches over the damaged areas to maintain a watertight roofing system. Any additional areas identified will be repaired on a unit cost basis using contingency funds. Repairs to include Contractor 2-year- leak-free warranty. **Any additional areas identified will be repaired on a unit cost basis using contingency funds.
 - D. Provide up to (10) exploratory openings at the Almond Road Campus and (8) exploratory openings at the O'Plaine Campus at designated areas of roofing to investigate any damage to the roofing system. At areas where damage is confirmed, contingency funds will be used based on unit costs to include removal of all damaged materials to structural deck and replace with compatible roofing materials and as detailed.
 - E. MECHANICAL/ELECTRICAL: Disconnect, remove and re-set and reconnect existing security lights atop new copings through double-sided sealant tape.
 - F. CARPENTRY: Provide sloped wood blocking matching construction details provided at locations which are to receive new sheet metal copings.
 - G. PLUMBING: Rod all drains to first cleanout at start and finish of the work. Replace all lead and oakum seals at connections of drain bowls and down pipes. Assure interior piping is insulated at and up to 3' from drain bowl.
 - H. FIRE-STOPS: Install 2 hr. min. fire-stops at roof deck and roof wall penetrations.
 - I. INTERIOR PROTECTION: Protect interior around penetrations and roof perimeters or changes of elevation, and wherever the roof deck is opened to the sky, as specified and detailed.
 - J. ROOFING PROTECTION: Protect all roofing substrates used as work, traffic, or storage surfaces with min. 1" foam insulation covered with 3/4" plywood.
 - K. LIGHTNING PROTECTION: Disconnect, move, store and re-install existing lightning protection. Use published NRCA Lightning Protection Detail for Modified Roofing. Lightning Protection within the work is to be checked and re-certified by a licensed technician within the Base Bid.

1.03 INTENT OF THE SPECIFICATIONS

- A. The intent of these specifications is to describe the materials and methods of construction required for the performance of the work. In general, it is intended that the drawings shall delineate the detailed extent of the work. When there is a discrepancy between drawings, referenced specifications and standards and this specification, this specification shall govern.



- B. The Owner's Consultant designed the work conveyed in the Contract Documents for Owner's benefit. These Contract Documents are for the use of the Owner. Nothing contained in these Contract Documents shall create a contractual relationship between the Contractor and the Consultant.
- C. **Assumption of Responsibility:** Throughout these specifications, unless specifically noted otherwise, all work shall be assumed to be the sole responsibility of the Contractor.

1.04 SPECIFICATION FORMATS AND CONVENTIONS

- A. **Specification Format:** The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC "MasterFormat" numbering system.
 - 1. **Section Identification:** The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete.
- B. **Specification Content:** The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. **Abbreviated Language:** Language used in the Specifications and other Contract Documents is abbreviated. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - 3. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase

1.05 EXISTING HVAC, GAS AND ELECTRICAL EQUIPMENT

- A. Existing HVAC and electrical equipment will require temporary disconnection, any necessary relocation/storage, re-setting and reconnection. Such work shall be a part of this Contract and shall be performed by the appropriate licensed tradesmen. Include licenses of such tradesmen with submittals and lists of sub-contractors. Cost of the work shall be included in Base Bid.
- B. Electrical conduit and electrical items may have to be permanently relocated to prevent re-attachment to new roofing, flashing, or sheet metal components. When required such work shall be a part of this contract and shall be performed by the appropriate licensed tradesmen. Include licenses of such tradesmen with submittals and lists of sub-contractors. Cost of the work shall be included in Base Bid.
- C. Disconnect, bleed, and extend existing gas piping and conduit as required to accommodate new insulation and parapet heights. Provide new connections



matching existing, and certify and test installations and adjoining runs prior to putting back into service.

- D. Raise and re-set existing HVAC units as required to accommodate new insulation and parapet heights.
- E. Support gas piping over 3" OD with new NRCA-Style rolling curb supports with 1 min 18" wide curb support per 10' of pipe, and within 2' of either side of bends and corners.

1.06 DEFINITIONS

- C. Roofing Terminology: Refer to the following publications for terms related to roofing work not otherwise defined in these Specifications:
 - 1. ASTM D1079 - Definitions of Terms Relating to Roofing, Waterproofing and Bituminous Materials.
 - 2. Glossary of Terms, National Roofing Contractors Association (NRCA): January 2015.
 - 3. Glossary of Terms, Roof Consultant's Institute (RCI) - 2015

1.07 REFERENCES:

- A. National Roofing Contractors Association (NRCA):
 - 1. [The NRCA Roofing Manual: Membrane Roof Systems—2019](#)
 - 2. [The NRCA Roofing Manual: Architectural Metal Flashing, Condensation Control and Reroofing—2018](#)
 - 3. [The NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control - 2018](#)
 - 4. [The NRCA Roofing Manual: Steep-slope Roof Systems—2017](#)
 - 5. [The NRCA Roofing Manual: Metal Panel and SPF Roof Systems—2016](#)
 - 6. [The NRCA Waterproofing Manual—2015](#)
 - 7. [The NRCA Construction Details: CAD Files—2019](#)
 - 8.
- B. FS - Federal Specifications
- C. American Society of Civil Engineers (ASCE) 7 (www.asce.org) - Minimum Design Loads for Buildings and Other Structures.
- D. Underwriters Laboratories, Inc. (UL): Roofing Materials and Systems - Annual Directory and Standards:
 - 1. Fire resistance
 - a. UL 790 (Exterior Exposure), Standard Test Methods for Fire Tests of Roof Coverings
 - b. CAN/ULC-S107-03 (UL 790), Methods of Fire Tests of Roof Coverings
 - c. UL 1256 (Interior Exposure), Fire Test of Roof Deck Constructions
 - d. CAN/ULC-S126 -M86 (UL 1256), Standard Method of Test for Fire Spread Under Roof - Deck Assemblies
 - 2. Wind resistance
 - a. UL 997, Wind Resistance of Prepared Roof Covering Materials
 - 3. Uplift resistance
 - a. UL 580, Tests for Uplift Resistance of Roof Assemblies



- b. UL 1897, Uplift Tests for Roof Covering Systems
 - 4. Material/product performance
 - a. UL 2218, Impact Resistance of Prepared Roof Covering Materials
 - b. UL 55A, Materials for Built-Up Roof Coverings
 - 5. Thermal radiative properties (for compliance with ENERGY STAR and CRRC requirements)
 - a. ASTM C1371, Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
 - b. ASTM C1549, Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer
- E. Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA): Architectural Sheet Metal Manual, Sixth Edition, 2003. Includes Addendum No. 1, 10/97 which clarifies and segregates the design of copings versus gravel stop and fascia.
- F. American Society for Testing Materials (ASTM), Annual Book of Standards, 2001 edition, Volumes 4.04 and 4.05, Section 4, Volume 4.04, Roofing, Waterproofing and Bituminous Materials, February, 2001.
 - 1. C208 - Standard Specification for Cellulosic Fiber Insulating Board.
 - 2. C728 - Standard Specification for Perlite Thermal Insulation Board.
 - 3. C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 4. C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 5. C1303 - Standard Test Method for Estimating the Long-Term Change in Thermal Resistance of Unfaced Rigid Closed Cell Plastic Foams by Slicing and Scaling Under Controlled Laboratory Conditions.
 - 6. C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
 - 7. D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 8. E108 - Standard Test Methods for Fire Tests of Roof Coverings.
 - 9. E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
- G. FM Global - Factory Mutual Research Corporation
 - 1. Factory Mutual Standard 4470 - Approved Standard for Class I Roof Coverings - 2012
 - 2. Factory Mutual Loss Prevention Data Sheets:
 - a. 1-0 - Safeguards During Construction, 2012
 - b. 1-7 - Wind Forces on Buildings and Other Structures, 2010
 - c. 1-13 - Chimneys, 2012
 - d. 1-15 - Roof Mounted Solar Photovoltaic Panels, 2014
 - e. 1-20 - Protection Against Exterior Fire Exposure, 2016
 - f. 1-22 - Criteria for Maximum Foreseeable Loss Fire Walls & Space Separation, 2009-2011
 - g. 1-28 - Design Wind Loads, 2016
 - h. 1-28/1-29R - Roof Systems, 2016
 - i. 1-29 - Roof Deck Securement and Above Deck Roof Components, 2016
 - j. 1-29* - Safeguarding Torch-Applied Roof Installations, 2010
 - k. 1-30 - Repair of Wind Damaged Roof Systems, 2018



- l. 1-31 - Metal Panel Roof Systems, 2016
- m. 1-32 - Existing PVC Roof Covers, 2018
- n. 1-33 - Safeguarding Torch-Applied Roof Installations, 2017
- o. 1-34 - Hail Damage, 2018
- p. 1-49 - Perimeter Flashing, 2016
- q. 1-52 - Field Verification of Wind Uplift Tests, 2012
- r. 1-54 - Roof Loads for New Construction, 2016

1.08 REGULATORY REQUIREMENTS

- A. TAXES:** Contractor shall pay all sales, consumer, use and other similar taxes required by law in connection with this project.
- B. GOVERNING CODES AND STANDARDS:**
 - 1. Work performed under this specification shall be in compliance with applicable Industry Standards and all applicable codes, laws, and ordinances of the municipal, state, and federal departments concerned. Materials and workmanship required by such regulations shall be provided by the Contractor whether or not specifically noted herein or shown on the drawings.**
 - 2. Bidders are directed to immediately advise the Consultant if they discover any materials, products, or designs that conflict with or fail to satisfy any of the following Codes, Standards or Local Ordinances:**
 - a) International Conference of Building Officials, Uniform Building Code, latest edition.**
 - b) Relevant State of Illinois and City of Chicago Building Codes as related to Buildings, Roofing, Energy, Plumbing and Electrical**
 - c) Relevant Illinois School Code Regulations, including but not limited to:**
 - i) 105 ILCS 230 - Illinois School Construction Law**
 - ii) BUILDING SPECIFICATIONS FOR. HEALTH/LIFE SAFETY IN PUBLIC SCHOOLS. (23 Ill. Adm. Code 185)**
 - d) Comply with all current Illinois and Federal Prevailing Wage Requirements**
 - e) Americans with Disabilities Act Architectural Guidelines (ADAAG)**
 - f) National Fire Protection Association (NFPA)**
 - g) Occupational Safety and Health Standards of Construction Industry (OSHA)**
 - h) Environmental Protection Agency (EPA)**
Underwriters Laboratories, Inc. (UL): Class A Fire Hazard Classification
Factory Mutual Engineering Corporation: (FM): Roof Assembly Classification - FM Loss Prevention Data Sheets 1-28 and 1-49, Construction Bulletin, Class I - I-90 Approvals. Submit proof of conformance to FM RoofNav Assembly requirements.
 - i) National Electrical Code (NEC)**
 - j) The Brick Institute of America, McLean, Virginia Technical Notes on Brick Construction #7 and #1A.**
 - k) Sheet Metal Air Conditioning Manufacturer's Association (SMACNA)**



1.09 NOTICES AND POSTINGS:

- A. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, without providing notice to building owner's representative, Contractor shall assume full responsibility and shall bear all costs.**
- B. Copies of all permits shall be placed in a plastic tube and be kept in the location designated by the Contractor-appointed Site Safety Officer for the entire duration of the work. The following shall be posted on site;**
 - 1. Copies of all permits**
 - 2. Copies of all MSDS sheets**
 - 3. A Job Board showing escape routes and the locations of fire alarms and smoke detectors and other information and documents as required by the fire safety officer.**
 - 4. A completed safety triangle listing hazardous substance ratings of products stored at or in use at the job site.**

1.10 PERMITS AND FEES:

- A. Obtain Hazardous substance permits from Owner. All containers five (5) gallons or larger must be labeled with the permit number.**
- B. Obtain open flame (HOT WORK) permits and file pre and post burn inspection reports in writing on a daily basis as required by Owners Site Representative.**
- C. The Contractor shall apply for and secure all incidental permit , governmental fees and licenses necessary for proper execution and completion of the Work.**
 - 1. Contractor shall on award apply for and pay for all permitting required.**
 - 2. Contractor shall post permits as required by local permitting authorities.**
 - 3. Contractor shall coordinate with Consultant any revisions in Documents required for permit.**
 - 4. Contractor shall advise Owner & Consultant of all permit inspections and schedule with the Owner.**

1.11 SUBMITTALS FOR REVIEW

- A. Reference and comply with all requirements of Section 01 13 00 – Submittals of these Specifications.**
- B. Provide Manufacturer's Letter of Intent to Warranty and sample Warranty prior to the start of the Work.**
- C. Manufacturer's product specifications, installation instructions, and general recommendations for each principal roofing product.**
- D. Provide Standard Manufacturer's Test Performance Data and Manufacturer Literature showing that the System, as Specified, conforms to Specification Requirements. Include Manufacturer Published Material Requirements and specified Fire & Wind-Uplift Standards in both Material and Application.**
- E. Provide list of Subcontractors for each construction specialty including copies of**



current licenses and any necessary permits for approval and acceptance by the Owner. Owner retains final right of acceptance of subcontractors throughout the project through completion.

- F. Shop drawings showing all terminations and closures, and any field conditions identified by the Contractor. Indicate:
 - 1. Setting plan for insulation, including taper saddle locations
 - 2. Roof slopes.
 - 3. Base flashing, terminations, and special details.
 - 4. Fastener types and locations.
- G. Membrane/Surfacing Samples:
 - 1. 3 x 3 inch minimum roof membrane samples for each type of ply sheet
 - 2. 1/2 pint adhesive samples for each type of adhesive or coating representative of solvent content & flash point
- H. Sustainable Design Submittals:
 - 1. Recycled Content.
 - 2. Solar Reflectance Index
- I. Submit samples of all sheet metal materials to be used, including actual size mock-ups of metal counterflashings and through-wall flashings, siding, fascia, copings, gutters, scuppers, downspouts, and any other sheet metal fabrications and closures for approval and acceptance prior to ordering material or braking metal.
- J. Upon substantial completion, submit Final As-Built Copies of all flashing details, including any details amended by Found/Field Condition Reports (FCR's) or Change Orders, as well as scaled roof plan drawings showing the limits of each day's tear-off and/or new membrane installation. These documents are REQUIRED prior to final payout.
- K. Comply with each of the provisions of the Submittals section of these Specifications.

1.12 QUALIFICATIONS

- A. Applicator Qualifications:
 - 1. Prime Contractor and any Subcontractors must be licensed applicators for their construction specialty in the State of Illinois, with commercial liability, property, accident, personal injury and auto insurance coverage's in the amounts and limits specified or as required by the Owner.
 - 2. Must be accepted in writing as an approved applicator by at least one of the System Manufacturers specified.
 - 3. Must have installed at least five other projects of similar size, scope and/or complexity using the same or similar materials and application procedures as are required for this project for their construction specialty.
 - 4. Be equipped with a trained crew and all capital equipment required to perform the work as specified.
 - a. Maintain all equipment and tools in good working order throughout the project.
 - b. Equip all material heating equipment with accurate, fully readable



- thermometers.
- c. Provide a written safety plan to the work force **FOR EACH SPECIALTY** and specify, in writing proper clothing and dress.
- d. Shall appoint a safety coordinator who shall be a member of the roofing installation crew. The appointment shall be conveyed to the **Building Owner/Architect/Consultant** in writing, including all qualifications for the appointment, prior to the start of any work, including stocking the site with materials or equipment.

B. Manufacturer Qualifications:

1. Review and accept the specifications and details prior to the start of work.
2. Provide a factory-trained technician to attend site meetings and perform final inspection for the Manufacturer warranty.
3. Provide a warranty as specified upon satisfactory installation of the roofing system.

1.13 QUALITY ASSURANCE

- A.** Use adequate numbers of thoroughly trained and skilled workmen in the appropriate crafts or trades and who are completely familiar with these specifications and the methods and procedures required for proper performance of the Work.
- B.** The Roofing Contractor is to designate one of its employees to function as the Quality Control/Safety Site Administrator. It will be that person's responsibility to monitor the application to assure that all specifications and warranty requirements are met. This person shall maintain on the site a Daily Log including:
 1. Copies of all Submittals
 2. Designated Safety coordinator appointment with emergency contact phone numbers, fall protection plan, and material safety data sheets for all products.
 3. Daily crew attendance and time records
 4. Summaries of each day's work, including photographs of work in progress, found conditions, or detail revisions, and roof map showing locations of each day's work.
 5. Accident/Incident reports
 6. Material delivery records
 7. A Visitor Register showing Visitor Name, Log-in Time, Log-out Time, and Purpose for each Rooftop Visitor who is not an employee of the Prime Contractor. This includes Subcontractors and their employees and Owner and their employees or agents.
- C.** All work must comply with these specifications, all manufacturer's specifications or requirements, and good roofing practice. Any deviation must be authorized in advance by the Owner/Consultant **AND** the roofing materials manufacturer.
- D.** Defective applications, regardless of cause, must be removed and replaced in accordance with the specifications.
- E.** Do not jeopardize the quality of the work in place by incomplete installation of membrane, flashings or tie-offs in the interest of productivity without the written knowledge and acceptance of the Owner/Architect/Consultant, crediting the Owner



for any productivity increase commensurate with Owner's risk, as determined and assessed solely by the Owner.

- F. Failure to obtain the written approval of the Owner/Architect/Consultant for such work scheduling and practices shall be cause for immediate rejection of the full day's work for incomplete daily installations, at Contractor's sole cost, at the sole discretion of the Owner.
- G. Furnish written certification of Approved Applicator status from the appropriate Manufacturer(s) for the specified System(s).
- H. Materials must conform to the requirements of the American Society for Testing Materials (ASTM) and/or Federal Specifications as stated on the submission of the Manufacturer's data sheet or specifications. Use of materials that are not in compliance with approved and submitted data sheets or specifications will not be permitted.
- I. All materials used must be compatible with surrounding and/or existing materials.
- J. Contractor shall field test materials and notify the Consultant immediately of any variation from standard installation norms, or performance in application, which might suggest a lack of conformity with the Manufacturer's data sheets or specifications.

1.14 WEATHER RESTRICTIONS

- A. Do not apply roofing materials in inclement weather, or the presence of moisture.
- B. Do not apply roofing materials to damp or frozen decking materials or substrates.
- C. Do not expose materials sensitive to water, sunlight, or weather in quantities that cannot be properly and completely included in the Work the same day.
- D. The application of roll materials must take place when the temperature is at or above 32°F.
- E. Application at temperatures below 45°F. can only be attempted with the prior explicit knowledge and consent of the Owner, and only if special procedures satisfactory to the Owner are instituted to assure that recommended application temperatures and required material application thicknesses can be verifiably achieved. When the air temperature, including wind chill, is too low to assure consistent penetration or adhesion, all work will stop until conditions allow.
- F. Remove and dispose of any materials installed during inclement weather or in the presence of moisture without additional charge to the Owner.
- G. In the event of the onset of sudden rain or showers, comply with written method of procedure submitted and approved by Owner.

1.15 JOB CONDITIONS

- A. Comply with Federal, State and local OSHA safety regulations during field



investigation, the loading and unloading of material, and for the duration of the work. Ladders and temporarily protected surfaces must also be secured in compliance with applicable OSHA regulations.

- B. Avoid unnecessary rooftop traffic to prevent membrane or insulation damage. When necessary, provide temporary protection approved by the Owner and Consultant in frequently accessed areas.**
- C. Review in advance with the building owner or Consultant any areas designated for loading and unloading to avoid compromising the structure or substrate or causing any possible damage to the roofing assembly.**
- D. Changes in building occupancy and recent building renovation could impact the performance of the roof system and must be documented and reported on the field report & Contractors daily work reports.**
- E. Examine the roof surface at all phases of the work for signs of excessive ponding or deflection and call to Owner's/Consultant's attention prior to new roofing installation to determine if the situation could be eliminated by the use of new tapered insulation or the addition of new drains. Failure to do so is cause for rejection of the work.**
- F. Proceed with roofing membrane installation only after any substrate preparation is complete. Owner or Consultant, and roofing Applicator must accept substrate before proceeding with membrane installation.**
- G. Materials may be installed under certain adverse weather conditions only after consultation with and Written Approval of the Owner and/or Consultant.**
- H. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.**
- I. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.**
- J. Prior to and during application, all dirt, debris and dust shall be removed from surfaces by vacuuming, sweeping, blowing with compressed air or similar methods.**

1.16 SAFETY, CAUTIONS AND WARNINGS

- A. The Contractor shall use precautions necessary to provide for the safety of property owner, visitors to the site, and all connected with the work of this project.**
- B. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.**
- C. Comply with applicable Federal, State, Local and Owner health and safety**



requirements.

- D. **Applicable asbestos-containing material removal procedures must be used where asbestos is detected.**
- E. **Notify the Owner/Consultant in advance whenever work is expected to be potentially noxious, hazardous and/or harmful to persons and/or property on the site. Contractor is solely responsible for employing means and methods (acceptable to the Owner) as deemed necessary to prevent harm to such persons and property.**
- F. **Maintain a construction crewmember as a Floor Area Guard equipped with a working radio in direct contact with the roof-side foreman whenever roof decking is being repaired or replaced.**
- G. **Maintain proper fire extinguishing equipment and trained personnel within close proximity and with unobstructed access to work areas whenever power tools, torches and/or other heat-producing equipment is being used on the project.**
- H. **ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER INCLUDING OBTAINING OWNER ISSUED HOT WORK PERMITS AND EMPLOYEE SAFETY TRAINING MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED. SAFETY ORIENTATION MEETINGS are required PRIOR to performing any work.**
- I. **Provide the Owner/Consultant with timely copies of minutes of weekly Jobsite Toolbox talks.**
- J. **All existing facilities both above and below ground shall be protected and maintained free of damage.**
- K. **Existing facilities MUST remain operating during the period of construction unless otherwise permitted.**
- L. **All access roadways must remain open to traffic unless otherwise permitted.**
- M. **Cranes and delivery vehicles may be placed only where approved by the Owner and compliant with local codes, permitting and safety regulations.**
- N. **Material Safety Data Sheets must be made available at the job site at all times during the work.**
- O. **Protect existing roofing in Material Storage and traffic areas with Plywood walkways or protections over min. 1" foam insulation. Provide to and remove from site as required.**
- P. **Exercise caution when walking on wet membrane. Membranes are slippery when wet.**
- Q. **When work is performed on a white membrane or membrane receiving a white coating, safety sunglasses, which filter out ultraviolet light, are required because the white surface intensifies sunlight through reflection.**
- R. **The Applicator is cautioned that certain specified membranes are incompatible**



with asphalt, coal tar, heavy oils, roofing cements, creosote and some preservative materials. The Applicator shall flag such materials on Submittals and notate regarding compatibility, precautions and recommendations.

- S. Report areas where the membrane may have become contaminated with animal fat, grease, or other petroleum based products or where the membrane has been exposed to chemicals and assure new membrane(s) and materials will be properly protected.
- T. Ensure metal copings, counterflashing and other terminations are well secured and water tight. If new flashing is to be extended beyond the original termination, efforts must be made to ensure weep holes are not concealed or covered.

1.17 PRE-CONSTRUCTION MEETING

- A. Convene a Pre-Construction Meeting at least one week prior to the start of the Work. This meeting shall include the Architect/Engineer (if any), the Roofing Consultant, the Owner's on-site representative, the Roofing Contractor (acting as Prime), and each Subcontractor involved in the work including the full-time on-site foreman for each of the trades involved in the work (Roofing, Sheet Metal, Plumbing, Electrical, Mechanical, Masonry, and Carpentry)
- B. As a prerequisite for this meeting, assure all submittals required by the Architect/Owner/Consultant are provided prior to the start of work as described in this Section and in Section 012100-Submittals to allow sufficient time to be reviewed and approved prior to the start of this Pre-Construction Meeting.

1.18 SCHEDULING

- A. Provide both Owner and Consultant with an up-to-date, written Schedule for the Work updated weekly. Submit in GANNT chart format. Provide daily verbal update as frequently as weather, personnel changes, deliveries, equipment requirements and progress require.
- B. Schedule the work in a manner which assures that the Owner and Consultant are properly informed at all times of any Contractor activities which could possibly affect their respective operations.
- C. Provide daily verbal updates confirmed in writing as frequently as weather, personnel changes, deliveries, equipment requirements and progress require.
- D. Meet with Administrative personnel and Consultant to review site concerns prior to mobilization.
- E. Schedule the work in a manner that assures sufficient men and materials to complete all permanent roofing and flashings within each day's work area. Incomplete permanent roofing exposed to weather due to Contractor's scheduling or the lack thereof, ineffective tie-offs or weather, is subject to immediate rejection at the sole option of the Owner.
- F. Rejected, defective or improperly installed or damaged work is to be replaced



immediately as weather allows upon discovery, without cost to the Owner.

1.19 GUARANTEES/WARRANTIES

- A. Provide Owner with a Contractor Installation Guarantee for a period of at least two (2) years (Roofing/Mechanical/Masonry/Plumbing/Sealants/Electrical)**
- B. Provide Owner with a No Dollar Limit Roofing Manufacturer Guarantee of 20 years for all new roof replacement installations**
- C. Provide a 10-year Sealant Warranty from the Sealant Manufacturer for all sealant installations as specified.**
- D. Provide a 10-year Sheet Metal Finish warranty from the Finish Metal Supplier as specified.**

1.20 SCOPE OF WORK:

- A. BASE BID: This work requires repairs and restoration to existing roofing systems at the Almond Road and O'Plaine Campuses, Warren Township High School District #121 in Gurnee, IL.**
- B. GENERAL:**
 - 1. Stage the work to assure that the building is not vulnerable to water entry throughout the work, including during drain repair or replacement.**
 - 2. Identify with Owner's appointed personnel any non-functioning equipment and unnecessary roof openings prior to starting tear-off. Close in such openings level with the surrounding roof deck as a part of that day's work.**
 - 3. Identify with Owner's appointed personnel any areas of underdeck fire-proofing or firestops that could conceivably be dislodged by Work traffic or practices. Protect interior equipment and provide clean-up and any necessary re-application of spray-on Fire-proofing and or fire-stops WITHIN THE BASE BID. Install or replace missing or damaged firestops as required/directed at quoted unit prices in the proper work sequence.**
 - 4. Identify any mechanical equipment and piping requiring disconnection and re-connection prior to the start of work. Follow lockout-tagout procedures for all disconnects and reconnects. Take whatever measures may be necessary to protect the building from water entry throughout the work.**
 - 5. Take care at all times to prevent entry of fumes into the building. Close off or mask air intake dampers and move and store materials in ways which prevent fumes from entering the building.**
 - 6. Comply with specifications and details and provide closures at Vapor Barrier and Roof Membrane ends and edges as required for a complete air/firestop/vapor seal and watertight installation.**
 - 7. Check existing deck for signs of deterioration wherever it is opened and repair as specified or detailed at agreed upon unit prices with the Contingency Allowance.**
 - 8. Include in the Base Bid and the quotation by Part all applicable Contingency Allowances specified in Section 012100 - Allowances.**
 - 9. The Work also includes such additional work as may be required within contingency allowances as are described in Section 012100-Allowances as**



- specified.
10. Protect existing roofing in Material Storage and Traffic areas with plywood walkways or protections over min. 1" foam insulation. Provide to and remove from site as required.
 11. Repair or replace drain components, rod piping, and take whatever other measures may be necessary to assure that roof drains and down pipes, downspouts, gutters or scuppers are kept open and free-flowing throughout the work.
 12. Inspect plumbing, down pipes and connections and coordinate completion of drain repairs, installations or replacements prior to the start of any roofing repair work at quoted unit prices within the Contingency Allowance.
 13. Repair and or extend plumbing lines as required to conform with min. Code requirement of 8" extension above the finished roof surface. PVC extensions are forbidden.
 14. Coordinate and complete all plumbing repairs prior to the start of any roofing repair.
 15. Roofing work installed prior to completion of required plumbing repairs without the express written permission of the Owner/Consultant is subject to rejection at Contractor's sole cost.
 16. Coordinate plumbing installations to avoid backwater seams at drain flashings.
 17. Identify with Consultant and Owner the areas of current water entry at each roof. Review with the Consultant and Owner the likelihood of effective repair of those leaks within the Scope of the Work prior to the start of the work.
 18. Check all existing drains and downspouts for effective drainage and clamping action prior to the start of the work. Call any non-functioning drains, downspouts or drain accessories to the attention of the Consultant and the Owner.
 19. Clean roofs and gutters within the work of all debris. Remove and dispose of debris. Materials included in Base Bid.
 20. Check attachment of sheet metal at all perimeter fascia, copings, and counterflashings within the work. Re-set existing loose fasteners as directed within the contingency allowance. Where existing fasteners will not hold or can be removed without use of tools, install new screw-type fasteners acceptable to the Consultant.
 21. Re-attach loose or improperly set counterflashings/fascia within the contingency allowance. Fabricate and install additional fascia/counterflashings to match existing where existing counterflashing is missing or unusable.
 22. Check existing flashings for loose or disbonded materials. Seal loose or disbonded materials with compatible materials, as specified, or, if not specified, as recommended by material manufacturer.
 23. Check existing roof and flashing seams for adhesion. Reseal with materials of same type and manufacturer according to Manufacturer's repair procedures and these specifications.
 24. Check existing sheet metal seams for adhesion/attachment. Reseal with materials of same type and manufacturer according to Manufacturer's repair procedures and these specifications.



25. Check perimeter through wall flashings for plugged weeps or sealed flashings. Install new plastic weeps 24" o.c. inserted 3-1/2" min at the base of vertical soldier joints immediately above sealed through-wall flashings. Open weeps with power drills and replace or install new weeps as required.
26. Install sealant at open junctures of dissimilar materials immediately above the roofing work (excluding masonry joints which require tuckpointing).
27. Repair any designated areas on each roof per CECA issued drawings as specified.

C. System Wind Performance:

1. New Membrane System Performance: 120 MPH wind uplift
2. New Shingle System Performance: 130 MPH Wind Uplift
3. Membrane Pull-Off Resistance: 100 lbs/ft (1460 N/m), minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.
4. Fascia/Coping Pull-Off Resistance: 150 mph when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating.

D. Mechanical/Electrical Work:

1. Disconnection, purging, raising, re-setting, re-connection and charging of units/lines as required to assure min. 8" height off the roof membrane surface.

E. PLUMBING WORK:

1. Disconnect, re-connect and insulate interior lines and connections as required for a complete installation of new materials.
2. Install new 2hr. fire-stops and continuous air seals.
3. Rod all drains to first cleanout at start and finish of the work.

F. INTERIOR PROTECTION WORK (From Contingency Allowance - In authorized Deck Replacement Areas where interior is open to the sky ONLY) includes:

1. Identify any areas of sensitive electrical equipment or electronics requiring interior protection with Owner personnel prior to the start of any roofing work.
2. Mark and flag interior areas and provide ground man equipped with a radio or communications device that is in constant contact with the foreman on the roof directly under areas where roof removal is taking place.
3. Protect equipment and furnishings in place with properly draped and secured reinforced 6-mil min. fire-rated
4. Install temporary unistrut framing secured to the existing structure as required to assure Grifflyn can span and protect the areas required.
5. Clean regularly throughout the work and prior to leaving the site at the end of each work day to assure that debris or fire protection or interior protection materials which are knocked from the ceiling during the work are repaired and/or removed promptly before they can foul or damage interior equipment or furnishings.
6. Upon completion of the tear-off in a designated area, sweep and vacuum the area to remove all debris or dislodged fire-protection materials from ceilings and protective surfaces prior to removal, as well as floor areas,



equipment and furnishings, and interior surfaces below decking within the work area.

7. Remove all tape or foam or adhesive layers or residue of attachment from interior surfaces.

1.21

SCOPE OF WORK BY ROOF REPAIR TYPE:

1. Repair “tenting” or wrinkling of EPDM membrane and flashings
 - a. Remove existing ballast from flashing a minimum of 12” at all areas noted on issued drawings
 - b. Inspect EPDM flashing to locate any holes or splits in the membrane and apply compatible repair products as specified
 - c. Power wash and clean existing flashing to remove loose dirt and debris. Allow area to adequately dry before proceeding.
 - d. Apply coat of elastic, reflective rubber coating over the areas of wrinkled or stretched EPDM membrane per manufacturer written instructions
 - e. All repairs to be photo documented to reflect before and after conditions and referenced on CECA-issued roof plan
2. Remove and replace areas with extensive “tenting” of EPDM membrane (Contingency)
 - a. Remove existing ballast from flashing a minimum of 12” at all areas noted on issued drawings
 - b. Inspect EPDM flashing to locate any holes or splits in the membrane or separations along the membrane seams
 - c. Power wash and clean existing flashing to remove loose dirt and debris. Allow area to adequately dry before proceeding.
 - d. Cut and remove the stretched EPDM membrane along the section of damaged membrane
 - e. Install a new EPDM patch over the removed sections. Do not remove more membrane than can be repaired at one time.
 - f. All repairs to be photo documented to reflect before and after conditions and referenced on CECA-issued roof plan
3. Replace damaged or failing sealant at coping lap joints
 - a. Inspect all metal coping designated on issued drawings to identify any open or failing joints
 - b. Where sealant is failing or missing:
 - i. Clean area around seam and install new sealant as detailed
 - c. Where coping is damaged:
 - i. Remove fasteners to expose underlying flashing
 - d. Replace damaged sections with new metal to match existing type and finish.
4. Provide spot repairs to the field membranes as indicated on the Survey Roof Plan. Reference CECA-issued drawings for Each DESIGNATED Roof REPAIR Area within the Work. Address any conditions noted therein not listed below or specified herein within the Base Bid.
5. Provide exploratory opening at all areas identified on the Survey Roof Plan for inspection by Architect/Consultant.
 - a. Work includes removal and replacement of the of insulation, roofing, carpentry, and vapor barrier identified on the Drawings as follows:



- i. Remove designated area of roofing and insulation to underlying roof deck and dispose of debris.
 - ii. Identify and seal openings at roof penetrations to keep the building watertight.
 - iii. Identify deteriorated areas of decking and repair as specified at quoted unit prices within Contingency.
- b. **EPDM REPAIRS (Contingency):** These specifications require restoration and repair of the existing roofing and flashings as specified and detailed on the following 60 mil ballasted EPDM membrane roof areas:
 - i. The work includes removal, disposal and replacement of the wet areas of designated existing EPDM Roof Systems, including replacing designated membrane, flashings, terminations and counterflashings. Insulation thickness to match existing and be solidly adhered in low-rise foam adhesive in minimum two (2) offset layers overlaid with new 1/2" Densdeck coverboard and new fully-adhered 60 mil EPDM membrane and flashings. Any additional wet insulation identified during the removal is to be removed and disposed of at quoted unit prices as Extra Work within the Contingency Allowance. Store existing ballast on the roof to allow re-installation.
 - ii. Open decking and connections as required for inspection by the Architect/Structural Engineer/Consultant. Identify any areas of deflected or damaged decking. Throughout the work, call any loose, damaged or missing structural connections immediately to the attention of the Consultant/Architect/Structural Engineer.
 - iii. This WORK includes related carpentry, insulation, taper, saddles, fire barriers, vapor barriers, roofing membranes and flashings, siding, coatings, adhesives, fasteners, sheet metal fascia, gutters, downspouts, counterflashings, scuppers and overflows as required for a complete and waterproof installation.

1.22 SCOPE OF WORK BY OWNER/OTHERS

- A. Allow access to Power and Water common to the site at existing outlets.
- B. Provide access to electrical panels and conduit affected by the Work.
- C. Provide access to existing power and water at existing outlets.
- D. Assist Contractor in identifying air intakes and exhaust fans and their electrical controls.
- E. Assist Contractor in determining make-up air requirements throughout the project.

PART 2: PRODUCTS

2.01 MATERIALS



- A. Use Materials required by Part 3 - Execution of this Section, and as shown on the Construction Drawings, and as needed for complete and proper installation in a workmanlike manner.

2.02 SYSTEM CONFIGURATION(S)

- A. **BASE BID: Modified Roofing System for REPLACEMENTS**
1. Fenestra Metal Deck (Repair as quoted Unit Prices as required/directed)
 2. Metal Deck Primer (as necessary)
 3. 5/8" Densdeck or Type X fiberglass-faced gypsum board fire barrier
 4. 1" min. 1/4"/ft tapered Isocyanurate as specified in low rise foam adhesive with 8" sumps at drains.
 5. 1/2" per foot tapered saddles between drains and at high sides of equipment
 6. 1/2" High Density Fiberboard or 1/2" Densdeck Prime Overlayment insulation in low rise foam adhesive
 7. Fire-rated Modified base and Fire-rated Granulated Cap in approved cold-process adhesive.
 8. White Urethane Base and Top Aliphatic Coating as specified and detailed.

2.03 COMPONENTS SUPPLIED BY CONTRACTOR

- A. **BASE BID/ALTERNATE BID Modified Roofing System, Flashings and accessories as specified. Reference Section 07 5251, which includes:**
1. Fire-rated Modified base and Fire-rated Smooth (Base Bid) or FR Granulated (Alternate Bid) cap ply.
 2. System Manufacturer's cold-process adhesive
 3. System Manufacturer's Insulation
 4. System Manufacturer's Low Rise insulation adhesive
 5. Fasteners and Plates
 6. Batten Bar end caps
 7. Pre-Fabricated Boots and Corners
 8. Adhesives
 9. Cleaning materials and Solvents
 10. Hot Air Roof Membrane Welding equipment
 11. Cast Iron Drain Strainers
 12. Sheet metal flashings and counterflashings
- B. **BASE BID Roof insulation (3 types) as specified.**
1. **BASE LAYERS:** Two (2) layers 2.6" 2 lb. min. density Isocyanurate insulation as specified.
 2. **Tapered/Thermal Insulation:** 1/4"/ft. tapered Isocyanurate insulation 2 lb. Density, 2" min. at drains. Max. 4'x4' boards. Provide 1/2" Tapered Saddles between drains as shown on Plans and at high sides of equipment
 3. **Cold-applied Insulation Adhesive:** Manufacturer-approved and Owner-accepted cold adhesive.
 4. **COVER BOARD:** Owner's Option #1: 5/8" Dens Deck Prime 4 x 8 Sheets in low rise foam adhesive.
 5. **COVER BOARD:** Owners Option #2: Min. 1/2" High Density Fiberboard in 4x4 boards set in approved low rise adhesive.
- C. **BASE BID: Liquid-Applied Rubber Coating: Reference Section 07 5600 – Roof**



Coatings.

- D. Masonry, Copings, Sealants: Reference Masonry Specifications**
- E. Interior Protection Membrane:**
- 1. Grifflyn or equal protective Fire-retardant four-layer reinforced extrusion laminate. The outer layers consist of a high quality polyethylene film with a high concentration of fire-retardant additives, reinforced with a minimum of 1000 denier scrim laid in a diagonal pattern spaced 3/8" apart with an additional machine direction scrim every 9" (R5CCF) and 3" (R10CCF) across the width. The individual plies are laminated together with molten polyethylene.**
- F. Carpentry (for MODIFIED ROOF SYSTEM): New Fire-rated wood blocking per Section 06 10 00**
- 1. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.**
 - 2. Width: 3-1/2 inches (90 mm), nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.**
 - 3. Thickness: Same as thickness of roof insulation.**
- G. Sheet Metal Accessories, Copings, Fascia Flashings & Trim: per Section 07 60 00**
- 1. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge nailer as specified and detailed.**
 - 2. Wind Performance:**
 - a. Membrane Pull-Off Resistance: 100 lbs/ft (1460 N/m), minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.**
 - b. Fascia/Coping Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating.**
 - 3. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded TPO splices to allow thermal expansion.**
 - 4. Anchor Bar Cleat: 20 gage, 0.036 inch (0.9 mm) G90 coated commercial type galvanized steel with pre-punched holes.**
 - 5. Gravel-stop Strainers: Min. .050 Aluminum or 22 ga. SSTL with slotted holes, 8"X4".**
 - 6. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.**
 - 7. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14 inch (355 mm) long legs on corner pieces.**
 - 8. Scuppers: 24 ga. Kynar or. .050 Aluminum. Welded watertight.**
 - 9. Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as required to match existing.**
 - 10. Parapet Copings: Formed metal coping with anchor/support cleats for capping any parapet wall; watertight, maintenance free, without exposed**



fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated.

- a. **Wind Performance:**
 - i. At least 120 mph required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-3, current edition.
 - ii. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-120 rating.
- b. **Description:** Coping sections allowed to expand and contract freely while locked in place on anchor cleats by mechanical pressure from hardened stainless steel springs factory attached to anchor cleats; 8 inch (200 mm) wide splice plates with factory applied dual non-curing sealant strips capable of providing watertight seal.
- c. **Material and Finish:** 24 gage, 0.024 inch (0.06 mm) thick galvanized steel OR. 040 Aluminum with Kynar 500 finish in manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.
- d. **Dimensions:**
 - i. **Wall Width:** As indicated on the drawings.
 - ii. **Piece Length:** Standard full-piece minimum 144 inches (3650 mm).
 - iii. **Curved Application:** Factory fabricated in true radius.
 - iv. **Anchor/Support Cleats:** 20 gage, 0.036 inch (0.9 mm) thick pre-punched galvanized cleat with 12 inch (305 mm) wide stainless steel spring mechanically locked to cleat at 72 inches (1820 mm) on center.
 - v. **Special Shaped Components:** Provide factory-fabricated and field cut and shaped end and closure pieces necessary for complete installation.

2.03 COMPONENTS SUPPLIED BY OWNER/OTHERS

- A. None

PART 3: EXECUTION

3.01 GENERAL

- A. Assure that drain heads are capable of providing positive clamping action at the drains within the work. Where necessary, within the plumbing allowance install new drain heads or drain assemblies capable of providing positive clamping action at the drain where required. Wing nut and clip style clamps are not acceptable. Stage the work to assure that the building is not vulnerable to water entry during drain correction/repair.
- B. Identify with Building Engineering personnel non-functioning equipment and any un-necessary roof openings. Close in such openings level with the surrounding roof deck within the contingency allowance.
- C. All Work covered by Contingency must be thoroughly documented by Work Orders and Time Sheets and approved by Change Orders to the Contract at rates agreed on and acceptable to the Owner. No work in excess of the allowance shall be



performed without the express written permission of the Owner.

- D. Do not store materials or equipment or traverse roof areas not in the work without the express written permission of the Owner. Protect any existing roofing traversed or used for storage during the work with min ½" plywood on min 1" foam insulation.
- E. Materials in place or stored on site which are wetted before they can be covered or completely incorporated into the work must be removed from the site.
- F. Submit shop drawings for each flashing detail for approval prior to fabrication or construction showing actual shapes and dimensions matching existing field conditions. Call any field conditions that do not match the Construction Drawings immediately to the Consultant's attention.
- G. Provide minimum 12" flashing heights OFF ROOF SURFACE (NOT roof deck) at all base flashings, curbs, penetrations and equipment (except door sills which require min. 3" flashing height). Check tapered insulation plans vs. field installations and call any discrepancies or height conflicts immediately to the attention of the Architect/Consultant.
- H. Stage the work to assure that the building is not vulnerable to water entry at drain connections throughout the work, including during drain correction or repair or replacement.
- I. Take whatever action is required to prevent accumulations of water on the roof during the work, including adjusting drain heights, pumping water, etc. At no time allow the structure to become overloaded by either water or equipment/supplies during the work.
- J. All perimeters and projections are to be flashed in strict accordance with the Construction Details provided, or, where not provided, with current NRCA and SMACNA recommended details. Field conditions which require changes to the Construction Details provided in order to accommodate found conditions or to assure a complete and watertight installation must be documented with Found Condition Reports and, where changes to Construction Drawings are required, with Shop Drawings illustrating the as-built conditions. Unauthorized or improperly or incompletely documented changes to Construction Details are subject to rejection. Repair, replacement or revision of unauthorized or undocumented changes to Construction Details will be at Contractor's sole cost.

3.02 ROOF REPLACEMENT WORK PERFORMED BY CONTRACTOR

- A. Designated Roof Area:
 - 1. Sequence all work to assure building remains watertight and interior operations remain uninterrupted throughout the Work.
 - 2. Assure that adequate interior protection is complete and a ground man in place within the day's work area.
 - 3. Rod all drains to the first clean-out prior to the start of any roofing work AND upon final completion.



4. Remove designated areas of existing roofing and flashings to expose underlying vapor barrier and dispose of debris.
5. Clean the deck and flutes (if any) of debris. Use methods and equipment that minimize the risk of dust and debris entering the building.
6. Check the deck for signs of damage, inadequate attachment, deflection or corrosion. Call any deteriorated areas immediately to the attention of the Consultant.
7. Lower drain rims level with the surrounding deck.
8. Repair or replace decking as directed at quoted unit prices within the Contingency Allowance.
9. Install new solidly-adhered continuous vapor retarder membranes where required and specified. Install firestops, and vapor seals at all perimeters and projections.
10. Install insulation base layers and 1/4" per foot tapered insulation and 1/2" tapered saddles as specified. Bond tapered saddles to base layers of insulation in Manufacturer's recommended low-rise adhesive. Bond Cover board to base layers of insulation/tapered saddles in low-rise adhesive.
11. Install new Fire-Rated Granulated Modified Roofing System over properly swept and cleaned substrate. Finger-lap base and cap flashings as specified. Solidly heat weld all seams, ends and flashings.
12. Provide secure nighty tie-offs within replacement areas.
13. Extend membrane tie-offs 6" min. onto new roofing and up vertical surfaces. Extend new flashings min. 8" up vertical surfaces and mechanically secure to vertical substrate.
14. Provide and install mechanically attached perimeter metal hold-down strips as detailed conforming to Manufacturer requirements. Install at all perimeters and equipment curbs over 3' square.
15. Install drain targets as required. Assure all drain components in work area are in working order prior to membrane installation.
16. Install pre-manufactured corner boots and flashings where possible.
17. Install termination bar securement to flashings per Manufacturer requirements as detailed.
18. Install new sheet metal copings, caps, counterflashings, skirt flashings and accessories and sealants as required for a complete and watertight installation.

3.03 VAPOR BARRIER/TEMPORARY ROOFING INSTALLATION – FOR TAPERED MODIFIED SYSTEMS ONLY

- A. All deck/deck cover substrates must be primed prior to application. Use only primer supplied by membrane manufacturer.
- B. Application can be made at ambient temperatures as low as 25 °F (-4 °C) as long as membrane has been stored in a heated area so that it will be between 50 °F (10 °C) and 100 °F (38 °C) at the time of application.
- C. Install approved Base Sheet/Temporary Roofing with minimum 3" (76.2 mm) side laps and 6" (152.4 mm) end laps.
- D. Roll in with a 75 lb (34 kg) roller to fully mate each roll to substrate, including all lap areas.



3.04 INSULATION INSTALLATION

- A. BASE BID: Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System Configuration, and elsewhere in Section 01 1010 Scope of Work and Section 07 2500 Cementitious Insulation.**
- B. Install only as much insulation as can be covered with the completed roofing system or properly secured before the end of the day's work or before the onset of inclement weather.**
- C. Lay roof insulation in courses parallel to roof edges.**
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch (6 mm).**
- E. Adhesive Attachment: Apply in accordance with membrane manufacturer's instructions and recommendations; "walk-in" individual roof insulation boards to obtain maximum adhesive contact.**

3.05 MODIFIED MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.**
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.**
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.**
- D. Install membrane adhered to the substrate, with edge securement as specified.**
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.**
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.**

3.06 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.**
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations**



indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.

1. Follow roofing manufacturer's instructions.
 2. Remove protective plastic surface film immediately before installation.
 3. Install water block sealant under the membrane anchorage leg.
 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
 7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Scuppers: Install overflow scuppers as required by current codes. Set in sealant and secure to structure; flash as recommended by manufacturer.
- D. Roofing Expansion Joints/Control Joints: Install as shown on drawings and as recommended by roofing manufacturer.
- E. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.
1. Use the longest practical flashing pieces, but no more than 10'.
 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
 3. Provide termination directly to the vertical substrate as shown on roof drawings.
- F. Roof Drains:
1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
 2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane
 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- G. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
1. Pipes, Round Supports, and Similar Items: Flash with specified pre-



molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.

2. **Pipe Clusters and Unusual Shaped Penetrations:** Provide penetration pocket at least 2 inches (50 mm) deep, with at least 1 inch (25 mm) clearance from penetration, sloped to shed water.
3. **Structural Steel Tubing:** If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
4. **Flexible and Moving Penetrations:** Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.

3.08 FINISHING AND WALKWAY INSTALLATION

- A. Install walkways with Manufacturer's approved walk-treds at access points to the roof, around rooftop equipment that may require maintenance, and one paver wide around perimeters of each roof area, as well as where otherwise indicated on the drawings.

3.09 FIELD QUALITY CONTROL

- A. Jobsite Foreman must assure completed roofing is checked for watertight seams and terminations at the end of each day's work **PRIOR TO LEAVING THE SITE FOR THE DAY.**
- B. **Inspection by Manufacturer:** Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- C. Perform all corrections necessary for issuance of warranty.
- D. Complete all Punchlist items created by the Consultant.

3.10 WORK BY OWNER

- A. Allow access to Power and Water common to the site at existing outlets throughout the work.
- B. Provide access to electrical panels and conduit affected by the Work throughout the work.
- C. Provide access to existing power and water at existing outlets throughout the work.
- D. Assist Contractor in identifying air intakes and exhaust fans and their electrical controls as required throughout the work.
- E. Assist Contractor in identifying equipment or interior spaces that could require interior protection.



- F. Assist Contractor in determining make-up air requirements throughout the work.
- G. Assist Contractor in accessing, testing and re-certifying gas piping or electrical equipment or lightning protection equipment.
- H. Assist Contractor in accessing locked areas in the event of off-hour leaks or water entry, or other incidents that require Contractor entry to interior space.

3.11 CLEANING

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.12 PROJECT CLOSEOUT & COMPLETION

- A. Complete Punchlist Items with seven (7) working days.
- B. Reference SUBMITTALS Section 01 13 00 -- Submit all required documentation prior to Final Payout submittal.

END OF SECTION 01 1010



DIVISION 1

SECTION 01 1210

CONTINGENCY

PART 1: GENERAL

1.01 SUMMARY

- A.** To provide adequate budget and bonding to cover items not able to be precisely determined prior to bidding, the Owner will allow a Contingency for additional unforeseen work or costs that may, or may not, ultimately be required. Expenditures from a contingency are administered the same as extra cost change orders under the contract, except that the Contract Price is not increased as long as unexpended monies remain in the contingency. A contingency includes the Contractor's overhead and profit on expenditures from the contingency. Any remaining Contingency monies are credited back to the Owner by Change Order at the end of the Project.
- B.** Unless otherwise provided in the Contract Documents:
- 1.** The Roofing Contractor shall act as General in securing pricing from subcontractors for Contingency work and in providing supervision of the work of any and all sub-contract work required with the Contingency.
 - 2.** Unit Prices are to be submitted on the Forms provided in the Project Manual for approval and acceptance by the Owner with the Bid Form. Acceptance of the Bid is not be construed as acceptance of the Bidders Quoted Unit Prices, which are subject to separate acceptance by the Owner.
 - 3.** Unit Prices accepted by the Owner shall be used to compute any Extra Work covered within the Contingency.
 - 4.** Allowances within the Contingency shall cover:
 - a.** the cost to the Contractor of related and necessary materials and equipment delivered at the site and all required taxes, less applicable trade discounts.
 - b.** Contractor's related and necessary cost for unloading and handling at the site, labor, and installation costs, overhead, profit, related bond costs and all other expenses contemplated.
 - 5.** Contingency work must clearly show on the FCR/Change Order the amount of time added to the Contract as a result of the Extra Work.
 - 6.** Contingency work and estimated costs are to be pre-approved prior to the start of and during construction with Found Condition Reports submitted on the Forms provided in this Project Manual documenting the Work to be performed, and include clearly stated not-to-exceed estimates and step by step method of procedure for the proposed work. FCR's must be submitted and accepted by the Consultant and Owner prior to starting any Contingency work.
 - 7.** Contingencies are to be documented immediately during the Work with estimated costs, with actual cost breakdowns of labor, material, and overhead & profit required prior to final Owner acceptance. FCRs are not-to-exceed estimates.



Change Orders must reflect final actual costs. FCR's documenting estimated and actual costs must be submitted as supporting documentation with corresponding Change Orders to the Contract on the Forms provided in the Contract Documents.

8. Contingency work may be performed immediately upon verbal instruction of the Owner/Consultant, provided:
 - a) the NTE (Not-to-Exceed) amount of the FCR, when combined with other approved FCRs to date, does not exceed the total Contingency amount in the Contract
 - b) the verbally quoted NTE amount is within the quoted Not-to-Exceed amount shown on a confirming Found Condition Report received by the Owner and Consultant from the Contractor within 24 hours of identification of the condition.
9. When final costs are accepted and approved by the Owner, the FCR shall be amended to show actual costs with supporting documentation, and the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the original Not-To-Exceed FCR under paragraph B.1. and (2) changes in Contractor's costs under paragraph B.2. above.
10. The Contingency Schedule published in this section is an estimated guide and does not limit the Owner from choosing to use schedule Contingency amounts for whatever use the Owner deems to be appropriate.

1.02 RELATED WORK

- A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and all other sections of these Specifications.
- B. Other provisions affecting Contingency/Allowances may be stated in other Sections of these Specifications and are to be treated as though they are a part of this Section.

1.03 CONTINGENCIES

- A. Consultant/Owner Responsibilities:
 1. Consult with Contractor in consideration and selection of products, suppliers and installers.
 2. Select products or services in consultation with Owner.
 3. Review method(s) of procedure and estimated maximum costs documented on Found Condition Reports submitted by the Contractor and transmit Owner's decision to Contractor. Owner approved field-Found Condition Reports are required prior to proceeding with Contingency Work.
 4. Review and approve Shop Drawings and process shop drawings, product data and samples, where required to assure in so far as is possible that installation schedules for the balance of the work can be met.
 5. Review and pre-approve Change Orders and transmit to Owner for approval.



6. Transmit Owner's decision to the Contractor.

B. Contractor's Responsibilities:

1. Assist Consultant/Owner in selection of products, suppliers and installers.
2. Obtain proposals from suppliers and installers and offer recommendations and review of proposals submitted. Transmit to Consultant/Owner on FCR Forms provided in the Contract Documents, attaching all supporting documentation. Include any bond cost adjustments with the proposal. Include scheduling information and assessment of impact on other work.
3. On notification of selection by Consultant/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.
6. Document thoroughly all costs related to the work.
7. Advise the Consultant/Owner immediately of any material changes in the products provided, their estimated cost, scope or timing of deliveries or installations. Contractor may not exceed estimated maximum cost without written acceptance by Consultant/Owner.
8. Provide the Consultant/Owner with fully documented Change Orders detailing all Contingency work performed. Including all documentation required.

1.04 CONTINGENCY DOCUMENTATION

A. All Work covered by Contingency must be thoroughly documented as follows:

1. Upon encountering Found Conditions, or Contingency work, or any field conditions, which is, not as shown in Construction Drawings, the Contractor shall immediately notify the Consultant and Owner and obtain verbal approval to proceed with any work, confirmed in writing within 24 hours by Contractor submission of a fully completed Found Conditions Report (FCR) using the forms included in the Project Manual. Contractor work initiated without submitting a completed FCR within 24 hours is performed entirely at Contractor's own risk and potentially his cost, regardless of any prior verbal approval.
2. Found Condition Reports (FCR's) will be used to track and document potential Change Orders. At the completion of the work described by the FCR, Not-to-Exceed totals submitted on FCR's shall be fully documented by Work Orders, Material invoices, receipts, Time Sheets, and Waivers of Lien. These are to be submitted to and approved by Consultant and Owner prior to initiating a formal Change Order to the Contract on the forms included in the Project Manual.
3. Additional charges shall be at rates agreed on and acceptable to the Owner. No work in excess of the FCR amount shall be performed without the express written permission of the Owner.



1.05 CONTINGENCY ITEMS SCHEDULE

- A. Contingencies will be held by the Owner for the following work items by Roof, and which include markups, overhead, bonds and taxes as follows:**
- B. Almond Road Campus:**
 - 1. By Work Type:**
 - a. Replacement/Repair of Decking: \$1,000.00
 - b. Wood Block replacement/re-securement: \$500.00
 - c. Additional Roof Coating: \$2,000.00
 - d. Additional Mechanical/Electrical/Ladders/Hatch: \$1,000.00
 - e. Additional Interior Protection: \$500.00
 - f. Additional Fire-proofing Repairs at Deck/Penetrations: \$500.00
 - g. Additional Plumbing Work: \$1,000.00
 - h. Additional Roof Membrane Repairs NOT IN Base Bid directly affecting Roofing: \$2,500.00
 - i. Lightning Protection: \$500.00
- C. O'Plaine Campus:**
 - 1. By Work Type:**
 - a. Replacement/Repair of Decking: \$1,000.00
 - b. Wood Block replacement/re-securement: \$500.00
 - c. Additional Roof Coating: \$2,000.00
 - d. Additional Mechanical/Electrical/Ladders/Hatch: \$1,000.00
 - e. Additional Interior Protection: \$500.00
 - f. Additional Fire-proofing Repairs at Deck/Penetrations: \$500.00
 - g. Additional Plumbing Work: \$1,000.00
 - h. Additional Roof Membrane Repairs NOT IN Base Bid directly affecting Roofing: \$2,500.00
 - i. Lightning Protection: \$500.00
- D. GRAND TOTAL ALL SITES AT ONCE: \$19,000**

1.06 CONTINGENCY INCLUSIONS/EXCLUSIONS

- A. General:**
 - 1. Additional costs related to improper scheduling, sequencing, or coordination will not be covered within the Contingency, as determined solely by the Owner.**
 - 2. Conform to Construction Details. Submit Shop Drawings for pre-approval wherever conditions are encountered which differ from Construction Details.**
- B. Wood Blocking:**
 - 1. Credit Owner for Wood blocking in good condition and properly secured that is left in place at quoted unit prices documented with FCR's. Replace rotted, warped, or damaged wood blocking in kind attached with specified fasteners at quoted unit prices within the Contingency.**



2. Check existing and Re-secure improperly attached but sound wood blocking at quoted unit prices within the Contingency.

B. Plumbing:

1. All work required to identify non-functioning drainage components and keep existing functional drains/gutters/scuppers and spill outs open and free flowing throughout the work is included in the Base Bid and/or Alternate, and will not be covered within the Contingency.
2. Specified rodding of drains to the first cleanout and installation of new lead & oakum at junctures of existing drain bowls and downpipes, as well as pipe insulation installation is included in the Base Bid and/or Alternate and will not be covered within the Contingency.
3. Identification of non-functioning drain components at the start of the work is included in the Base Bid. Replace damaged or non-functioning strainers, clamping rings, bolts & washers, bowls and down-pipes within the Base Bid. Any additional re-tapping of drain bolts and/or new drainhead or drain component installations identified later in the work to be at quoted unit prices as specified and detailed within the Contingency.
4. Lower drain bowl rims to the level of the deck at quoted unit prices within the Contingency Contingency.

C. Deck Replacement:

1. All work involved in removal and decking in of units identified for removal are included in the Base Bid and no part of that work will be covered within the Contingency.
2. Check exposed wood joists for deflection or rot and advise Owner immediately of any significant variances or deteriorated material. Repair/replace as directed at quoted unit prices within the Contingency.
3. Concrete Decks: Remove any loose or disbanded concrete at quoted unit prices. Include re-bar as required to join structurally to the existing slab or to replace rusted/rotted existing rebar at quoted unit prices within the Contingency.

D. Mechanical:

1. Replacement of damaged or dented equipment shrouds on roof areas specified for replacement is included in the Base Bid and will not be covered within the Contingency.
2. Elimination or replacement of non-functioning or capped openings identified by Owner at the start of the work, whether specifically identified on the drawings or not, is included in the Base Bid, and will not be covered within the Contingency.
3. Raise, extend and re-set existing mechanical/skylight units/curbs as required to provide minimum 8" flashing heights within the Base Bid, including any electrical/mechanical/gas disconnects, re-connects, duct or curb revisions or extensions, electrical/mechanical adjustments, additional supports, bleeds,



recharges, testing, structural evaluations & re-certifications, etc. required.

E. Masonry/Sealant Exclusions:

1. All work immediately above or adjacent to the Roofing Work, or required to protect existing roofing or adjacent building surfaces is included in the Base Bid, and will not be covered within the Contingency.
2. Sealant or Masonry work required at dissimilar building surfaces above or immediately adjacent to roofing work and open to the naked eye is included in the Base Bid and will not be covered within the Contingency. Masonry and sealant work, which is uncovered during the work, is included in the Contingency.
3. Any Revisions to doors and lintels above the roofing work will be included in the Base Bid.
4. Revisions required to roof hatches or roof access panels, will be included in the Contingency Work.

F. Fire-stopping/Fire-proofing:

1. All work required to protect the interior from falling fire-protection and keep existing firestops functional throughout the work is included within the Contingency. Identify AT RISK Fireproofing and Firestops at the start of the work. Replace damaged or loose or missing/non-existent fire-protection and firestops within the Contingency.

G. Interior Protection:

1. With the exception of the Ground Man and visqueen covering of designated interior spaces required in the Base Bid, all INTERIOR work required to protect the interior from debris and falling fire-protection is included within the Contingency. Identify AT RISK areas at the start of the work and at the start EACH DAY'S work and call immediately to the attention of the Owner/Consultant.

END OF SECTION 01 1210



DIVISION 1
SECTION 01 2500
SUBMITTALS

PART 1: GENERAL

1.01 SECTION INCLUDES:

- A. Submittals Required Prior to Project Start**
- B. Submittals Required Prior to Project Close-Out**
- C. Submittals Required for authorized Progress Payments**

1.02 SUBMITTALS PRIOR TO START

- A. Prior to the Start of Work Contractor shall submit the following submittals for review and acceptance by the Consultant or Owner's Representative:**
 - 1. Completely filled out Schedule of Values on the forms provided in the Project Manual(s)**
 - 2. List of Materials**
 - 3. Schedule for the Work**
 - 4. Manufacturers' Letters of acceptance of all other materials used in System from:**
 - Roofing System Manufacturer**
 - Sheet Metal Finish Manufacturer**
 - Sealant Manufacturer**
 - Insulation Manufacturer**
 - 5. Contractor's Letter of Intent to Warranty**
 - 6. Shop Drawings**
 - 7. Material Samples/Color Charts**
 - 8. Actual Size Mock-ups of all Sheet Metal**
 - 9. On-site mock-up of all Coating Applications**
 - 10. Material Safety Data Sheets**
 - 11. Sample Manufacturer Warranty/Guarantee for:**
 - Roofing System**
 - Sheet Metal Finish**
 - Sheet metal coatings**
 - Roof membrane coatings**
 - Sealants**
 - 12. Sample Contractor Warranty/Guarantee**
 - 13. Applicable Licenses/Permits/Fees/Regulatory Notifications**
 - 14. Certificates of Insurance for Roofing Contractor, with required additional insureds.**
 - 15. Certificates of Insurance for Each Sub-Contractor, with required additional insureds.**



16. List of Emergency/After-hours Contacts
17. List of Sub-Contractors
18. Wood Treatment Data
19. Fastener Pullout Tests conforming to specified Test Data requirements
20. Payment & Performance Bonds (if required)
21. FM Approval Sheets showing approved fastener spacing for 1-90 wind uplift
22. Certification by System Manufacturer that applicable code-requirements, FM & UL fire and wind requirements are met by proposed system.
23. Method of Procedure on company letterhead for ACRM Handling, Monitoring and Disposal including Charges
24. Method of Procedure on company letterhead detailing materials and methods to be used to protect materials and building in the event of the onset of a sudden rain shower during construction

- B. Owner permission to begin the work is subject to Contractor submission of each of the above submittals prior to the start of the Work.

1.03 SUBMITTALS PRIOR TO CLOSE-OUT

- A. Prior to the Close-out of the Contract and Final Payment, the Contractor shall submit the following submittals for review and acceptance by the Consultant or Owner's Representative:
1. Originals of all Dump Tickets
 2. Two (2) As-built copies of Construction Drawings including any and all approved shop sketches and drawings for any details originating after the award of the Contract.
 3. Manufacturer's Letter of Acceptance of the Completed Work
 4. Certifications of Deck Manufacturer for Metal Deck Replacements
 5. Manufacturer Guarantee
 6. Contractor Guarantee
 7. Sub-Contractor Final Waivers of Lien
 8. Waivers of Lien from all suppliers of over \$200 in materials, with supporting receipts.
 9. Roofing Contractor Final Waiver of Lien
 10. Scaled Roof Drawing showing limits of each day's tear-off/ installation and date of work.
- B. Inaccurate or incomplete submittals cannot be processed for payment and the entire incomplete submittal will be returned to the Contractor for correction and re-submittal. Delays in payment caused by incomplete or inaccurate submittals are entirely the responsibility of the Contractor.

1.04 SUBMITTALS PRIOR TO PROGRESS PAYOUT

- A. Prior to the payout of Progress Payments (if any) as allowed under the Contract, in addition to submittals required before Project Start under 1.02 above, the Contractor shall submit the following submittals for review and acceptance by the Consultant and/or Owner's Representative:



1. Completely filled out and duly signed and notarized Contractor and Sub-Contractor **PARTIAL WAIVERS OF LIEN** on forms provided in these contract documents, in Section 00 5200.
 2. Completely filled out and duly signed and notarized **PAYOUT REQUEST FORMS** on Walker Form, a sample of which is provided in these contract documents, in Section 00 5010.
 3. Partial Waivers of Lien or paid material invoices from all suppliers of over \$200 in materials, with supporting receipts.
 4. Scaled Roof Drawing showing limits of each day's tear-off and date of work to date.
 5. An up-to-date schedule for remaining work through completion.
 6. An up-to-date copy of all approved Change Orders to the contract on Change Order Forms provided in these contract documents.
- B. Inaccurate or incomplete submittals cannot be processed for payment and the entire incomplete submittal will be returned to the Contractor for correction and re-submittal. Delays in payment caused by incomplete or inaccurate submittals are entirely the responsibility of the Contractor.**

1.05 CONTRACTOR'S RESPONSIBILITIES

- A. Verification of field measurements is the SOLE responsibility of the contractor(s).**
- B. Submission of full, complete and accurate submittals in a timely manner is required. Failure to provide such submittals is cause for the Owner/Consultant to stop the work without penalty or charge to the Owner/Consultant until the proper submittals are submitted and accepted.**
- C. Any error or omission of Consultant /Owner in review of required submittals by contractor does not relieve contractor from specified responsibility.**
- D. Any deviation from the specified materials and application procedures must be submitted under separate cover as outlined in the General Conditions and requested as a change in writing on the Change Order Forms which accompany this Specification. Said changes shall be confirmed by written approval of the Owner on the change order form.**
- E. Obtain approval of submittals from the Owner's representative.**
- F. Accompany each and every Submittal with a Letter of Transmittal which includes the following:**
1. **Owner**
 2. **Project Title**
 3. **Date of Contract**
 4. **C. E. Crowley & Associates Job Number**
 5. **Owner's Representative**



PART 2: PRODUCTS

2.01 LIST OF MATERIALS

- A. Submit a complete list of all materials to be used on the project, including complete product name, identification number or code (if any) and specification or data sheets. Include at minimum enough information to verify compliance with the Contract Documents.**

2.02 SCHEDULE FOR THE WORK

- A. Submit a Weekly Construction Schedule for each Phase of the Work, weather permitting. Include a Roof Plan, which shows the planned areas of removal and the sequence for the work, including daily and weekly targets and estimated date of final completion.**
- B. Revise the Construction Schedule weekly, or as changes in weather, progress, equipment or personnel require. Submit Final version showing locations of each day's work with Final Payout.**

2.03 MFR. LETTER OF INTENT TO WARRANTY

- A. Submit a Letter of Intent to Warranty signed by the Manufacturer's Technical Services Manager or an officer of the Manufacturing company. Include a Sample Copy of Manufacturer's Warranty.**

2.04 CONTRACTOR LETTER OF INTENT TO WARRANTY

- A. Submit a Letter of Intent to Warranty signed by the Owner of the Roofing Contractor's firm or a signatory officer of the company.**

2.05 SHOP DRAWINGS

- A. Submit a copy of the Consultant's Construction details, noting exact materials to be used by product name and (if applicable) number. Show scale drawings of any changes, which the Contractor wishes to make to conform to field conditions.**

2.06 MATERIAL SAMPLES/COLOR CHARTS

- A. Submit samples of any materials where color is a choice for review and acceptance by the Owner.**
- B. Submit mockup actual scale samples of sheet metal details for acceptance prior to installation.**

2.07 MATERIAL SAFETY DATA SHEETS

- A. Submit MSD sheets for each and every product used on the site.**



- B. Maintain a copy of MSD sheets on the project at all times.

2.08 SAMPLE WARRANTIES/GUARANTEES

- A. Submit a sample Manufacturer Warranty for review and acceptance by the Consultant and Owner.
- B. Submit a sample Contractor Warranty for review and acceptance by the Consultant and Owner.

2.09 LICENSES/PERMITS/FEES

- A. Submit copies of any and all licenses, or permits, along with receipts for any fees required in connection with the work, prior to the start of Work.

2.10 CERTIFICATES OF INSURANCE

- A. Submit copies of Certificates of Insurance required by the General Conditions, in the form and amounts stipulated by the Owner.
- B. Provide copies of Certificates of Insurance for each Sub-Contractor.

2.11 LIST OF AFTER-HOURS CONTACTS

- A. Submit a list of current Names, and after-hours phone numbers for a representative of each Contractor and/or Sub-Contractor involved in the Work. Update this list as required.

2.12 LIST OF SUB-CONTRACTORS

- A. Submit a list of all intended Sub-Contractor's, including Names, Addresses, Phone Numbers, Trade and References for acceptance by the Owner's Representative.

2.13 TAPERED LAYOUT (If applicable)

- A. Submit Manufacturer's Roof Plan to Scale showing the proposed layout of tapered insulation and/or saddles or crickets for review and acceptance by the Owner's Representative.

2.14 DEBRIS TICKETS

- A. Submit originals of all dump tickets to the Owner prior to project Close-out.

2.15 WOOD TREATMENT DATA

- A. Wood Treatment Data:
 - 1. Submit copies of chemical treatment manufacturer's instruction for proper use of each type of treated material.



2. Include certification by treating plant stating chemicals and process used, net amount of salts retained, and conformance with applicable standards and specifications.
3. For water-borne preservatives, include statement that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to Site.

2.16 FM APPROVALS

- A. Submit most current Membrane Manufacturer FM approval data documenting compliance with FM I-90 requirements and I-29S requirements for fastener spacing and sheet widths required for deck type and insulation thickness.
- B. Submit most current Insulation Manufacturer FM approval data documenting compliance with FM I-90 requirements and I-29S requirements for fastener spacing and board sizes used on this project.

PART 3: EXECUTION

3.01 SUBMITTAL SCHEDULE

- A. Make submittals far enough in advance of scheduled dates for installation to allow time required for review and approvals, for possible revisions and re-submittals, and for placing orders and obtaining delivery.
- B. Allow at least 7 working days for review by the Consultant of all submittals. Allow at least 5 days for revisions/re-submittals.
- C. Verify that all the requirements of each submittal have been obtained and performed by affixing the signature of the Contractor's authorized representative to each Submittal Transmittal.

END OF SECTION 01 2500



DIVISION 1
SECTION 01 4000
QUALITY CONTROL

PART 1: GENERAL

1.01 DESCRIPTION

- A. Provide the degree of oversight and management required to complete the Contract Work as specified and detailed in a timely manner as weather permits.**
- B. Co-operate with the Consultant and all other trades as needed for a complete and proper installation.**

1.02 ITEMS INCLUDED

- A. General Quality Control**
- B. Workmanship**
- C. Manufacturer's Instructions**
- D. Testing Laboratory Services**
- E. Application Quality Control**
- F. Pre-Construction Meetings**
- G. Construction Progress Inspections**
- H. Final Inspections**

1.03 GENERAL QUALITY CONTROL

- A. Maintain quality control over suppliers, manufacturer's products, services, site conditions, and workmanship, to produce work of specified quality.**

1.04 WORKMANSHIP

- A. Comply with industry standards except when tolerances that are more restrictive or specified requirements indicate more rigid standards or more precise workmanship.**
- B. Perform work with persons qualified to produce workmanship of specified quality.**
- C. Secure products in place with positive anchorage devices designed and sized to**



withstand stresses, vibration, and racking in strict accordance with all governing agencies, including but not limited to State, Federal and Municipal agencies, as well as specified Insurance agencies.

1.05 MANUFACTURER'S INSTRUCTIONS

- A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request written clarification from the Consultant before proceeding. Failure to comply shall be grounds for rejection of work completed which conflicts with drawings and specification documents.**

1.06 TESTING LABORATORY SERVICES

- A. Contractor shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services should it be determined by the Consultant and/or the Owner's Representative that the materials being utilized by the contractor do not meet specification requirements.**
- B. Services will be performed in accordance with requirements of governing authorities and with specified standards.**
- C. Reports will be submitted to Owner in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.**
- D. During the course of work, Owner's representative may secure samples of materials being used from containers at job site and submit them to an independent laboratory for comparison to specified material.**
 - 1. If test results prove that material is not functionally equal to the specified material, the Contractor shall pay for all testing.**
 - 2. Owner will charge Contractor a penalty up to twenty percent (20%) of contract price when all work has been completed before test results become known.**
 - 3. Owner will charge Contractor a penalty in proportion to amount of work completed before test results become known. Remaining work shall be completed with specified materials.**

1.07 APPLICATION QUALITY CONTROL

- A. Contractor, his personnel and his Sub-Contractors shall be experienced in all aspects of the type of project being undertaken.**
- B. Contractor shall provide Owner with a list of projects available for inspection employing the same system.**
- C. Contractor shall be certified and approved by the materials manufacturer for the system being applied prior to the commencement of work.**
- D. Contractor's foremen on the job shall have a complete set of plans and specifications on the job site at all times. The foremen shall produce these specifications upon request of either the Owner or Consultant. Failure to do so**



will result in a violation of the specification and could subject the Contractor to work stoppage at his sole cost.

1.08 CONSTRUCTION MEETINGS

- A. A Pre-Construction Conference may be scheduled by the Consultant prior to the start of the project and shall be attended by a representative of Owner, contractor and contractor's foremen for this job.**
- B. Agenda will include:**
 - 1. submittal of insurance certificates;**
 - 2. submittal of executed bonds and insurance certificates;**
 - 3. execution of Owner-Contractor Agreement;**
 - 4. distribution of Contract Documents;**
 - 5. submittal of list of sub-contractors, material submittals, and construction schedule;**
 - 6. designation of responsible personnel;**
 - 7. walkover and inspection of project site.**

1.09 CONSTRUCTION PROGRESS INSPECTIONS

- A. Construction progress inspections may be convened by the Consultant and/or the Owner's Representative on a periodic basis.**
- B. Should the contractor be cited for non-compliance with the Specifications during the course of a progress inspection all parties shall be notified with a copy of the site inspection.**
- C. In the event that the contractor is cited for the same non-compliance item twice, or any three items total, the Owner shall employ the Consultant to provide daily full-time site inspections, the cost of which will be deducted from the contractor's final contract amount.**

1.10 FINAL INSPECTION

- A. The Consultant upon written notice of project completion will schedule a final inspection. The Consultant, the Owner's Representative, the Contractor and any Sub-Contractors will attend such meeting. If the contractor fails to attend the final inspection, the contractor may be charged for the Consultant's time.**
- B. Agenda will include:**
 - 1. walkover inspection of completed work;**
 - 2. identification of problems which may impede issuance of warranty;**
 - 3. time frame for resolution of problems, which may impede issuance of warranty.**
- C. Upon completion of the final inspection, a punch list of items, which need to be corrected, will be developed. The contractor shall make the stated repairs within five (5) working days and then return a signed copy of the punch list to the**



Consultant at which time the project will be re-inspected. Should the reinspection reveal that the punch list has not been completed in its entirety, the contractor shall be charged on a timely basis for the reinspection and for all time of subsequent inspections until the punch list is completed.

END OF SECTION 01 4000



DIVISION 1

SECTION 01 5000

TEMPORARY FACILITIES, SECURITY AND CONTROLS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Temporary Facilities**
- B. Toilet Facilities**
- C. Construction Barriers**
- D. Security**
- E. Traffic**
- F. Storage Facilities**
- G. Work Areas**

1.02 TEMPORARY UTILITIES

- A. Temporary utility services required for work shall be arranged with the Owner prior to commencement of the work.**

1.03 TOILET FACILITIES

- A. Temporary portable toilet facilities shall be provided by the Contractor for prime and sub-contract personnel.**
- B. Location, number and placement of portable toilets shall be arranged with Owner prior to commencement of the work.**

1.04 CONSTRUCTION AIDS

- A. Weather enclosures**
 - 1. The Contractor shall provide necessary temporary weather-tight enclosures required to protect work.**
- B. Temporary heating (if any) shall be arranged with Owner prior to commencement of the work.**



C. Shoring

1. Shore excavations/demolition, which may threaten damage to existing or new construction.

1.05 BARRIERS

A. Barricades and obstruction lights

1. Each contractor shall provide and maintain adequate barricades around set-up area, ground-based equipment, obstructions, floor openings, excavations and demolition resulting from his work. Where these obstructions, excavations, and demolitions occur at an area crossed by public or Owner's personnel, install warning lights on barricades. Also barricade and light entrances and accesses to roadways or walks where these obstructions and excavations occur.

1.06 SECURITY

A. Working Hours

1. The Owner shall specify normal working hours during which work on the project may be completed. Arrange with Owner for work to be performed at other times. In the absence of specific Owner requirements, Contractor shall conform to local codes and ordinances.

B. Security of Owner's Materials/Products/Belongings

1. Only Owner's employees shall handle owner's product materials and containers.
2. Employees of contractor shall remain in their respective work areas except in going to and from those areas.

C. Security Regulations

1. Owner reserves right to impose security regulations. These may include but are not limited to:
 - a. badge system with badges provided by Owner and worn in plain sight by contractors employees;
 - b. a personal property or tool pass system;
 - c. a one-day pass system;
 - d. a six-month pass system.

- D. At no time shall the interior of the building be left open to water entry or intrusion at the termination of a day's work. Take whatever measures are necessary to adequately protect the interior throughout the progress of the work.**



1.07 TRAFFIC CONTROL

- A. Contractor employees, equipment, and materials shall enter and exit through entrances designated by Owner.**
- B. These employees may be required to sign in and out and wear the Owner's visitor badges.**
- C. Observe posted speed limits.**

1.08 SIGNS

- A. Signs shall not be erected on the job site without the Owner's approval.**

1.09 STORAGE FACILITIES

- A. Each contractor shall provide facilities for storage and protection of his equipment and materials at project site. Storage areas shall be kept neat and clean and located as directed by Owner.**

1.10 WORK AREAS

- A. Each contractor shall set up work areas and benches where directed by Owner. Each contractor shall protect adjacent permanent work and property against damage due to his operations and shall thoroughly clean and renew area when workbenches and tools are removed.**
- B. Provide positive protection for floor and other surfaces since oil and grease stains may necessitate replacement of a masonry or other building surface by contractor responsible for stain.**

END OF SECTION 01 5000



DIVISION 1

SECTION 01 5410

JOB SITE CONDITIONS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Field Measurements and Material Quantities**
- B. Existing Conditions**
- C. Debris Removal Restrictions**
- D. Safety Requirements**
- E. Coordination with Other Trades**

1.02 FIELD MEASUREMENTS AND QUANTITIES

- A. Contractor shall have SOLE responsibility for accuracy of all measurements and estimates of material quantities and sizes.**

1.03 EXISTING CONDITIONS

- A. Building space directly under roof area covered by this specification will be utilized for concurrent and on-going Owner operations. This space will not be interrupted by the applicator unless the Owner receives prior written approval.**
- B. Access to roof shall be only at Owner-authorized entrances and exits. No roofing employees shall be allowed to enter unauthorized areas within the building without prior written authorization from the Owner.**

1.04 DEBRIS REMOVAL RESTRICTIONS

- A. Provide at site prior to commencing removal of debris, a dumpster or dump truck to be located adjacent to the building where directed by Owner. Construct an enclosed chute from roof to dumpster or dump truck for removal of debris from roof area. Protect the building surfaces at chute/set up area with tarpaulin. Secure tarpaulin. Remove dumpster from the premises when full and empty at approved dumping or refuse area. Deliver empty dumpster to site for further use. Upon job completion, dumpster/chute shall be removed from premises. Spilled or scattered debris shall be cleaned up immediately. Removed material to be disposed from roof as it accumulates. Do NOT use existing roof areas to store debris.**
- B. Protect Windows in Setup areas with Plywood.**



1.05 SAFETY REQUIREMENTS

- A. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA requirements.**
- B. Comply with Federal, State, Local and Owner fire and safety requirements.**
- C. Advise Owner whenever work is expected to be hazardous to Owner's employees and/or operations.**
- D. Maintain a crewman as a floor guard whenever roof decking is being repaired, replaced or otherwise disturbed to the extent where debris or hot material might fall within occupied building.**
- E. Maintain fully charged fire extinguishers within easy access whenever power tools, roofing kettles, LP tanks and/or torches are being used.**
- F. Comply with all safety requirements of the Owner at all times.**

1.06 COORDINATION WITH OTHER TRADES

- A. Assure that other personnel visiting the site are approved by the Owner. Unauthorized persons shall be reported to the Owner's Representative IMMEDIATELY.**
- B. The Owner may have concurrent and ongoing work of other trades on the site at various times throughout the project. The Contractor will assure the cooperation of his personnel with the Owner and any other trades at all times.**

END OF SECTION 01 5410



DIVISION 1

SECTION 01 6001

MATERIAL AND EQUIPMENT

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Material Delivery**
- B. Material Storage**
- C. Material Handling**

PART 2: PRODUCTS **(Not Applicable)**

PART 3: EXECUTION

3.01 MATERIAL DELIVERY

- A. Purchase materials and equipment in time to complete Contractors Work as required in his Agreement.**
- B. Take prompt and decisive action in expediting deliveries.**
- C. Keep Owner advised of delivery dates and any changes, which may affect progress of work.**
- D. Determine that materials and equipment received are correct, suitable, and in accordance with Drawings and Specifications.**
- E. Furnish and install new materials and equipment for work unless otherwise specified.**
- F. All deliveries of major components should be labeled to reference the specific project.**
- G. Bulk material deliveries must be certified by the manufacturer to meet the specified ASTM specifications. *Submit copies of bulk delivery certifications to the Consultant with Payout Documentation.***
- H. Insulation package labels must include material name, thermal conductance, production date, product code, and UL "Class A" Fire Rating Label. Materials, which are not properly marked, are subject to rejection.**
- I. Where required, roofing material labels must include UL "Class A" Fire Rating Label.**



- J. Deliver materials to job site in new, dry, unopened and well marked containers showing product and manufacturer's name.
- K. Deliver materials in sufficient quantities to allow continuity of work.
- L. Coordinate delivery to avoid Owner's involvement.

3.02 STORAGE

- A. Keep materials dry at all times throughout the course of the project.
- B. Protect materials and equipment against entrance of dirt and weather damage.
- C. Keep materials and equipment well clear of contact with ground or roof surfaces.
- D. Store instrumentation and control components in weather protected and heated areas.
- E. Use Canvas Tarpaulins (not Polyethylene) to cover all materials, top and bottom.
- F. Slash shrink-wrap polyethylene on all four sides upon delivery to the site.
- G. Roofing materials which have been WET, but then dried may not be used.
- H. Store roll goods on ends only. Discard rolls, which have been flattened, creased, or otherwise damaged. Place materials on pallets. Do not stack pallets.
- I. Stack insulation on pallets. Do not stack more than two pallets high.
- J. Neatly stack wood on dunnage.
- K. Store steel sections and metal roof deck pallets with one end elevated to provide drainage.
- L. Rooftop storage: disperse materials to avoid concentrated loading of structure.
- M. Materials, which have been damaged, contaminated or otherwise rendered unusable due to improper storage, shall be removed from the job site and replaced with new materials.
- N. Store temperature-sensitive materials according to the manufacturer's instructions. Improperly stored temperature-sensitive materials are subject to rejection.

3.03 HANDLING

- A. Handle properly to prevent damage.
- B. Move materials and equipment in original cartons or containers from storage area to point of installation. Keep containers closed when not in use.
- C. Provide for rigging of materials and equipment supplied.
- D. Do not dilute materials of any kind.



- E. Move equipment and storage areas as work progresses to prevent abuse or damage of the roof.**
- F. Handle materials to avoid bending, tearing, or other damage during transportation and installation.**
- G. 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 locations that will hinder smooth flow of vehicular or pedestrian traffic, or overload the structure.**

END OF SECTION 01 6001



DIVISION 2

SECTION 02 9300

GROUNDSKEEPING

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Lawn/Berm Repair Materials**
- B. Pedestrian and Vehicular Surfaces**
- C. Repairs**

PART 2: PRODUCTS

2.01 LAWN/BERM REPAIR MATERIALS

- A. New Sod**
 - 1. Fresh, to match existing. Min 6" thick.**
- B. Grass Seed and Straw**
 - 1. To match existing in type, species,**
- C. Graded Topsoil**
 - 1. New. Min 2" thick.**
- D. Berms, trees, flowers and shrubbery**
 - 1. To match existing in type, species, size and arrangement.**
- E. Concrete**
 - 1. To match existing in all measurable qualities, including, but not limited to compressive strength, finish, and appearance.**
- F. Asphalt**
 - 1. To match existing in all measurable qualities, including, but not limited to compressive strength, finish, and appearance.**



PART 3: EXECUTION

3.01 REPAIRS

- A. Return all lawns, berms, trees, flowers and shrubs to original condition with appropriate materials to ensure that damaged areas, once repaired, are indistinguishable from the surrounding, original areas.**
- B. Take prompt and decisive action in making repairs.**
- C. Keep Owner advised of repair dates and any changes which may affect progress of work.**
- D. Furnish and install new materials with equipment required for work unless otherwise specified.**
 - 1. Subcontracted landscaping services are subject to Owner acceptance, and all other sections applicable to sub-contractors in these specifications.**

END OF SECTION 02 9300



DIVISION 5

SECTION 05 3110

STEEL ROOF DECK REPAIR AND REPLACEMENT

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Acceptable Deck Manufacturers**
- B. Roof Deck Materials**
- C. Roof Deck Replacement**
- D. Roof Deck Repair**

PART 2: PRODUCTS

2.01 ACCEPTABLE DECK MANUFACTURERS

- A. Bowman Construction Products, Heidelberg, Pennsylvania**
- B. Consolidated Systems, Inc., Columbia, South Carolina**
- C. Mac-Fab Products, Inc., St. Louis, Missouri**
- D. Merco Manufacturing, Inc., Dallas, Texas**
- E. Roll Form Products, Inc., Boston, Massachusetts**
- F. Roof Deck, Inc., Hightstown, New Jersey**
- G. Southeast Metal Deck, Inc., Chesapeake, Virginia**
- H. United Steel Deck, Inc., South Plainfield, New Jersey**
- I. Verco Manufacturing Company, Phoenix, Arizona**
- J. Vulcraft Division, Nucor Corp., Charlotte, North Carolina**
- K. Wheeling Corrugating Company, Division of Wheeling - Pittsburgh Steel Corp., Wheeling, West Virginia**

2.02 ACCEPTABLE ACOUSTICAL DECK MANUFACTURERS (Fenestra™ Style)



- A. **New Millennium Building Systems, LLC** , wholly owned subsidiary of Steel Dynamics
 - Corporate Office
 - 7575 W. Jefferson Blvd.
 - Fort Wayne, IN 46804
 - Phone: 260-969-3500
- B. **NUCOR**
 - Corporate Office
 - 1915 Rexford Road
 - Charlotte, North Carolina 28211
 - Ph: 704.366.7000|Fax: 704.362.4208

2.03 ROOF DECK MATERIALS

- A. **Sheet Steel: ASTM A446-83, Grade A structural quality; with G90 coating (galvanized) 20 GAUGE.**
- B. **Metal Roof Deck: 22 gauge sheet steel, one and one-half inch (1 1/2") rib depth profiled to existing roof deck configuration; three span; lapped and stitched joints.**
- C. **Butt and finish strips; 20 gauge sheet steel.**
- D. **Rust Inhibitive Paints:**
SURFACE RUST:
 - 1. **Pittsburgh Paint Corp. Red Oxide Primer**
 - 2. **Rust-O-Leum Red Oxide Primer**
 - 3. **Carboline Inc., Carbomastic #15 (aluminum epoxy)**
SURFACE PITTING:
 - 4. **Carbomastic 186 ZA (a self priming high build aluminum epoxy coating with excellent adhesion to rusted steel and most aged paints)**
- E. **Corroded Metal Deck RUST ARRESTOR: Carboline Carbomastic 200 Epoxy-polyamide coal tar coating**

PART 3: EXECUTION

3.01 ROOF DECK REPLACEMENT

- A. **Saw cut at bar joist/beam center, remove decking. Minimum length: two (2) spans.**
- B. **Erect metal decking according to SDI design manual. If unable to lap, butt to adjacent deck. Minimum bearing on steel supports: two (2) inches.**
- C. **Mechanically fasten side laps eighteen (18) inches on center, maximum.**
- D. **Fasten deck to steel support members with min. three (3) fasteners per deck section at ends and intermediate supports with mechanical fasteners, twelve (12) inches on center maximum.**



- E. Install six (6) inch wide sheet steel butt strip where deck ends butt. Mechanically fasten butt strips to steel deck six (6) inches on center.
- F. Apply two (2) coats of rust inhibitive paint over areas of prepared raw bright metal
- G. Apply single coat of rust arrestor to areas where preparation is not possible.

3.02 STEEL ROOF DECK REPAIR

- A. Reinforce decking by installing sheet steel reinforcement profiled to existing decking configuration over all rusted openings eight (8) inches square or less. If two or more rusted openings exist in same deck section, replace deck. Wire-brush or grind to bright metal and rust-paint rusted areas before overlaying with new reinforcement.
- B. Re-attach loose or improperly attached decking by mechanically attaching loose sections of deck to steel support members twelve (12) inches on center. Side laps: (nestable side lap) mechanically fasten eighteen (18) inches on center; (interlocking side lap) button punch eighteen (18) inches on center.
- C. Areas of rusted decking shall be power wire-brushed to bright metal and coated with two (2) coats of rust inhibitive paint.
- D. Cut panel ends or bare metal shall be treated with two (2) coats of rust-inhibitive paint.
- E. Corroded metal which cannot be properly prepared must either be removed, or treated with rust arrestor as specified in conformance with manufacturers written installation requirements.

END OF SECTION 05 31 10



DIVISION 6

SECTION 06 1001

ROOFING CARPENTRY

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Wood Blocking and Curb Materials**
- B. Wood Blocking and Curb Installation**

1.02 REFERENCES

- A. American Wood Protection Association (AWPA) (www.awpa.com) U1 - Use Category System - User Specification for Treated Wood.**
- B. ASTM International (ASTM) (www.astm.org):**
 - 1. A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.**
 - 2. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.**
 - 3. F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws and Studs.**
- C. Engineered Wood Association (APA) (www.apawood.org) PRP-108 - Performance Standards and Qualification Policy for Structural-Use Panels.**
- D. Forest Stewardship Council (FSC) (www.fscus.org) STD-40-004 - Chain of Custody Standard.**
- E. National Institute of Standards and Technology (NIST) (www.nist.gov) - Product Standard PS 20 - American Softwood Lumber Standard.**
- F. Northeastern Lumber Manufacturers Association (NELMA) (www.nelma.org) - Standard Grading Rules for Northeastern Lumber.**
- G. National Lumber Grades Authority (NLGA) (www.nlga.org) - Standard Grading Rules for Canadian Lumber.**
- H. Redwood Inspection Service (RIS) (www.redwoodinspection.com) - Standard Specifications for Grades of California Redwood Lumber.**
- I. Southern Pine Inspection Bureau (SPIB) (www.spib.org) - Standard Grading Rules for Southern Pine Lumber.**
- J. West Coast Lumber Inspection Bureau (WCLIB) (www.wclib.org) - Standard Grading Rules for West Coast Lumber.**
- K. Western Wood Products Association (WWPA) (www.wwpa.org) G-5 - Western Lumber**



Grading Rules.

1.03 QUALITY ASSURANCE

- A. Lumber Standard: Comply with PS 20 for each indicated use including moisture content and actual sizes related to the indicated nominal sizes.**
- B. Lumber Grading Agency: Certified to NIST PS 20.**
- C. Include the following for fire retardant treated products:**
 - 4. Fire Retardant Treated Products: Bear label of recognized independent testing laboratory indicating flame spread rating of 25 or less, but not more than 75, tested to ASTM E84.**
- D. Marking: Identify lumber and sheet products by official grade mark.**
 - 5. Each piece of lumber and plywood must be Factory-marked with type, grade, mill and grading agency identification. Omit marking from surfaces to receive transparent finish. Where lumber pieces cannot be marked on a concealed surface, submit mill certificate that material has been inspected and graded in accordance with requirements.**
 - 6. Certificate of inspection and grading by a recognized agency may be submitted with each shipment, in lieu of factory-marking, at Contractor's option.**
- C. Shop Fabrication: Shop fabricate carpentry to the greatest extent possible, using equipment and workmanship control methods which will result in work of better quality than is feasible for on-site fabrication.**

1.04 SUBMITTALS

- A. Wood Treatment Data:**
 - 1. Submit copies of chemical treatment manufacturer's instruction for proper use of each type of treated material.**
 - 2. Include certification by treating plant stating chemicals and process used, net amount of salts retained, and conformance with applicable standards and specifications.**
 - 3. For water-borne preservatives, include statement that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to Site.**
 - 4. Submit data certifying fastener manufacturer recommends & approves fasteners for the type of preservative being used. – See Section 07 7301 – Roofing Fasteners.**

1.05 JOB CONDITIONS

- A. Time deliveries and installation of carpentry work to avoid delaying other trades whose Work is dependent upon or affected by the carpentry work.**
- B. Coordination: Coordinate location of nailers, blocking and supports to allow proper attachment of other work.**
- C. Material Storage/Protection: Store carpentry materials on site on pallets or blocking a**



minimum of 4" off the surface. Cover completely with canvas tarpaulins attached in a manner which will resist high winds and keep materials dry at all times. Materials wetted due to improper storage or for any other reason may not be dried out and re-used. Installed materials wetted due to improper protection are subject to rejection. Immediately remove wetted materials from the site.

- D. At all times take precautions to prevent carpentry dust from contaminating the installation of other materials.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Lumber: Southern Pine: #2 grade; free from warping and visible decay; pressure treated with chromated copper arsenate (CCA) to meet AWPB, LP-22, 0.40 retention and marked.
- B. Wood preservative treatment: Type ACQ - Ammoniacal Copper Quaternary (ACQ); free from arsenic, chromium, and other EPA classified hazardous preservatives, to meet AWPB, LP-22 and marked. Kiln dry to a maximum moisture content of 15% after treatment.
1. Pine: 0.40 retention
 2. Hem-Fir: 0.40 retention
 3. California Redwood: not applicable
 4. Plywood sheathing: not applicable
- C. Plywood sheathing: APA C-DX, plugged and touch sanded, exposure 1, PS 1-83, 5/8" inch thick, complying with AWP C-9 and P-5, and AWPB-2.
- D. Tapered shims: Clear Western Red Cedar bevel siding.
- E. Dimension Lumber:
1. Where wood framing from 2" through 4" in nominal thickness is required, provide lumber complying with lumber producer's inspection agency's grading rules certified as conforming to the "National Grading Rule for Dimension Lumber" by the Board of Review of the American Lumber Standards Committee (ALSC) established under section 10 of PS 20.
 2. Dress dimension lumber S 4S unless otherwise shown.
 3. Provide seasoned dimension lumber with 19% maximum moisture content at time of dressing and complying with the dry size requirements of PS 20. Mark lumber "S-Dry".
- F. Framing Lumber:
1. Construction or No. 1 grade according to size, any species of specified grade in item A & B, above.
- G. Board Lumber: (Less than 2" nominal thickness)
1. Pressed S 4S for exposed boards.
 2. 15% maximum moisture content. Mark boards "MC-15"



- H. Fasteners: Refer to Section 07 7300 - Roofing Fasteners. Submit data certifying fastener manufacturer recommends & approves fastener for the type of preservative being used.

2.02 FABRICATION

- A. Include the following for preservative treated products. Edit to suit project requirements.
- B. Preservative Treatment:
1. Treat lumber and sheet products in accordance with AWPA U1:
 - a. Interior locations protected from moisture sources: Category UC1 - Interior/Dry.
 - b. Interior locations subject to sources of moisture: Category UC2 - Interior/Damp.
 - c. Exterior locations above ground: Category UC3B - Above Ground/Exposed.
 - d. Exterior locations in contact with ground: Category UC4B - Ground Contact/Heavy Duty.
 2. Treatment process: Type ACQ - Ammoniacal Copper Quaternary (ACQ); free from arsenic, chromium, and other EPA classified hazardous preservatives.
- C. Fire Retardant Treatment; treat lumber and sheet products in accordance with AWPA U1:
1. Interior locations: Category UCFA - Fire Retardant/Interior.
 2. Exterior locations: Category UCFB - Fire Retardant/Exterior.

PART 3: EXECUTION

3.01 INSTALLATION

- A. General:
1. Do not use lumber or material which is wet, unsound, warped, bowed, twisted, improperly treated, not adequately seasoned, or too small to fabricate the work with a minimum of joints or the optimum jointing arrangement.
 2. Fit carpentry work to other work. Scribe and cope as required for accurate fit.
 3. Set carpentry work to required levels and lines with members plumb and true.
 4. Securely fasten carpentry work to substrates by anchoring or attaching as shown and as required by recognized industry standards.
 5. Provide washers under bolt heads and nuts in contact with wood.
 6. Use common wire nails only where approved. Do not wax or lubricate fasteners that depend on friction for holding power. Install fasteners without splitting wood; pre-drill as required.
 7. Make tight connections between members.
 8. Do not drive friction-type fasteners; turn into place. Tighten bolts and lag screws at installation, and re-tighten as required to assure tight connection prior to closing for completion of work.
 9. Anchor and nail as shown, or, if not shown, as required to comply with the Recommended Nailing Schedule, other recommendations of the NFPA, and current Factory Mutual I-90 requirements.
 10. Attach wood members, nailers and blocking to substrates securely with anchor bolts or other pre-approved attachment devices as shown and as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.
 11. Provide and install new treated wood blocking as required to conform to



Construction Details provided.

12. Mechanically attach wood blocking as specified and in conformance with FM I-90 requirements. Width: six (6) inches nominal.
13. WOOD TO WOOD: Fasteners must be installed at twenty-four (24) inches on center, staggered, two (2) fasteners minimum per blocking section. Within eight (8) feet of outside corners, fasteners must be installed at max. twelve (12) inches on center, staggered. Countersink heads.
14. WOOD TO DECKING: Install approved fasteners max. four (4) feet on center, two (2) fasteners minimum per blocking section. Within eight (8) feet of outside corners, fastener spacing must not exceed twenty-four (24) inches.
15. Offset blocking layers twelve (12) inches; weave corners.
16. Install 45° and continuous treated wood cants [either nominal 4 " x 4" cut on a bias, or treated 2" x 6" with kerfed ends] at intersections of horizontal wood blocking and vertical flashings surfaces. Nail max. twelve (12) inches on center.
17. Wood fiber or perlite cants may be used only at equipment curbs 3' x 3' or less.
18. Cover installed wood blocking atop parapets with Ice and Water Shield membrane or solidly adhered EPDM membrane same day as installation. Lap membrane 4" and seal tightly.
19. Assure any wood exposed to interior is covered with 5/8" drywall or specified fire-proofing.

B. Coping:

1. Provide and install new treated wood blocking as required to conform to Construction Details provided.
2. Install 2 x 6 or 2 x 8 treated nailer as shown and sloped 3/4" CDX fire-treated Plywood as shown on Construction Details to shed water to interior parapets.
3. Cover installed wood blocking with Ice and Water Shield membrane or solidly adhered EPDM membrane same day as installation. Lap membrane 4" and assure a solid seal at all laps and seams.

C. Roof Edge:

1. Install min. 2 x 6 treated blocking to maximum height of surrounding insulation, accounting for roof taper and roof saddles.
2. Install exterior 3/4" min. fascia freize board where required as detailed. Set level, plumb and true. Install in a manner that presents uniform, straight lines for application of sheet metal fascia/gutter.

D. Curbs:

1. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.
2. Install new treated 2 x 6 blocking flush with outside curb surface to maximum height of surrounding insulation, accounting for roof taper and roof saddles.
3. Install new cants as required to conform to Construction Details provided.
4. Assure wood exposed to interior is covered with 5/8" drywall or specified fire-proofing.

E. Metal curb flashings:

1. Install 2 x 6 treated blocking to maximum height of surrounding insulation, accounting for roof taper and roof saddles.
2. Assure wood exposed to interior is covered with 5/8" drywall or specified fire-proofing.



F. Area Divider/Expansion Flashings:

1. Install 2 x 6 treated blocking and wood cants o maximum height of surrounding insulation, accounting for roof taper and roof saddles.
2. Install min. $\frac{3}{4}$ " CDX fire-treated plywood vertical at back of 2 x 6 blocking and cant as detailed. Assure gap of 1-1/2" between vertical nailers.
3. Drape air-space with fire-rated min. 6 mil Visqueen fastened to wall and to top of blocking as shown. Fill airspace with fiberglass batt insulation or compressible Armorflex insulation.
4. Seal top of expansion cover with min. 60 mil Un-reinforced EPDM/TPO membrane.

END OF SECTION 06 1001



DIVISION 7

SECTION 07 0191

VAPOR BARRIER/TEMP ROOFING

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Acceptable materials**
- B. Preparation**
- C. Installation**

PART 2: PRODUCTS

2.01 ACCEPTABLE MATERIALS

- A. For Metal Decks (Cold-Applied/SA Modified Base Sheet)- 2-pplies Min. as Temp Roof:**
 - 1. 5/8" Dens Deck Prime mechanically attached to deck 1 per 3 SF (Fastener density increased 50% 10' from edges and 20' from corners). – Reference Roofing Insulation Section 07-7200.**
 - 2. Approved FR Base Sheet in Manufacturer's cold adhesive.**
- B. For Concrete Decks(Cold-Applied Base Sheet)- 2 plies Min. as Temp Roof:**
 - 1. Approved FR Base Sheet in Manufacturer's cold adhesive to primed deck.**
- C. For Wood Decks: 2 plies in Adhesive Min. as Temp Roof:**
 - 1. Red Rosin Slip Sheet**
 - 2. NAILED FR Base Sheet**
 - 3. Approved ADHERED FR Base Sheet in Manufacturer's cold adhesive.**
- D. Above Roofline Spray-on Vapor Barrier for deck/block/wall intersections with air/vapor barrier :**
 - 1. Perm-A-Barrier VP Air/Vapor Barrier - fluid applied synthetic latex rubber membrane by Grace Construction Products.**
 - a. Primary Air Barrier Membrane: One component elastomeric membrane, spray applied.**
 - 2. Air Bloc 31 - by Henry Company Inc., Cold Stream Road, Kimberton, PA 19442.**



3. **Sto Guard Assembly:** by Sto Corp., Camp Creek Pkwy, Atlanta, GA 30331
 - a. Sto guard mesh for joints and flashings
 - b. Sto Gold Fill for joint treatment.
 - c. Sto Gold Coat for the membrane
4. **PROSOCO R-GUARD Assembly:** by PROSOCO, Inc., 3741 Greenway Circle, Lawrence, Kansas 66046.
 - a. PROSOCO R-GUARD Tape for joints and flashings
 - b. PROSOCO R-GUARD Fill for joint treatment
5. **All Materials must conform to Manufacturer requirements for System Warranty. Any discrepancies between materials specified and Manufacturer requirements are to be brought to the attention of the Consultant immediately, but in all circumstances, prior to submission of the Bid.**

PART 3: EXECUTION

3.01 PREPARATION

- A. **Verify that work of other trades penetrating the roof deck or requiring men and equipment to traverse the roof deck has been completed.**
- B. **Check projections, curbs and deck for inadequate anchorage, foreign material, moisture or unevenness that would prevent the proper installation of the vapor retarder. Broom clean the area.**
- C. **If applying directly over the existing roof deck, prime the entire deck with asphalt primer at the rate of 100 square feet per gallon.**
- D. **Prime wood blocking and masonry parapets to receive roofing with asphalt primer at the rate of 100 square feet per gallon.**
- E. **Cut fiberglass base plies into max. 30' sections and allow to relax for 30 minutes prior to installation. Fly in full sheets. Do not re-roll.**

3.02 ACCEPTABLE CONFIGURATION(S)

- A. **Reference System Configurations in Section 01 1010 – Scope of Work**

3.03 SA PLY INSTALLATION

- A. **All plies shall be laid in shingle fashion and placed parallel to, but never in such a fashion as to allow water to flow against exposed felt edges.**
- B. **Roll out and align SA sheets. Fold in half lengthwise. Remove backer and adhere ½ of sheet, smoothing out ply to avoid wrinkles, blisters and fishmouths.**
- C. **After the first half is adhered, fold back the second half and remove backer and adhere.**
- D. **Broom in the ply to assure solid adhesion with no blisters, wrinkles or fishmouths.**



- E. In the event that fishmouths or blisters occur, cut and patch with an additional ply of SA.

3.04 BASE SHEET, FLASHINGS & TIE-OFFS

- A. **FOR Self-Adhered membrane:** Cut plies and end vertical along the top edges of insulation at wall and projection bases and seal per Manufacturer requirements. Take care to avoid contaminating wall surfaces that must receive membrane or sealant.
- B. **FOR NAILED Plies:** Fasten 6" o.c. at end laps and 9" o.c. at side laps. Stagger fasten 19" o.c. down center of ply. Use ring or spiral shank Roofing Cap nails.
- C. Extend vapor barrier plies over vertical edge of wood blocking at fascia edges and mechanically attach 8" o.c. with approved ring-shank cap nails.
- D. Avoid walking on plies until adhesive has set.
- E. Overlap previous days work twelve (12) inches minimum.
- F. Lap ply ends four (4) inches. Stagger ply end laps three (3) feet minimum.
- G. Fit plies up to roof drain piping and seal with selant and/or sealant tape.
- H. Cut out fishmouths and end laps which are not completely bonded. Install patch over affected area.
- I. Interply application rate for cold adhesive shall comply with most-current manufacturer's printed instructions on the label.
- J. Seal top edges of all plies at perimeters and projections with mastic and membrane. Assure water tight terminations.
- K. Seal tie-offs to existing roofing as follows:
 - 1. Stagger insulation tie-offs to avoid thermal bridging.
 - 2. Prime exposed edges of the existing membrane as necessary.
 - 3. Carefully dry any moisture at tie-off with torches.
 - 4. Provide water tie-off seal to underside of exposed edges of existing roofing.
 - 5. Overlay the 1/3-width sheet with a 1/2-width sheet, centered over the juncture, pressing in as above.
 - 6. Seal exposed edges with watercutoff mastic and membrane
 - 7. Cut away and discard tie-off materials.

END OF SECTION 07 0191



DIVISION 7

SECTION 07 0530

BALLASTED EPDM (LOOSE-LAID)

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Elastic Sheet Membrane**
- B. Ballast**
- C. Installation**

1.02 PERFORMANCE REQUIREMENTS

- A. General:** Installed watertight elastic sheet roofing and base flashing system shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility:** Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design:** Provide a roofing system that is nearly identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7-10 and Factory Mutual Global for wind speeds of 80 mph (at 3-second gusts) with Exposure Classification C and Risk Category III.
 - 1. Uplift pressures determined by Modeling Building in "RoofNav."**
 - a. Field-of-Roof Uplift Pressure:** No less than 57 lbs./sq.ft
 - b. Perimeter Uplift Pressure:** No less than 96 lbs./sq.ft.
 - c. Corner Uplift Pressure:** No less than 144 lbs./sq.ft.
 - 2. Provide roof and ballast system matching existing or that is capable of resisting the uplift forces according to recommendations in FMG Loss Prevention Data Sheet 1-28 and with an FMG approved system per zone:**
 - a. Zone 1: FM 1-60**
 - b. Zone 2: FM 1-105**
 - c. Zone 3: FM 1-15**
- D. FM Approval Listing:** Provide elastic sheet roofing system, base flashings, and component materials that have been evaluated by Factory Mutual System for fire spread, wind-uplift, and hail damage, that comply with requirements in FM



Approval Standard 4450 and 4470 as part of a 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-150.
 2. Provide materials bearing FM Approval marking on bundle, package, or container, indicating that materials have been subjected to FM Global examination and follow-up inspection service.
- E. UL Listing: Provide elastic sheet roofing system and component materials that have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.
1. Provide roof-covering materials bearing UL classification marking on bundle, package, or container indicating that materials have been produced under UL's classification and follow-up service.
 2. Provide elastic sheet roofing system that can be installed to comply with UL requirements for Fire Classified and Class 90 wind-uplift requirements.

1.03 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed in accordance with manufacturer's written recommendations and warranty requirements.
- B. Do not allow smoking or use of any open flame device around or near cements and bonding adhesive containing petroleum distillates.

1.04 WARRANTY

- A. Provide written warranty, signed by Contractor and installer, agreeing to replace/repair defective materials and workmanship (and work not in accordance with the contract documents) as required to maintain roofing system in watertight condition for two years after date of substantial completion.
- B. Special Warranty: Contractor to provide modifications to roof systems under manufacturer No Dollar Limit Warranty which complies with manufacturer's requirements to ensure any current warranties are not invalidated.

1.05 ROOF CONFIGURATION

- A. REFERENCE SECTION 01 1010 – SCOPE OF WORK

PART 2: PRODUCTS

2.01 ELASTIC SHEET MEMBRANE

- A. Roof Membrane: Ethylene Propylene Diene Monomer (EPDM) compounded elastomer, non-staining black fire retardant sheet; 0.090-inch thick.



2.02 RELATED MATERIALS

- A. Perimeter Securement Strip:** Manufacturer's standard synthetic-rubber polymer primer and 3-inch wide minimum, butyl splice tape with release film, minimum 6-inches wide.
- B. Splice Materials:**
 - 1. Wash:** Solvent based effacing solution, manufactured for the purpose of cleaning EPDM membrane surfaces prior to performing seaming activities, as manufactured and/or recommended by roof membrane materials manufacturer.
 - 2. Primer:** Synthetic polymer based, black adhesive, as recommended and approved by roof membrane materials manufacturer.
 - 3. Adhesive:** Synthetic polymer based, black adhesive, as recommended and approved by roof membrane materials manufacturer.
 - 4. Tape:** Cured EPDM based butyl adhesive tape, 30 mils minimum thickness, as approved by roof membrane materials manufacturer.
- C. Flashing Sheets:**
 - 1. Detailing and Corners:** Uncured, un-reinforced EPDM laminated to a cured EPDM-based adhesive tape, minimum 75 mils thick, minimum 6 inches wide.
 - 2. Cover Tape:** Cured, unreinforced EPDM laminated to a cured EPDM-based adhesive tape, minimum 45 mils thick, minimum widths as required to perform the work indicated, as recommended by the roof membrane materials manufacturer.
- D. Bonding Adhesive:** For use in fully adhered EPDM membrane application assemblies and in base flashing applications of ballasted EPDM assemblies. Synthetic polymer based contact adhesive designed for bonding EPDM membrane to wood, metal, masonry, and insulation materials, as manufactured by roof membrane materials manufacturer.
- E. Lap Sealant:** Single-component sealant, colored to match membrane roofing as manufactured and/or recommended by the roof membrane materials manufacturer.
- F. Water Cut-off Mastic:** Manufacturer's standard butyl mastic sealant.
- G. Pre-Formed Pipe/Conduit Flashing:** Pre-formed EPDM pipe/conduit flashing with storm collar and stainless steel clamping band, as manufactured or recommended by membrane manufacturer.
- H. Termination Bar:** Manufacturer's standard, pre-drilled aluminum bars, approximately 1-inch by 1/8-inch thick.
- I. Membrane Fasteners:** Factory coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to roof membrane materials manufacturer.



- J. **Thermal Barrier Fasteners:** Zinc/aluminum plates with corrosion resistant fluorocarbon coated screws of sufficient length to penetrate through steel decks minimum 3/4-inch.
- K. **Filter Fabric / Protective Mat:** UV resistant, polypropylene fabric designed for use as a protective barrier between single ply membranes and ballast systems; type shall match existing fabric currently in place.
- L. **Provide all required accessories including:** splice materials, flashing sheets, bonding adhesive, sealants, mastics, pre-formed flashings, termination bars, fasteners, plates, and other materials required for a complete and proper installation and in accordance with the manufacturer's published specifications and instructions.

PART 3: EXECUTION

3.01 NOTIFICATION

- A. **Notify the Building Engineer at least one day before starting removal in a given area.**
- B. **Notify the Consultant sufficiently in advance to allow exposed membrane and deck to be observed by the Consultant prior to application of Vapor Barrier materials. Materials applied without such prior observation shall be subject to removal at the Contractor's sole expense.**
- C. **Notify the Consultant and the Building Engineer when work could or will disrupt normal interior building activities.**

3.02 QUALITY OF WORK

- A. **Experienced personnel in the type of roofing work specified shall perform the work.**
- B. **Supervision shall be maintained by the same person throughout the entire course of the installation of new materials.**
- C. **Finished work shall be free from wrinkles, creases, bubbles, fish mouths, and similar defects. Laps shall be fully sealed per manufacturer's installation instructions, and entire surface shall be watertight.**
- D. **Use proper installation practices. An aesthetically pleasing overall appearance of the finished roof application is a standard requirement for this work, and shall be subject to approval by the Consultant/Owner.**
- E. **Make necessary preparations, utilize recommended application techniques, apply**



specified materials, and exercise care in ensuring that the finished application is acceptable to the Consultant/Owner.

- F. Cooperate with inspection and any test agencies engaged or required to perform services in connection with installing elastic sheet membrane roofing system.

3.03 EXAMINATION

- A. Examine substrate surfaces to receive elastic sheet membrane roofing system and associated work. Do not proceed with roofing until unsatisfactory conditions have been corrected.
- B. Verify existing roof membrane and deck surfaces are dry and free of snow or ice.
- C. Verify that existing roof openings and penetrations are secure in place, curbs are set and braced, and that roof drain bodies are securely clamped in place.
- D. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations.
- E. Steel Roof Deck: Verify that surface plane flatness and fastening of steel roof deck is acceptable to receive roof membrane.
- F. Vapor Barrier: Verify that deck ends are sealed against moisture migration into the roofing system OR ADJACENT BUILDING. Call any unexpected variations immediately to the attention of the Consultant.
- G. Verify that roof drain lines are functioning correctly before starting work of this section. Report such blockages in writing to the Consultant.

3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Provide 18–inch minimum clear distance between new roof penetrations and any new/existing adjacent penetrations or walls.
- B. All cuts in sheet membrane shall be smooth and free of fins and over cuts or jagged edges. Terminate all cuts with a radius or “key hole” cutout to prevent cut from travelling out from beneath overlying repair materials.
- C. Where the existing roof is cut open, install and maintain suitable temporary felt and fabric flashing as required to keep water out from under the existing roofing during the construction period, as well as to prevent any water leaking into existing occupied spaces within.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecasted. Remove and discard temporary seals before beginning work on adjoining roofing.



- E. Prepare all surfaces and details in accordance with roofing materials manufacturer's printed installation instructions and these contract documents.
- F. Remove existing ballast from work area and distribute stockpiles evenly over structural members.
- G. Clean existing substrates to receive repairs of all dust, dirt, contaminants, moss, and loose materials using a wash of environmentally neutral cleaner and clean water. Use scrub brushes or power washing equipment where required. Contain all used and unused portions of cleaning solutions and dispose of off-site. Do not allow solutions to enter roof drains. The resulting surface shall be clean and intact and suitable for adhering new flashing and repair materials.
- H. Inspect exposed roof area for punctures, tears, and other defects. Familiarize locations and mark each defect for repair.
- I. Prevent materials from entering and clogging roof drains and 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.

3.05 THERMAL BARRIER INSTALLATION

- A. Thermal Barrier on Steel Decks:
 - 1. Comply with manufacturers recommendations, UL requirements for "Roof Deck Constructions" which are fire rated "Fire Acceptable" or with FM requirements for "Class I" metal deck construction, whichever is the most stringent.
 - 2. Thermal barrier joints shall be staggered between alternate courses and closely butted with board edges supported.

3.06 VAPOR BARRIER INSTALLATION

- A. Surface Preparation:
 - 1. Over Metal Deck:
 - a. Remove projections, such as fins, higher than 1/16-inch.
 - b. Remove deleterious materials such as rust, asphalt, dirt, and debris.
 - c. Remove any existing membrane materials and adhesive.
 - d. Scrape off knife-like edges of external corners.
 - e. Patch or otherwise repair all cracks over 1/16-inch wide.
 - f. Patch all chips and voids in surfaces to be covered to provide a solid substrate for vapor barrier.
 - g. Seal all deck flute ends as specified.
 - 2. Over Thermal Barrier:
 - a. Remove projections, such as fins, higher than 1/16-inch.
 - b. Remove deleterious materials such as dirt and debris.
 - c. Scrape off knife-like edges of external corners.



- d. Tape joints between thermal barrier boards.
- 3. Over Existing solidly adhered Vapor Barrier:
 - a. Remove all loose and adhered debris and wipe surface clean.

B. Vapor Barrier Installation

- 1. Install the vapor barrier in the following sequence:
 - a. Flashing plies.
 - b. Base ply field sheet.
 - c. Top ply field sheet.
- 2. Flashing Plies:
 - a. Using a brush or squeegee, apply 1 1/4 to 1 1/2 gallons per 100 sq. ft. of adhesive 6 inches up vertical surfaces and 5 inches onto horizontal surfaces.
 - b. Embed 9-inch-wide pre-cut and pre-folded vapor barrier sheet 5 inches up the vertical surface and 4 inches onto horizontal surfaces.
 - c. Coat first ply with adhesive at the rate of 3/4 gallon per 100 sq. ft. 7 inches up vertical surfaces and 6 inches onto horizontal surfaces.
 - d. Embed 9-inch-wide pre-cut vapor barrier sheet 4 inches up vertical surfaces and 5 inches onto horizontal surfaces.
 - e. Seal all terminations and laps with waterproofing adhesive.
- 3. Field Sheet Plies – For large areas not effectively sealed with flashing plies:
 - a. Flash corners, edges, and joints prior to application of field sheet plies on horizontal areas.
 - b. Using a brush or squeegee, uniformly coat the horizontal surfaces with waterproofing adhesive at a rate of 1 1/4 to 1 1/2 gallons per 100 sq. ft. and allow tack to almost dry.
 - c. Smoothly embed base ply field sheet and seal all laps with adhesive. Continue all sheets to the vertical surface, or 6 inches onto adjacent existing vapor barrier, and terminate. Maintain total contact with the substrate. At turn down conditions, extend base ply field sheet 6 inches onto the vertical wall.
 - d. Allow base ply field sheet to cure for 1 hour prior to application of top ply field sheet.
 - e. Coat base ply field sheet with waterproofing adhesive at the rate of 3/4 gallon per 100 sq. ft. and allow “tack to almost dry.
 - f. Smoothly embed top ply field sheet; center laps over base ply field sheet; seal all laps uniformly with waterproofing adhesive. Continue all sheets to the vertical surface, or 2 inches beyond the edge of the base ply field sheet onto adjacent existing vapor barrier, and terminate. Maintain total contact with the substrate. At turn down conditions, extend top ply field sheet 8 inches onto the vertical wall.
 - g. Top coat all seams with 4-inch-wide application of adhesive, centered on each seam.

3.07 MEMBRANE INSTALLATION – LARGE FIELD INFILL/ROOF CURB/INSULATION/EPDM



MEMBRANE/BASE FLASHING

- B. Install new replacement insulation units where existing insulation units have been removed or found to contain moisture. Match height of insulation units where tapered insulation systems exist. Insulation units shall be butted tight together and loosely laid.**
- C. Install additional new insulation staggered over existing replaced insulation as specified.**
- D. Install new membrane and flashing sheets over new insulation assembly. Roll or broom the membrane over the new substrate to eliminate air pockets and wrinkles, and allow membrane to relax into position.**
- E. Install new membrane so that it extends no less than 6 inches onto the surface of the adjacent membrane at all splice locations.**
- F. Position new EPDM membrane or flashing sheets around entire perimeter of base of curb, allowing membrane to extend up curb to weather lap under counter-flashing, or as otherwise shown on the drawings. Fully adhere to all non-ballasted substrates.**
- G. Splice all seams with tape. Prep and prime new and existing seams per manufacturer's published installation instructions. After splicing, roll all new seams with silicone or neoprene rollers to assure no wrinkles or air pockets exist within the seam.**

3.08 PIPE AND CONDUIT FLASHING INSTALLATION

- A. See the drawings for location of new pipe and conduit penetrations.**
- B. Cut existing membrane, insulation, and related materials as required to properly install new pipe and conduit penetrations through the roof.**
- C. All cuts in existing membrane shall be smooth and free of fins and over cuts or jagged edges. Terminate all cuts with a radius or "key hole" cut out to prevent cut from travelling out from beneath overlying repair materials.**
- D. Clean, rinse, and dry existing membrane according to repair membrane manufacturer's published installation instructions.**
- E. Wipe down the existing membrane, where patching shall be performed, using a rag or brush saturated with cleaner, and allow to dry.**
- F. Install primer over all locations to be repaired, extending a minimum of 4 inches to all sides of the area or defect to be repaired, allow to become tacky according to manufacturer's installation instructions.**



- G. Position pre-formed pipe/conduit flashing around all pipes and conduits, and other round penetrations requiring repairs.
- H. Splice new materials to existing membrane with pressure-sensitive tape.
- I. Roll in new EPDM materials using silicone or neoprene rollers as required to eliminate all air pockets, blisters, and wrinkles, and to assure positive adhesion to existing membrane.
- J. Install new stainless steel clamping band where membrane terminates at penetration and seal with polyurethane sealant.

3.09 PATCHES AT DAMAGED MEMBRANE

- A. Clean, rinse, and dry existing membrane according to repair membrane manufacturer's published installation instructions.
- B. All cuts in existing membrane shall be smooth and free of fins and over cuts or jagged edges. Terminate all cuts with a radius or "key hole" cut out to prevent cut from travelling out from beneath overlying repair materials.
- C. Wipe down the existing membrane where patching shall be performed, using a rag or brush saturated with cleaner, and allow to dry.
- D. Install primer over all locations to be repaired, extending minimum 4 inches to all sides of the area or defect to be repaired, allow to become tacky according to manufacturer's installation instructions.
- E. Position new flashing tape membrane or flashing sheet membrane centered over repair location, verifying that new membrane extends minimum 3 inches beyond all sides of defect. Round all corners of new membrane patching materials.
- F. Splice all seams with tape and prep and prime new and existing seams according to manufacturer's published installation instructions. After splicing, roll all new seams with silicone or neoprene rollers to assure no wrinkles or air pockets exist within the seam.
- G. Roll in new flashing tape and flashing sheets using silicone or neoprene rollers as required to eliminate all air pockets, blisters, and wrinkles, and to assure positive adhesion to existing membrane.

3.10 WHITE URETHANE COATING

- A. White Aliphatic Urethane Coating will be applied on the vertical areas.



- B. Prior to the application of the coating, the EPDM membrane surfaces shall be exposed to the weather a minimum of two weeks.
- C. The substrate needs to be clean, dry and free of foreign material and contaminants. The coating can be spray-applied in one coat or roller applied in a two-coat procedure. Allow the coating to dry to the touch before traffic is allowed on the surface.
- D. Coating is available in following colors: white, grey and tan. (Choice by Owner)

3.11 BALLAST

- A. Paving stones: Install minimum 200 g/m² polyester geotextile membrane, loose laid over membrane prior to ballast being loaded. End and side laps to be 100 mm for fleece. Extend the geotextile up the penetrations and vertical surfaces past the height of the ballast a minimum of 50mm.
- B. Gravel Ballast: Install smooth, river-washed ballast with rounded edges and corners preferably between 20 mm - 40 mm nominal diameter, free of fractures, loam, sand or other foreign substances. The diameter of the gravel is also depending on the height of the roof.
- C. Ballast to be laid to provide wind uplift resistance as determined by national standards. Minimum requirements are 50 kg/m². For roofs subject to higher wind loads, paving stones are being recommended instead of loose ballast.
- D. When ballast consists of crushed gravel, install minimum 200 g/m² polyester geotextile, loose laid over the membrane prior to ballast being loaded. End and side laps to be 100 mm for fleece. Extend the geotextile up the penetrations and vertical surfaces past the height of the ballast a minimum of 50mm.

3.12 PROTECTION

- A. Protect adjacent roofing and flashing systems from damage during application until final acceptance by the Consultant/Owner. Repair damaged areas prior to final acceptance of the work.

3.13 CLEANUP

- A. Remove masking, protection, equipment, tools, materials, and debris from the work and storage areas. Leave the work undamaged and clean.

END OF SECTION 07 0530



DIVISION 7

SECTION 07 5251

MODIFIED BITUMEN ROOF SYSTEM

PART 1: GENERAL

1.01 ITEMS INCLUDED

- A. Acceptable Manufacturers**
- B. Products by System**
- C. System Installation**

1.01 APPLICABLE ASTM STANDARDS

ASTM C 208	Standard Specification for Cellulosic Fiber Insulating Board
ASTM C 552	Specification for Cellular Glass Thermal Insulation
ASTM C 578	Specification for Rigid, Cellular Polystyrene Thermal Insulation
ASTM C 726	Specification for Mineral Fiber Roof Insulation Board
ASTM C 728	Specification for Perlite Thermal Insulation Board
ASTM C 1289	Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM D 41	Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 173	Specification for Bitumen-Saturated Cotton Fabrics Used in Roofing and Waterproofing
ASTM D 224	Specification for Smooth-Surfaced Asphalt Roll Roofing (Organic Felt)
ASTM D 226	Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 312	Specification for Asphalt Used in Roofing
ASTM D 1668	Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing



ASTM D 1970	Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
ASTM D 2178	Specification for Asphalt Glass Felt Used in Roofing and Waterproofing
ASTM D 2626	Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing
ASTM D 2822	Specification for Asphalt Roof Cement
ASTM D 2823	Specification for Asphalt Roof Coatings
ASTM D 2824	Specification for Aluminum-Pigmented Asphalt Roof Coatings, Non-Fibered, Asbestos Fibered, and Fibered without Asbestos
ASTM D 3468	Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing
ASTM D 4479	Specification for Asphalt Roof Coatings—Asbestos Free
ASTM D 4586	Specification for Asphalt Roof Cement, Asbestos Free
ASTM D 4601	Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
ASTM D 4637	Specification for EPDM Sheet Used In Single-Ply Roof Membrane
ASTM D 4811	Specification for Nonvulcanized Rubber Sheet Used as Roof Flashing
ASTM D 5019	Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane
ASTM D 6083	Specification for Liquid Applied Acrylic Coating Used in Roofing
ASTM D 6134	Specification for Vulcanized Rubber Sheets Used in Waterproofing Systems
ASTM D 6152	Specification for SEBS-Modified Asphalt Used in Roofing
ASTM D 6162	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements



ASTM D 6163	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM D 6164	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
ASTM D 6221	Specification for Reinforced Bituminous Flashing Sheets for Roofing and Waterproofing
ASTM D 6222	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements
ASTM D 6223	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
ASTM D 6298	Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface
ASTM D 6509	Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Performance Roof Systems - Kansas City, MO**
- B. Soprema Roofing and Waterproofing, Inc. - Mogadore, OH**
- C. Siplast - Irving, TX**

2.02 PRODUCTS BY SYSTEM

- A. Base Plies: 1 ply of the following in cold adhesive (unless torch-application is required by manufacturer).**
 - 1. (A) Performance DerbiBase FR in Permastic adhesive**
 - 2. (B) Soprema Sopralene 180 FR Sanded in FM Adhesive-Squeegee Grade**
 - 3. (C) Siplast Paradiene 20 FR applied in PA-311 M Adhesive**



B. Surface Ply

1. (A) Performance DerbiColor FR in Permastic adhesive
2. (B) Soprema Sopralene 250 FR GR in FM Adhesive-Squeegee Grade
3. (C) Siplast Paradiene 30 FR, applied in PA-311 M Adhesive Siplast

C. Flashings:

1. (A) Performance DerbiColor FR in Perflash adhesive, fingered between Derbibase Flashing ply.
2. (B) Soprema Sopralene 250 FR GR in FM Adhesive-Trowel Grade, fingered between Sopralene 180 Sanded in FM Adhesive-Trowel Grade.
3. (C) Paradiene 40 FR applied in PA-828 Flashing Cement

D. Modified Bitumen Systems Coating: Energy Star TM Approved coating meeting ASTM D-6083 (Standard Specification for Liquid Applied Acrylic Coating Used in Roofing). Coating must comply with City of Chicago Energy Code & Reflectivity Requirements, and conform to LEEDS requirements of these specifications.

1. (A) Derbigum PermaCool approved white acrylic coating
2. (B) Soprema R-Nova white acrylic coating
3. (C) Siplast PC-227 Elastomeric Coating (White)

E. System Accessories

1. Mastics: ASTM D4586, Type II, Asbestos Free
2. Reinforcing Fabrics: ASTM D 1668-86, Type I & II
3. Asphalt Primer: ASTM D41
4. Adhesives: standard system product as required by System Manufacturer
5. Sheet Metal and Trim: Refer to Section 07600
6. Termination Bar: Refer to Section 07600
7. Fasteners: Refer to Section 07730
8. Sealants: Refer to Section 07921
9. Torches: Where required by System Manufacturer in lieu of cold adhesives at flashings, which prevent direct contact of flame with the membrane (use Prima-Sievert or other approved indirect flame torch attachments).
10. Submit documentation and specifications for the seaming equipment to be used for approval and acceptance prior to the start of the Work.

F. Piping and Steel Posts or I-Beams

1. Siplast Parapro PMMA Waterproofing with Polyester Fleece Reinforcement
2. Performance Kemper Polyurethane Waterproofing with Polyester Fleece Reinforcement
3. Soprema ALSAD PMMA Waterproofing with Polyester Fleece Reinforcement
4. NOTE: Pitch pans are not acceptable under any circumstances

PART 3: EXECUTION

3.01 EXAMINATION

- A. Verify Installation conditions as satisfactory to receive work.
- B. Do not begin work until all unsatisfactory conditions are corrected.
- C. Verify that work of other trades penetrating roof deck or requiring men and equipment to



transverse roof deck has been approved by Consultant and building Owner.

- D. Check projections, curbs, and deck for inadequate anchorage, foreign material, moisture or unevenness that would prevent the quality execution of these specifications.

3.02 GENERAL WORKMANSHIP

- A. Substrate shall be free of foreign particles prior to applying modified bitumen roof system.
- B. The applicator shall be trained by and acceptable to the systems manufacturer.
- C. Confirm Manufacturer's recommended application method(s) with the Consultant prior to the start of work. References in these specifications to torching or heat-welding are applicable only to those systems where required by the Manufacturer in their standard published literature. Under no circumstances should these specifications be construed to allow torching or heat-welding of membranes where these procedures are contrary to the Manufacturer's recommended application procedures or these specifications. Material installed contrary to the manufacturer's recommended application methods and procedures or these specifications is subject to immediate rejection.

3.03 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. The contractor shall repair any damage at no extra cost to the Owner.
 - 2. Flashings and roof membrane cap ply must be installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather, unless written approval is received from the Consultant allowing a variation for a specific day's work.
 - 3. At start of each work day drains within daily work area shall be plugged with approved plumber's plugs. Plugs to be removed at end of each work day or before arrival of inclement weather.
 - 4. Preparation work shall be limited to those areas that can be covered with installed roofing material on same day or before arrival of inclement weather.
 - 5. Arrange work sequence to avoid use of newly completed roofing for storage, walking surface, and equipment movement. Move equipment and ground storage areas as work progresses.
 - 6. At end of each working day, removal areas shall be sealed with water stops along edges to prevent water entry.
 - 7. Provide clean plywood walkways on min. 1" foam insulation and take other precautions required to prevent tracking of aggregate from existing membrane into new work area where aggregate pieces can be trapped within new roofing membrane. Contractor shall instruct and police his workmen to ensure that aggregate is not tracked into new work areas on workmen shoes or equipment wheels. Discovery of entrapped aggregate within new roof system is sufficient cause for rejection of the entire day's work.
 - 8. Cover windows with protective covering prior to application of dampproofing materials.
 - 9. The building space directly under the roof area covered by this specification will be utilized for concurrent and on-going operations. These operations shall not be interrupted by the applicator unless prior written approval is received from the Owner.



B. Work Sequencing

1. Complete tear-off and installation of temporary roofing prior to masonry, deck replacement and carpentry work.
2. Complete all specified masonry, sealant, carpentry and wood component installation on temporary roofing throughout the anticipated working area each day prior to any permanent roof membrane application.
3. Carpentry and woodwork installed must be covered immediately with finished roofing, or protected from exposure to moisture until it can be permanently incorporated into the work.
4. Base Plies of modified roofing may be installed without installing cap/field sheet provided that the cap membrane is installed within 5 working days (weather permitting.)
5. Install only as much roofing as can be completed in one day or before the onset of inclement weather. Seal exposed edges to provide water-tight installation at the end of each day's work.
6. Allow modified roofing to be exposed for a min. of 60 days or as recommended by the Manufacturer prior to installation of the white finish coat to prevent white coating from turning brown. Contractor shall be responsible for touching up the white coating for 2 years from the date of installation to assure that this requirement is met to the Owner's satisfaction.

C. Removals

1. Remove unused equipment and sleepers as directed by the Owner or the Owner's Representative.
2. Remove all built-up roof membrane, insulation and flashings down to the exposed deck.
3. Sweep area clean.
4. Clean the deck and flutes of any existing materials to allow for inspection.
5. Check deck for signs of deterioration, rust, rot, deflection, insufficient or improper support or attachment. Call areas of deterioration immediately to the attention of the Consultant. Repair as directed at agreed unit prices.
6. Decking that cannot be repaired the same day must be carefully marked and covered with loose-laid or minimally-attached Dens Deck and temporary roofing. Open when materials and weather allow and repair the deck before re-installing Dens Deck and temporary roofing as specified.
7. Check perimeter nailers for attachment, warping, or signs of rot. Re-use existing sound wood nailers, crediting the Owner at quoted unit prices. Install additional wood nailers as required to conform to construction details within the Base Bid.
8. Dispose of debris daily. Under no circumstances is debris to be stockpiled overnight on the roof surface.

D. Carpentry

1. Install new treated blocking to height of surrounding insulation at perimeters and roof edges.
2. At sloped roofing, install treated wood nailers to the height of the thermal insulation only (3). Install blocking 4" o.c. perpendicular to the slope of the roof deck. Mechanically attach max. 24" o.c. with approved fasteners.
3. Sweep the deck clean of sawdust and debris.

E. Surface Preparation

1. Install insulation, if required, in accordance with the Specifications.
2. Sweep area clean prior to the application of any roof membrane.
3. Prime decking and vertical flashing surfaces with quick-drying primer. Allow to dry.



3.04 MODIFIED BITUMEN MEMBRANE INSTALLATION

- A. Allow Glass-fibre reinforced roofing plies to "relax" for at least 30 minutes by extending over the roof deck or insulation prior to attachment. Smooth all wrinkles prior to installation.**
- B. Install System Base Ply(ies) starting at the low point of the roof with each ply side-lapped nineteen (19) inches over the preceding course.**
- C. Bond all laps in accordance with Manufacturer's most current requirements and these specifications.**
- D. Install surface-ply of modified bitumen roofing membrane to base plies in shingle fashion, offsetting side laps from base layer 9" minimum. Place roofing membrane in manner to ensure water flows over or parallel to, but never against exposed edges. Side-laps: 3" min. Endlaps: 4" min. Stagger (offset) endlaps a minimum of 24".**
- E. Where cold adhesive is used and heat welding of seams will be required, take care to hold back the adhesive from the selvage edge of the field seams so that the field seams can be welded properly. Contamination of selvage edge with adhesive is cause for rejection.**
- F. Where heat-welding is required by the Manufacturer, heat-weld all field and flashing seams with a hot air welder or torch system specifically designed for use with modified bitumen membranes and satisfactory to the Manufacturer.**
- G. Apply uniform and continuous pressure to selvage edge and end laps to assure complete adhesion.**
- H. The outside edge of the bottom layer of the membrane at laps should be "feathered" to provide a smooth transition at the lap area. Special attention is required at "T" laps to assure fusion and sealing of the membrane during application.**
- I. Cover all T-laps with an additional 12" square piece of surface sheeting.**
- J. Avoid walking on plies until adhesive has set.**
- K. Overlap previous days work twelve (12) inches.**
- L. Do not butt sheets and install header if header ply will present ship-lapped seams.**
- M. Fit plies into roof drain rims, install lead flashing and finishing plies; secure clamping collars; install domes.**
- N. Extend roofing membrane to top edges of cants at wall and projection bases. Seal tops with mastic and membrane.**
- O. Re-seal fishmouths/side laps which are not completely sealed. Replace all sheets which are not fully and continuously bonded.**
- P. Install sheet metal and flashings as specified and detailed.**

3.05 DAILY WATER STOP/TIE-IN INSTALLATION



- A. Stagger insulation boards at tie-offs to avoid continuous board joints at edges of one day's work and the next.
- B. Remove dirt and debris from top ply of existing roofing along termination. Width: eighteen (18) inches.
- C. Cold Tie-off: Adhere twelve (12) and eighteen (18) inch wide 43# ply sheets from exposed deck to existing roofing with a continuous 1/8 inch thick application of tie-off mastic. Extend eighteen (18) inch wide felt three (3) inches either side of twelve (12) inch felt.
- D. Install "deadman" insulation filler at insulation staggers.
- E. Extend roofing system at least twelve (12) inches onto prepared area of adjacent roofing. Embed base ply of system into mastic. Seal edge with either:
 - 1. Six (6) inch wide fiberglass ply sheet embedded between continuous courses of tie-off mastic; remove voids and wrinkles.
 - 2. Six (6) inch wide reinforcing membrane embedded between alternate courses of tie-off mastic.
- E. At beginning of next day's work, remove temporary connection by cutting felts evenly along edge of existing roof system. Remove "deadman" insulation filler used to maintain board stagger.

3.06 MODIFIED BITUMEN BASE FLASHING INSTALLATION

- A. Apply flashing membrane only to pre-primed and dry substrates.
- B. Lay base flashing ply in 3' wide strips parallel to the vertical surface to be flashed. Cut flashings as required to extend from the top edge of the top of the nailer or vertical surface a minimum of 4" onto the surface of the roof membrane.
- C. Torch or adhere base ply from bottom to top. Heat-weld or torch laps and roof-tie-in, as required by the Manufacturer.
- D. Check all seams with a heated trowel. Correct any deficiencies.
- E. Lay out top flashing ply in 3' wide strips parallel to the vertical surface to be flashed. Using a chalk-line, lay out a straight line on the top ply surface, parallel to the roof edge, 6 inches onto the roof from the base of the cant. Cut flashings as required to extend from the top edge or nailer down the vertical surface a minimum of 6" onto the surface of the roof membrane.
- F. If torching, use a torch and heated flat trowel to embed the surface granules (if any) into the heated and soft bitumen from the chalk line to the edge of the top ply, and to the top of the cant or right angle.
- G. Set top edge of top ply into min 1" wide butyl gasket tape and torch balance of sheet directly to base ply, or set in Manufacturer-approved vertical flashing adhesive according to Manufacturer's printed instructions. Roll all seams with steel roller.
- H. Stagger base ply and top ply flashing seams a minimum of twelve (12) inches.
- I. Install top ply with min. 3" sidelaps. Extend 2" min. beyond base ply onto roofing surface. Heat-weld or torch roof tie-in last.



- J. Thoroughly seal all voids in corners, laps and seams.
- K. Cut out airpockets, wrinkles, blisters, fishmouths or tears and cover with minimum 18" wide full width pieces.
- L. Align aluminum termination bar at top edge of flashing and mechanically attach through pre-slotted holes, flashings and butyl gasket tape with approved fasteners on 18" centers.
- M. Seal top of termination bar with sealant (if surface is free of contaminants) or with mastic and membrane. Take care to avoid contaminating masonry surfaces to receive sheet metal counterflashings and sealant.

3.07 DRAIN FLASHINGS

- A. Immediately call non-functioning drains and drain components to the attention of the Consultant.
- B. Prime all metal surfaces to receive flashing with quick-drying primer and allow to dry.
- C. Install mastic and membrane 6" wide around the drain bowl.
- D. Install Base-ply of membrane with lap centered on the bowl
- E. Over the base ply install minimum 30" wide 4 lb. lead flashing set solidly in mastic.
- F. Solidly embed an additional 3' square base ply centered over the drain lead.
- G. Install surface ply centered over the drain bowl. Adhere solidly to underlying base ply.
- H. Extend all plies 1" minimum beyond the inside edge of the drain bowl. Trim excess roofing at drain opening and secure with clamping ring.
- I. Tighten bolts securely.
- J. Seal off plies at drain rim with a hot trowel or mastic seal against the rim.

3.08 SOIL STACKS/VENT PIPES

- A. Install base ply to base of projection, as detailed. Provide mastic or hot-trowel seal to pipe.
- B. Fabricate and install specified sheet metal sleeve with welded or soldered seams.
- C. Prime metal surfaces to receive roofing.
- D. Heat substrate and flange before installing three (3) foot square base ply centered over the flange and pipe. Weld all seams.
- E. Install surface ply, cutting to fit tightly against stack/pipe sleeve. Seal seams and edges.
- F. Where required install metal vent cap or rain-collar.

3.09 CORNER FLASHINGS

- A. Pre-cut flashing pieces and prime all surfaces prior to installation.



- B. Fabricate 4" x 8" gusset of base-ply material with 2" triangular tip.
- C. Install gusset into corner using hot trowel or approved adhesive.
- D. Set triangular tip of gusset on base ply and wrap corner 2" minimum on each side.
- E. Pre-cut base flashings to provide minimum 4" tie-in to roof surface and 3" minimum return at corner.
- F. Torch or adhere first base flashing sheet into corner over gusset. Press firmly into corner and tie-in with hot trowel and steel roll laps.
- G. Torch or adhere second base flashing sheet into position with edge tight into corner. Press firmly into corner and tie-in with hot trowel and steel roll laps.
- H. Pre-cut surface flashing plies to provide minimum 6" tie-in to roof surface and 3" minimum return at corner.
- I. At inside corners, solidly torch or adhere first surface flashing ply over the base ply with edge tight into corner. Cut off tie-in selvage edge at 45° angle from vertical. Seal edges with hot trowel. Repeat with second surface flashing ply to finish.
- J. At outside corners, solidly torch or adhere first surface flashing ply over the base flashing ply with returns wrapped around corners. Cut off base tie-in selvage edge at 45° angle from vertical. Seal edges with hot trowel. Repeat with second surface flashing ply to finish.

3.10 CURB FLASHING

- A. Inspect and verify that all curbs are properly secured to deck, level, minimum 8" above finished roof surface, primed and ready to receive flashings.
- B. Pre-cut base flashing ply to the total sum of curb height, thickness plus 1-inch for inside curb securement and 4-inch tie-in along base, with width to match that of curb plus 3" overlap on each end. Install gusset and base flashing as specified for Corner flashings.
- C. Pre-cut surface flashing ply to the total sum of curb height, thickness plus 6-inch tie-in along base, with width to match that of curb plus 3" overlap on each end. Install as specified for Corner flashings.
- D. Mechanically attach flashings to top of curb with approved fasteners on 12" Centers.

3.11 FASCIA FLASHINGS

- A. Inspect and verify that all perimeter wood blocking sections and cants are properly secured to deck, level with adjacent roofing insulation, primed and ready to receive flashings.
- B. Extend base ply over the exterior face of the wood blocking and stagger fasten 8" o.c. with approved roofing cap nails to underlying primed wood blocking or frieze board as detailed.
- C. Install granulated cap ply to too edge of wood cant or to exterior edge of frieze board. Seal solidly to underlying base ply and fasten max 8" o.c. to top of wood cant or top of frieze board as shown. Cover fasteners with solidly adhered ice & water membrane as detailed.



3.12 COPING FLASHINGS

- A. Inspect and verify that all perimeter wood blocking sections and cants are properly secured to deck, level with adjacent roofing insulation, primed and ready to receive flashings. Assure that blocking at top of coping is sloped a minimum of 2° to interior.**
- B. Extend base ply over the top coping blocking and extend down the exterior vertical face ½" past the bottom edge of the wood blocking or exterior frieze board. Stagger fasten exterior face 8" o.c. with approved roofing cap nails to underlying primed wood blocking or frieze board as detailed.**
- C. Install granulated cap ply to top edge of coping plate or to exterior top edge of frieze board. Seal solidly to underlying base ply and fasten max 8" o.c. to top of wood cant or top of frieze board as shown. Cover fasteners with solidly adhered ice & water membrane as detailed.**

3.13 EXPANSION FLASHINGS

- A. Inspect and verify that all perimeter wood blocking sections and cants are properly secured to deck, level with adjacent roofing insulation, primed and ready to receive flashings. Assure that vertical blocking is plumb and straight and true.**
- B. Assure min 1.5" distance between vertical faces of expansion joint. Offset vertical nailers to assure min. 2° slope to interior of roof.**
- C. Drape expansion gap with min. 6 mil fire-rated Grifflyn extending to the bottom of the vertical board at the building interior. Fill space with compressible fiberglass insulation or armorflex foam insulation. Fasten visqueen max. 12" o.c. with roofing cap nails.**
- D. Install and extend roofing membrane base ply up and over the cant to wrap the top of the vertical blocking. Fasten to top of vertical nailer max. 8" o.c. with approved roofing cap nails.**
- E. Install min. 60 mil EPDM cover extending a min of 3" down each vertical face. Fasten 8" o.c. with roofing cap nails. Lap ends 4" min, solidly adhered in contact adhesive.**

3.14 FLASHING COATING APPLICATION

- A. Allow modified membrane to weather for a minimum of 60 days, or longer if required by the Manufacturer, prior to the installation of the finish coating.**
- B. Co-ordinate spray applications with Owner to assure that over-spray and fume issues are addressed prior to starting coating application.**
- C. Upon inspection and written approval of the modified bitumen membrane installation by the Consultant and Manufacturer, Contractor shall apply specified coating over the entire membrane and flashing surfaces.**
- D. Application shall be installed in a uniform and aesthetically pleasing manner according to manufacturer's requirements. Cross-roll or brush as required to assure a uniform application and finish.**

3.15 COLD WEATHER PRECAUTIONS



- A. At temperatures below 45° F., rolled goods must be stored in protected and heated areas on the site and brought to the point of application only as needed.
- B. Warm cold-adhesives according to Manufacturer's instructions as required to maintain minimum material temperature of 65° F.
- C. Do not warm adhesives if forbidden by Manufacturer's technical literature and specifications.
- D. Do not install adhesives or materials at temperatures below the Manufacturer recommended minimums.

3.16 ADJUSTING & CLEANING

- A. Repair of Deficiencies
 - 1. Installations or details noted as deficient during Final Inspection must be repaired and corrected by Contractor, and made ready for reinspection within five (5) working days.
 - 2. If punch list items are found uncorrected during a follow-up inspection the cost of the Consultant's time for additional site visits at his currently published hourly rate including travel time may be deducted from the Final Payout, at the Owner's discretion.
- B. Clean-Up
 - 1. Clean the site throughout the work day as work progresses to prevent the accumulation of debris.
 - 2. At no time allow debris to be stockpiled on the roof. Plan the work to assure debris boxes will be on hand sufficient to handle the debris.
 - 3. In the event that debris boxes are not available, debris may ONLY be stored on the ground, and must be tarped and roped off.
 - 4. Immediately upon job completion, roof membrane and flashing surfaces shall be cleaned of debris.
 - 5. Clean drains, scuppers and downspouts of debris.
 - 6. Clean the grounds and surrounding building surfaces of any wind blown debris.

END OF SECTION 07 5251



DIVISION 07

Section 07 5600

ROOF COATINGS

PART 1: GENERAL

1.01 SUMMARY

- A. This specification includes the installation of liquid applied thermoplastic rubber based, single component exterior waterproofing coating to Modified and Single-Ply Roofing Systems.**
- B. Work included is labor, materials, equipment and accessories and related services to complete the application in accordance with specifications and details as approved by the Coating Manufacturer**

1.02 RELATED SECTIONS

- A. DIVISION 01: Administrative, procedural and temporary work requirements.**
- B. Division 07: Section 07 5000 – Membrane Roofing Roofing and Section 07 7600 – Sheet Metal Flashings and Trim**

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Coating Manufacturer will furnish upon request, certification the material meets the physical properties stated in this specification.**
- B. Contractor Qualifications: All work to be completed must be done by an Applicator approved by the Manufacturer.**

1.04 SUBMITTALS

- A. Warranty pre-installation notifications are required prior to the installation of this coating over a warranted system.**
- B. 2 x 6" x 6" Sample(s) in the color(s) chosen on a similar substrate.**
- C. Product Data: Manufacturer's data sheets on each product to be used,**



including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

1.05 QUALITY ASSURANCE

- A. **Applicator Qualifications:** Applicator shall be experienced in applying the same or similar materials.
- B. **Regulatory Requirements:** Comply with applicable codes, regulations, ordinances, and laws regarding use and application of products that contain volatile organic compounds (VOC).
- C. **Mock-Up:** Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship is approved by Architect/Consultant.
 3. Rebuild mock-up area as required to produce acceptable work.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in original, unopened packages and containers.
- B. Containers are to be labeled with manufacturer's name, product name, description, and identification.
- C. Store materials in a dry area and protect from water, direct sunlight, and temperatures below 40° F.
- D. Any materials damaged in handling or storage may not be used.
- E. Deliver MSDS for each product specified. Consult MSDS and Product Data Specification for each product used before beginning work.

1.06 JOB CONDITIONS (CAUTIONS AND WARNINGS)

- A. Do not apply when surface temperature or weather conditions conflict with manufacturer's published requirements.
- B. Keep flammable products away from spark or flame. Do not allow the use of spark producing equipment during application and until all vapors have dissipated. Post "NO SMOKING" signs.
- C. Maintain work area in a neat and orderly condition, removing empty



containers, rags, and rubbish daily from the site.

- D. All mechanical equipment, vents, skylights, etc., should be in place before the roof restoration system is installed.
- E. Mechanical units (blowers, HVAC) should be prevented from distributing solvent fumes into the building.
- F. Coatings should be protected from traffic and other abuse until completely cured and installation is complete.
- G. Application of coatings with spray equipment may require some masking and possible erection of wind screens to prevent overspray and drift damage. Protect surfaces of unrelated areas from coatings and overspray possibility.
- H. Application shall proceed to dry, clean surfaces only. In planning work consider environment and weather related conditions such as frost, mist, dew, condensation, humidity, and temperature. Temperature should be above 45° F., rising, and stay above 40° F. long enough for initial cure to occur. Moisture should not be imminent.
- I. Sufficient safety belts and lines should be provided. A wet surface or a surface that is not thoroughly cured can be very slippery. All work environments should comply with current OSHA regulations.

1.07 WARRANTY

- A. Manufacturer to warrant that materials provided are free from defects in manufacturing and will replace any material found to be defective.
- B. Manufacturer to warrant that material will remain watertight and free of blisters, delamination or cracking for a period of 10 years.

PART 2: PRODUCTS

2.01 GENERAL

- A. The components of the coating system are to be products approved as compatible and/or approved equal to those specified below

2.02 APPROVED MANUFACTURERS:

- A. KARNAK – 330 Central Avenue, Clark, NJ 07066 – (800) 526-4236
- B. Alternate products to be submitted to Architect/Consultant for approval prior to use.



2.03 APPROVED PRODUCTS:

- A. KARNAK – 502 RC-W Elasto-Kote Roof Coating**

2.04 RELATED MATERIALS

- A. Gap/Joint Sealant: Mfr approved polyurethane sealant**
- B. Metal Primer: Mfr. Approved Metal Primer.**
- E. Envirowash – biodegradable cleaner**
- F. Roof Primer: Mfr. Approved Primer (based on adhesion tests)**

NOTE: See Product Data Specifications for additional information and detailed instruction on each product.

PART 3: APPLICATION

3.01 SUBSTRATE INSPECTION

- A. The roof surface must be clean, dry, and free of ponding water, and over-all structurally sound.**
- B. Inspect the membrane surface for cracks, blisters, chalking, crazing, brittleness, alligating and shrinking. Inspect flashing details, seams, patches, expansion joints, terminations, and transitions. Determine which areas may not be watertight and in need of adjustment or repair.**
- C. Inspect the substrate system for moisture content and determine if areas need to be replaced.**
- D. Perform an adhesion test of the coating to a representative and properly prepared area of the membrane to which the coating will applied. Test with and without Manufacturer's recommended Primer(s).**
- E. Application of coating signifies acceptance of the substrate. Require all necessary repairs before installing coating.**

3.02 SURFACE PREPARATION & CLEANING



A. MASK adjacent surfaces from overspray or product contamination.

B. EPDM Membrane

- 1. All factory and field seams shall be probed and any voids or partial delamination repaired per Manufacturer requirements.**
- 2. All patches shall be probed and checked. Loose patches shall be replaced.**
- 3. Loose caulk shall be brushed smooth, loose edges shall be trimmed, and Fabric Faced Butyl Tape applied at perimeter of patch.**
- 4. After completion of all repairs, power wash the membrane.**
- 5. Apply EPDM Prime-wash if required by approved Manufacturer as specified below.**

C. Modified Roofing:

- 1. Allow new modified roofing systems to weather for at least 4 weeks before installing coating system.**
- 2. All factory seams shall be probed and any deficiencies repaired or reinforced per Manufacturer requirements.**
- 3. All patches shall be checked. Loose patches shall be replaced.**
- 4. Loose caulk shall be brushed smooth, loose edges shall be trimmed, and appropriate patching materials applied at perimeter of patches.**
- 5. Reinforce drains and projections with modified base ply.**

Spray-Applied Polyurethane Roofing:

- 1. Allow SPUF roofing systems to weather for at least 1 day before installing coating system.**
- 2. Assure all low areas are filled and no ponding areas exist. Installation of coating constitutes acceptance of the substrate.**

3.03 COATING APPLICATIONS

- A. Priming: Apply Primer if increased adhesion is required. Primer may be applied at the rate of 1/3 gallon per SQ. (approximately 300sq. ft. per gallon) dependent on the surface porosity. Under normal drying conditions, 10-30 minutes will be required prior to recoating.**
- B. Grid off the roof into areas which match coverage per pail.**
- C. Base Coat: Apply to properly prepared surface at the rate recommended by the Manufacturer. Rough and irregular surfaces may require a heavier application. The coating to be spray applied in**



a single pass. Back rolling will assist in acquiring a uniform membrane thickness.

- D. Reinforcement installation: Into freshly-applied base coat install Manufacturer's Approved polyester fleece. Embed solidly without wrinkles, blisters folds or fishmouths.**
- E. Finish Coat: After allowing the base coat to cure a minimum of 4 hours, a finish coat of the Coating may be applied at the rate recommended by the Manufacturer. Finish coat may be spray applied or rolled on perpendicular to the base coat application.**
- F. Field check coating application regularly and continuously with coating thickness gauges to assure proper dry film thickness of each coat.**
- F. Keep records of number pails of each lot number used and the area of roof, time of day and the individual installer in which each pail was installed. Note that inaccurate record keeping is cause for rejection of the work at the sole option of the Owner.**

3.04 PROTECTION

- A. The roof system and all components must be protected from all other trades at the job site.**

3.05 CLEAN-UP

- A. Daily Site Clean-up and Daily Watertight Inspection is the responsibility of the contractor.**
- B. All debris, containers, materials, equipment, and protection materials must be removed from the premises and properly disposed of. All work and storage areas must be in an undamaged and acceptable condition upon completion of clean-up.**
- C. Clean adjacent surfaces from any excess materials.**

END OF SECTION 07 5600



DIVISION 7

SECTION 07 5940

ROOF REPAIRS

PART 1: GENERAL

1.01 ITEMS INCLUDED

- A. Acceptable manufacturers**
- B. Product description**
- C. System Installation**

PART 2: PRODUCTS

2.01 ACCEPTABLE MASTIC/COATING MANUFACTURERS

- A. Karnak Corporation, Clark, New Jersey**
- B. Koppers Company, Inc., Pittsburgh, Pennsylvania**
- C. Gibson-Homans Company, Twinsburg, Ohio**
- D. Tremco, Inc. - Cleveland, OH**
- E. DeWitt Products Company - Detroit, MI**

2.02 PRODUCTS BY SYSTEM

- A. Coal tar pitch resaturant/coating products:**
 - A) Karnak #168**
 - B) Roof Restaurant (410)**
 - C) #6185**
 - D) TRP (Tar) or Ecolastic**
- B. Coal tar pitch roof repair products:**
 - 1. Karnak #170**
 - 2. Karnak AR-Elastomeric**
 - 3. Tar Roof Cement**
 - 4. Glasfab (Tar)**
 - 5. #6260 Tar Mastic**



6. #1010 Neoprene Cement
7. Tremfix Tar Roof Cement
8. Polyroof
9. Pro SBS Flashing Cement
10. Pro-Neo Seal Neoprene Flashing Cement

C. Asphalt Resaturant/Coating Products

1. (A) Karnak #198
2. (B) Roof Resaturant (425)
3. (C) #6125

D. Asphalt Roof Repair Products

1. (A) Karnak #19
2. (A) Karnak AR-Elastomeric
3. (B) Flash-on 441
4. (B) Glasfab (Asphalt)
5. (C) #6220 Asphalt Mastic
6. (C) #1010 Neoprene Cement
7. (D) ELS Roof Cement
8. (D) Polyroof
9. (E) Pro SBS Flashing Cement
10. (E) Pro-Neo Seal Neoprene Flashing Cement

E. SBS Modified Bitumen Roofing/Flashing

1. 4mm SBS, 250 gram polyester mat reinforced, granular surfaced modified bitumen roofing sheet.

G. Expand-O-Flash Expansion Laps:

1. Manville SPM Peel & Stick Uncured EPDM Flashing
2. Manville SPM Slice Cleaner

H. Acrylic Coating for Flashing & Roofs (Primer + 2 coats):

1. GAF Topcoat
2. Karnak 529 Renu-White Acrylic Coating
3. Performance Roof Systems PermaCool

I. Silane-Urethan One-Step ® Coating for Flashing & Roofs:

1. ER Systems One-Step ® Coating

PART 3: EXECUTION



3.01 EXAMINATION

- A. Verify installation conditions as satisfactory to receive work.**
- B. Do not begin work until all unsatisfactory conditions are corrected.**
- C. Verify that work of other trades penetrating roof deck or requiring men and equipment to access roof has been approved by Owner, Consultant and roofing contractor.**
- D. Check projections, curbs, and deck for inadequate anchorage, foreign material, moisture or unevenness that would prevent the quality execution of these specifications.**

3.02 GENERAL

- A. Substrates shall be free of foreign particles prior to applying mastics, adhesives or coatings.**
- B. Restaurants/coatings shall be brushed into place to eliminate voids within the material.**
- C. Primers shall be applied to all surfaces to receive coatings or adhesives.**
- D. Membrane installations shall be installed free of wrinkles through seams.**
- E. All seam installations must be solidly bonded.**
- F. Mask applications adjacent to existing building materials as required to prevent defacement of building or materials in place. Any damage to materials in place must be repaired at Contractor's sole cost.**
- G. As a part of this work, assure that all pipe penetrations and pitch pans receive sheet metal umbrellas extending 2" min. beyond the edge of the pitch pan or underlying flange, secured with stainless steel worm-gear clamps and sealed to the penetration.**
- H. As a part of the work, provide Miro or approved equal pipe stands on 12" square granulated modified bitumen pads to support electrical conduit up to 2-1/2" dia. on max. 10' centers, and max. 2' from bends and turns.**

3.03 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. The Contractor shall repair any damage at no extra cost to the Owner.**
 - 2. Flashings and roof membrane repairs shall be installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather.**
 - 3. At start of each work day drains within tear-off areas shall be plugged. Plugs to be removed at end of each work day or before the arrival of inclement**



weather.

4. Preparation work shall be limited to those areas that can be covered with new roofing materials on same day or before arrival of inclement weather.
5. Arrange work sequence to avoid use of newly completed roofing for storage, walking surface and equipment movement. Move equipment and ground storage areas as work progresses.
6. At end of each working day, removal areas shall be sealed with water stops along edges to prevent water entry.
7. Provide clean plywood walkways and take other precautions required to prevent tracking of aggregate from existing membrane into new work area where aggregate pieces can be trapped within the new roofing membrane. Contractor shall instruct and police his workmen to ensure that aggregate is not tracked into new work areas on workmen's shoes or equipment wheels. Discovery of entrapped aggregate within new membrane is sufficient cause for it's rejection.
8. Cover windows near work areas with protective covering prior to application of any materials.
9. Do not allow pilot holes and/or insulation fasteners to penetrate through formboard.

3.04 REPAIR PROCEDURES

A. Blisters

1. Cut away delaminated felts until firmly laminated felts exist along every area to be repaired.
2. Remove embedded gravel, debris, and dust from area extending at least eight (8) inches beyond perimeter of depressed area. Square corners. Dry, if necessary.
3. Prime exposed repair area with quick-drying primer and allow to dry.
4. Fill depression with alternating layers of compatible bitumen and compatible ply sheet. Match number of plies removed.
5. Cover layers of mastic and felt with two (2) layers of twelve (12) inch wide strips of reinforcing mesh embedded between trowel applications of compatible mastic, or two layers of 36" wide fiberglass roofing ply sheets embedded in hot bitumen. Extend repair area at least six (6) inches beyond filled depression. Overlap reinforcing mesh in cold adhesives at least two (2) inches. Overlap roofing ply sheets 18" min. Cover mesh completely with mastic.

B. Ridges and splits



1. Cut away marked splits and ridges or areas which have become brittle, damaged, or which run through seams or laps regardless of their height. Remove loose gravel and dust from surfaces within six (6) inches along each side of ridge/split.
 2. Reinforce and seal ridges/splits by
 - a. Cold: embedding two (2) plies of reinforcing mesh between continuous trowel applications of compatible elastomeric mastic ; cover membrane completely.
 - b. Hot: embed at least two (2) premium fiberglass ply sheets between layers of compatible bitumen. Flood coat and gravel
- C. Unadhered felt edges or fishmouths in BUR**
1. Unadhered ply sheet within two (2) inches or less from exposed edges:
 - a. cut away unadhered felts and remove dust and debris; dry.
 - b. apply tar mastic to seal.
 2. Unadhered ply sheet more than two (2) inches deep:
 - a. cut away unbonded ply sheets until firmly laminated sheets are reached. Clean and dry.
 3. Reinforce and seal prepared area with reinforcing mesh embedded between alternate continuous applications of tar mastic.
- D. Gravel eroded areas on BUR roofs:**
1. Sweep area clear of all but solidly embedded gravel.
 2. Reinforce eroded felt sections with compatible bitumen and reinforcing membrane: one ply of reinforcing for each eroded roofing ply.
 3. Cold reinforcement: Install compatible, approved coating/resaturant to the designated area at the rate of approx. 5 gals. Per 100 SF. Re-install existing gravel.
 4. Hot reinforcement: embed one ply of compatible roofing ply in compatible bitumen for each eroded ply.
 5. Where only flood coat is eroded, re-flood with either cold resaturant or compatible bitumen.
- F. Open flashing laps through seams in SBS Modified Roofing & Flashing:**
1. Wire-brush surfaces to be bonded to remove surface dirt.
 2. Heat trowel with torch. Heat material surfaces to be bonded. Use trowel to press granules deep into heated modified material.
 3. Heat sacrificial piece of compatible SBS material until modified material can be



scraped off with the trowel. Apply modified material into opening and use hot trowel to press down tightly.

4. Heat back of modified patching material until modified material begins to flow. Apply patch to existing membrane surface. Patch to extend 4" min onto sound membrane in all directions. Trim corners for rounded edges.
5. Seal outside edges of patch with tip of hot trowel. Allow to cool.
6. Check each day's patches at end of day with cold trowel to assure that positive adhesion has been achieved at all patches.

G. Acrylic Seam repairs:

1. Broom, brush or water-blast surfaces to be bonded to remove dirt & loose granules. Allow to dry.
2. Install a base layer of acrylic mastic extending 4" min. either side of the seam or lap in a uniform even layer.
3. Embed polyester reinforcing mesh and dry trowel in place without voids or fishmouths.
4. Install a surface layer of acrylic mastic to obliterate the weave in a uniform application without voids.
5. Feather edges into surrounding flashing.

H. Acrylic Coating:

1. Broom, brush or water-blast surfaces to be bonded to remove dirt & loose granules. Allow to dry.
2. Water-blast full roof areas and allow to dry.
3. Install base layer of acrylic coating. Allow to dry.
4. Install top layer of acrylic coating. Allow to dry.

3.05 ADJUSTING AND CLEANING

A. Repair of deficiencies

1. Installation or details noted as deficient during final inspection must be repaired and corrected by Contractor and made ready for reinspection within five (5) working days.

B. Clean-up



1. Immediately upon job completion, roof membrane and flashing surfaces shall be cleaned of debris.
2. Clean gutters and downspouts of debris.

END OF SECTION 07 5940



DIVISION 7

SECTION 07 7300

ROOFING FASTENERS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Approved fasteners**

PART 2: PRODUCTS

2.01 GENERAL:

- A. Any conflict between these specifications and the recommendations of the fastener Manufacturer and/or FM/Code requirements must be brought immediately to the attention of the Architect/Consultant. Where previously unresolved conflicts occur, the strictest interpretation will apply.**
- B. It is the intent of these specifications to achieve minimum 4:1 (25% of ultimate value) safety factor for fasteners subjected to static loads, and minimum 8:1 (50% of ultimate value) safety factor for fasteners subjected to combination loads, and as much as 10:1 for fasteners subjected to dynamic and combination loads.**
- C. Submit documentation of pullout tests for each type of fastener used demonstrating compliance with these specifications. Pullout tests are provided free of charge by Pro Fastening Systems (IL: 800-826-9070; WI: 800-367-0333) and Triangle Fastener Corp.**
- D. ITW/Buildex fasteners are available through Pro Fastening Systems (IL: 800-826-9070; WI: 800-367-0333) and Triangle Fastener Corp.**
- E. Rawl, TruFast and SFS-Stadler Fasteners are available through Pro Fastening Systems (IL: 800-826-9070; WI: 800-367-0333).**

2.02 WOOD TO WOOD:

- A. SFS #12-11 Standard Steel Deck Screw or #14-10 with "Durocoat" coating - SFS-Stadler, Brunswick, Ohio.**
- B. Olympic #12-11 Standard Steel Deck Screw or #14-10 Heavy Duty All Purpose Screw with CR-10 coating - Olympic Manufacturing Group, Inc., Agawam, Maine.**
- C. Roofgrip screw with Climaseal coating - Buildex Div. of ITW, Itasca, Illinois.**



- D. Tru-Fast Tru-Kote PC-3 screw - The Tru-Fast Corp., Bryon, Ohio.
- E. 3/8 inch galvanized lag screw.
- F. Stronghold common 18-8 stainless steel by Independent Nail, Inc., Bridgewater, Maine.
- G. Galvanized, common, annular/ring shank nail by:
 - 1. Independent Nail, Inc., Bridgewater, Maine.
 - 2. W.H. Maze Co., Peru Illinois
 - 3. National Nail Co., Grand Rapids, Michigan
 - 4. Hillwood Manufacturing Co., Cleveland, Ohio

2.03 WOOD TO SOLID MASONRY:

- A. Olympic (heavy duty screw) by Olympic Manufacturing Group, Inc., Agawam, Maine.
- B. TruBolt by ITW Ramset/Redhead - Buildex Div. of ITW, Itasca, Illinois.
- C. Lok/Bolt by Powers Fastening Systems, Inc., New Rochelle, New York.
- D. 1/4 inch diameter, Phillips flat head Tapcon anchor by Buildex Div. of ITW, Itasca, Illinois.
- E. #14-10 RoofGrip by Buildex Div. of ITW, Itasca, Illinois.
- F. Con-Mate Masonry Fastener with Oxyseal III Long-life Coating by Atlast Screw & Bolt - Ashland, OH

NOTE: Length sufficient to provide minimum embedment of 1 1/4 inches.

2.04 WOOD TO HOLLOW MASONRY

- A. Sleeve anchor by Hilti Fastening Systems, Tulsa, Oklahoma.
- B. Rawly Hollow Masonry Anchor by Powers Fastening Systems, Inc., New Rochelle, New York.
- C. Dynabolt by ITW Ramset - Redhead available through ProFastening Systems
- D. Con-Mate Masonry Fastener with Oxyseal III Long-life Coating by Atlas Screw & Bolt - Ashland, OH

NOTE: Length as recommended by manufacturer.

2.05 WOOD TO CONCRETE:

- A. Kwik-Bolt 3/8 inch diameter countersink stud anchors - by Hilti Fastening Systems, Tulsa, Oklahoma.
- B. Powers Fastening Systems, Inc., New Rochelle, New York:



1. Rawl-Drive
 2. Rawl-Stud 3/8 inch diameter anchors
- C. SFS-Stadler #14-10 Standard Steel Deck Screw - SFS-Stadler, Brunswick, Ohio.
- D. Olympic (heavy duty screw) - Olympic Manufacturing Group, Inc., Agawam, Maine.
- E. Tap Con 1/4" dia. Philips flathead screw - Buildex Div. of ITW, Itasca, Illinois.
- F. TruBolt Wedge Anchor - ITW Ramset/Redhead - Buildex Div. of ITW, Itasca, Illinois
- G. Confas screw - Construction Fasteners, Inc., Wyomissing, Pennsylvania
- H. KingCon - Buildex Div. of ITW, Itasca, Illinois.
- I. TRU-FAST Tap-Grip Fastener with Tru-Kote PC-3[®] coating
- J. Con-Mate Masonry Fastener 410 Stainless Steel by Atlas Screw & Bolt - Ashland, OH

NOTE: Length sufficient to obtain 1 5/8 inch minimum embedment. Coating to meet or exceed FM 4470.

2.06 PLYWOOD AND 3/4" FURRING TO METAL

- A. Phillips wafer head plymetal Teks/3 - 10-24 x 1-7/16", carbon steel with premium ClimaSeal coating and wings, by ITW/Buildex.
- B. Self-Drilling #10-24 x 1-7/16" Philips wafer head, TCP3 Ultra-Z Point with wings, .0005 min. zinc plating by Atlas Screw & Bolt - Ashland, OH

2.07 METAL TO PLYWOOD AND 3/4" FURRING

- A. Low-profile Philips flat pancake or Hex Washer head 410 Stainless Steel Self-Tapping Fastener by Atlas Screw & Bolt - Ashland, OH

2.08 METAL TO WOOD

- A. Low-profile Philips flat pancake or Hex Washer head 410 Stainless Steel Self-Tapping Fastener by Atlas Screw & Bolt - Ashland, OH

2.09 WOOD BLOCKING TO STEEL DECK

- A. General:
1. Length sufficient to penetrate top flute of metal deck 3/4" min.
 2. Use 2" or 3" steel or plastic plates suited to the application.
 3. Corrosion resistant coatings to exhibit less than 15% red rust after 25 Kesternich cycles and meet or exceed FM Approval Standard 4470.
- B. Approved Fasteners:
1. Deckfast screw with Senti coating - Construction Fasteners, Inc., Wyomissing, PA.



2. SFS-Stadler #12-11 Standard Steel Deck Screw with CR-10 Coating or #14-10 with "Durocoat" coating - SFS-Stadler, Brunswick, OH.
3. Kwik-Deck screw with Oxyseal coating - Atlas bolt & Screw Div. Trans Union Fastener Corp., Ashland, OH.
4. Olympic #12-11 Standard Steel Deck Screw with CR-10 Coating or #14-10 Heavy Duty All-Purpose Screw with CR-10 coating - Olympic Manufacturing Group, Inc. Agawam, MA.
5. Roofgrip screw with Climaseal coating - Buildex Div. of ITW, Itasca, IL.
6. Tru-Fast Tru-Kote PC-3 screw - The Trufast Corp., Bryan, OH.
7. Self-Drilling #12-24 x 2-1/2" Philips flat countersunk Head, TCP4 Ultra-Z Point with wings, .0005 min. zinc plating by Atlas Screw & Bolt - Ashland, OH.

2.10 INSULATION TO STEEL DECK

A. General:

1. Length sufficient to penetrate top flute of metal deck 3/4" min.
2. Use 2" or 3" steel or plastic plates suited to the application.
3. Corrosion resistant coatings to exhibit less than 15% red rust after 25 Kesternich cycles and meet or exceed FM Approval Standard 4470.

B. Approved Fasteners:

1. SFS-Stadler #12-11 Standard Steel Deck Screw with CR-10 Coating or #14-10 with "Durocoat" coating - SFS-Stadler, Brunswick, OH
2. Olympic #12-11 Standard Steel Deck Screw with CR-10 Coating or #14-10 Heavy Duty All-Purpose Screw with CR-10 coating - Olympic Manufacturing Group, Inc. Agawam, MA
3. Roofgrip screw with Climaseal coating - Buildex Div. of ITW, Itasca, IL
4. ACCUTRAC screw s with Climaseal coating - Buildex Div. of ITW, Itasca, IL
5. Tru-Fast Tru-Kote PC-3 screw - The Trufast Corp., Bryan, OH

2.12 GALVANIZED SHEET METAL TO WOOD BLOCKING:

- A. 9-18 x 1" Hex-washer head Tru-Grip^R Type 17 Drillpoint. ClimaSeal coated with sealing washer.
- B. 9-15 x 1-1/2" Hex-washer head Tru-Grip^R ClimaSeal coated with sealing washer.
- C. Low-profile Philips flat pancake or Hex Washer head 410 Stainless Steel Self-Tapping Fastener by Atlas Screw & Bolt - Ashland, OH
- D. WoodTite #10 dual thread stainless steel fastener by Atlas Screw & Bolt - Ashland, OH

NOTE: Length sufficient to penetrate wood blocking 1 1/4 inches minimum.

2.13 FELT TO MASONRY

- A. Masonry nail by Simplex Nails, Inc., Americus, Georgia.
- B. Round Cap Masonry Nail by Hillwood Manufacturing Co., Cleveland, Ohio.



- C. Round Cap Masonry Nail by National Nail Co., Grand Rapids, Michigan.

2.14 TERMINATION BAR TO MASONRY

- A. Zamac Nailin with stainless steel nail by Powers Fastening Systems, Inc., New Rochelle, New York.
- B. Tapcon 1/4 inch diameter, Phillips head anchor with EPDM washer by Buildex Div. of ITW, Itasca, Illinois.
- C. TRU-FAST Tap-Grip © with Tru-Kote PC-3 © coating by Tru-Fast Corporation, Bryan, Ohio.

NOTE: Sufficient length to provide 1 1/4 inch embedment minimum. Corrosion resistant coating meeting or exceeding FM 4470.

2.15 TERMINATION BAR TO HOLLOW MASONRY

- A. Sleeve anchor by Hilti Fastening Systems, Tulsa, Oklahoma
- B. Rawly Hollow Masonry Anchor by Powers Fastening Systems, Inc., New Rochelle, New York.
- C. Dynabolt - Ramset/Redhead by Buildex Div. of ITW, Itasca, IL

NOTE: Length as recommended by manufacturer.

2.16 DRAWBANDS

- A. Gold Seal stainless steel worm gear clamp by Murray Corporation, Cockeysville, Maryland.
- B. Power-Seal stainless steel worm drive clamps by Breeze Clamp Co., Saltsburg, Pennsylvania.

2.17 ALUMINUM TO MASONRY

- A. Zamac Nailin with stainless steel nail by Powers Fastening Systems, Inc., New Rochelle, New York.
- B. Tapcon 1/4 inch diameter, Phillips head anchor with EPDM washer by Buildex Div. of ITW, Itasca, Illinois.
- C. TRU-FAST Tap-Grip © with Tru-Kote PC-3 © coating by Tru-Fast Corporation, Bryan, Ohio.

NOTE: Sufficient length to provide 1 1/4 inch embedment minimum. Corrosion resistant coating to meet or exceed FM 4470.

2.18 METAL ROOF DECK/SIDING FASTENERS

- A. TEKS by Buildex Div. of ITW, Itasca, IL



1. Deck to bar joist: TEKS/4 - 12-24 x 7/8 inch Hex Washer Head with high thread pilot point.
2. Deck to structural steel (up to 1/2" thick): TEKS/5 - 12-24 x 1-1/4" Hex Washer Head, cadmium-plated.
3. Deck side-laps: TEKS/1 - 10-16 x 3/4" Hex Washer Head, cadmium plated.
4. Deck or siding to purlin, girt or angle: TEKS/4 - 12-24 x 7/8" Hex Washer Head with high-thread pilot point and 1/2" OD Twin-seal washer.

B. Stainless Steel self-tapping fasteners by Atlas Screw & Bolt - Ashland, OH

1. Deck to bar joist: #12-14 - 410 Stainless Steel Fasteners with Atlas two-piece washers.
2. Deck to structural steel (up to 1/2" thick): #12-14 - 410 Stainless Steel Fasteners with Atlas two-piece washers.
3. Deck side-laps: 1/4- 14 - 410 Stainless Steel Fasteners with Atlas two-piece washers.
4. Deck or siding to purlin, girt or angle: Self-drilling #12-14 Hex -washer head 410 Stainless Steel Fasteners with Atlas two-piece washers.

NOTE: Length as recommended by manufacturer.

2.19 COPPER SHEET METAL TO WOOD BLOCKING

- A. Copper Wire Slating Nails, round shank, not smaller than 12 gauge by Clendenin Bros., Inc., Baltimore, MD. Install through neoprene gaskets.
- B. Copper Wire Slating Nails, round shank, not smaller than 12 gauge through neoprene gaskets by Swan Secure Products, Inc. - Baltimore, Maryland. Available through Pro Fastening Systems.

NOTE: Length sufficient to penetrate wood blocking 1-1/4" min.

2.20 ALUMINUM/STAINLESS SHEET METAL TO WOOD BLOCKING

- A. #12 Stainless Steel screws with neoprene washers by ITW Buildex or Atlas Screw & Bolt.

NOTE: Length sufficient to penetrate wood blocking 1-1/4" min.

2.21 SHEET METAL TO SHEET METAL

- A. Twin-Fast™ self-drilling, self-tapping, cadmium plated stainless steel Hex-head screw with neoprene washers by Powers Fastening Systems, Inc., New Rochelle, New York.
- B. TEKS/3 - 10-16 x 3/4" stainless steel with Hex Washer Head with neoprene washers by Buildex Div. of ITW, Itasca, IL
- C. Ultra-Z stainless steel screws with neoprene washers from Atlas Screw & Bolt, Ashland, OH.

PART 3: EXECUTION



3.01 INSTALLATION

- A. Install fasteners in complete accordance with Manufacturer's Printed Installation Instructions and recommendations. Use only equipment appropriate for the type of fastener and acceptable to the Manufacturer in the installation of the fasteners.**
- B. Do not overdrive fasteners. Install straight and true in a manner which allows full engagement and maximum pull-out strength.**
- C. Fasteners installed with plates should be installed tight enough so that the plate does not turn. Take care not to fracture the skin of the insulation.**
- D. Remove and replace fasteners that are not straight, do not engage the deck, or deform the plate or insulation skin.**
- E. Fasteners exposed to weather must be installed through neoprene gaskets sized appropriately to the fastener.**
- F. Provide field pull-out tests in accordance with FM requirements to verify strength of fastener. Pull-out tests must be performed in accordance with ANSI/ASTM Standard E488 and FM 1-52 "Field Uplift Tests". Min 1 test per 10 squares of roof area. Document all test results and test locations on the roof plan and submit to Owner prior to Final Payout.**

END OF SECTION 07 7300



DIVISION 7

SECTION 07 7600

SHEET METAL FLASHINGS, TRIM & ACCESSORIES

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Sheet Metal Copings**
- B. Sheet Metal Counterflashings & Skirt Flashings**
- C. Cap Flashings at Equipment Curbs**
- D. Gutters & Downspouts**
- E. Roof Accessories**
 - 1. Soil Stacks**
 - 2. Pre-fabricated Curbs**
 - 3. Equipment Hoods/Shrouds**
 - 4. Rainbonnets**
 - 5. Pipestands**
 - 6. Roof Drains & Piping**
- G. Refer to Section 079200 - Sealants**

1.02 REFERENCES

- A. NRCA Sheet Metal Manual**
- B. SMACNA - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors National Association, Inc.; fifth edition, 1993.**
- C. CDA 4115-1929 - Copper in Architecture - Handbook; Copper Development Association (CDA).**
- D. SSINA - Designer Handbook Series; Specialty Steel Industry of North America (SSINA).**
 - 1. Stainless Steel for Roofing, Flashings, Copings.**
 - 2. Design Guidelines for the Selection and Use of Stainless Steel.**
 - 3. Specifications for Stainless Steel.**



4. **Stainless Steel Fabrication.**
5. **Stainless Steel FastenersCA Systematic Approach to Their Selection.**
6. **Finishes for Stainless Steel.**
7. **Stainless Steel Architectural Facts.**

1.03 GENERAL

- A. **It is the intent of these specifications to eliminate all pitchpans.**
- B. **At Duct Supports: Provide and install new sheet metal duct support bases attached to existing duct supports and resting on walktreads on the finished roof surface.**
- C. **At Ladder Supports: Modify existing ladder connections as required to either anchor ladder base to adjoining wall without penetrating roofing or flashings, or provide and install new pre-fabricated curb support and attach ladder base to top of new curb.**
- D. **At piping: Disconnect, bleed and re-connect piping as required to install new prefabricated pipestands with rubber closures sized to the pipe opening. Provide and install additional pipe insulation at existing piping as required for a complete installation. Test all gas piping prior to placing back in service.**
- E. **Provide minimum 8" flashing height at all equipment curbs.**

1.04 SUBMITTALS

- A. **Prior to fabrication and installation, submit both shop drawings and actual size mock-ups of all sheet metal components, including clips, cleats and trim, in the Owner-selected color, for approval and acceptance by the Owner, Architect and Consultant.**
- B. **Submit current technical data sheets, Material Safety Data Sheets and actual color samples in the intended color for each type of sealant to be used in the work, noting the surfaces to be joined and junctures to be sealed.**
- C. **Comply with all other requirements of Section 012500 - Submittals.**

PART 2: PRODUCTS

2.01 MATERIALS

- A. **22 gauge, Type 304 Stainless Steel: ASTM A167 and ASTM A240.**
- B. **24 gauge, Type 304 Stainless Steel: ASTM A167 and ASTM A240.**
- C. **22 gauge, painted galvanized steel, FS-QQ-S-775, Type I, Class D, ASTM 525, Class G-90 Zinc Coating, standard color which will be picked by Owner, 70% Kynar finish.**
- D. **24 gauge, painted galvanized steel, FS-QQ-S-775, Type I, Class D, ASTM 525, Class G-90 Zinc Coating, standard color which will be picked by Owner, 70% Kynar finish.**



- E. Aluminum: ASTM B209, alloy and temper - 3003-H-14, 0.040 inch thick aluminum sheet, mill finish.**
- F. Aluminum: ASTM B209, alloy and temper - 3003-H-14, 0.050 inch thick aluminum sheet, mill finish.**
- G. Aluminum: ASTM B209, alloy and temper - 3003-H-14, 0.050 inch thick painted aluminum sheet, standard color which will be picked by Owner, 70% Kynar finish.**
- H. Aluminum: ASTM B209, alloy and temper - 3003-H-14, 0.040 inch thick painted aluminum sheet, standard color which will be picked by Owner, 70% Kynar finish.**
- I. 16 ounce cold-rolled copper: ASTM B370. Solder: ASTM B32-83, Alloy Grade 50A (50% block tin; 50% pig lead). Flux: muriatic acid killed with zinc (zinc chloride). Wash off acid immediately after soldering.**
- J. 22 gauge galvanized sheet steel: ASTM A526-80, with 1.25 ounce per square foot galvanized coating. FS-QQ-S-775, Type I, Class D, Class G-90 Zinc Coating. Solder: ASTM B32-83, Alloy Grade 50A (50% block tin; 50% pig lead). Flux: raw muriatic acid. Wash off acid thoroughly immediately after soldering.**
- K. 24 gauge galvanized sheet steel: ASTM A526-80, with 1.25 ounce per square foot galvanized coating, FS-QQ-S-775, Type I, Class D, Class G-90 Zinc Coating. Solder: ASTM B32-83, Alloy Grade 50A (50% block tin; 50% pig lead). Flux: raw muriatic acid. Wash off acid thoroughly immediately after soldering.**
- L. Factory-treated Heat Weldable metal: Min 24 ga. Painted Galvanized 70% Kynar or min. 040 Painted Aluminum 70% Kynar.**
- M. Nails and Fasteners: Use type and form of metal compatible with base metal and support structure.**
- N. Sealants: Refer to Section 079200: Sealants.**
- O. Lead drain flashing: ASTM B29-79 (1984), min. 4 lb. rolled leads**
- P. Copper drain flashing: soft copper, O60 temper designation, 16 oz. per ASTM B370, Table 1.**
- Q. Aluminum Termination Bar: Tru-Fast TB-855 or approved equal, .075" thick x 1" wide x 10' with 1/4" x 3/8" slotted holes on 8" centers by TruFast Corporation, Bryan Ohio.**
- R. Wood Blocking: Refer to Section 060010: Carpentry and Blocking**
- S. Ice and Water Membrane:**
 - 1. W. R. Grace & Co. - Ice & Water Shield**
 - 2. GS Roofing Co. - Ice & Storm Guard**
 - 3. Owens Corning Fiberglass - Ice Guard**
 - 4. GAF - Storm Watch**
- T. Pipe Stands & Pre-Fabricated Equipment Curbs**
 - 1. Pate Curb - Broadview, IL**



2. Portable Pipe Hangers Inc. - Houston, TX
3. Thaler Roofing Specialty Products - Mississauga, Ontario
4. Kentuckiana Curb - Louisville, KY
5. Miro Industries - Murray, UT
 - a. Pillowblock stands only for electrical conduit

2.02 FABRICATION

- A. Fabrication requirements apply to both shop-fabricated and site-fabricated work.
- B. Shop fabricate work to the greatest extent possible. Fabricate corners, intersections, and transitions in the Shop
- C. Fabricate work as shown, or where not otherwise shown, fabricate to comply with the current SMACNA Architectural Sheet Metal Manual.
- D. Fabricate work with lines and corners true and accurate. Form faces flat and free of buckles, excessive waves and avoidable tool marks, considering temper and reflectivity of the metal. Provide uniform neat seams with minimum exposure of solder, welds, or sealant.
- E. Fold back sheet metal to form min 3/4" hem on concealed side of exposed edges.
- F. Fabricate non-moving seams in sheet metal with flat-locked seams.
- G. Provide for thermal expansion of items more than 15' in length.
- H. Maintain a water-tight installation at expansion seams. Locate expansion seams as shown, or, if not shown, at the following maximum spacings for each general flashing, as follows:
 1. Fascia, Gravel-stop, Copings, Flashings: At 10' maximum intervals and 2' from each side of corners and intersections.
 2. Gutters: At maximum 30' intervals each side of a downspout, in a manner which takes into consideration the pitch of the gutter and size of the downspout and allows positive slope to drain.

2.03 FABRICATED MATERIALS

- A. Flat and Raised Fascia:
 1. Use 24 gauge Kynar-Coated Galvanized. Provide minimum 3/4" hemmed edge. Form in sizes and shapes to conform to Construction details. Maximum length: 10'. Minimum gap between sections: 1/2". Color: Standard Color, Owner's Choice.
 2. Continuous Cleat: Min. 22 ga. Galvanized. Provide minimum 3/4" locking kick. Form in sizes and shapes to conform to Construction details. Maximum length: 10'. Minimum gap between sections: 1/2".
 3. Joint Covers: Minimum 4" wide of same metal as fascia, centered over joint with 1/2" hits at edges to hug tightly against fascia.
- B. Surface-Mount Counterflashings:
 1. Use 24 gauge Kynar-Coated Galvanized. Provide minimum 3/4" hemmed edge



and minimum 3/4" hemmed caulking receiver. Minimum face: 4-1/2" Form in sizes and shapes to conform to Construction details. Color: Standard Color, Owner's Choice.

C. Reglet Mounted Counterflashings:

1. Use 24 gauge Kynar-Coated Galvanized. Provide minimum 3/4" hemmed edge and minimum 3/4" hemmed caulking receiver. Form in sizes and shapes to conform to Construction details. Minimum face: 4-1/2" with 3/4" hemmed edge. Color: Standard Color, Owner's Choice.

D. In-laid Gutter and Downspouts

1. 16 oz. Lead-coated copper with closed box downspouts to match existing in size and dimensions.

E. Copings:

1. Use 24 gauge Kynar-Coated Galvanized. Provide minimum 3/4" hemmed edge at exterior face. Form in sizes and shapes to conform to Construction details. Color: Standard Color, Owner's Choice.
2. Continuous Cleat: Min. 22 ga. Galvanized. Provide minimum 3/4" locking kick. Form in sizes and shapes to conform to Construction details.

F. Metal Closures:

1. Use 24 gauge Kynar-Coated Galvanized. Provide minimum 3/4" hemmed edge at exterior face. Form in sizes and shapes to conform to Construction details. Color: Standard Color, Owner's Choice, choice by Owner. Overhang bottom edge of wood blocking a minimum of 2".
2. Over bend metal to fit snugly against vertical surfaces.
3. Continuous Cleat: Min. 22 ga. Galvanized. Provide minimum 3/4" locking kick. Form in sizes and shapes to conform to Construction details. Fasten to underlying wood blocking on 8" Centers with ring-shank cap nails.
4. Fasten with approved fasteners through neoprene washers in conformance with Construction details.
5. Turn up sheet Metal a minimum of 6" at all vertical junctures.
6. Install Surface-Mount Sheet metal counterflashings/closure strips at all edges. Use two approved fasteners minimum per sheet metal piece.
7. Seal to Masonry with Approved Sealant.

G. Compression Termination Bar:

1. Use 1/8" x 1-1/4" x 10' extruded aluminum pre-punched with 1/4" diameter holes 8" O.C.

H. Equipment Cap Flashings:

1. Use same base metal as equipment hood/strut/or cover. Min. 24 ga. for galvanized or steel, min. .040 for aluminum. Face: Minimum 4-1/2" with 3/4" hemmed edge.
2. Fasten to top of curb over flashings with ring-shank fasteners 8" O.C. Form in sizes and shapes to conform to Construction details.

I. Skirt Flashings



1. Use same base metal as existing counterflashing/flange. Min. 24 GA for galvanized or steel, min. .040 for aluminum. Face: Minimum 4-1/2" with 3/4" hemmed edge.

2.04 DRAINS AND DRAIN ACCESSORIES

A. Drains and Drainage Pipes:

1. Drain Heads: to match existing in size, Smith or Josam. Install drains which provide effective clamping action between clamping ring and bowl.
2. Drain Pipes: PVC/Cast Iron, to conform to local codes.
3. Drain Domes: Cast Iron only
4. Clamping Rings and bolts: as provided by Manufacturer.
5. Hangers, pipe insulation, etc.: as required for a complete installation.

- B. Lead flashing: ASTM B29-79 (1984), min. 4 lb. rolled leads. Drain Flashing Size: 52" x 52". Plumbing Vent Size: 18" x 18" min at base**

2.05 SHEET METAL ACCESSORIES

A. Soil Stack Flashings:

1. Lead flashing: ASTM B29-79 (1984), min. 4 lb. rolled leads. Minimum Size at Base: 18" x 18".

B. Rain Bonnets:

1. Use minimum 24 ga. Kynar-coated galvanized with stainless steel wormgear clamps and silicone sealant. Fabricate in sizes and shapes to conform to Construction Details. Turn up bonnet minimum of 1-1/4" along plane of existing stack. Provide minimum 3/4" caulking receiver.

C. Pitch Pans:

1. Pitch Pans are not acceptable. Install wood curbs and sheet metal closures or RPS, or approved equal, prefabricated closures, Contractor's option.

D. Pre-fabricated Insulated Equipment Curbs/Supports:

1. Min. 24 ga. Galvanized metal flanges with min. 1.5" Fiberglass insulation and integral wood nailers. Canted metal not allowed.

E. Deck Plates:

1. Close openings in concrete decking up to 12" x 12" with 1/4" steel plating sufficient to extend 6" onto the deck in any direction. Pre-prime both sides of steel plating with Red Oxide Rust Inhibitive Paint.

F. Pipe Supports for piping greater than 3" diameter:

1. Install only units with integral wood nailers and without metal cants, anchored solidly to underlying wood blocking. Pate or ThyCurb or Miro.

G. Pipe Supports for piping less than 3" diameter:



1. Wood block supports are not acceptable. Install Miro Pillowblock or approved equal pipe supports on modified pads installed over the gravel surface of the membrane.

H. Flexible Pipe Flashing:

1. Roof Products & Systems Corporation - Bensenville, Illinois
2. Pate Curb Company - Broadview, IL

PART 3: EXECUTION

3.01 INSPECTION

- A. Do not proceed with sheet metal installations until all carpentry, millwork, curb, cants roofing and flashings, reglets and other substrates to receive the work are completed.
- B. Surfaces to receive sheet metal, closure strips and sealants shall be clean, dry, smooth and free of dirt, contaminants, asphalt or mastic, old sealant, defects, or projections that might adversely affect the application.
- C. Contractor shall examine the substrate and the work of other trades and inform the Consultant and/or Owner's Representative immediately of any unsatisfactory conditions. Installation of sheet metal trim and accessories over unsatisfactory conditions constitutes acceptance of those conditions and the Contractor can be held responsible for the full cost of replacement and correction of unsatisfactory conditions at no additional charge to the Owner.
- D. Install Ice & Watershield underlayment over wood blocking/plywood prior to installing Sheet Metal.

3.02 COUNTERFLASHING INSTALLATIONS

- A. Fabricate in accordance with Construction Details and SMACNA Manual.
- B. Install in locations designated on Construction Details.
- C. Fasten Surface-Mount Counterflashings min. 12" O.C. with approved fasteners.
- D. Fasten Reglet-mount counterflashings with lead wedges min. 8" O.C.
- E. Fasten skirt flashings with approved fasteners minimum 8" O.C., minimum two (2) fasteners per sheet metal piece.
- F. Install sheet metal clips at section junctions, as specified.
- G. Seal with approved sealants.

3.03 FASCIA INSTALLATION

- A. Fabricate in accordance with Construction Details and SMACNA Manual.



- B. Install in locations designated on Construction Details.
- C. Fasten cleat to underlying wood blocking on 8" Centers with ring-shank cap nails. Engage hem in cleat a minimum of 1/2".
- D. Install sealant tape at underside of both edges of joint covers before installing cover plate.

3.04 GUTTER AND DOWNSPOUTS

- A. Stagger nailer flange of gutter to underlying wood nailers with approved brass or copper nails 3" O.C.
- B. Anchor downspouts to concrete columns with min. 20 oz. brackets, minimum of two brackets per downspout. Fasten bracket to concrete columns with approved fasteners.
- C. Provide Concrete splashblocks at base of all downspouts.

3.05 SHEET METAL COPINGS

- A. Copings to overhang bottom edge of wood blocking a minimum of 2".
- B. Fasten continuous cleat to underlying wood blocking on 8" Centers with ring-shank cap nails.
- C. Fasten interior face of coping with lag screws through neoprene washers on min. 24 " centers, in conformance with Construction details. Attain min 3/4" embedment of fasteners into underlying wood blocking/nailers.

3.06 SHEET METAL CLOSURES AT VERTICAL METAL ENDS

- A. Overhang bottom edge of wood blocking a minimum of 2". Overbend metal to fit snugly against vertical surfaces.
- B. Fasten continuous cleat to underlying wood blocking on 8" Centers with ring-shank cap nails.
- C. Fasten interior face of coping with lag screws through neoprene washers in conformance with Construction Details.
- D. Install Ice & Watershield underlayment over wood blocking/plywood prior to installing Sheet Metal.
- E. Turn up sheet Metal a minimum of 6" at all vertical junctures.
- F. Install Surface-Mount Sheet metal counterflashings/closure strips at all edges.
- G. Seal to Masonry with Approved Sealant.

3.07 CAP FLASHING INSTALLATION

- A. Fasten to top of curb over flashings with ring-shank fasteners through sealant or



neoprene washers on 8" centers.

3.08 SKIRT FLASHING INSTALLATION

- A. Fasten through existing flange or counterflashing into pre-drilled skirt flashing with self-tapping fasteners through neoprene washers on 8" centers. Wherever possible, fasten into underlying wood nailers or nailable substrates in preference to relying on self-tapping fasteners.**

3.09 SHEET METAL ACCESSORY INSTALLATIONS

A. Soil Stack Flashings:

- 1. Unroll and smooth out leads to contours of surfaces to be flashed.**
- 2. Prime leads with Quick-drying Primer.**
- 3. Bend leads a minimum of 1.5" into stacks without cracks or fishmouths.**
- 4. Discard cracked or overworked flashings.**
- 5. Set leads into solidly into tar mastic.**
- 6. Mechanically attach base of lead flashing to underlying wood blocking with ring-shank fasteners stagger nailed 6" O.C.**
- 7. Strip into surrounding roofing with minimum two (2) flashing plies in accordance with Construction details.**

B. Rain Bonnets:

- 1. Bottom edge of bonnet to overhang exposed top edge of stack by a minimum of 1-1/2".**
- 2. Turn up bonnet minimum of 1-1/4" along plane of existing stack. Provide minimum 3/4" caulking receiver. Seal with approved sealant. Prime surfaces as required by Manufacturer.**

C. Pitch Pans:

- 1. Pitch Pans are not acceptable. Install wood curbs and sheet metal closures or RPS pre-fabricated closures, or, approved equal prefabricated closures, Contractor's option.**

D. Pre-fabricated Insulated Equipment:

- 1. Install only units with integral wood nailers and without metal cants, anchored solidly to underlying wood blocking.**
- 2. For BUR and modified roofing only: Install new wood cants at perimeters. Sheet metal cants are not acceptable.**
- 3. Install sheet metal cap flashings with minimum 1" fiberglass insulation over finished flashings.**

E. Deck Plates:

- 1. Close openings in concrete decking up to 12" x 12" with 1/4" steel plating sufficient to extend 6" onto the deck in any direction. Pre-prime both sides of steel plating with Red Oxide Rust Inhibitive Paint. Fasten to Concrete through pre-drilled holes with Tapcons or approved lead expansion anchors. Cover**



with insulation and built-up roofing as specified.

F. Pre-fabricated Insulated Equipment Curbs/Supports:

1. Install only units with integral wood nailers and without metal cants, anchored solidly to underlying wood blocking.
2. Install new wood cants at perimeters.
3. Install flashings and sheet metal cap flashings.

G. Pipe Supports for piping greater than 3" diameter:

1. Install only units with integral wood nailers and without metal cants, anchored solidly to underlying wood blocking.
2. Locate pipe supports on no greater than 10' centers and within 3' of each side of bends. Provide integral caps and mounting brackets as required for a complete installation.
3. Size rollers to size of pipe according to Manufacturer's printed literature. Document spacing and curb and roller sizes with Submittals.

H. Pipe Supports for piping greater less than 3" diameter:

1. Wood block supports are not acceptable. Install Miro or approved equal pipe supports on modified pads installed over the gravel surface of the membrane.
2. Locate pipe supports on no greater than 10' centers and within 3' of each side of bends. Provide integral caps and mounting brackets as required for a complete installation.
3. Size rollers to size of pipe according to Manufacturer's printed literature. Document spacing and curb and roller sizes with Submittals.

I. Flexible Pipe Flashing:

1. Mechanically fasten the pre-manufactured curb to the existing roof deck. The pre-fabricated curb shall be high enough to allow for eight (8) inch minimum roof flashing height and provide min 4" roof flange fastened to underlying wood blocking.
2. Install the acrylic-coated ABS plastic curb cover over the curb.
3. Install EPDM closure caps sized to pipe/cable/conduit penetrations over curb cover. Closure cap shall be of appropriate size and type to flash all piping, cables, etc. protruding through opening.
4. Disconnect and reinstall piping, cables, etc. as required to thread through the EPDM rubber caps. Grease caps with sealant to assure seal.
5. Install and secure properly sized stainless steel hose clamps to seal the EPDM rubber caps to the piping, cables, etc.
6. Install and secure new pipe insulation where required to match existing. Fit securely over hose clamps and rubberneck.

3.10 SHEET METAL SEALANT INSTALLATIONS

A. Sealants installed under this section must comply with all other requirements of Section 079200 - Sealants.

B. Test metal surfaces for sealant adhesion. Where adhesion does not occur, clean metal surfaces with solvents compatible with the paint finish/coating. Where necessary, use primer recommended by the Sealant Manufacturer.



- C. Apply sealant to all metal surfaces prior to joining. Use gasket tape where specified. Use Neoprene washers where applicable or specified.
- D. Apply sealant where shown or required to provide complete watertight installation.
- E. Hooked Expansion/Lap Joints:
 - 1. Embed the hooked flanges of joints no less than 1" into the sealant.
 - 2. Form joints to completely seal the sealant.
 - 3. Do not install sealant sealed joints at temperatures below 40° F. or above 100° F.
 - 4. When temperatures are ambient (50° F. to 70° F.), set joint movement for 50% in either direction.
 - 5. Adjust setting proportionately for higher installation temperatures.

3.11 GENERAL INSTALLATION PROCEDURES

- A. Except as otherwise shown or specified, comply with applicable recommendations and details of the current SMACNA Architectural Sheet Metal Manual.
- B. Cleating: Secure one edge with two fasteners and fold the cleat over the fastener heads. Wherever not specified, use 1 grade of metal thicker than the metal specified for cleats. Wherever cleats are not specified as continuous, use minimum 2" x 3" metal pieces.
- C. Flux: Use type of flux compatible with the sheet metal used. Remove acid flux residue by neutralizing with ammonia or baking soda immediately and rinsing with water. Metal stained or damaged by overexposure to flux is subject to rejection.
- D. Soldering: Roughen edges of stainless steel or monel with emery cloth before soldering. Use type of flux compatible with sheet metal. Perform with uniformly and fully-heated coppers. Thoroughly heat the seam and sweat the copper through its full width.
- E. Seams: Comply with SMACNA Architectural Sheet Metal Manual Plate 99 and Plate 100, and such other plates as may be specific to particular applications. Where not otherwise specified by these specifications or the SMACNA Manual:
 - 1. Seams: Orient so water flows over or along but never against.
 - 2. Unsoldered Lap Seams: Overlap 4" Minimum.
 - 3. Soldered Lap Seams: Finish not less than 1-1/4" wide.
 - 4. Standing Seams: Finish not less than 1-1/2" high.
 - 5. Flat-Lock Seams: Finish not less than 1" wide.
- F. Dissimilar Materials: Place sheet lead, sealant, bituminous mastic or felt between dissimilar materials or paint with bituminous-base paint.
- G. Underlayment: Unless otherwise specified, install continuous Ice and Water Shield to surfaces receiving metal gutters, valleys, or gutter lining. Lap plies three (3) inches minimum.
- H. Locate fasteners and expansion joints in exposed work to conceal fasteners and expansion joints to minimize the possibility of leakage.



- I. Provide for thermal expansion/contraction of metal pieces incorporated in the work. Locate expansion seams as shown, or, if not shown, at minimum 10' intervals and 2' each side of corners and intersections.
- J. Fabricate exposed faces flat and free of buckles, "oil-canning" waves, and tool marks, considering the temper and reflectivity of the metal for the application. Provide uniform neat seams with minimum exposure of solder, welds and sealant. Except as otherwise shown, provide hemmed edges for exposed edges of sheet metal.
- K. Sheet metal fascia pieces wider than 8" must be fabricated with a 1/2" min centered stiffening hit to prevent oil-canning of the metal. Call exposures that may present aesthetic differences to the attention of the Owner/Consultant prior to fabrication and installation.

END OF SECTION 07 7600



DIVISION 7

SECTION 07 9200

ROOFING SEALANTS

PART 1: GENERAL

1.01 ITEMS INCLUDED

- A. Acceptable Manufacturers**
- B. Acceptable Products**
- C. Installation**

1.02 REFERENCES

- A. ALL OTHER SECTIONS OF DIVISION 1 THRU 16 OF THESE SPECIFICATIONS.**

1.03 SCOPE

- A. Furnish and install sealant work as specified and detailed. If joints required to be sealed are not noted on the drawings, it is the Contractor's responsibility to identify all joints requiring sealant installation and to install the proper sealant for each joint type.**

1.04 PRE-JOB MEETING

- A. Sealant Manufacturer(s) representative(s) and installer(s) shall attend the Pre-Construction Conference on the site prior to the start of any work, along with the Architect/Engineer/Consultant, and Prime Contractor to review the project, and discuss sealant applications, joint sizes and limitations, aesthetic concerns, and perform field adhesion testing and mock-up installations.**

1.05 QUALITY CONTROL

- A. Sealant manufacturer shall perform adhesion tests to assure compatibility of specified sealants with each type of surface encountered in the work.**
- B. Sealant applicator shall install 10-100 feet of each type of sealant to be used on the project at the Pre-Job Meeting and perform field adhesion tests with 7- 14 days before proceeding with the work to verify aesthetics, workmanship, proper sealant selection, surface preparation and installation procedures.**
- C. Perform field adhesion tests and submit documented results prior to project close-out. Perform 10 field adhesion tests for the first 1,000 feet of sealant installed, and one test per 500 feet of sealant installed thereafter, or one test per floor per elevation, for each type of sealant installed. Field adhesion log shall include, at a minimum:**
 - 1) Date of Application**
 - 2) Sealant Type**
 - 3) Sealant Lot # (if any)**
 - 4) Skin Over Time (minutes)**
 - 5) Cured after 24 Hours (Y/N)**



- 6) Applicator Name (Individual, not company)
- 7) Test Date
- 8) Test Location (Elevation, Unit #, etc.)
- 9) Primed (Y/N)
- 10) Acceptable Adhesion (Y/N)
- 11) % Elongation
- 12) Joint Fill (Depth & Width)

1.06 DELIVERY AND STORAGE

- A. Materials shall be delivered in their original, unopened and tightly sealed containers, clearly labeled with manufacturer's name, product identification, and lot numbers where applicable.
- B. Materials to be stored in strict accordance with manufacturer's printed instructions, but at least covered with canvas tarpaulins on wood pallets.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Dow-Corning Corp., Midland, Michigan
- B. GE Silicones, General Electric Company, Waterford, New York
- C. Mameco International, Inc., Cleveland, Ohio
- D. Sika Corporation, Lyndhurst, New Jersey
- E. Sonneborn Building Products Division, Rexnord Chemical Products, Minneapolis, Minnesota
- F. Tremco Inc., Cleveland, Ohio

2.02 ACCEPTABLE PRODUCTS

- A. For use in masonry to masonry joints or metal (galvanized, Kynar-coated, stainless steel, or aluminum) to masonry joints wider than 1": two-part polyurethane sealant conforming to Federal Specification TT-S-00227E, Type 2, Class A, and ASTM C920-86, Type M, Grade NS, Class 25.
 - 1. Vulkem 922 by Mameco
 - 2. Sikaflex 2c by Sika
 - 3. Sonolastic NP 2 by Sonneborn
 - 4. Dymeric by Tremco
- B. For use in masonry to masonry joints or metal (galvanized, Kynar-coated, stainless steel, or aluminum) to masonry joints subjected to high movement as an alternative to cutting out and replacing existing failed weatherproofing sealants: ultra-low modulus silicone extrusion bonded to substrates using Dow 795 Silicone, or approved equal.

Note: Where Primers are recommended by certain Manufacturers in order to improve adhesion to Kynar and other metal finishes, these primers are required by this specification. Consult Manufacturer's Installation Recommendations.



- C. For use in metal to metal joints: one-part polyurethane sealant conforming to Federal specification TT-S-00230C, Type 2, Class A, and ASTM C920-86, Type S, Grade NS, Class 25.
1. Sikaflex 1a by Sika
 2. Sonolastic NP 1 by Sonneborn
 3. Dymonic by Tremco
 4. Vulkem 116 by Mameco
- Note: Primers are required by certain Manufacturers in order to obtain adhesion to Kynar and other metal finishes. Consult Manufacturer's Installation Recommendations.
- D. For use in aluminum to aluminum joints or in aluminum to non-neoprene glazing joints: one-part silicone sealant conforming to Federal specifications TT-S-00230C (CM-NBS), Type 2, Class A, and TT-S-001543A (COM-NBS), non-sag, Class A, and conforming to ASTM C920-86.
1. Dow Corning 790 or 795 by Dow Corning
 2. Silglaze N by GE
 3. Proglaze by Tremco
- E. Joint Primer/Sealer: provide type of joint primer/sealer recommended by sealant manufacturer for joint surface to be primed or sealed. Primer to be applied with a clean, dry, lint-free cloth. Avoid flooding of the surface with primer.
- F. Sealant Backer Rod: compressible rod stock, closed cell polyethylene rod, non-out gassing, as approved by the sealant manufacturer. Polyethylene or polyurethane sealant backer rod shall be of a diameter 33 percent greater than the joint width, so that sealant depth is 1/2 the joint width. NOTE: Contractor shall submit proof of Manufacturer acceptance of backer rod. Open cell backer rod is required for moisture-cure silicones, only!
1. Sonoflex F - Sonneborn Building Products Div., Rexnord Chemical Products, Inc., Chicago Heights, IL
 2. Rodofoam - grade #327 - W. R. Grace & Co.
 3. Ethafoam - Williams Everlastic
- D. Butyl Sealant Tape: Isobutylene Tripolymer Tape as manufactured by Sika Corp., Lyndhurst, N. J., or approved equal, meeting Federal Spec TT-C-1796A, Type II, Class B, AAMA Spec 804.1-84 and 807.1-85 reference standards ANSI/AAMA 302.9, 402.9, 1002.9-1977 and NAAMM Standard SS-1C-68. 3/4" min. width x 3/16" min. thickness. Asbestos-free. Available through Pro Fastening Systems, Triangle Fastener, or Thy-Curb.

PART 3: EXECUTION

3.01 JOINT PREPARATION

- A. All masonry or stone joints to be caulked shall be sawcut or ground out with a power grinder to a depth sufficient to receive the backer rod and provide a sealant joint whose depth is equal to one-half (1/2) the joint's width.
- B. Use suitable tools and skills which will not injure the edges or corners of the stone.



Where the mortar is tightly bonded at one side of the joint, and if the contour permits, the cutting shall be done with portable electric grinders with abrasive wheels to minimize spalling at the edges of the masonry joints.

- C. After the joint has been cut out, all loose material shall be removed by brush and/or air jet. Following this cleaning, all joints will be backed with sealant backer rod with a diameter 33% larger than the width of the joint. Backer rod shall be installed with a blunt, non-metallic instrument. Any punctured or damaged rod shall be removed and replaced with new backer rod. Install rod so that sealant depth is 1/2 of joint width.
- D. Select and install primers in strict accordance with manufacturer's written recommendations. Apply with a clean, dry, lint-free cloth. Do not flood the surface with any primer.

3.02 SEALANT APPLICATION

- A. The specified sealant materials shall be installed in strict accordance with the manufacturer's printed instructions and only by mechanics specially trained or experienced in their use.
- B. Clean joint surfaces immediately before installation of sealant. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealant. Etch concrete joint surfaces as recommended by sealant manufacturer. Solvent wipe surfaces to be sealed as recommended by the Manufacturer. In absence of specific recommendations, condition surfaces with "ZYLOL" or "MEK" after pre-testing on actual job site materials. Use clean rags, not brushes. Use a two-cloth cleaning method whenever organic cleaning solvents are used, and be certain to allow the solvent to flash off completely.
- C. Mask adjacent building surfaces prior to installing primer or sealants. Always solvent wipe before masking to assure adequate seal of masking tape.
- D. Prime or seal joint surfaces as recommended by sealant manufacturer, even if recommended but not required by the manufacturer. Do not allow primer/sealer to spill or migrate into adjoining surfaces.
- E. Set joint filler units at proper depth or position in joint to coordinate with other work, including installation of bond breakers, backer rods, and sealants. Do not leave voids or gaps between ends of joint filler units.
- F. Install sealant backer rod for elastomeric sealants, except where recommended to be omitted by sealant manufacturer for application.
- G. Install bond breaker tape where required by manufacturer's recommendations to ensure that elastomeric sealants perform properly.
- H. Employ only proven installation techniques which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Except as otherwise noted, fill sealant rabbet to a slightly concave surface, flush with adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt. Surface shall be smooth and uniform.
- I. Install sealant to depths as recommended by sealant manufacturer, but within the



following general limitations, measured at center (thin) section of bead.

1. Fill joints in an hourglass shape to a depth equal to 50% of the joint width, but neither more than 3/8" deep nor less than 1/8" deep.
 2. There shall be no air voids throughout the entire joint cross section. To ensure complete joint fill, tooling shall be performed within 10-20 minutes of sealant application. If masking materials are used, they shall be removed immediately after tooling sealant.
- J. Installer must examine joint surfaces and backing, their anchorage to the structure, conditions under which joint sealer work is to be performed, and notify C.E. Crowley & Associates of conditions detrimental to proper completion of the work and performance of sealers. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected.
- K. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions or when temperatures are below or above manufacturer's recommended temperature range for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength. Where joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in lower third of manufacturer's recommended installation temperature range. Do not caulk if it is raining, misting, or if there is any evidence of moisture at the joint. Do no caulking if outdoor temperature is below 45° F.

3.03 CLEANING

- A. The surfaces of materials adjacent to the joint where sealant was applied shall be cleaned free of excess sealant or other soiling due to sealing applications, or masking materials. Excess sealant shall be scraped from the surface and the remainder shall be cleaned with xylene or mineral spirits as work progresses and before the sealant starts to cure.

3.04 INSPECTION

- A. The Owner /Architect/Engineer/Consultant will reserve the right to cut open joints for inspection at random locations throughout the job. The repair shall consist of restoring the joint according to these Specifications.

END OF SECTION 07 9200



DRAWING MANUAL

Project:

**2021 ROOFING REPAIR WORK FOR ALMOND ROAD & O'PLAINE CAMPUSES
WARREN TOWNSHIP HIGH SCHOOL DISTRICT #121
34090 N. ALMOND ROAD
GURNEE, IL 60031**

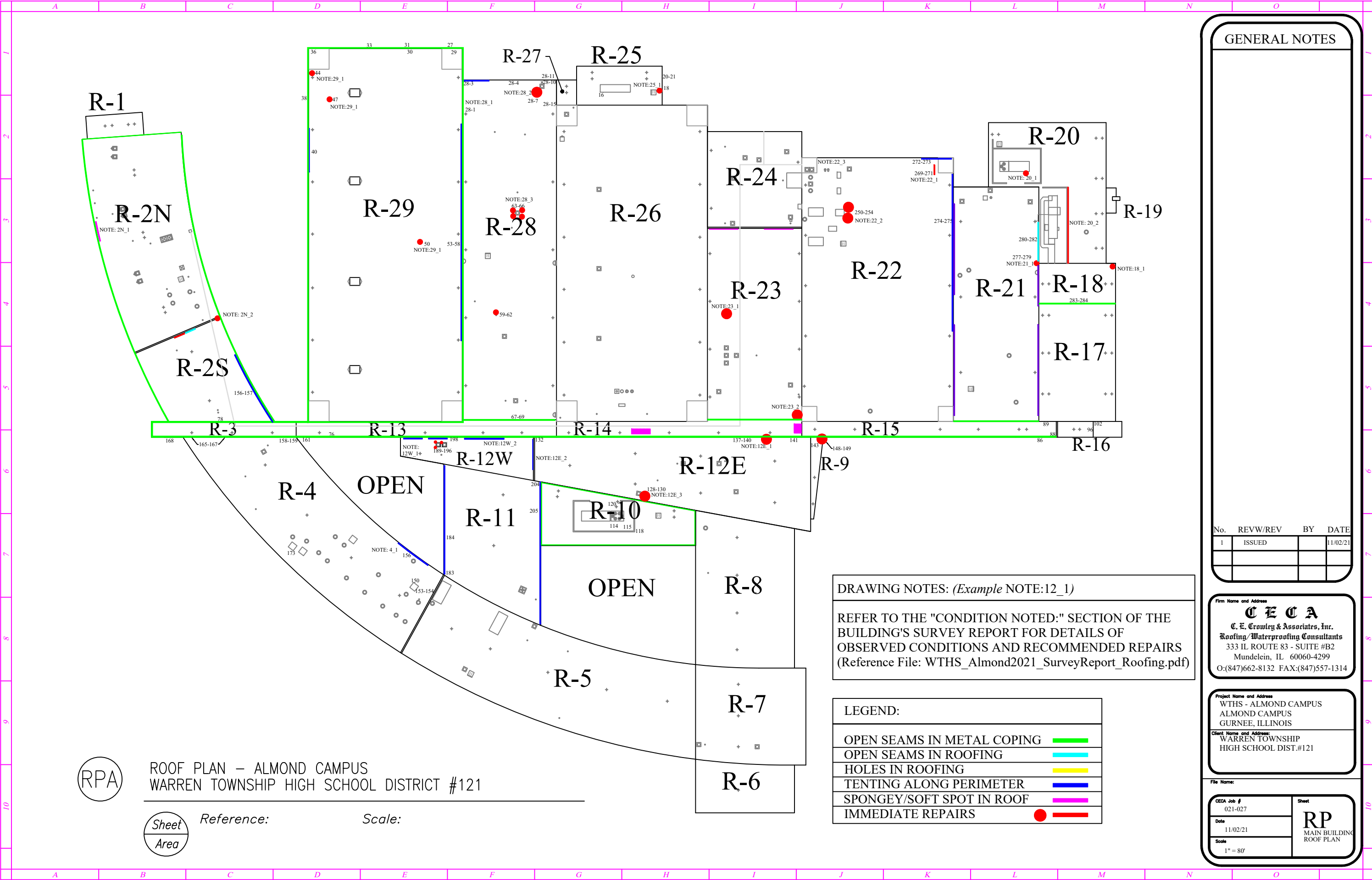
Locations:

**WARREN TOWNSHIP HIGH SCHOOL
ALMOND ROAD CAMPUS
34090 N. ALMOND ROAD
GURNEE, IL 60031**

**O'PLAINE CAMPUS
500 N. O'PLAINE ROAD
GURNEE, IL 60031**

Prepared for:

**Warren Township High School District #121
34090 N. Almond Road
Gurnee, IL 60031
c/o Mr. Michael Engel
Assistant Superintendent for Business Services
O: (847) 548-7055
E: mengel@wthhs.net**



ROOF PLAN – ALMOND CAMPUS
WARREN TOWNSHIP HIGH SCHOOL DISTRICT #121



Reference:

Scale:

DRAWING NOTES: (Example NOTE:12_1)

REFER TO THE "CONDITION NOTED:" SECTION OF THE
BUILDING'S SURVEY REPORT FOR DETAILS OF
OBSERVED CONDITIONS AND RECOMMENDED REPAIRS
(Reference File: WTHS_Almond2021_SurveyReport_Roofing.pdf)

LEGEND:

OPEN SEAMS IN METAL COPING	
OPEN SEAMS IN ROOFING	
HOLES IN ROOFING	
TENTING ALONG PERIMETER	
SPONGEY/SOFT SPOT IN ROOF	
IMMEDIATE REPAIRS	

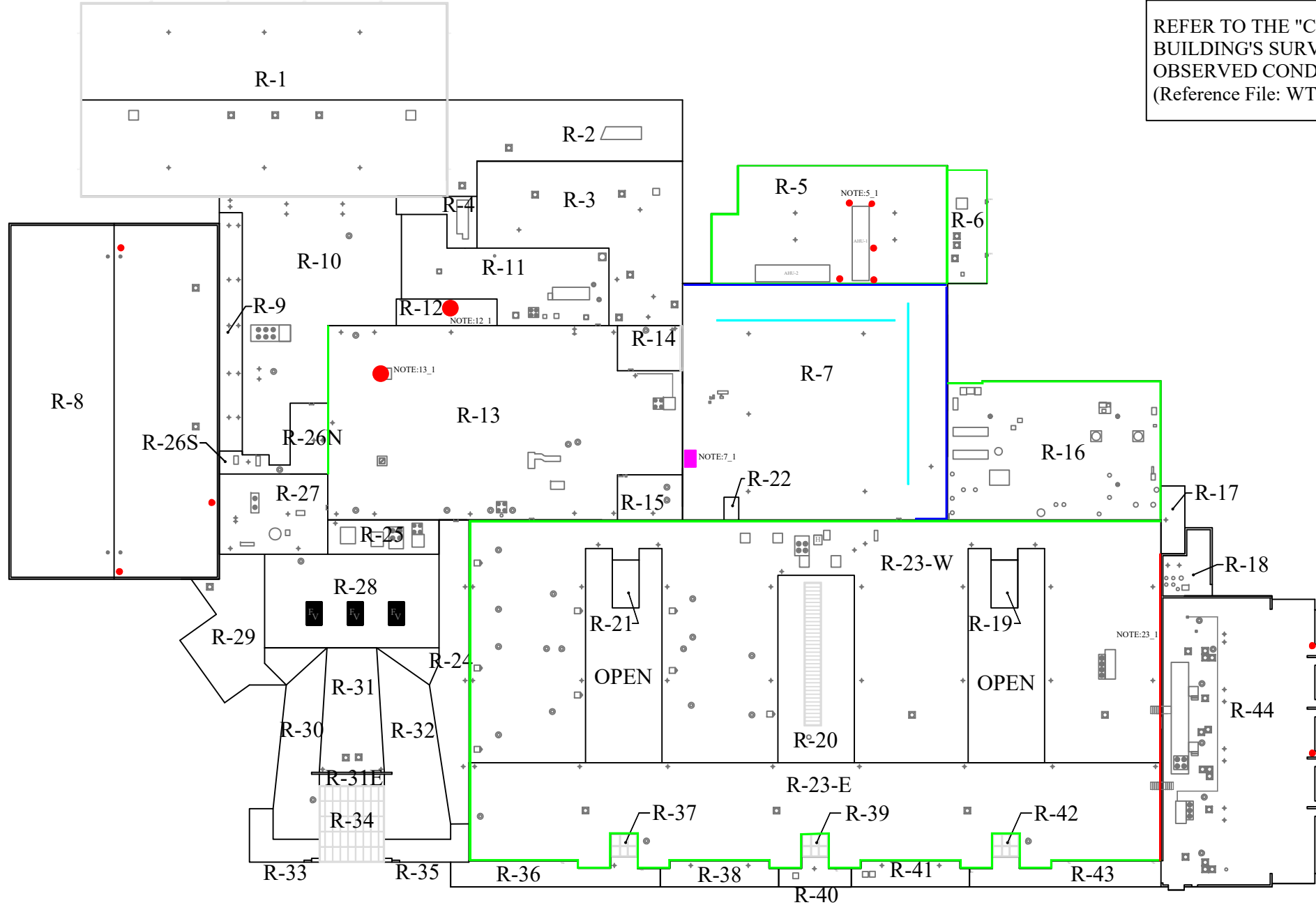
GENERAL NOTES

No.	REVW/REV	BY	DATE
1	ISSUED		11/02/21

Firm Name and Address
C E C A
C. E. Crowley & Associates, Inc.
Roofing/Waterproofing Consultants
333 IL ROUTE 83 - SUITE #B2
Mundelein, IL 60060-4299
O:(847)662-8132 FAX:(847)557-1314

Project Name and Address
WTHS - ALMOND CAMPUS
ALMOND CAMPUS
GURNEE, ILLINOIS
Client Name and Address:
WARREN TOWNSHIP
HIGH SCHOOL DIST.#121

File Name:	Sheet
CEDA Job # 021-027	RP MAIN BUILDING ROOF PLAN
Date 11/02/21	
Scale 1" = 80'	



DRAWING NOTES: (Example NOTE:12_1)

REFER TO THE "CONDITION NOTED:" SECTION OF THE BUILDING'S SURVEY REPORT FOR DETAILS OF OBSERVED CONDITIONS AND RECOMMENDED REPAIRS (Reference File: WTHS_OPaine2021_SurveyReport_Roofing/pdf)

GENERAL NOTES

No.	REVW/REV	BY	DATE
1	ISSUED		11/02/21

Firm Name and Address

C E C A
C. E. Crowley & Associates, Inc.
Roofing/Waterproofing Consultants
333 IL ROUTE 83 - SUITE #B2
Mundelein, IL 60060-4299
O:(847)662-8132 FAX:(847)557-1314

Project Name and Address

WTHS - O'PLAINE CAMPUS
O'PLAINE CAMPUS
GURNEE, ILLINOIS

Client Name and Address

WARREN TOWNSHIP
HIGH SCHOOL DIST.#121

File Name:

CECA Job #	Sheet
021-027	RP MAIN BUILDING ROOF PLAN
Date	
11/02/2021	
Scale	1" = 80'

RPO

ROOF PLAN – O'PLAINE CAMPUS
WARREN TOWNSHIP HIGH SCHOOL DISTRICT #121

Sheet
Area

Reference:

Scale:

LEGEND:	
OPEN SEAMS IN METAL COPING	
OPEN SEAM IN EPDM ROOFING	
HOLE IN EPDM ROOFING	
TENTING ALONG PERIMETER	
SPONGEY/SOFT SPOT IN ROOF	
IMMEDIATE REPAIRS	

**NEW SHEET METAL CAP
TO MATCH EXISTING.
-MIN. THICKNESS .040/24 GA.**

1/2" HIT AT EDGES FOR TIGHT FIT

1/2" GAP

**4" MIN. UNER-BATTEN
-SET IN CONT. SEALANT**

**SSTL SCREWS 18" O.C.
THRU NEOPRENE WASHERS**

CAP NAIL 18" O.C.

1" x 4" TRTD NAILER

3/4" CDX PLYWOOD

ICE & WATER SHIELD

**NEW 2"X TRTD NAILER
- Field Measure
- Anchor to block with
approved fasteners
min. 24" o.c.**

**.050/22 GA. CONTINUOUS
CLEAT**

1

**Coping Close-up Detail
WTHS SD #121 - 2021 ROOF REPAIRS**

Scale: 3/2" : 1' - SF:8



General Notes

Firm Name and Address

C E C A
C. E. Crowley & Associates, Inc.
Roofing Consultants
333 EAST IL RTE. 83 - SUITE #103
MUNDELEIN, IL 60060-4278
O:(847)662-8132 FAX:(847)557-1314

Project Name and Address

2021 ROOF REPAIRS
TYPICAL COPING TOP
GURNEE, IL
WTHS SD #121
ALMOND/O'PLAINE CAMPUS
GURNEE, IL

CEDA Job #

021-027

Date

11/02/2021

Scale

1-1/2"/FT

Sheet

COPING