PROJECT MANUAL

2019 ROOF REPLACEMENT

Central Warehouse
Waterford School District
1145 Tee Cee Road
Waterford Township, Michigan 48328

SME Project Number 080400.00
For Bid: **April 23, 2019**

SECTION 01 23 00

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SECTION 00 01 15

LIST OF DRAWINGS

The following drawings dated April 23, 2019, are included as part of these Bidding Documents.

Full Size Drawings

A1.0 Cover Sheet

A1.1 Roof Plan

A1.2 Tapered Insulation Plan

A2.1 Details

END OF SECTION 00 01 15

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SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

Sealed bids will be received by SME for the **2019 Roof Replacement at Central Warehouse**, Waterford School District, 1145 Tee Cee Street, Waterford Twp., Michigan. The Work will be in accordance with the Drawings and Specifications prepared by SME, 43980 Plymouth Oaks Boulevard, Plymouth, Michigan 48170

Waterford School District will **receive sealed bid proposals until 2:00 pm on Tuesday, April 23, 2019** for the following bid package: "**2019 Roof Replacement at Central Warehouse** ". Bidding documents will be posted on the District website and on State of Michigan Bidding Websites after April 9, 2019.

Pre-bid examination of the building will be held on Tuesday, 16, 2019 at 9:00 AM, starting at the Central Warehouse, 1145 Tee Cee Street, Waterford, MI 48328.

Bids shall remain firm for acceptance for a period of 60 days. Waterford School District reserves the right to accept or reject any and/or all bids.

Consultant and the Owner will not be held liable for Contractors that do not attend the Mandatory Pre-Bid meeting and find they do not have enough or proper information for bidding. It is the Contractor's responsibility to attend the Pre-Bid Meeting and gather enough information for a comprehensive and responsive bid.

Submit a printed original and two (2) copies of the Bid to Waterford School District before 2:00 PM to be considered. Mail or hand deliver Bid to the Waterford School District as noted below:

Waterford School District
Crary Campus
501 N. Cass Lake Road
Waterford Michigan 48328
(Attention Roof Bid – Central Warehouse)

Email inquiries or requests for clarification to:

Mr. Ronald K. Pelkie, CDT
SME
43980 Plymouth Oaks Boulevard
Plymouth, Michigan 48170
O: 734-454-9900
C: 734-637-0097
pelkie@sme-usa.com

Provide Bids in full conformity with the Drawings and Specifications. Bids are to be firm and cannot be withdrawn for a period of 90 calendar days after opening. Bids submitted by email or facsimile will not be accepted. The Owner reserves the right to reject any and all bids and to award the Contract to other than the low bidder, and to waive irregularities and/or formalities.

Provide Bids that state price in both figures and writing, are signed personally by the Bidder and by a partner or a duly authorized officer for the corporation, and provide the Bidder's business address and telephone number.

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Base the Bids only on the materials, construction and equipment named or described in the Contract Documents. Suggested voluntary alternate bids for work other than that specified or shown will be given due consideration, but are subject to the terms and requirements of the General Conditions of the Contract, and must be meet or exceed the quality requirements of the base bid specifications.

FAMILIAL DISCLOSURE STATEMENT

All proposals are to be accompanied by a sworn statement disclosing familial relationship that exists between the owner(s) or employee(s) of the proposer and member(s) of the Board of Education or the Superintendent of the School District. The Board of Education will not accept a proposal that does not include a sworn statement and notarized familial relationship disclosure statement. The Familial Disclosure Statement is provided in Section 00 45 00.

MICHIGAN PUBLIC ACT No. 517 OF 2012

All proposals must be accompanied by a signed copy of the Michigan Public Act No. 517 of 2012 stating the Contractor's Company is not an "Iran Linked Business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012. The Board of Education will not accept a proposal that does not include this signed statement. The Familial Disclosure Statement is provided in Section 00 45 46.

CONTRACT

The Contract will be deemed as having been awarded when formal notice has been duly served upon the intended awardee by an officer or agent of the Owner duly authorized to give such notice.

Prevailing Wage

Bids are to be Prevailing Wage as required for School Bond Program work.

Challenges of wages are to be directed toward the Local Roofing Union Representatives for action.

BID GUARANTEE

As required by State law, the following requirements apply:

- Proposals over $24,459.00 require US Treasury Listed Bid Bond or a cashier's check of at least five- percent (5%) of the proposal amount. If security is not provided, the bid will not be read.
- Provide bid bond executed by a Surety Company licensed in the State of Michigan, remaining in effect for 90 days and are intended to protect the Waterford School District against losses should the contractor fail to enter into a contract if their bid is accepted, or withdraw the bid.
- Proposals exceeding $50,000 require a 100% US Treasury Payment and Performance Bond from the Contractor at the time of Award. Include Bond costs in the Bid.

Bonds will be returned to unsuccessful proposers in accordance with State of Michigan regulations and procedures.

PERFORMANCE GUARANTEE

The contractor must provide the Owner a Performance Bond that guarantees that if the contractor defaults or fails to perform, the surety will complete the contract or provide sufficient funds for completion of the work. The cost for the Performance Bond will be included in the Base Bid.

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TAXES

Bids for original contract work, and for other work thereunder, must include applicable taxes which may exist, including sales tax, labor taxes, social security, unemployment and use taxes, and other taxes specifically levied on the work or on wages by local, city, state or federal government, except real property taxes on the site. Verify applicable taxes prior to submission of their bid.

Provide a Bid that includes premiums, assessments, and other like payments, charges, and costs incidental to the work covered by the Contract Documents.

PROJECT DOCUMENTS

The Project Documents upon which the bid and Contract consist of the following:

Drawings: Cover Sheet, Roof Plan, Tapered Insulation Plan, and Details 1 through 12, Dated April 23, 2019.

Specifications: Dated April 23, 2019.

- Instructions to Bidders, Section 00 21 13
- Bid Form, Section 00 41 13
- Familial Disclosure Statement, Section 00 45 00
- Public Act 517 Certification, Section 00 45 46
- General Conditions, Section 00 72 00
- General Requirements, Section 01 00 00
- Summary of Work, Section 01 11 13
- Roofing Construction Controls, Section 01 50 00
- Steel Roof Deck Repair; Section 05 31 23
- Miscellaneous Rough Carpentry; Section 06 10 53.
- Adhered EPDM Roofing; Section 07 53 23
- Sheet Metal Flashings, Section 07 62 00

BID DOCUMENTS

Electronic copies of Bid Documents will be available on the Waterford School District website for interested contractors and material suppliers. Electronic documents will also be posted on the current version of the “State of Michigan” bidding at the time of bidding website.

Bidding Documents can be picked up from SME, 43980 Plymouth Oaks Boulevard, Plymouth Michigan, 48170. Printed copies of Bidding Documents will be provided upon payment of a non-refundable fee of $150.00 per set. Copies of Bidding Documents will not be mailed to interested bidders.

EXPLANATION TO BIDDERS BY ADDENDUM

Neither the Owner nor the Owner's Representative will give verbal answers to inquiries regarding the meaning of the drawings or specifications, or give verbal instructions previous to award of the contract. Verbal statements regarding same, previous to award, will be unauthorized.

Explanations desired by Bidders are to be requested of the Owner's Representative in writing via e-mail, and if explanations are necessary, a reply will be made in the form of an addendum which will be forwarded to each Bidder whose work is affected.

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Addenda issued to Bidders prior to date of receipt of bids will become part of the Contract Documents, and bids must include the work described.

No inquiry received within three (3) days of the date fixed as the bid date will be given consideration.

Questions submitted by telephone, text message or email on the day before the bids are due, or on the bid due date, will not be answered.

TIME OF COMPLETION AND SCHEDULES

The Bidder agrees, if awarded a Contract, to start the 2018 Roof Replacement within four (4) weeks of execution of the Contract. Provide the Owner written justification if the project cannot proceed within the four (4) week period.

Roofing Replacement to be substantially completed within 45 calendar days of mobilization, including sheet metal, punchlist items, and final cleaning activities.

All construction activities are to be completed within 90 days of Award of Contract.

END OF SECTION 00 21 13

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SECTION 00 41 13

BID FORM - ROOFING

NAME OF BIDDER: _____

STREET ADDRESS:_____

CITY: _____ STATE: _____ ZIP: _____

TELEPHONE NUMBER: _____ FAX NUMBER: _____

TO: Waterford School District
Crary Campus
501 N. Cass Lake Road
Waterford Michigan 48328
(Attention Roof Bid – Central Warehouse)

Base Bid

The undersigned, being cognizant of the conditions governing the Work and of the requirements of the authorities having jurisdiction, and having read and examined the Specifications and Drawings for the 2018 Partial Roof Replacement at Central Warehouse, Waterford Twp., Michigan, as prepared by SME, proposes to furnish labor, material, equipment and means of construction to perform and complete roofing replacement for the **Firm Lump Sum Price** of:

Central Warehouse, 29,000 Square Feet of Roofing Replacement

_____ Dollars ($_____)
Base Bid Written Amount Numerical Amount

Which will be called the "BASE BID"**.** Said sum is subject to the terms of the Contract.

ALTERNATES

None

ADDENDA

The following addenda covering changes in the work have been received during the bidding period.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

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BASE BID BREAKDOWN

List the required price information below. Total must equal Base Bid on Page 1.

BID ITEMS	AMOUNT
1. General Conditions	$
2. Demolition and Disposal	$
3. Insulation Materials and Labor	$
4. Roofing Materials and Labor	$
5. Sheet Metal Materials and Labor	$
TOTAL BASE BID	**$**

UNIT PRICES

The undersigned proposes the following unit prices for authorized changes in the Work. Provide "furnish and install" prices, including installation labor, delivery and charges for incidental expenses, supervision, insurance, taxes, overhead, and profit. The Owner retains the right to accept or reject unit prices.

Unit Price Data

ITEM	UNIT PRICE	UNIT
Repair of small openings from abandoned units	$	sq. ft.
Replacement or new wood nailers – 2 x 4 nominal	$	bd. ft.
Replacement or new wood nailers – 2 x 6 nominal	$	bd. ft.
Replacement or new wood nailers – 2 x 8 nominal	$	bd. ft.
Replacement or new wood nailers – 2 x 10 nominal	$	bd. ft.
Replacement or new wood nailers – 2 x 12 nominal	$	bd. ft.
Roof drain replacement	$	each
Repair of deteriorated steel roof deck	$	sq. ft.

(VIF) = Verify deck profile in field prior to ordering. Review from underside to determine need.*

NOTE TO CONTRACTOR: Based on limited roof test-cores the, Contractor should anticipate repair or replacement of steel deck. Amounts of steel deck repairs or replacement will likely not be completely known until the existing roofing is removed, and the Contractor will need to plan for a contingency accordingly.

The presence of a specific Unit Price items on the above table is not an indication that repair or replacement of such items are required, nor does it indicate that the Owner will authorize Unit Price Work to be performed. The Contractor must receive authorization from the Owner's Representative prior to performing and billing Unit Price Work.

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Quantify and photographically document Unit Price items, and submit to the Consultant and Owner's Representative for verification prior to payment being authorized for the Unit Price Work.

SUBSTITUTIONS AND VOLUNTARY ALTERNATES

The undersigned states the bid is based on the various brands, makes, manufacturers and standards of materials and equipment specified. Unless material substitutions are authorized by addenda prior to award of the Contract, the undersigned agrees to use materials and equipment as specified.

However, the undersigned may submit voluntary alternates (staple pages to bid form) for consideration, and state the amount to be deducted from or added to the bid for such substitutions, meeting the requirements listed on Page 1 of the Instructions to Bidders. Reference should be made to Article 7.2 of the General Conditions for further information on the evaluation of substitutions or voluntary alternates.

TIME OF COMPLETION

Refer to Section 00 21 13, Page 4, "Time of Completion and Schedules".

SCHEDULE OF VALUES

The undersigned will submit an AIA schedule of values form for approval, including a list of proposed subcontractors, the amounts of their subcontracts and the fee each subcontractor intends to apply to contract changes. If a subcontract exists between the first level subcontractor and another subcontractor (second level), or between a second level contractor and another subcontractor (third level), the fee that each intends to charge for extras must be stated. The undersigned agrees in every way to be responsible for the Work, material, equipment and supplies furnished by each subcontractor.

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ACCEPTANCE OF BID

The undersigned agrees to execute a Contract providing they are notified of the acceptance within 15 calendar days after the time set for receipt of bids.

The undersigned has carefully examined the Project Documents, including the Instructions to Bidders, General Conditions of the Contract, General Requirements, Specifications, Drawings, and Addenda issued for this project, and agrees to be bound by the requirements thereof in the submission of this bid, and in the performance of the Contract if awarded to them on this bid.

The undersigned bidder does hereby declare that the bidder has the legal status checked below:

_____ Individual

_____ Co-Partnership

_____ Corporation incorporated in the state of _____

_____ Joint business under an assumed name

The names and addresses of persons indicated as partners in this bid are as follows:

First Partner	**Second Partner**
_____	_____
_____	_____
_____	_____
_____	_____

This bid is submitted in the name of:

_____

(Name of Contractor)

_____

By: (Signature) (Title)

Signed and sealed this _____ day of _____, 2019

Instructions: Submit one (1) printed and two (2) copies to the Owner, and one (1) electronic copy to SME. The SME contact email address is included in Section 00 21 13, Instructions to Bidders.

END OF SECTION 00 41 13

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SECTION 00 45 00

FAMILIAL DISCLOSURE STATEMENT

All bidders must complete the following familial disclosure form in compliance with MCL 380.1267 (Public Act 232 of 2044) and attach this information to the bid.

By the attached sworn and notarized statement we are disclosing the following familial relationship(s) that exists between the owner or any employee of the bidder and any member of the board, intermediate school board, or board of directors or the superintendent of the school district, intermediate superintendent of the intermediate school district, or chief executive officer of the public school academy. Waterford School District shall not accept a bid that does not include this sworn and notarized disclosure statement.

Disclose any familial relationship and complete the form below in its entirety:

The following are familial relationships as described above (provide employee name, family contact name, family contact position, and familial relationship or NONE).

_____

_____

_____

_____

_____

_____

Signature(s): _____ Title: _____

Name of Firm: _____

STATE OF MICHIGAN)

) SS

COUNTY OF)

On this _____ day of _____, 2019 before me a Notary Public in and for said county, personally appeared _____, agent of the said firm

_____ and who acknowledged the same to be his free act and deed as such agent.

_____
Notary Public

(This signed page must be submitted with the Contractor's Bid.)

SECTION 00 45 46

CERTIFICATION OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT
Michigan Public Act No. 517 of 2012

The undersigned, the owner, or authorized officer of the below-named company (the "Company"), pursuant to the compliance certification requirement provided in the Waterford School District's Request For Proposal (the "RFP"), hereby certifies, represents, and warrants that the Company (which includes its officers, directors and employees) is not an "Iran Linked Business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event the Company is awarded a contract by the Waterford School District as a result of the aforementioned RFP, the Company is not and will not become an "Iran Linked Business" at any time during the course of performing any services under the contract.

The Company further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than $250,000.00 or two (2) times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of the Waterford School District's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date that it is determined that the person has submitted the false certification.

_____
Name of Company

_____
Name and Title of Authorized Representative

_____
Signature

_____
Date

(This signed page must be submitted with the Contractor's Bid.)

SECTION 00 72 00

THE GENERAL CONDITIONS OF THE CONTRACT

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GENERAL CONDITIONS OF THE CONTRACT

ARTICLE 1 DEFINITIONS

1.1 CONTRACT

A. The Contract consists of the Agreement, the General Conditions of the Contract, the Specifications and the Drawings, including all modifications thereof prior to execution of the Agreement, together with such changes as shall be approved by the Owner as hereinafter provided subsequent to said execution of the Agreement.

1.2 OWNER

A. All papers required to be delivered to the Owner and any notice to or demand upon the Owner shall be sufficiently given if delivered to same, or to such other representative of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purposes.

1.3 CONTRACTOR AND WORK

A. The Contractor is the person, firm or corporation having a direct contract with the Owner's Representative for the Work. Reference to specific contractors or subcontractors, are made for convenience only and shall in no way relieve the Contractor of the responsibility to produce a complete project.

B. The term work of the Contractor includes all labor, materials, tools, equipment, transportation, superintendence, temporary construction of every nature, taxes (as hereinafter separately defined), and all other services and facilities of every nature whatsoever necessary to commence, perform, and complete the construction required by the Contract. All costs of the foregoing defined work shall be provided by and paid for by the Contractor unless specifically provided elsewhere to the contrary.

C. Where the term "provide" is used in connection with materials, articles, or items specified hereunder, it shall be understood to mean "provide complete in place", that is, "furnish and install".

1.4 SUBCONTRACTOR

A. The term Subcontractor means any firm or corporation having a direct or assigned contract with the Contractor or another subcontractor to provide at the site materials and labor, labor only, or material worked to a special design according to the Drawings and Specifications of the work, but does not include one who merely furnishes material not so worked.

1.5 PROFESSIONAL SERVICES CONSULTANT

A. The term Professional Service Consultant means that person, firm or corporation, who by contract with the Owner is authorized to prepare Drawings and Specifications for this work or any portion thereof, and to perform such other services after award of contract as are enumerated herein or in the Specifications, or as otherwise specified by the Owner.

B. The terms, Architect-Engineer, Architect or Engineer, or any variations of same, when occurring throughout the Specifications, are to refer to the Professional Service Consultant.

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ARTICLE 2 DRAWINGS AND SPECIFICATIONS

2.1 INTENT

A. The Drawings and Specifications as part of the Contract contemplate a finished piece of work of such character and quality as is described in and is reasonably inferable from them, and the Contractor, recognizing the impossibility of producing Drawings and Specifications with perfect accuracy, agrees that its submitted price for the work hereunder includes sufficient money allowance to make the work complete, in operating condition, fitting with the work of other contractors and the Owner, and in compliance with good practice and the ordinances, codes and regulations of all bodies or persons having authority over it. The Contractor agrees that inadvertent discrepancies or omissions, or the failure to show details or to repeat on any drawing the figures or notes given on another, shall not be the cause for additional charges or claims. In the case of dispute as to the interpretation of the Drawings and the Specifications, the rulings of the Owner's Representative shall be final.

B. The organization of the Specifications into divisions, sections or articles and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

2.2 CORRELATION AND INTERPRETATION

A. Generally, the Drawings will indicate dimensions, positions, and kinds of materials and methods of construction. Work indicated on the Drawings and not mentioned in the Specifications, or vice versa, shall be furnished as though fully set forth in both. Work not includes typographical errors in the Specifications and notational errors on the Drawings where doubtful of interpretation.

B. In case of conflict between Drawings and Specifications the Drawings will take precedence over the Specifications in matters of construction of installation detail; Specifications over Drawings in matters of equipment or materials specified; large scale drawings over small scale; and any special drawing details over standard details.

C. Should the Contractor deviate in any way from the Drawings or Specifications or provide materials or workmanship which do not conform with the Specifications without the expressed approval of the Owner, or provide materials or workmanship which are otherwise defective or which become damaged as the result of the Contractor's operations, the Contractor shall be required to replace the work in question at its own expense as directed.

D. In the event of conflict between the Agreement, General Conditions, or other documents comprising this Contract, the provisions of the Agreement shall control, then the General Conditions, Proposal or Bid Form, and finally the Specification in that order.

2.3 AS-BUILT DRAWINGS

A. Drawings, Specifications and copies thereof are made and shall remain the property of the Owner. They are not to be used on any other project by the Contractor.

B. The Contractor shall keep in its field office one copy of all Drawings, Specifications, shop drawings and changes, available for reference by the Owner and Professional Service Consultant, reflecting an accurate and up-to-date record of actual construction whether or not covered by official revisions to Drawings and Specifications.

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C. Particularly detailed, marked or specified shall be the same as similar work that is detailed, marked or specified.

D. Under no circumstances will bids be submitted or work performed with uncertainty. Questions pertaining to work that does not appear to be sufficiently detailed, explained or pertaining to the true meaning of any part of the Drawings or Specifications shall be referred to the Professional Service Consultant or Owner for clarification. After execution of the Contract, no allowances will be made in favor of the Contractor for failing to check dimensions on the Drawings and at the site and reporting any discrepancies.

E. If questions arise concerning Drawings and Specifications, or omissions or errors be found in same, or should conditions arise which would make it impractical to follow any part of the Drawings or Specifications, or which would result in substandard work, it shall be the duty of the Contractor to so notify the Owner's Representative before proceeding with the work in question, and such work shall then be performed according to the Owner's Representative's interpretation of the intent of the drawings and specifications.

F. If the Contractor proceeds with the work so affected without instructions from the Owner's Representative, the Contractor shall make good any resulting damage or defects. This

ARTICLE 3 TIME OF COMPLETION

3.1 COMPLETION AND SCHEDULE

A. All time limits stated in the Contract Documents are of the essence of the Contract.

B. The entire work must be completed and ready for Owner's occupancy date stated in the Proposal Form. This includes final resolution of all punch list items.

C. Upon request by the Owner, the Contractor shall provide a projected schedule of completion dates and approximate monthly billings for the life of the Contract.

3.2 DELAYS AND EXTENSIONS OF TIME

A. If the progress of the work is delayed at any time by any act or neglect of the Owner or the Professional Service Consultant, or of any separate Contractor employed by the Owner and with whose work the work of this Contract is to be integrated or is dependent upon, then the Contract time may be extended for such reasonable time as the Owner's Representative may determine. Claims for such extension of time must be made in writing to the Owner's Representative within seven (7) days of such occurrence, otherwise such claims shall be deemed to have been waived.

B. If the progress of the work is delayed by labor disputes over which the Contractor has no control, then the Contract time may be extended for such reasonable time as the Owner may determine. Claim for such extension of time must be made in writing to the Owner's Representative within seven (7) days of such occurrence, otherwise such claims shall be deemed to have been waived.

C. No extensions of time will be allowed for correction of faulty work.

D. Dates for completion of the total work, or sections thereof, as stated in the Agreement shall not be altered by changes in the work made effective after the signing of such Agreement.

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3.3 PENALTY FOR FAILURE TO COMPLETE

A. Should the Contractor fail to complete all of the work by the completion date stipulated, the Owner shall have the right to suspend all further payments on the Contract until completion of the work and acceptance of the same by the Owner. The application of this penalty shall not preclude the Owner from any other remedies it may have for such a failure to complete.

B. The said penalty of suspension of all payments shall be invoked unless an extension of time has been granted in writing.

ARTICLE 4 CONDUCT OF THE WORK

4.1 CONTRACTOR'S SUPERVISIONS AND ADMINISTRATION

A. The Contractor must give its personal superintendence to the Work, or shall have a competent superintendent with full authority to act for the Contractor, on the Work at all times when operations are in progress.

B. The Contractor must provide a staff adequate to coordinate and expedite the work properly and shall at all times maintain competent supervision of its own work and that of its subcontractors to insure compliance with Contract requirements.

C. The Contractor is to be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

D. The Contractor is to be solely responsible for initiating, maintaining and supervising all safety precautions and programs connected with the Work.

4.2 EXISTING CONDITIONS AND MEASUREMENTS

A. Information relative to roof dimensions and location of mechanical equipment, locations of aboveground utilities, location and types of existing pavement and walks, location of existing obstructions on or near the site, or similar items whether on the Drawings or in the Specifications, have been obtained from sources believed to be reliable, but are offered for information only and with no guarantee as to accuracy. Use of such information is at the risk of the user.

B. Contractor must take or verify all measurements of existing conditions or construction prior to ordering materials or doing any work at the site.

4.3 SCHEDULING AND SEQUENCE OF OPERATIONS

A. In submitting proposals for this work, the Contractor will be held to have previously examined the premises and satisfied itself as to the conditions under which it will be obliged to operate in performing its part of the work, or that will in any manner affect the work under this Contract. Any exceptions to performing the work in accordance with the bidding documents must be outlined in the Proposal Form.

B. In the event the Work is an addition to, or alteration to an existing building, the Contractor shall not interfere, in any manner, with the Owner's access to the building. Construction activities must be scheduled accordingly.

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C. In the event the Work is an addition to, or alteration to an existing building, the Contractor will schedule and coordinate construction operations with Owner so that work is executed expeditiously to avoid interference with Owner's normal operations and use of utilities and services. Shutdowns of existing services to permit tying-in or other execution of the work shall be arranged through the Owner's Representative, and shall be done at such time as directed by him.

D. The Contractor shall at all times allow the Owner, and any other contractors and their employees, to be in the building or about the premises undisturbed as may be required in the execution of other portions of the building work, and installation of equipment, etc. The Contractor shall so arrange the work that it will interfere as little as possible with work under other contracts, and, in the event of disputes of such nature, the Owner's Representative's ruling in the matter shall be final and binding on all parties.

4.4 OVERALL COORDINATION

A. The work shall provide all required foundations, pads, and curbs for all apparatus and equipment shown on the Drawings, whether within or outside the building, except as otherwise noted on the Drawings or Specifications.

B. The work shall include the provision and building-in of all anchor bolts with nuts and washers, inserts, sleeves, base plates and miscellaneous item required for the proper installation of mechanical, electrical or other equipment items, including templates where such are required to ensure accurate positioning.

C. If pads and curbs, shown on the Drawing are later increased in size or otherwise rendered more costly because of changes in specified equipment approved at the request of the Contractor, the additional cost of the work thus necessitated shall be borne by the Contractor.

D. All construction apparatus, machinery and equipment shall be designed and constructed in conformity with the best practice, and so as to contribute to efficiency, reliability and safety of operation, and provide for interchangeability of parts, accessibility, sightliness, and minimum expense of maintenance. Each installation shall be so made that its several component parts will function together as a workable system. It shall be complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order.

E. The work is to be executed so that the installation will conform and accommodate itself to the building structure, its equipment and its usage.

F. Except wherein it is otherwise specified, all work and materials, and the ratings and capacities of all machinery and equipment, shall conform to the codes and standards of the respective national engineering and technical societies, and all performance tests shall be made in accordance with the test codes of these societies. All capacities, sizes weights, and guarantees are specified as minimum and may be increased at the option of the Contractor.

G. All cutting, patching and finishing of openings in walls, ceilings, roofs, etc., or relocations of existing work as necessary for the accommodation of conduit, electrical boxes and panels, ductwork, piping, etc., required for completion of the work, shall be performed by the trade requiring such openings or relocation. It is the responsibility of the Contractor to coordinate this work.

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4.5 RESPONSIBILITY FOR EMPLOYEES

A. The Contractor shall be responsible for the acts and omissions of all its employees and all subcontractors, their agents and employees, and all other persons performing any of the work.

B. The Contractor and its subcontractors will be held entirely responsible for the movement and conduct of workmen on the premises and in the building.

C. Workmen must comply with all rules regarding entrance to and exit from the premises, parking, smoking, use of toilets, use of Owner's dining and vending facilities, storage of material and clothing, and litter, material and tools in construction areas.

4.6 MOVEMENT OF MATERIALS

A. The Contractor and each subcontractor must cooperate with the Owner and others in the movement of major shipments of material or equipment on or off the premises and shall furnish, as far in advance as possible, the probable dates of arrival or departure of such shipments as to facilitate the movement of all commercial carriers.

B. Should it become necessary at any time during the course of the work to move stored materials which are to be used in the construction, or equipment which has been temporarily placed, then the Contractors or subcontractors furnishing such material or equipment shall move them, or cause them to be moved without additional charge.

4.7 WORK IN EXISTING BUILDING

A. The Contractor shall arrange with the Owner's Representative as to the most suitable time for the demolition and removal work. The Contractor shall familiarize itself with the existing facilities along existing walls and shall include all work for all trades necessary to maintain the existing services during construction and to facilitate with new construction.

B. All necessary enclosures are to be provided by the Contractor to keep building weather tight until all new construction is approved and accepted by the Owner's Representative.

4.8 INSTALLATION OF OWNER'S EQUIPMENT

A. The entire work shall be conducted so as to facilitate installation of operating equipment.

B. Contractors and subcontractors agree to permit the Owner to place and install as much equipment and machinery during the progress of the Work as will not impede their progress before the completion and acceptance of the various parts of the Work. The Contractors and subcontractors further agree that such placing and installation of equipment and machinery does not in any way evidence the completion of the Work or any portion of it, nor signify the Owner's acceptance of the Work, nor any part of it.

4.9 RESPONSIBILITY FOR ADJACENT PROPERTIES

A. Contractor shall be solely responsible for ensuring the safety and stability of adjacent public or private property and structures against damage of any type resulting from operations under this Contract.

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B. Contractor is solely responsible for any interruptions in utility services to adjacent properties. Interruptions due to reworking or relocation shall be avoided whenever possible, and when unavoidable shall be coordinated with the utility involved and scheduled at times most acceptable to the owners or tenants of such properties and kept to a minimum frequency and duration.

4.10 SHOP DRAWINGS AND SAMPLES

A. Contractor shall be responsible for furnishing of shop drawings and samples in accordance with the requirements of the Shop Drawings and Samples sections of the Specifications respectively of all items so noted in the various sections of the Specifications.

ARTICLE 5 CODES AND REGULATIONS

5.1 COMPLIANCE

A. The entire work shall be carried out in full compliance with all applicable laws, codes, rules and regulations of all Federal, State and Municipal governments and authorities having jurisdiction. It shall be the duty of the Contractor to fully understand all such requirements and to ensure that such are fully and faithfully carried out.

B. Contractor is fully responsible for ensuring that subcontractors provide construction and systems that are complete with all necessary controls, accessories, etc., to satisfy such requirements and that mechanical and electrical systems satisfy the "minimum" requirements, whether or not such are correctly shown on the Drawings or specified.

5.2 CONTRADICTION AND CHANGES

A. In the event of any contradiction between the work as shown or specified and the requirements of any applicable law, code, rule or regulations as noted in 5.1 A above, the requirement of the applicable law, code, rule or regulation shall govern the work except where the drawings and/or specifications require a higher standard, in which case such shall be followed.

B. In the case of any such contradiction, Contractor shall promptly notify the Professional Service Consultant, in writing, of said variance; any changes in the work necessary to comply with the law shall be ordered, with adjustments for said changes being made in accordance with the terms of these General Conditions except in those cases where the Contractor is rendered fully responsible. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, regulations, etc., and without such notice to the Professional Service Consultant, the Contractor shall bear all costs arising therefrom.

C. No extra will be allowed for any work legally required which is not specifically mentioned herein or shown on Drawings, but which according to these Specifications is the responsibility of the Contractor. Should the Contractor, through ignorance, neglect, or design, be responsible for violating any provision of any law, code, ordinance or regulation, resulting in injunction of other procedure by the authorities, it shall make full restitution and pay all penalties to the full satisfaction of the authorities, the Professional Service Consultant and the Owner, as their interests may appear.

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ARTICLE 6 CHANGES IN THE WORK

6.1 GENERAL

A. The Owner and the Professional Service Consultant shall have the right to make any alterations or additions or any omissions from the work and materials herein specified or shown on the drawings during progress of the building, and such shall be acceded to and carried out by each Contractor without in any way violating the Contract. Charges for extras will be allowed only when the work is ordered and the price therefore is agreed upon in writing.

B. Extra compensation will not be authorized for work which, though not specifically detailed or specified, is reasonably inferable to satisfy the design intent and/or obviously necessary to maintain the quality of construction and finish established by the Drawings and Specifications. The Contractor is expected to examine the Drawings and Specifications carefully before submitting its proposal and to obtain from the Professional Service Consultant in writing any necessary additional information which would affect its bid.

C. Should unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract be encountered, the Contract Sum shall be equitably adjusted by Change Order upon claim by either party made within ten days after the first observance of the conditions.

D. If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Professional Service Consultant written notice thereof within ten days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 6 for Change in the Work. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Consultant. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

6.2 BULLETINS

A. If the Professional Service Consultant or Owner wishes to change the scope or the character of any work, a bulletin may be issued to the Contractor by the Professional Service Consultant.

B. The Contractor shall, upon receipt of the Bulletin, stop work on that section affected by the anticipated change until agreement has been reached on an acceptable alternative.

6.3 EMERGENCY FIELD ORDER (EFO)

A. Emergency situations, existing or anticipated, that in the opinion of the Owner's Representative pose a hazard or threat to life, service or vital equipment will be resolved with the Contractor on the spot. An Emergency Field Order (EFO) will be prepared then and there, clearly defining what is to be done to negate the emergency condition. The Contractor will quote the EFO and both he and the Owner's Representative will sign off as provided on the EFO. It is immediately a part of the contract and payment or request for partial payment will be processed as provided in Article 10 of this document.

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ARTICLE 7 MATERIALS AND MANUFACTURERS

7.1 BASIC MATERIALS AND MANUFACTURERS

A. The work has been designed on the basis of use of the materials specified, as provided by the manufacturers or suppliers listed in the various sections of the specifications. Where no particular product, manufacturer or supplier is named, the specification describes in detail the performance and quality required.

B. Proposals shall in all cases be prepared in accordance with the following requirements:

1. Where only one manufacturer is named, no substitution will be permitted.

2. Where two or more manufacturers are named, the Contractor has the choice of selection from among those named.

3. Where one or more manufacturers are named, and the phrase "or other manufacturer acceptable to the Professional Service Consultant" or similar qualifying wording also appears, the proposal may be based on the use of products of other than the named manufacturers, provided that such other products meet or exceed the minimum standards of the listed materials.

4. Where no specific product or manufacturer is named, the Contractor shall select product or manufacturer which he feels best meets the performance requirements outlined in the specifications.

C. In either of the above instances where the Contractor is permitted to select products on the basis of compliance with specified requirements, the use of such shall be subject to acceptance by the Profession Service Consultant; the burden of proof of satisfactory compliance with specification requirements rests with the Contractor.

NOTE: All subcontractors and/or suppliers are to be listed in the Proposal or Bid Form or attachments thereto, as outlined in the Instructions to Bidders.

7.2 PROPOSED SUBSTITUTIONS IN PROPOSALS

A. Bidders may offer the substitution of materials of other than named manufacturers if they so desire. Such substitutions are to be listed in the "Proposed Substitutions" item of the Proposal Form.

B. All proposed substitutions shall be subject to evaluation by the Professional Service Consultant as to compliance with the specification requirements for quality and performance, and the Professional Service Consultant's decision on equality shall be final. The burden of proof of equality shall rest entirely with the Bidder.

C. All substitutions proposed are to be accompanied by their resulting cost revisions to the proposal price, and by complete manufacturer's literature, specifications, and other such pertinent data, and samples if so requested by the Professional Service Consultant. Cost revisions shall include for all modifications required to adjacent construction as shown to accommodate the proposed substitution. Submit complete details of such modifications for Professional Service Consultant's approval.

D. Proposed substitutions shall be referenced to the item for which each is proposed as a substitution, with the "Add" or "Deduct" amount shown being applied to the proposal price.

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E. The requirements of the contract documents shall govern all proposed substitutions, with all requirements noted as applicable to the originally specified item applying to the proposed substitutions.

7.3 SUBSTITUTIONS AFTER AWARD

A. After the execution of the contract, proposed substitutions will be considered only if the Owner receives the advantage of lesser cost, higher quality, or better delivery date. Such requests will be considered only if submitted through the Contractor.

B. In no case shall a substitution be made until after receipt of written approval from the Professional Service Consultant. Contractor shall also comply with any special provisions of a particular section regarding substitutions.

C. The requirements of paragraphs 7.2 B and 7.2 D above shall also be applicable to such substitutions.

D. The Professional Service Consultant reserves the right to reject any material and/or workmanship either before or after installation, which is not indicated in the drawings and specifications, or the substitution of which has not been approved by it in writing.

E. Except as otherwise stated within the various sections of these Specifications, substitution request may be submitted at any time providing the Contractor allows ample lead time for Professional Service Consultant investigation, preparation of shop drawings and submittals, fabrication and delivery, without delaying the work. When not allowed sufficient lead time, the Professional Service Consultant will not consider substitutions and the Contractor shall furnish the work as specified.

ARTICLE 8 LIABILITY

8.1 LIABILITY FOR INJURY, DAMAGE OR LOSS

A. The Contractor shall and does assume liability under the terms of the Workmen's Compensation Law of the State in which the Work is being performed.

B. Contractor assumes all liability for injury to persons or damage to, or loss of property of (a) Contractor, his agents or employees, (b) the Owner, its agents or employees, (c) the Consultant, its agents or employees, and (d) any person, firm or corporation arising in any way directly or indirectly out of the performance of this Contract whether or not such injury, damage, or loss is due to the negligence of the Contractor, its agents or employees. This foregoing assumption of liability by Contractor shall include, without limiting the generality of the foregoing, any injury, damage, or loss arising out of the operation of motor vehicles. This assumption of liability by Contractor shall also include, without limiting the generality of the foregoing, any injury, damage, or loss (1) arising out of negligence of Contractor, (2) arising out of the joint or combined negligence of Contractor and the Owner, (3) arising out of the negligence of a third party or parties, or (4) arising out of the joint or combined negligence of a third party or parties and Contractor, or (5) without limiting in any way the foregoing, arising in any way, directly or indirectly out of the conduct or occurrence not fully limited to the separate sole negligence of the Owner as proven by Contractor or third party.

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C. Should the Owner or Consultant, or their agents or employees be made a party to any suit or proceeding, even though such suit or proceeding is groundless, false, or fraudulent, arising out of injury, damage, or loss for which the Contractor assumes liability under this Contract, the Contractor will defend such suit or proceeding and shall indemnify and save harmless the Owner, the Professional Service Consultant, their agents or employees, of and from all liability, loss, expenses, and judgments (including interest thereon), including Attorney's fees.

D. Since the Contractor hereunder shall be an independent Contractor and not an agent, servant, or employee of Owner, Contractor assumes full responsibility for compliance with any and all Federal, State, or Municipal laws, ordinances, and regulations, including (but not limited to) those having to do with labor, wages, and benefits, or taxes and duties collectible from employees under all applicable provisions of the law.

ARTICLE 9 INSURANCE

9.1 CONTRACTOR'S INSURANCE

A. **Unless otherwise specified**, the Contractor shall, before commencing work hereunder, procure and thereafter maintain policies of insurance satisfactory to the Owner covering the liabilities assumed in Article 8 above in the following minimum amounts.

General Liability	General Aggregate	$5,000,000.00
Commercial General Liability	Product-Comp/OP Agg	$5,000,000.00
Claims per occurrence	Personal & ADV. Injury	$2,000,000.00
	Each Occurrence	$2,000,000.00
	Fire Damage	$50,000.00
	Med. Expense	$5,000.00
Auto Liability	Combined Single Limit	$500,000.00
Any Auto	Bodily Injury – Per Person	x
Hired Auto	Bodily Injury – Per Occurrence	x
Non-owned Auto	Property Damage	x
Excess Liability		
Umbrella Form	Each Occurrence	$2,000,000.00
	Aggregate	$2,000,000.00
Worker's Comp		
& Employees Liability	Each Occurrence	
	Disease – Policy Limit	
	Disease – Each Employee	

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B. The Contractor agrees to file with the Owner and the Professional Services Representative before commencing work hereunder, copies of policies of such insurance which shall contain by endorsement, the specific liabilities assumed under Article 8 above, together with certificates of insurance which shall contain a provision that no change in the amount of said insurance, or termination thereof, shall take place without previous 10 days written notice to the Owner and its written consent to such change or termination.

ARTICLE 10 PAYMENTS

10.1 APPLICATION FOR PAYMENT

A. The Owner shall not be obligated to make any payments to the Contractor until the Contractor has filed with the Owner affidavits showing the names of each firm and/or person supplying labor and/or materials used in the performance of the work herein specified, and further showing the amounts owing to each firm and/or person supplying labor and/or materials which are not paid for in full, and until the Contractor has also filed with the Owner, in a form satisfactory to the Owner, waivers of lien from each firm and/or person supplying labor and/or materials used in the performance of the work herein specified.

10.2 FINAL PAYMENT

A. Final payment by the Owner does not constitute acceptance of defective work or unauthorized substitution of inferior materials, whether or not such work or materials shall be apparent when final payment is made. The Contractor agrees to submit warranties and guarantees in writing with the final request for payment as provided in Article Eleven hereof.

B. The acceptance of final payment shall constitute a waiver of all claims by the Contractor.

10.3 PAYMENTS WITHHELD

A. The Owner may decline to approve any application for payment in whole or in part as may be necessary in its opinion to protect itself from loss because of:

1. defective work not remedied
2. claims filed or reasonable evidence indicating probable filing of claims
3. failure of the Contractor to make payments to subcontractors for material or labor
4. a reasonable doubt that the work can be completed for the unpaid balance of the Contract amount
5. damage to the Owner or another contractor
6. reasonable indication that the work will not be completed within the Contract time, or
7. unsatisfactory prosecution of the work by the Contractor.

B. If payment is withheld because of any of the foregoing reasons, and such reasons are removed or corrected, payment shall be made for the amount withheld because of such reason(s).

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ARTICLE 11 GUARANTEES

11.1 REQUIREMENTS

A. The Contractor shall guarantee the completed work for a period of two (2) years from the date of acceptance of said work by the Owner and Professional Service Consultant as being complete, except if otherwise stated in the technical specification sections.

B. All guarantees for specific items or phases of the work where longer than fifteen years shall be as specified under the appropriate section.

C. The guarantee shall provide that, when at any time within the guarantee period the Contractor is notified by the Professional Service Consultant or the Owner that any item of equipment, material and/or workmanship has proved defective or is not meeting the specification requirements, the Contractor shall immediately replace, repair or otherwise correct the defect or defects without cost to the Owner, and the guarantee shall be extended another year from the date the repairs or replacements for the defective item or items are completed.

D. This Guarantee does not apply to failures or failure to perform due to abuse or neglect by the Owner, or its successor in interest, or damage by vandalism or from other causes beyond the control of the Contractor, after completion and acceptance of the work.

E. The Contractor shall leave the work in perfect order at completion. Neither the final payment nor any provision in the Contract Document shall relieve the Contractor of the responsibility for negligence, or for faulty materials or workmanship.

F. The Warranties and Guarantees provide herein and elsewhere in the Contract Documents shall be in addition to and not in limitation of any other warranty or guarantee or remedy required or allowable by law or by the Contract Documents.

ARTICLE 12 TERMINATION OF THE CONTRACT

12.1 OWNER'S RIGHT TO DO WORK OR TERMINATE CONTRACT

A. Owner's Right to Terminate Contract; the Owner may upon, certificate of the Professional Service Consultant, that sufficient cause exists to justify such action, without prejudice to any other right or remedy and after giving the Contractor seven (7) calendar days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method the Owner may deem expedient.

B. Sufficient cause for termination of the Contract by the Owner shall be any of the following:

1. the Contractor being adjudged bankrupt
2. the Contractor making a general assignment for the benefit of its creditors
3. the appointment of a receiver because of the Contractor's insolvency
4. the Contractor persistently refusing or failing to provide enough skilled workmen or proper materials to ensure execution of the work in accordance with the schedule
5. failure to make prompt payment to subcontractors or suppliers
6. a violation by the Contractor of any provision of the Contract.

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C. If the Owner terminates the Contract for any of the above reasons, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work including compensation for additional management and administrative services such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Professional

12.2 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

A. If the work should be stopped for any of the reasons listed below, the Contractor may, upon seven (7) calendar days written notice to the Owner and the Professional Service Consultant, stop work for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages on the Work performed to that date.

B. Sufficient cause for termination of the Contract by the Contractor shall be stoppage of the work under an order of any court or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it.

ARTICLE 13 SUBCONTRACTORS

13.1 AWARD OF SUBCONTRACTS

A. A complete list of Subcontractors to whom it will award the work covered by the various sections of the specifications is submitted in the Proposal Form.

B. Prior to the award of the Contract, the Professional Service Consultant shall notify the successful bidder in writing if either the Owner or the Professional Service Consultant, after due investigation, has objection to any person or organization on such list. Failure of the Professional Service Consultant to make an objection to any person or organization on the list prior to the award shall constitute notice of no objection.

C. If, prior to the award of the Contract, the Owner or Professional Service Consultant has objection to and refuses to accept any person or organization on such list, the successful bidder may, prior to the award, withdraw its bid. If the successful bidder submits an acceptable substitute with an increase in its bid price the Owner may, at its discretion, accept the increased bid price or it may disqualify the bid.

D. If, after the award, the Owner or Professional Service Consultant refuses to accept any person or organization on such list, the Contractor shall submit a substitute to whom the Owner or Professional Service Consultant has no objection, and the Contract Sum shall be increased or decreased by the difference in cost occasioned by such substitution and appropriate Change Order shall be issued; however, no increase in the Contract Sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsibly in submitting a name with respect thereto.

E. The Contractor shall not contract with any Subcontractor or any person or organization proposed for portions of the Work designated in the bidding documents who has been rejected by the Owner or Professional Service Consultant. The Contractor will not be required to contract with any Subcontractor or person or organization against whom it has a reasonable objection.

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13.2 RELATIONS OF THE CONTRACTOR AND SUBCONTRACTOR

A. The Subcontractor agrees:

1. to be bound to the Contractor by terms of the Agreement, General Conditions, Special or Supplementary Conditions, Drawings and Specifications, and to assume toward it all the obligations and responsibilities that the Contractor, by those documents, assumes toward the Owner

2. to submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment under the General Conditions

3. to make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in the General Conditions for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one week.

B. The Contractor agrees:

1. to be bound to the Subcontractor by all the obligations that the Owner assumes to the Contractor under the Agreement, General Conditions, Special or Supplementary Conditions, Drawings and Specifications, and by all the provisions thereof affording remedies and redress to the Contractor from the Owner

2. to pay the Subcontractor the amount allowed to the Contractor on account of the Subcontractor's work to the extent of the Subcontractor's interest therein

3. to pay the Subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above

4. to pay the Subcontractor a just share of any fire insurance money received by it, the Contractor, under the General Conditions

5. to make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract

6. that no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten (10) days of the calendar month following that in which the claim originated

7. to give the Subcontractor an opportunity to be present and to submit evidence in any arbitration involving its rights

8. to name as arbitrator under arbitration proceedings as provide in Article 14 hereof the person nominated by the Subcontractor, if the sole cause of the dispute is the work, materials, rights or responsibilities of the Subcontractor or, if of the Subcontractor and any other Subcontractor jointly, to name as such arbitrator the person upon whom they agree.

C. The Contractor and Subcontractor mutually agree:

1. that in the matter of arbitration, their rights and obligations and all procedures shall be analogous to those set forth in this Contract.

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2. nothing in these General Conditions shall create any obligation on the part of the Owner to pay to or be concurred with payment of any sums to any Subcontractor.

ARTICLE 14 MISCELLANEOUS PROVISIONS

14.1 LAW

A. The interpretation of this Contract shall be governed by the law of the location of the facility upon which the work is being performed.

14.2 ASSIGNMENTS

A. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to it hereunder, without the previous written consent of the Owner. The Contractor represents, by submitting his bid, that it has not previously made a general assignment of accounts receivable.

B. The Owner and Contractor each binds itself, its partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents.

14.3 WRITTEN NOTICE

A. Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to it who gives the notice.

14.4 CLAIMS FOR DAMAGES

A. Should the Contractor suffer injury or damage to person or property because of any act or omission of the Owner or Professional Service Consultant or any of its employees, agents or others for whose acts it is legally liable, claim shall be made in writing within seven (7) days after the first observance of such injury or damage.

14.5 BONDS

A. The Owner shall have the right, prior to signing the Contract, to require the Contractor to furnish bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder in such form and amount as the Owner may prescribe and with such sureties as may be agreeable to the parties.

B. If such bonds are stipulated in the bidding requirements, the premiums shall be paid by the Contractor; if required subsequent to the submission of quotations or bids, the cost shall be reimbursed by the Owner.

C. When bonds are required, same shall be executed on AIA Standard Form A311, two-part form, with the required amounts being indicated on the applicable section for each.

D. When bonds are required, the Contractor shall deliver the required bonds to the Owner not later than the date of execution of the Contract, or if the Work is commenced prior thereto in response to a notice to proceed, the Contractor shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be issued.

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E. Surety for bonds shall be licensed to do business at the place of building, and shall be acceptable to the Owner.

14.6 TESTING

A. If the Contract Documents require any work such as soil materials and density, bituminous concrete, portland cement concrete, structural steel, roofing, electrical switchgear, etc., to be inspected, tested and approved for conformance with contract requirements by an independent testing agency, it will be ordered and paid for by the Owner unless otherwise specified. All other testing, inspection, approvals, etc., including preparation of trial mixes for bituminous and portland cement concrete, delivery of material sample etc., will be the responsibility of and paid for by the Contractor.

B. The Contractor shall coordinate all of its work requiring inspection, testing and/or approval with the Owner's Representative and the testing agency designated to perform the services. The Contractor shall give the Owner's Representative timely notice of its readiness or requirements for testing, etc., and the date arranged so that the Owner's Representative may observe such testing, etc., and the agency can coordinate and perform these services without delay of the work. The Contractor shall cooperate with and provide reasonable assistance to the testing agency.

C. If after the commencement of the work, the Owner's Representative determines that any work requires special inspection, testing or approval which is not included in 14.6 A or 14.6 B above, he will instruct the Contractor who shall give notice as in the above Subparagraph. If such special inspection or testing reveals a failure of the Work to comply with the requirements of the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, the Contractor shall bear all costs thereof, including any additional services by the Profession Service Consultant made necessary by such failure; otherwise the Owner shall bear such costs, and appropriate Change Order shall be issued.

D. Required certificates of inspection, testing or approval shall be concurrently submitted to the Contractor and the Owner.

E. Neither the observations of the Owner's Representative of the Contract, nor inspections, tests or approvals by any and all persons shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.

14.7 ROYALTIES AND PATENTS

A. The Contractor shall pay or cause to be paid any royalties or license fees required due to the use of materials or construction methods used in the work.

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B. The Contractor agrees to indemnify and save the Owner and Consultant, their, servants and agents, harmless against any and all claims for infringement of patent rights or royalties in respect of tools, appliances, equipment, processes, or systems of construction and materials made, furnished or used under this Contract, and to defend at its own expense any and all suits at law or in equity which may be brought against the Owner, its servants or agents, for such claims for infringement or royalties, provided however, that the Owner or Consultant, gives the Contractor immediate notice in writing of the institution of such suit and authorizes it to defend the same furnishing it with such reasonable assistance, and available information, as will enable it to so defend. This notwithstanding anything to the contrary implied or expressed elsewhere in any of the Contract Documents.

14.8 SEPARATE CONTRACTS

A. The Owner reserves the right to let separate contracts in connection with this work. The Contractor shall afford such separate contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs.

B. If any part of the Contractor's work depends for proper execution or results upon the work of any separate contractor, the Contractor shall inspect and promptly report to the Owner's Representative any discrepancy between the executed work of such separate contractor and the relationship to same described in the Drawings and Specifications for this Contract, or defects in such work that render it unsuitable for such proper execution and results. Its failure so to inspect and report shall constitute an acceptance of its work, except as to defects which may develop in the separate contractor's work after the execution of its work.

14.9 ARBITRATION

A. All claims, disputes and other matters in question arising out of, or relating to, this Contract or the breach thereof, except with respect to the Professional Services Consultant's decisions on matters relating to artistic effect, and except for claims which have been waived by acceptance of final payment as provided, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then prevailing, providing however, that if the state in which the building is located shall have enacted an Arbitration Statute, said statute shall control and is incorporated herein by reference.

B. This agreement so to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitration shall be final, the judgment may be entered upon it in any court having jurisdiction thereof.

C. Notice of the demand for arbitration shall be filed in writing with the other party to the Contract and with the American Arbitration Association, and a copy shall be filed with the Professional Services Consultant. The demand for arbitration shall be made within a reasonable time after the claim dispute or other matter in question has arisen. In no event shall such claim, be made after institution of legal or equitable proceedings based on such claim, dispute or other matter in question would have been barred by the applicable statute of limitations.

D. The Contractor shall carry on the Work and maintain the progress schedule during any arbitration proceedings, unless otherwise agreed by it and the Owner in writing.

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14.10 PUBLICITY

A. No signs, poster, billboards or other advertising, other than the Project sign described in the Specifications, will be permitted on or adjacent the site.

B. No photographs of the site or of work in progress will be permitted without the written authorization for same by the Owner.

C. No press releases or other publicity regarding the progress of the work, or participation therein by the Contractor or its Subcontractors, will be permitted except upon receipt of written approval of the proposed test by the Owner.

14.11 TAXES

A. The Contractor shall assume liability, without additional charge to the Owner, for all taxes, premiums, assessments and other like payments, charges and costs (including, but not limited to, Sales and Use Taxes, property taxes and special assessments on property owned or used by the Contractor, the Michigan Single Business Tax, Social Security Taxes and Unemployment Taxes), and all other payments related to the work or levied on wages by the Municipal, State or Federal governments.

B. All prices contained in the Proposal or Bid Form, including Alternative, Unit and/or Special prices where such occur, shall include all such taxes, premiums, assessments and other like payments, charges and costs incidental to the work covered by the Contract Documents as applicable to the particular price.

14.12 PERMITS

A. The Contractor shall obtain and pay for all permits, and all lawful fees, and deliver to the Owner certificates of inspection and occupancy where such are required.

14.13 REFERENCE STANDARDS

A. References to standard specifications, such as methods of testing, trade association standards, and other similar standards, are to the standards in effect on the date of invitation to bid, unless otherwise specified. Where reference is to other than the current edition, the applicable year of publication or other suitable identification is noted.

END OF SECTION 00 72 00

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SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 USE OF PREMISES

A. The Contractor expressly undertakes at its own expense:

1. To take every precaution against injuries to persons or damages to property, and to exercise due care to avoid damaging paving, landscaping features, and the building exterior.

2. To comply with the regulations governing the use of premises which are occupied, and to perform the Contract in such a manner as not to interrupt or interfere with the operations of the facility.

3. To store apparatus, materials, supplies and equipment in such orderly fashion at the site of the Work as will not unduly interfere with the progress of their Work or the Work of subcontractors, and to minimize disruption of site traffic, access to the building.

1.2 CONTRACTOR'S SUPERINTENDENT

A. Provide the services of a competent superintendent from the beginning of the Work to the date of final completion of the Contract.

B. The Superintendent is to be in charge of the Work, be provided with such assistance as is necessary to properly carry on the individual tasks required to complete the Work, and able to maintain competent supervision of the Contractor's own Work, and that of its subcontractors, to ensure compliance with the Contract requirements.

C. Provide a staff adequate to coordinate and expedite the Work properly in order to meet the substantial completion milestone and project close out.

D. The Contractor is solely responsible for construction means, methods, techniques, sequence and procedures, and for coordinating portions of the Work under the Contract.

E. The Contractor is solely responsible for initiating, maintaining and supervising safety precautions and fall prevention programs associated with the Work. Injuries resulting from the Contractor's inadequate, or poorly monitored or maintained fall protection procedures and equipment are the sole responsibility of the Contractor.

F. Contractor is to retain a Mechanical/Electrical Subcontractor for services for potential "Alternate Work" on Areas 1 and 2, including:

1. Relocation of a vent fan and electrical conduit so away from the knee-wall the roof flashings can be reinstalled.

2. Reroute electrical conduits on Area 1 where the conduits are currently routed directly over a drain on the west Unit with ducts.

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3. Temporarily remove ducts on two units to provide higher sleeves to accommodate additional insulation, and then reinstall new duct sections to restore service for the referenced mechanical units in Areas 2

1.3 CUTTING AND PATCHING

A. Perform cutting, fitting or patching that may be required to make several parts of the Work come together properly.

B. Any cost caused by defective or ill-timed work will be borne by the Contractor.

C. Do not endanger work by cutting or otherwise, or cut or alter the work of other contractors, except with the written consent of the Owner.

D. Conduit lines and utilities damaged during the Project are to be repaired by the Contractor with no additional cost to the Owner.

1.4 CLEANING

A. Keep the Owner's site (including the roof) and the adjoining properties, driveways and roads clean of rubbish caused by the Contractor's operations. At the completion of the work, remove rubbish, tools, equipment, temporary work, and surplus materials from and about the premises, and leave the Work clean and ready for use. If the Contractor does not attend to such cleaning immediately upon request, the Owner may cause such cleaning to be done by others and charge the cost of same to the Contractor.

B. The Contractor will be responsible for damage from fire which originates in, or is propagated by, accumulations of rubbish or debris resulting from the Work.

C. Dispose of rubbish and debris off the Owner's property in an approved landfill site. No open burning of debris or rubbish will be permitted. Leave the jobsite neat and clean at the completion of each day's Work.

D. In addition to the above requirements, upon completion of the Work or of an individual section thereof, and immediately prior to turning over the Work or completed portion thereof to the Owner, arrange for the proper and complete performance of the following:

1. Removal of paint, adhesive, or primer spillage, smeared caulking or sealing compounds and similar defects from finished surfaces, including mechanical and electrical devices and equipment.

2. Removal and replacement of caulking or sealant beads installed as part of the Work that are not properly adhering to substrate.

3. Removal of temporary coverings applied in finished areas of the building, thorough broom or vacuum cleaning of areas affected by the roofing operations. If final broom cleaning does not, in the opinion of the Owner's Representative, provide floor surfaces which are suitable for the Owner's use, scrub and polish or otherwise refinish areas as directed until acceptable to the Owner's Representative.

4. Restoration of previously finished surfaces damaged due to failure or removal of protective measures.

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5. Cleaning by washing soiled pavements and building walls where necessary.

E. Do not wear dirty work boots, gloves or clothing into the building, except across temporary protective surfaces, or as required in the case of an emergency. Clean stains resulting from dirty boots or clothing from the interior and exterior of the building.

1.5 TEMPORARY ELECTRICAL SERVICE

A. Provide and maintain temporary electrical service required for the Work. At the completion of the Work, remove and dispose of temporary electrical facilities.

B. Provide temporary service to comply with the regulations and requirements of the National Electrical Code and local rules and regulations governing temporary electrical installation.

C. Electrical power may be available at the site. Obtain the Owner's approval prior to using on site electrical service.

1.6 TEMPORARY TELEPHONE SERVICE

A. No use of the Owner's telephones will be permitted, except in the case of emergencies and mobile phone service is unavailable.

1.7 WATER FOR CONSTRUCTION

A. Water for construction or demolition will be available on the site.

B. If water is used for misting demolition debris to reduce dust, the Contractor will be responsible for water damage to the building that may result from their use of water for dust control. There will be no additional cost to the Owner for correction of water damage as the result of using water for dust control during the roofing demolition.

C. Provide methods of conveying water as approved by the Owner's Representative, and to not interfere with the operations of the facility.

D. At the completion of the Work, remove methods of conveying water.

1.8 DRINKING WATER AND SANITARY FACILITIES

A. Provide drinking water facilities adequate for personnel engaged in the Work, located in a readily accessible location.

B. If domestic water supply is available at a central site location, same will be acceptable for use, provided a tap is located so as to be readily accessible.

C. If no domestic supply is available, provide bottled water, brought to the site on a daily basis or more frequently if needed to maintain the supply; provide cooler or other suitable dispenser.

D. Provide a continuous supply of paper drinking cups and a suitable container for disposal. The Contractor is responsible for cleaning up and proper disposal of drinking cups, or plastic bottles and other containers brought to the site by the Contractor's employees.

E. Provide necessary temporary sanitary facilities. Use of Owner's facilities will not be permitted. Place temporary sanitary facilities at locations approved by the Owner prior to site delivery.

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1.9 CONTRACTOR'S MEASUREMENTS

Before ordering material, preparing Shop Drawings, or doing work, the Contractor and each Subcontractor must perform field measurements at the building to verify dimensions which may affect the Work. The Contractor assumes full responsibility for the accuracy of field measurement figures. No allowance for additional compensation will be considered for discrepancies between dimensions on the Drawings and actual field dimensions.

NOTE: There is a high probability of steel roof deck repairs or replacement of the steel decking, and will likely not know the extent until the existing BUR roofing is removed. The Contractor's measurements will need to provide for a contingency for steel deck repairs.

1.10 CONTRACTOR'S RESPONSIBILITY

It is not the responsibility of the Owner's Representative to notify the Contractor when to commence, to cease, or to resume work, to give early notice of the rejection of faulty work, nor to superintend so as to relieve the Contractor of responsibility for consequences of neglect, carelessness, or poor workmanship.

1.11 PROGRESS MEETINGS

A. When directed by the Owner's Representative, schedule meetings for the purpose of coordinating, expediting and reviewing the Work. The Contractor and Subcontractors will be required to have qualified representatives at these meetings, empowered to make decisions concerning the Project.

B. The need for progress meetings will be determined upon Award of Contract and submission of the Contractor's proposed project schedule.

1.12 WORK SCHEDULE

Before the signing of the Contract, develop a schedule to be agreed upon in general by concerned parties. Submit a schedule of operations to the Owner within a reasonable time after the Contractor has been notified by the Owner of being awarded the Contract, giving the dates that each part or branch of the Work will be started and completed.

1.13 LAYING OUT THE WORK

Lay out Work in accordance with existing ordinances, clearances and conditions, and establish equipment staging locations.

1.14 CONTINUITY OF SERVICES

A. Maintain continuity of existing services in the building throughout the construction period. Where it is necessary to tie into the existing electrical service, water or waste systems, perform Work as directed by the Owner. Provide temporary lines or by-passes that may be required to maintain continuous service in the building.

B. Should HVAC or electrical service interruptions be required to complete the roofing work, coordinate with the Owner's preferred Electrical and HVAC service providers.

C. If power lines exist in the Work Zone, coordinate with the appropriate utility company for shielding/insulating the affected power transmission or feeder lines.

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1.15 GLASS PROTECTION

The Contractor will be held responsible for breakage or other damage to glass up to the time the Work is completed.

1.16 FIRE PREVENTION

A. Take precautions to eliminate possible fire hazards at the site, including but not limited to enforcing the following requirements:

1. Remove combustible debris from the building and storage areas on a daily basis, including empty paint, adhesive and primer containers, oily rags, etc.

2. Provide flameproof tarpaulins or other covers for stored materials, openings in walls, etc...

3. Paints, thinners, adhesives, primers or other highly flammable materials must be stored only in well-ventilated areas, and mixing and preparation restricted to such areas. Handled materials in accordance with safe practice and the requirements of authorities having jurisdiction. Remove empty containers, or oily or paint soaked rags be left in the building at end of a shift. Follow fire prevention requirements for storage of flammable materials at Educational (Group E) classified buildings.

4. Insofar as possible, avoid storage of large quantities of flammable materials at the site.

5. No open fires on the site.

6. Gasoline may not be stored in the building at any time during construction. Store gasoline and other flammable liquids a minimum of 50 feet from the building, unless otherwise required by fire code.

B. Provide and maintain one fire extinguisher station for each five thousand (5,000) square feet of floor area, or portion thereof, in the building, and one additional station for each enclosed area used as a storeroom for flammable materials or materials stored in cardboard or paper boxes or packaging. Locate each station so as to be easily accessible while providing the minimum standard UL listed, multi-purpose dry chemical extinguisher of minimum 2A: 10-B/C UL rating. Alternately, one 2-1/2 gallon pressurized water unit and one 10 pound 6-B/C rated carbon-dioxide unit may be used. During freezing weather, store extinguishers enclosed in a heated cabinet. Check units frequently to maintain in a serviceable condition. Current Inspection and Certification tags must be affixed to Contractor provided fire extinguishers located at the site.

1.17 WELDING

A. No open flame welding will be permitted within the building or upon the building except by express permission of the Owner.

B. Perform welding, insofar as possible, with an electric arc welding machine. However, the same protective means as outlined above must be employed.

C. All cutting and welding must be performed using a fire blanket and safety watch.

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1.18 SMOKING

A. Smoking on the School Property is not permitted. The Contractor is responsible for the conduct of the Contractor's employees relative to this smoking restriction.

1.19 USE OF SYSTEM

A. The placing of Work or part thereof into use, even though with the Owner's consent, will not be construed as acceptance of the Work by the Owner, nor will it be construed to obligate the Owner to accept improper work or defective materials.

1.20 STANDARD SPECIFICATIONS

A. Code Listing: References to standards of societies, institutes, associations, or governmental agencies which are part of the Building Code in effect for this project, must comply with the edition date published in the referenced edition of the Building Code or standard at the time of the Design Development, assuming the Work occurs within a reasonable amount of time after completion of the Project Documents. Extended delays in awarding and starting the project may result in more stringent standards being required, depending on the timing of acceptance of updated standards by the code bodies, and the nature of the code and standard revisions.

B. Non-code Listings: Reference to standards of societies, institutes, associations, or governmental agencies which are not part of the Building Code for this project must be the edition in effect at the time of opening of bids, except as otherwise specifically stated in this Project Manual.

1.21 INSPECTION AND TESTS

A. The Consultant and Owner, and/or their representatives, shall have access to the work wherever it is in preparation or in progress. Provide proper facilities for such access and for observation.

B. No failure of the Owner, during the progress of the Work, to discover or reject materials or work not in accordance with the Contract Specifications and Drawings will be deemed an acceptance thereof nor a waiver of defects therein and no payment or partial or entire occupancy of the premises by the Owner will be construed to be an acceptance of work or materials which are not strictly in accordance with the Contract Documents.

C. Where tests are specifically called for in the Specifications, the Owner shall pay costs of such tests and engineering services. Where tests are not specifically called for in the Specifications, but are required by the Owner or Consultant, the Owner shall pay costs of such tests and engineering services unless the tests indicate that the workmanship or materials used by the Contractor are not in conformity with the Drawings, Specifications or approved Shop Drawings. In such event, the Contractor will pay for the tests, remove work and materials so failing to conform, and replace them with work and materials which are in full conformity with the Project Documents.

1.22 SUBMITTALS

A. Submit product data, scheduling and logistics, and general information submittals required by the Specifications in electronic form, including the specific data listed in individual Specification Sections.

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B. Identify each sample with an attached label, showing the name of the Project Consultant, the project number and title, the names of the Contractor, manufacturer (and supplier if same is not the manufacturer), the brand name or number identification, pattern, color or finish designation, and the location of the work.

C. Provide cover sheet for each transmittal letter, properly identified with the project title and number and a brief description of the item being submitted.

D. Contractor is responsible for the costs of packing, shipping and incidental expenses connected with delivery of material samples that may be required by the Specifications to the Project Consultant or other designated address.

E. If the initial sample is not approved, prepare and submit additional sets until approval is obtained.

F. Materials supplied or installed which do not conform to the appearance, quality, profile, texture or other determinant of the approved samples will be rejected, and replaced with new satisfactory materials at the Contractor's expense.

1.23 PARKING

A. A limited amount of parking space will be provided. The Contractor is responsible for ensuring personnel engaged in the Project comply with the parking requirements set by the Owner.

1.24 ACCIDENT PREVENTION AND PROCEDURES

A. Promptly report in writing to the Owner's Representative and the Consultant accidents which cause death, personnel injury or property damages, arising out of or in connection with the performance of the Work, whether on or adjacent to the site. Where death or serious injuries or serious damages are caused, report the accident immediately by telephone or messenger to the Owner's Representative and Consultant.

B. If a claim is made against the Contractor or Subcontractor on account of accident, promptly report the facts in writing to the Owner's Representative and the Consultant giving full detail of the claim.

1.25 PROJECT SAFETY

A. Assume full responsibility for complying with and enforcing the rules and regulations of federal, state and municipal authorities having jurisdiction, as outlined in the General Conditions, including those of the Occupational Safety and Health Act.

1. Provide site specific safety plan and maintain a copy onsite.

B. The requirements outlined hereinafter are to be considered as minimal, and where the requirements of the above authorities having jurisdiction conflict with the requirements of this section, the maximum condition prevails.

C. Any items damaged due to failure to comply with these requirements are to be corrected or replaced, to the satisfaction of the Owner's Representative without cost to the Owner.

D. Assume full responsibility for enforcing compliance with protective measures indicated in specific sections of the Work. Refer to Item 2, E. of this Section.

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E. Provide barricades, lighting, guard rails and other safety measures at points of danger in accordance with the requirements of federal, state and municipal regulations.

1.26 OWNER-OCCUPIED AREAS

A. On projects where the Owner continues to occupy the building during alteration work, protect such occupied areas from damage by the elements, infiltration of dust and supply the Owner's on-site representative with a schedule of specific daily work areas and hours prior to roofing renovation operations.

1.27 FORM OF GUARANTEE

A. Provide a standard 2-year Contractor's Warranty for roofing systems installed under this Contract. In Addition, provide the Owner the EPDM manufacturer's 20-year warranty as specified in Section 07 53 23.

1.28 COMPLIANCE WITH CODES AND REGULATIONS

A. Carry out the entire work in full compliance with applicable laws, codes, rules and regulations of federal, state and municipal governments and authorities having jurisdiction. It is the duty of the Contractor to fully understand such requirements and to ensure they are fully and faithfully carried out. Permits and associated fees are the responsibility of the Contractor to apply for and pay for.

PART 2 - PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 00 00

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SECTION 01 11 13

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Drawings and the general provisions of the Contract, including the General Conditions, apply to each section of this Project's specifications.

1.2 PROJECT DESCRIPTION

A. Base Bid Work: The base bid work includes providing labor, materials, equipment, and administration necessary to integrate a new reinforced single-ply, EPDM roofing system with a 20-year warranty, into the total building system in the 2019 Roof Replacement work at the Waterford Central Warehouse.

1. There are three work areas, the high-bay, north lower roof, and east office area.

B. The Work includes:

1. Remove existing aggregate surfaced built-up roofing (BUR) as indicated on the project drawings. Remove BUR and flashings to expose the structural roof decks and flashing substrates.

2. Assess the condition of the existing deck for deck distress that will require repair or replacement, and notify the Owner’s representative and the Consultant before proceeding.

3. Repair or replace deteriorated wood nailers and distressed steel decking uncovered during the demolition process.

4. Remove abandoned equipment as marked by the Owner’s Representative, if any.

5. Install flat stock and tapered polyisocyanurate insulation over the existing roof deck on each Roof Area as described on the Tapered Insulation Drawing. Refer to Drawing Sheet A1.2.

a) Polyisocyanurate insulation is to be fastened commonly using the manufacturer’s standard fasteners and plates for the deck types encountered on this project.

6. Existing slope is approximately 7/32” per foot built into the roof deck, with some variances.

a) Tapered saddles at the drains are to be 1/2” per foot.

7. Install high density (HD) polyisocyanurate cover board over new installed insulation commonly fastened using the roofing manufacturers fastening pattern with corner and perimeter enhances.

8. Install adhered reinforced 60-mil EPDM roofing, including flashings and accessories required for a complete, watertight roofing system.

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9. Remove sheet metal edge metal or copings to allow for installation for ANSI/SPRI ES-1 Snap-on edge metal systems.

10. Install other new sheet metal flashings and sealant as shown on the detail drawings, including sealant joints where needed to provide water-tightness of the new roofing.

    a) Where exhaust fans are lifted off the curbs for flashing, the Contractor must reset the fan units, install fasteners on all four sides to secure the fan to the curb, and apply sealant over the fastener heads.

11. **Drains are to be replaced down to the first coupling below the deck as required by the Owner.**

1.3 BACKGROUND INFORMATION

A. The contracted Base Bid work includes 3 Areas, the north low roof, the office building, and the high-bay main roof. The roof is approximately 29,000 square feet BUR to remove, and replace with black, reinforced EPDM single-ply roofing with all the accessories for a complete weather resistant assembly

B. The work area is shown below.

For orientation, North is at the top of this photo.

C. **Roof Test-Cores:** Two roof test-cores were performed, one on the main roof near the roof, and one on the low north roof near the center of the roof. Both cores were aggregate covered bituminous built-up (BUR), with a thickness of 3-inches including the slag aggregate.

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1. The roof test-core on the upper main roof was sounded with a tool, and the result indicates potential corrosion of the deck may be encountered.

D. The Contractors bidding the work are permitted to perform test cores at the Pre-Bid meeting, and are to provide the Test-Core data to all attending the Pre-Bid meeting.

E. If additional site visits are necessary, access may be available by contacting the Owner's Representative for access to the roof. There is no guarantee that access will be granted due to school functions and testing that may occur.

1. The Contractor will need to sign-in, have a name tag, and sign out when the Contractor has gathered the information needed to develop responsible and responsive Bid.

1.4 WORK SEQUENCE

A. Work Sequence: Conduct the Project in a manner that will not disrupt the normal usage of the school.

B. Coordinate roofing closely with sheet metal work and other construction to ensure each day's work is watertight at the end of the work day.

C. Temporary tie-ins must be made watertight each time a tie-in is created. The Contractor is responsible for water damage to the building and its furnishings and equipment that results from unsealed or failed temporary roof tie-ins.

D. Coordinate construction operations and staging, and cooperate with Owner, other contractors, and the facility users to minimize possible conflicts.

E. Retain and coordinate with Mechanical/Electrical subcontractors where their services are required.

1.5 WORK BY OWNER

A. Coordinate shut-down and restoration of utilities, including plumbing, fire protection, HVAC, electrical, fire alarm, or other services that may require temporary discontinuation and later restoration, with Owner's maintenance staff.

1. Contractors are not authorized to impair services without written authorizations and advance coordination and scheduling.

2. Contractor to anticipate service interruption and restoration based on the pre-bid walk through, and include pricing for electrical or HVAC subcontractors to disconnect and reconnect affected units. Do not rely on the Owner's electricians and HVAC mechanics unless expressly indicated by the Owner.

PART 2 - PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 11 13

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SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Notification: Immediately following award of Contract, prepare and distribute notification of the status of each alternate to each party involved. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.

PART 2 - PRODUCTS

2.1 PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

Alternate No. 1:

There are no Alternates for this Project.

END OF SECTION 01 23 00

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SECTION 01 50 00

ROOFING CONSTRUCTION CONTROLS

PART 1 - GENERAL

1.1 SCOPE

A. Provide adequate temporary construction facilities and controls as required to execute and complete the Work.

B. Attention is directed to the General Conditions of the Contract, and Section 01 00 00, General Requirements, which also contain requirements governing the Work under this Contract.

1.2 JOB CONDITIONS

A. Schedule Uses: Provide temporary facilities ready for use for this project. Maintain, expand and modify as needed through progress of the Work. Do not remove until no longer needed or replaced by authorized use of complete permanent facilities.

B. Conditions of Use: Operate, maintain, control and protect temporary facilities in a manner which will prevent overloading, freezing, contamination of water source, flooding, unsanitary conditions, hazardous exposures, fire, disease, erosion of site, damage or deterioration of completed work, public nuisances, and similar deleterious effects, including inconvenience to Owner, disruption of existing services, or altering service characteristics as a consequence of use.

C. Where construction traffic must occur on the roof, provide temporary protection. Refer to Specification Section 07 53 23, Subparagraph 1.9, B. for specific roof protection requirements. Protection is required for both existing and new roofing systems. The Contractor will be liable for damages to in-place roofing caused by the failure to provide adequate temporary protection, or coincidental damage to existing roofing systems to remain that may occur from staging, foot and cart traffic, storage of materials and equipment, and other routine roofing and sheet metal construction activities.

D. Do not conduct Work when winds can disturb materials. Protect incomplete work by providing suitable ballast to prevent blow off by wind.

E. Do not throw removed materials from the roof. Use chutes or appropriate devices to convey debris to proper containers.

F. Clean out roof drains, scupper boxes and conductors prior to start of work and maintain and protect them throughout the course of the Work. Roof drains are not be left in a temporary condition.

G. Drain clamping rings must be reinstalled the same day the roofing membrane is installed at each drain location. Water test drains at the completion of the project to verify drains are open and functioning properly.

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PART 2 - PRODUCTS

2.1 MATERIALS OF TEMPORARY FACILITIES AND ENCLOSURES

A. Provide new or used materials and equipment in an undamaged condition and without deterioration. Provide materials and equipment which are, by compliance with appropriate standards, recognized in the construction industry as being suitable for intended use in each case, and capable of being maintained properly through the course of anticipated use at the project site.

B. Electrical Power Cords: Use only grounded extension cords; "hard-service" type where exposed to abrasion and traffic. Use single lengths, waterproof connectors, or tape intermediate connections with waterproof electrical tape.

C. Tarpaulins: Provide tarpaulins that are waterproof and fire-retardant type, UL labeled with a flame-spread rating of 15 or less. Provide translucent type (laminated polyethylene with nylon reinforcement or similar) for temporary enclosure where work is being, or will be, performed, so as to admit maximum daylight.

D. Provide two rolls of translucent type tarpaulins specified above to be stored at the facility for use in covering and protecting the Owner's equipment, finished surfaces and furnishings inside the building in the event of leakage during the roofing operations.

E. Fire Extinguishers: Provide Type-A fire extinguishers where there is danger of electrical or grease-oil-flammable liquid fires. Otherwise, provide either Type ABC dry chemical extinguishers or a combination of several extinguishers of NFPA recommended types for exposures in each case. Maintain a minimum of one fire extinguisher of each type at the project site (Reference Section 01 00 00, Item 16).

F. Plywood: Exterior type, prime painted and finished painted upon the Owner's request. For safety barriers and similar direct-contact uses, provide minimum 5/8-inch thick plywood.

PART 3 - EXECUTION

3.1 GENERAL

A. Landscaping

1. Review the ground level site conditions to document pre-project conditions for the purpose of determining damaged caused by the roofing replacement project. Submit photographs of proposed staging and storage area, and equipment and truck travel routes to the Owner and Consultant prior to starting construction.

2. Protect asphalt paved surfaces and concrete sidewalks with steel plates or plywood against spillage of adhesives or breakage due to construction traffic associated with materials storage and staging. Clean, repair or replace stained or broken pavement and sidewalks resulting from roofing operations at no additional cost to the Owner.

3. Protect grassy landscaped surfaces, shrubs and trees as much as possible with plywood sheathing to minimize damages. Return landscaping to the original condition at the close of the project.

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4. Site irrigation shall be marked by the Owner's Representative prior to project start up, and irrigation zones affecting materials storage and staging will be turned off. The Contractor is responsible for protecting existing irrigation lines and sprinkler heads from construction activities. Damages to the irrigation system as a result of roofing activities are to be repaired by the Contractor at no cost to the Owner.

B. Storage

1. Storage for materials will be available on site where approved by the Owner. If the roof is used to store materials, take care to not overload the roof deck.

2. Store materials so as not to interfere with building operations, be exposed to weather if unsuitable, or invite tampering or theft. Onsite storage of materials and equipment is at the Contractor's risk.

C. Dust/Pollution Control

1. Provide protection facilities, operate temporary facilities, conduct construction activities, and enforce strict discipline for personnel at the project site in ways and by methods which comply with environmental protection regulations, and which minimize the possibility that air might be polluted or that other undesirable and deleterious effects might result from performance of the Work at the project site.

   a. Use engineering controls to minimize dust during removal of the existing built-up roofing to be removed, and to protect filters and condensing fins on roof top mechanical units.

   b. Water mist may be employed to keep dust down. Do not leave the water hose running onto the roof surface unattended while the existing roofing is being torn off or before the new roofing is completely watertight.

   c. Repair water damage to the building, its furnishings, or equipment that results from an open hose running on the roof during roofing activities, at no additional cost to the Owner.

2. Roof deck replacement or repair operations can cause considerable dirt and dust in the building or ceiling space. Where roof deck removal is required, follow the procedures listed below:

   a. If there is not a ceiling, or if the ceiling is the lay-in type, cover critical equipment and furniture within the space as directed by the Owner.

   b. Temporarily shut down air handling units in the immediate vicinity of roof deck removal and replacement operations.

   c. During removal and replacement of roof decking, or at the time of removal of abandoned roof top curbs, equipment and penetrations, station a laborer in the space below with a vacuum cleaner and instructions to begin immediate cleanup if dust and dirt begin to enter the space. Provide a drop cloth to be placed under the removal area. Check the space at least every 30 minutes, and clean up dust and debris as needed.

   d. When the roofing work is complete, inspect the space below the work area, and clean areas where debris related to the roofing replacement is found. Inspect air handling units in the work area and clean as required.

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D. Security

1. The Owner's Representative will coordinate site access with the Contractor to minimize inconvenience to the Owner. Do not allow unauthorized persons in the work area. Carefully monitor and control all access to work areas.

2. Exercise due care, caution, and control as required to secure and maintain the work and staging areas.

3. Ensure doors opened by the Contractor's employees to access the work area, or to clean up occupied spaces beneath the work area, are promptly closed to maintain the security of the building. Doors propped open by the Contractor are not acceptable.

E. Fire Precautions

1. Fire extinguishers of appropriate number and type must be located on the roof. Refer to Item 2.1-E of this section.

2. If gasoline powered hoists are to be used, shut down for refueling. Gasoline in small containers must be stored at least 50 feet away from the building. Gasoline containers are not permitted to be stored on the roof or the Owner's property overnight.

3. Do not locate trash receptacles near openings in the building walls.

4. Do not block Fire Department access routes.

F. Construction Aids

1. Provide scaffolding, ramps, runways, staging, temporary stairs, ladders, sheeting, shoring, cross-lot bracing, bridges, guard rails, barriers, closures, demolition waste chutes, platforms, swing stages and temporary partitions. Except as otherwise indicated, design, construction and maintenance of these facilities is the sole responsibility of the Contractor. Provide facilities as needed to accommodate the entire work of the Project.

2. Construct demolition waste chutes of spiral-formed metal ducts, or of heavy plywood or wood planking, rigidly braced and tightly joined so as to minimize dust disbursement. Support securely at each floor level. Provide water spray system at discharge of chute, adequate to eliminate noticeable dust disbursement. When necessary to adequately control dust, wrap chute with plastic tarpaulins and provide temporary enclosure at discharge.

3. Provide adequate hoisting facilities for both materials and debris, and the Contractor's employees if portable extension ladder or roof hatch access to the roof is not possible. Do not allow employees to ride hoists designed solely for materials hoisting. Selection of type, size, and number of hoisting facilities for temporary use at project site is at the Contractor's discretion. Shore existing floors or roof framing as needed to accommodate special load requirements of temporary hoisting devices.

   a. For this project, it is anticipated the Contractor will use portable extension ladders to access the roof.

   b. Remove ladders from the building at the end of each work day and transport off site to prevent access to the roof by school students and the general public.

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G. Barricades, Warning Signs and Lights

1. Comply with recognized standards and code requirements for erection of substantial and structurally adequate barricades where needed to prevent accidents and losses. Where exposure potential exists, paint with appropriate colors, graphics and warning signs to inform personnel at the site, and the general public, of hazards being protected. Provide lighting, including flashing red lights, where appropriate.

H. Temporary Enclosures

1. Provide temporary enclosures of material, equipment, work in progress and completed portions of work so as to afford protection for both the Work and persons from whatever deleterious effects may result from general exposure, foul weather, construction operations and similar elements and activities at the site. Coordinate temporary enclosures with ventilating and drying-of-the-work requirements so as to avoid dangerous conditions and deleterious effects.

2. Provide enclosures by securely installing tarpaulins or other equivalent materials, using a minimum of wood framing or other materials. Close floor/deck openings with substantial load-bearing wood-framing, or provide barriers or handrails with warning signs and lights. Fall protection enclosures are to meet OSHA standards.

3. Where temporary wood/plywood enclosure exceeds 100 square feet in area, use fire-retardant treated wood/plywood (UL labeled "A") for main sheathing, and use a minimum of non-treated wood framing and trim; or use other equivalent fire-resistive materials.

I. Safety

1. Submit Contractor site specific “Site Safety Plan” to the Owner, and maintain a copy on site during the entirety of the project.

3.2 OPERATIONS AND TERMINATIONS

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of facilities to essential uses so as to minimize waste or abuse.

B. Maintained Operations: Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour-per-day basis where required to achieve indicated results in the work, and avoid possibility of damage to the work and temporary facilities. Prevent water filled piping and vessels from freezing, whether temporary or permanent, by either drainage or by insulating or heating.

C. Termination and Removal: When need has ended for each temporary construction facility, or for a substantial element of the facility, or when it has been replaced by authorized use of a permanent facility, or not later than time of substantial completion, promptly remove each temporary facility unless requested by the Owner's Representative to retain it for a longer period of time.

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D. Complete work which may have been delayed because of interferences caused by temporary facilities, and restore work which may have been affected by temporary facilities. Repair damaged work, clean exposed surfaces, and replace work which cannot be satisfactorily restored. Except as otherwise indicated, materials and equipment of temporary facilities remain the property of Contractor.

END OF SECTION 01 50 00

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SECTION 05 31 23

STEEL ROOF DECK REPAIR

PART 1 - GENERAL

1.1 DESCRIPTION

A. This work consists of furnishing labor, material and equipment required to complete repairs or replacement of steel decking, and for abandonment or addition of mechanical equipment, and as needed, using new steel deck, steel angles and fasteners for attachment and side laps.

1. Refer to Section 01 11 13, Summary of Work for additional information on roof decks.

B. The Contractor is responsible for demolition work and installation of new steel roof deck units at locations of severe deck distress, and the locations of abandoned mechanical units.

C. Photographically document areas of deteriorated steel decking prior to, and after completion of repairs. Submit documentation of pre and post deck repair to the Owner and Consultant with the square foot total of the repair area for verification of payment for the additional work.

1.2 RELATED SECTION

A. Section 07 53 23 – Adhered EPDM Roofing

1.3 CODES, PERMITS AND INSPECTION

A. Execute and inspect work in accordance with the codes of state, county and local authorities having jurisdiction.

B. Fees for permits and inspection are the responsibility of the Contractor.

C. Should changes in the Specifications and Drawings be required to conform to the regulations of the state, county and local agencies, notify the Owner's Representative at the time of bid submittal. After entering into the Contract, the Contractor will complete work necessary for the complete and approved installation without extra expense to the Owner.

1.4 COORDINATION OF THE WORK

A. Coordinate the deck repair with roofing rehabilitation to avoid delays and interferences.

1. Visually inspect the existing steel deck for type and profile to match the existing before ordering materials

2. Pre-ordering steel deck to match the existing in-place deck type and profile may be required.

3. Review the underside of the roof deck to verify potential areas of deteriorated deck to estimate the amount of deck repair materials that may be needed.

a. Corrosion may not be visible until the existing roofing and insulation is removed.

B. Should conflicts or interferences occur with the work of other contractors, consult with other parties for the proper allocation of space and for the arrangement of equipment and materials. In the event of disagreement, meet with other contractors and the Owner's Representative for settlement.

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1.5 SUBMITTALS

A. The Contractor is responsible for providing the following submittals to the Owner's Representative in triplicate. These submittals will be reviewed by the Owner's Representative and the Project Consultant prior to authorizing new roof deck work.

1. Manufacturer's literature on steel roof deck panels and flat stock steel used for repairs.

2. Shop drawings of deck layout, attachment patterns, perimeter closures, supplementary framing, deck penetrations, and other accessories.

3. Manufacturer's literature on direct to rust coatings used for steel deck repair.

B. The Contractor is responsible for the proper submittal of shop drawings for review. Review and check drawings prior to submission, and displaying a notice of the Contractor's approval. Prepare drawings to clearly state the name of the manufacturer, code number, sizes, etc.

C. Review of shop drawings by the Owner's Representative does not relieve the Contractor from the full performance of the Contract.

1.6 INSTALLATION

A. Carry on work in such a manner as to conform to the dates outlined in the project schedule.

B. Store materials where directed by the Owner's Representative. Keep means of access to the building clear.

1.7 CUTTING AND PATCHING

A. Carefully perform necessary cutting and patching required for this project. Damage through the neglect of this clause must be repaired or replaced by the Contractor.

B. Do not perform cutting of structural members, or burning or drilling of holes through beams written approval of the Owner's Representative.

C. After the work is completed, neatly patch openings made by the Contractor to the satisfaction of the Owner's Representative.

1.8 PROTECTION AND HANDLING OF EQUIPMENT AND MATERIALS

A. Responsibility for care and protection of the work rests with the Contractor until the Work has been tested and accepted.

B. After delivery, and before and after installation, protect equipment and materials against theft, or damage. Replace material or equipment that are lost or damaged without extra cost to the Owner.

C. Protect interior equipment, furnishings and finishes during deck repair and replacement activities.

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PART 2 - PRODUCTS

2.1 STEEL ROOF DECKING AND RELATED ITEMS

A. New steel decking: Minimum 20 gauge, AISI G90 galvanized steel, equal to or exceeding the performance of the original installed steel decking. Acceptable manufacturers are:

1. United Steel Deck, Inc.
2. Vulcraft Div., Nucor Corp.
3. Cordeck
4. Other deck manufacturers may be submitted for the Owner's Representative review and approval prior to award of contract.

B. Provide new deck units with minimum yield strength of 33 ksi, as specified by the Steel Deck Institute (SDI). New deck sheets to be nominal 36 inches wide by the length required to meet project conditions.

1. Match new steel deck to the profile of the existing roof deck. Contractor to verify deck profile in the field either at the pre-bid meeting, or after award of contract, but prior to starting the Work.

C. Provide #12 self-taping, hot dipped galvanized steel screws for securing the metal deck to the existing framing. Provide proper length for properly securing metal deck units to the roof purlins.

D. Where required, provide perimeter closure plates fabricated from ASTM A526 galvanized sheet metal being the same thickness as the steel roof deck.

E. Provide #12 carbon steel screws, case hardened in accordance with AISI 1022, for side laps. Thread-per-inch rating and minimum length requirements of fasteners to be as required by the specific fastener manufacturer for the use, performance requirements and deck thickness specified herein.

1. Hot dipped threaded fasteners are not acceptable for this application.

F. Provide minimum 18-gauge flat stock steel conforming to ASTM A361, with a G90 galvanized coating for repair of holes, smaller than 12 inches in diameter.

G. Where corrosion exists on the in-place steel decking or structural steel components, and cleaning and coating is required, provide direct-to-rust, polyamide-epoxy mastic.

2.2 ABANDONED MECHANICAL UNIT INFILL MATERIALS AND DECK DISTRESS

A. Provide minimum L4 x 3" x 3/8" galvanized steel angles to support new roof decking at the abandoned mechanical locations.

B. Pre-drill or use tech screws to attach new steel angles to span the chimney opening.

C. Provide minimum Hilti Kwik Cote 12-24x3 screws or equivalent.

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PART 3 - EXECUTION

3.1 GENERAL

A. Before starting work, shut off utilities that will effect installation of the new roof deck. Coordinate this activity with the facility maintenance personnel. After the work is complete, coordinate activation of utilities with facility personnel.

B. Prior to removal of deteriorated decking, verify there are no utilities or other building components attached to or suspended directly from the roof deck.

C. Install new steel roof deck, accessories and fasteners in accordance with the deck manufacturer's recommendations and SDI design standards. Should a discrepancy arise, the more stringent standard will apply.

1. Install new roofing materials to create a watertight roofing assembly immediately after deck repairs and insulation installation are complete.

3.2 DEMOLITION OF EXISTING ROOF DECK

A. After removing the existing roofing, inspect roof deck for corrosion and deterioration. Perform selective demolition of the deteriorated steel deck found to be structurally compromised, and expose the structural framing.

B. Care must be taken to protect the building interior during deck replacement operations.

C. Clean exposed structural steel found to exhibit corrosion of loose material and corrosion products, and treat with direct-to-rust, polyamide-epoxy mastic.

D. Allow coating to dry prior to installing new steel deck panels or repair plates.

E. Do not remove more deck than can be replaced and made watertight in a single day.

3.3 ROOF DECK INSTALLATION

A. Place deck on structural steel roof framing so that the units are flat and square to one another along both the transverse and longitudinal axis of the units. Take care not to bend or damage the side lap interlocks.

B. Center ends over bearing points. Position units to be aligned accurately and to provide a minimum 4-inch end lap before anchoring in place.

C. Position the ends of the new steel deck panels to have a minimum 3 inches bearing on structural steel.

D. Install new steel deck replacement units for a minimum of two spans (3 joists). Single span deck replacement is not acceptable.

E. Fasten new deck units to the supporting steel with threaded steel fasteners specifically designed for anchoring metal roof deck to structural steel. Install fasteners six inches on center in the deck ribs.

F. Fasten side laps with self-tapping size 12 or larger threaded fasteners spaced a maximum of 36 inches on center.

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G. Install steel closure plate in locations along the perimeters where deck layout results in conditions unsuitable for supporting the new roof insulation. Cover gaps 3 inches wide or larger.

3.4 FLAT STOCK REPAIRS

A. Clean the existing roof deck free of dirt, debris and loose corrosion byproducts, and apply the specified coating.

B. Cut new 18 gauge galvanized steel flat stock to size for placement over deck corrosion. Size flat stock s to extend a minimum of 12 inches onto sound roof deck.

C. Fasten flat stock steel in place with the specified fasteners, spaced 6 inches on center along the perimeter of the repair area. Install fasteners a nominal 3/4 to 1 inch in from the edge of the flat stock repair material.

D. Flat stock repairs larger than 3 feet by 3 feet used to cover multiple localized corrosion distress areas will require additional fasteners in the interior of the repair material. Locate fastener placement in areas where the roof deck substrate has not been compromised by corrosion.

E. Remove abandoned roof penetration removal less than 12 inches in size and repair using flat stock repairs protocol.

3.5 CLEAN UP AND PROTECTION

A. Protect completed work until accepted by the Owner.

B. Remove excess material from work areas and leave in neat condition.

C. Clean ground and staging areas of construction debris. Examine areas for damages which may have occurred during the course of the Work. Repair damaged areas to original condition at no additional cost to the Owner.

D. Remove residual stains caused by the Work from walls and floors.

END OF SECTION 05 31 23

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SECTION 06 10 53

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Wood blocking and nailers to replace deteriorated wood components..

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.

2. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Category UC3b for exterior construction not in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat miscellaneous carpentry unless otherwise indicated.

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2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Nailers for replacement of existing rotted nailers in kind, or for raising perimeter roof edge to accommodate additional insulation layer, to be 2 x 8, or 2 x 12 to match existing conditions.

a. Other sizes may be needed, and are listed in the Bid Form Unit Price Table.

2. New nailers to be added for installation of new roof perimeter edge metal application where shown on the drawings.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.

2. Eastern softwoods, No. 2 Common grade; NELMA.

3. Northern species, No. 2 Common grade; NLGA.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Screws for Fastening to Metal Framing: ASTM C954, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit.

B. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

C. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

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D. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following: Table 2304.9.1, "Fastening Schedule," in the Michigan Building Code – 2009 editing.

3.2 INSTALLATION

A. Install new nailers to replace deteriorated wood components in kind.

END OF SECTION 06 10 53

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SECTION 07 53 23

ADHERED EPDM ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section applies to the installation of new adhered, black, reinforced 60-mil EPDM roofing membrane in the work areas shown on the roof plan, and associated flashings, sheet metal, accessories, and new area dividers where indicated.

1.2 SCOPE OF WORK

A. Remove existing aggregate surfaced built-up roofing (BUR) on Roof Areas 1, 2, and 3 as shown in the Project Drawings.

B. Repair or replace deteriorated wood nailers as needed.

C. Remove abandoned equipment as marked by the Owner's Representative, if any.

D. Existing slope is approximately 7/32" (between 1/8" and 1/4" slope).

E. Install flat stock and tapered polyisocyanurate insulation over the existing roof deck on each Roof Area as described on the Tapered Insulation Drawing. Refer to Drawing Sheet A1.2.

F. Install 1/2-inch per foot tapered insulation saddles at drain locations as shown on the Tapered Insulation Plan Drawing.

G. Install reinforced 60-mil, black EPDM roofing, including flashings and accessories required for a complete, watertight roofing system.

H. Remove sheet flashings and trim as needed to install new trim, counterflashings and other accessories.

1. Install new sheet metal flashings and sealant as shown on the detail drawings, including sealant joints where needed to provide water-tightness of the new roofing.

I. Clean up the job site, and restore damaged building components, pavements and landscaping to pre-project conditions.

1.3 RELATED WORK:

A. Section 05 31 23, Steel Roof Deck Repair

B. Section 06 10 53, Miscellaneous Rough Carpentry

C. Section 07 62 00, Sheet Metal Flashings

1.4 BACKGROUND INFORMATION

A. Information regarding the roof and deck compositions, as determined at roof test-cores, is included in Section 01 11 13, Item 1.3.

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1.5 QUALITY ASSURANCE

A. Applicator: Company specializing in installation of adhered EPDM roofing, having a minimum of ten (10) years documented roofing installation experience, and approved by the specified single-ply roofing system manufacturer.

B. After submittals have been reviewed, and prior to any work being performed, the Contractor is responsible to convene a meeting to review work schedules, procedures, and project coordination. The Owner's Representatives and Consultant will attend the pre-construction meeting.

C. Perform roofing work in compliance with the recommendations in the latest edition of the NRCA Roofing and Waterproofing Manual.

D. Fabricate sheet metal work to comply with the recommendations and standards in the latest edition of SMACNA Architectural Sheet Metal Manual.

E. Quality control inspections are described below.

1. The Owner will employ and pay for the services of a Consultant to perform quality assurance during installation to determine if materials and methods conform to the Specifications.

2. The Consultant or Owner shall not act as foreman or perform other duties for the Contractor. Work will be checked as it progresses, but failure to detect any defective work or materials will not prevent later rejection when such defect is discovered, nor will it obligate the Owner for final acceptance. The Consultant is not authorized to revoke, alter, relax, enlarge, or release any requirements of the specifications, nor to approve or accept any portion of the work. The presence or absence of the Owner’s Representative or Consultant does not relieve the Contractor of the responsibility to furnish materials and construction in full compliance with the plans and specifications.

3. Furnish labor as is necessary to obtain and handle samples at the project or at other sources of materials, and for submission to the Owner or Consultant.

4. The Contractor is responsible to advise the Owner and Consultant sufficiently in advance of operations to allow completion of quality tests and for the assignment of personnel. A minimum of 24-hour notice to the Consultant is required in order to schedule field personnel for quality control testing.

1.6 ABBREVIATIONS

A. F. M. - Factory Mutual

B. N.R.C.A. - National Roofing Contractors Association

C. S.M.A.C.N.A. - Sheet Metal and Air Conditioning Contractors National Association

D. A.S.T.M. - American Society for Testing and Materials

E. U. L. - Underwriters Laboratory

F. S.P.R.I. - Single Ply Roofing Institute

G. A.N.S.I. – American National Standards Institute

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1.7 SUBMITTALS

A. The Contractor is responsible for providing electronic copies of the following submittals to the Consultant. These submittals must be reviewed by the Owner prior to any authorized reroofing operations.

1. Letter from the roofing manufacturer stating that the Contractor is an approved roofer for application of the roofing manufacturer's system.

2. A "Letter of Intent" listing

3. Materials including insulation to be used, and a statement that the materials conform to specified standards.

4. Manufacturer’s technical data sheet for materials to be used on the project.

5. Product safety data sheets (SDS) for each material to be used on the project.

6. Shop drawings showing the new tapered roof insulation layout, components required by the system manufacturer, and drawings detailing special joint or termination conditions and conditions of interface with other materials.

7. Any changes, voluntary substitutions or deviations from Project or manufacturer's standard requirements.

8. Provide the Owner and the Consultant a list of emergency telephone numbers. This list must include the names and numbers of Contractor representatives who can be contacted in the event of an emergency during non-working hours.

9. Submit for approval the specific roofing system manufacturer’s fastening pattern drawings for the specified insulation required to satisfy the wind uplift design for the roof height and deck type included under the scope of this project.

    a. Submit insulation manufacturer’s individual tapered insulation layout and profile drawings for each Roof Area included in this project.

    b. Submit fastening patterns, based on the tapered insulation drawings and high density (HD) polyisocyanurate cover board, to the Consultant for review and approval before materials are installed.

    c. Fastening patterns to be the specific roofing system manufacturer’s standard patterns based on the materials used, and the wind uplift resistance requirements of the project.

10. Provide an as-built drawing by the Contractor to the Consultant and the roof membrane manufacturer prior to the final warranty inspection by the membrane manufacturer.

11. Provide a copy of the application for manufacturer's warranty indicating the type and time period.

B. Submit to the Owner an executed copy of the roofing system warranty in a reasonable amount of time after the completion of the roofing.

1. Final payment for this project will not be released until the fully executed warranty documents have been provided to the Owner.

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2. Provide a copy of the roofing system warranty to the Consultant.

1.8 DELIVERY AND STORAGE OF MATERIALS

A. Deliver only acceptable materials to the site in original unopened containers, with seals and labels, including UL labels, intact.

B. Store materials at the site in properly protected and dry storage facilities (when available) until ready for use. Store new roofing materials on the roof spread out so as not to overload the roof.

C. Stack materials stored on site and exposed to weather conditions stacked on pallets. Completely cover materials with waterproof tarpaulins. Securely tie covering to the pallets in such a way as to be completely watertight. Apply ballast to the bundles of the insulation to prevent wind damage. Cover unused materials by the end of each working day or whenever work is interrupted.

D. Store pressure sensitive flashings, seam tapes and other products that may be affected by high temperatures and UV exposure out of direct sunlight.

E. Use of wet, damp, or damaged materials is unacceptable. Materials judged by the Owner's Representative to be wet or damaged will be removed from the project site and replaced at the Contractor's expense.

1.9 SITE CONDITIONS

A. The Contractor is responsible for furnishing applicable permits for material deliveries and disposal, and inspections. Provide copies of the permits to the Owner or the Owner’s Representative before staging set-up begins. The Contractor is also responsible for:

1. Complying with recognized standards and code requirements for erection of substantial and structurally adequate barricades where needed to prevent accidents and losses;

B. Posting warning signs to inform personnel at site and the general public where hazards may exist;

C. Providing lighting where appropriate and needed for recognition of the facility or work or staging areas; and

D. Providing temporary enclosures for materials, equipment and debris so as to afford protection from whatever deleterious effects may result from general exposure, inclement weather or other construction related operations at the site.

E. Avoid traffic over completed work areas whenever possible. In the event frequent traffic over completed work is anticipated, install temporary protection consisting of a minimum 1-1/2-inch thick layer of rigid insulation overlaid by 1/2-inch thick OSB over the affected roofing.

1. This is a requirement for each trade that will provide construction services on this project.

F. Provide and maintain temporary protection measures to protect the building and its contents from weather and construction related damages during reroofing.

G. Remove demolished building material and debris from the site and dispose of it in a legal manner. No on-site dumping or burning will be allowed.

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H. Carefully coordinate scheduling and sequencing of the demolition and roofing operations with the Owner.

I. Store removed items at this facility only at areas designated or approved by the Owner.

1.10 WEATHER LIMITATIONS

A. Proceed with roofing and associated work only when weather conditions will permit unrestricted use of materials and quality control of the work being installed, complying with the requirements and recommendations of the manufacturer of the roofing system and the Owner's Representative.

B. Do not perform roofing work under excessive wind conditions, wet conditions, or when the ambient temperature is less than 40°F, without prior approval of the Owner. The Owner's Consultant shall verify weather conditions during the work and record them in a roof observation report for each site visit.

C. When roofing operations are performed during periods of cold weather, provide for temporary protection of materials and warm storage of adhesives, primers, seam tapes and sealants.

1.11 WARRANTY

A. Contractor's Standard 2 Year Warranty: For a 2-year period from date of final acceptance, the Contractor agrees to inspect, locate, and make emergency repairs to defects and leaks in the roof system within 24 hours of receipt of notice from the Owner. Thereafter, as soon as weather permits, the Contractor agrees to permanently repair the affected areas by restoring them to the standard of the Contract, with no cost to the Owner.

1. However, the Contractor will not be required to make permanent repairs if it is determined that these leaks or defects were caused by abuse, or by lightning, hurricane, tornado, hail storm, or other unusual natural phenomena, or failure of related work installed by others.

B. Receipt by the Contractor of notice of roofing related leakage, as submitted by the Owner, is evidence the roof was examined and determined that none of the above causes apply and the Contractor is obligated to make repairs.

C. Upon completion of the roofing installation, schedule an inspection with the roofing system manufacturer's Technical Representative to determine if the roofing system has been installed to current specifications and details, and meets the manufacturer's warranty requirements. Provide copies of the manufacturer's warranty inspection report to the Owner and the Consultant.

D. Manufacturer's Warranty: Apply for and provide the roofing system manufacturer's standard warranty guaranteeing labor and materials for a period of twenty (20) years from date of acceptance. Issue the warranty to the Building Owner. The warranty must be transferable. If the roofing system does not comply with the manufacturer's specifications, make necessary corrections at the Contractor's own expense to meet the standards required for full execution and delivery of the roofing system warranty to the Owner.

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PART 2 - PRODUCTS

2.1 ROOFING SYSTEM

A. Use only those components and materials suitable for the roof system over the existing substrate and for slopes on this project. Materials must be products of or acceptable to the manufacturer of the roofing system for warranty purposes.

B. New adhered EPDM Roofing Design: Meet the following design criteria.

1. Wind Uplift Design to be equivalent to Factory Mutual FM 1-90 rated “roofing system” design criteria. Factory Mutual requirements based on the FM 4470 update are not required for this project.

2. Roof System: Single-ply, thermoset ethylene propylene diene terpolymer membrane (EPDM).

3. Insulation System: Rigid polyisocyanurate roof insulation.

4. Deck Types:

a) Steel

5. Exterior Fire Rating: A.

6. Hail Rating: Severe Hail.

C. Acceptable Products to Meet System Requirements:

1. Acceptable roofing membrane manufacturers:

a. Carlisle Syntec.

b. Firestone Building Products Company.

c. Johns Manville.

2. EPDM Roofing Membrane:

a. Reinforced, black 60-mil EPDM, low-slope fire rated.

b. Membrane sheet size to be largest practical sheet size to reduce seams, but to allow for a smooth, wrinkle free installation.

3. EPDM Accessories:

a. Provide bonding adhesives, primers, seam tapes, water block mastics and sealants that are products of the roofing membrane manufacturer.

b. Perform membrane seaming using the membrane manufacturer’s seam tape techniques.

c. Provide flashings, sealants and accessories that are the products of the roofing membrane manufacturer.

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d. If required, provide walkway pads that are the roofing manufacturer's standard walkway pad for use with adhered EPDM roofing assemblies.

2.2 INSULATION

A. Roof insulation: Closed cell polyisocyanurate board with the following characteristics:

1. Polyisocyanurate insulation: Type II, Class 2 coated glass facer, Grade 2 minimum 20 psi compressive strength in accordance with ASTM C-1289.

a. The Owner retains the right to collect random samples of insulation delivered to the site and perform ASTM D1621 compressive strength testing to verify the insulation meets the minimum standards.

b. Should the insulation fail to meet the minimum compressive strength specified, it will be removed from the site and replaced with new insulation at no additional cost.

c. The cost of compressive strength testing on insulation samples that fail, and the cost of subsequent testing of the replacement material delivered to the site will be borne by the Contractor.

2. Flat stock insulation: Nominal 48 inches by 96 inches for mechanically fastened insulation.

a. Two layers of 2-inch flat stock insulation.

3. Tapered insulation saddles, 1/2-inch per foot taper for saddles at drains.

B. Drain Sumps:

1. Provide tapered insulation drain sump 48 inches (4 feet) square at drain locations. Insulation thickness at drain bowl to be flush with drain bowl or no less than 1 inch thick.

a. Refer to the Tapered Insulation Plan in the Project Drawings for more specific information on insulation thicknesses, tapered insulation and saddles above.

C. Cover Board:

1. High density polyisocyanurate meeting ASTM C-1289, Type II, Class 4, Grade 1 minimum 80 psi compressive strength.

D. Fastening:

1. Commonly fastened application.

a. Fasten through all insulation layers to the roof substrate, using the manufacture's standard fastening patterns, with edge and corner enhancements.

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2.3 ACCESSORIES

A. All accessories required to complete installation of the insulated single-ply roofing system are to be provided by the roofing membrane manufacturer for incorporation into the roofing system except as specified. This includes but is not limited to water cut-off mastics, pre-molded flashings, and night seals.

B. Fasteners for reinforced perimeter securement strip are to be the roofing system manufacturer's standard size 12 minimum, fluoropolymer coated screws, fitted with two inch diameter steel seam plates.

C. Wood components

1. Refer to Section 06 10 53 for rough carpentry.

D. Gas Line Supports:

1. Gas line are not anticipated for this project. However, if there is a need to add supports during the project, provide one of the manufacturer's listed here.

a. Miro Industries

b. Dura-Blok

c. FNW

2. The use of wood supports is not permitted as replacement supports.

E. Provide the roofing system manufacturer's standard EPDM walkway pad seamed to the EPDM membrane to restrict movement as protection pads for gas line and conduit supports.

1. Double rows of walkway pads are to be placed around the large mechanical units on the roof.

2.4 METAL COMPONENTS

A. Sheet metal flashings are specified in Section 07 62 00.

B. Provide termination bars for membrane or flashings that are a minimum 1/8-inch thick and 1-inch wide extruded aluminum bar pre-punched 6 inches on center. Lengths of termination bar are to be a maximum of 10 feet. Provide termination that incorporate a sealant ledge or kick to support sealant. Fasten termination bars 12 inches on center (maximum spacing), and separate adjoining termination bar lengths a minimum of 1/8 inch to allow for movement.

C. Provide securement fasteners appropriate for the purpose intended and approved by the roof system manufacturer. Provide threaded fasteners that have a fluoropolymer coating for protection against corrosion. Other fasteners (friction or compression) must have a galvanized zinc coating.

D. Provide metal component design and fabrication that complies with the latest edition of the Architectural Sheet Metal Manual from SMACNA.

E. Refer to Section 05 31 23 for material requirements for incidental steel roof deck repairs that may be required on this project.

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2.5 SEALANTS

A. For sealant material for use with single-ply flashings and accessories, other than the manufacturer's standard sealants, provide one-component, polyurethane, equal to Sikaflex 1A, Vulkem 116, or O.S.I.-PR 255. Sealant for use on roof flashings must be compatible with the newly installed roof membrane.

1. The use of lap sealant on sheet metal components or building joints is not permitted.

B. Sealant for high temperature exhaust vents, or other high temperature penetrations must be designed and manufactured for high temperature applications. Provide product data sheets stating the sealants to be used comply with this requirement.

C. Provide primer of the type recommended by the sealant manufacturer.

D. Provide closed cell polyethylene backer rods, or as recommended by the sealant manufacturer. Provide backer rods that are a minimum of 50% larger than the opening to be caulked.

E. Provide bond breaker tape material recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Execute work so that each area of installation begun on a day is completed on the same day. Included are flashings within and adjoining the membrane. Seam tie-ins be to be watertight. Loose laid laps at tie-ins are not acceptable.

B. Remove abandonments marked on the roof (if any) and repair the penetration in the roof deck as described in Section 05 31 23. Perform deck replacement or repairs before new roofing materials are installed.

C. Apply roofing and flashing to a smooth and firm surface free from ice, frost, moisture, dirt, projections, and foreign materials. Secure items penetrating the roof surface in position and properly prepared for flashing. Review roofing substrate surfaces, and approve immediately prior to application of roofing and flashing materials.

D. Verify drains are functioning properly, and unclog as necessary. At the end of the project, verify proper drainage function again, and remove roofing debris and other items that may restrict drainage due to the reroofing project.

1. If drains are found to have significant clogs and backups during the initial drain verification, immediately notify the Owner's Representative and Consultant to determine a course of action.

2. The Contractor will be responsible for clogged drains caused by the Contractors activities, and will be required to restore drain flow at no extra cost to the Owner.

E. If Alternates are accepted, coordinate with the M/E subcontractor to assess the conditions and scope of services.

1. Notify M/E subcontractor as soon as possible to allow to schedule the project, and procure the materials needed to complete the Work.

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F. The Contractor is responsible for the work required to make any displaced mechanical units operational, including testing and balancing necessary to conform to the original level of performance and to the satisfaction of the Owner's Representative.

1. Re-secure mechanical units or exhaust fans to support curbing or framework on all four (4) sides of the curbs.

2. Seal securement fasteners that penetrate metal flashings.

G. If conditions are uncovered that would be detrimental to the application of specified work, immediately notify the Consultant of such conditions for determination as to treatment. Do not expose materials vulnerable to water or sun damage in quantities greater than can be waterproofed during that working day.

H. Protect applied insulation and completed roofing against damage by roof traffic and wind uplift. Use temporary roof protection specified in this Section to protect the new and existing roofing. Use appropriate ballast to prevent wind uplift damage or materials being blown about the site.

3.2 SURFACE PREPARATION

A. Remove the existing slag aggregate surfaced built-up roofing and associated flashings and accessories to expose steel roof decks and flashing substrates.

1. All bituminous materials must be removed from the drain bowl, and drain clamping rings prior to installing new roof drain flashings and water block mastic.

B. If the Owner’s Representative has marked abandoned mechanical units and curbs, remove the abandoned curbs and install new steel deck infill in the deck as specified in Section 05 31 23.

1. Remove and replace, repair, or clean and paint steel roof deck distress encountered during the tear-off, as described in Section 05 31 23.

C. Remove sheet metal, including existing expansion joint, internal parapets, and other edge metal, in conjunction with the existing roof appurtenances as indicated or necessary to facilitate the installation of new insulation, nailers and roofing materials.

D. Prepare substrates to provide a surface suitable for the installation of the new materials. Follow roofing material manufacturer's technical and workmanship requirements for deck preparation before beginning roof application.

E. Inspect existing wood blocking and nailer components for deterioration, damage and securement. Remove damaged or deteriorated components and replace with new treated wood components of nominal size to match removed components or as necessary to meet existing conditions. Where necessary, re-secure existing wood components.

1. Secure wood components to building structure with new anchors at not more than 18 inches on center, and 9 inches on center within 8 feet of corners. In addition, install anchors within 6 inches of the end of each new nailer. Install new to be staggered and penetrate the substrate a minimum of 1-1/2 inches.

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2. Where nailers are stacked, secure the top nailers to the lower bolted nailer with spikes or nails of appropriate length, spaced 9 inches on center, staggered, and additionally, within 6 inches of ends of nailers.

3. Provide anchorage sufficient to resist a 130 lb. force (per securement anchor) in any direction. Provide 1/4 to 1/2-inch spacing between butting ends of nailers to allow for expansion and contraction.

4. Install fasteners perpendicular to the work surface.

F. Install new wood nailers on curbs as required to accommodate the insulation thickness. Anticipate a minimum three (3) layers of new nailers.

G. Prior to the beginning of roofing operations, verify the deck is dry, smooth and swept clean of dust, dirt, grime, debris and other foreign material.

3.3 INSULATION

A. Specifics for flat stock and tapered insulation are provided insulation and are listed in Article 2.2, 2 of this section

B. Lay out new insulation over the prepared roof deck. Cut the insulation to fit neatly at perimeter blocking and around penetrations. Do not install damaged, wet or broken insulation boards.

1. Stagger insulation joints between layers and rows. Continuous vertical joints in the insulation are not permitted, including both flat stock and tapered insulation applications.

2. Butt edges to provide moderate contact, but not deformed.

3. Miter edges of insulation boards at ridges, penetration flanges, and elsewhere to prevent open joints or irregular surfaces.

4. Fill gaps greater than 1/4 inch prior to membrane installation.

C. Install tapered insulation systems as shown on Project Drawings and the manufacturer's tapered insulation diagrams.

1. Install tapered saddles, and crickets at upslope sides of mechanical units, where shown on the Project Drawings and Manufacturer's tapered insulation diagrams.

D. Install high density polyisocyanurate cover board over the new insulation, staggering end and side joints. Install cover board over the new tapered insulation, saddles and crickets.

E. Fasten through all layers using the Manufactures standard screws and insulation plates, with fasteners located as required by the manufacturer's fastening patters based on the requirements in Paragraph 2.1 of this Section.

F. Remove installed insulation that gets wet and replaced with dry material. Torches are not permissible to dry insulation on this project.

G. Remove sheet metal expansion joint covers, area divider covers, and BUR roof edge metal where shown on the Project Drawings to allow installation of new flashings, and repairs to roof edges.

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3.4 ROOFING MEMBRANE AND FLASHINGS

A. Verify new nailers required at roof edges are installed and properly fastened in place.

B. Install the reinforced EPDM roofing membrane in accordance with roof system manufacturer's latest written requirements.

1. Prior to installation of the membrane, install perimeter securement strip at angle changes, walls, and where required by the membrane manufacturer.

2. Adhere the perimeter securement strip to the substrate using bonding adhesive, and then fastened a maximum 12 inches on center. Where fasteners are spaced greater than 12 inches, the Contractor will be required to install additional fasteners to meet the maximum spacing requirement.

a. If required due to poor pull out resistance, install perimeter securement fasteners into the vertical wall, or

b. Increase fastener installation to a maximum spacing of 6 inches.

3. Take care to not contaminate the mating surfaces of the perimeter securement strip and EPDM roofing membrane with bonding adhesive during perimeter fastening strip or membrane installation.

C. Unroll the EPDM membrane and allow it to relax a minimum of 30 minutes prior to adhering to the insulation, or constructing membrane seams or flashings. (Time for membrane relaxation will vary depending on ambient temperatures and may be longer in cold weather.)

1. Lay out EPDM roofing membrane in a manner to minimize membrane seams, and to avoid buck water laps. Locate seams so they do not run through roof drains or sumps.

a. Strip in seams that occur within 18 inches of a roof drain with the manufacturer’s uncured pressure sensitive strip-in material.

b. Should seams pass through roof drains, apply a 48-inch square target patch centered over the affected drain locations.

c. Water block mastic is required on the drain bowl beneath the EPDM membrane before the drain clamping ring is installed. Bolts on the clamping ring must be present and tightened to provide consistent compression along the entire clamping ring.

2. Apply adhesive with rollers, or spray equipment with back rolling of the adhesive, to provide continuous coverage of both the insulation and EPDM membrane.

a. Bare spots, or areas of excessive adhesive application, are not acceptable.

b. Application of bonding adhesive in membrane seams, or at the reinforced perimeter securement strip, due to poor workmanship, spills, or improper installation techniques is not acceptable. Clean such areas free of the bonding adhesive before seams are constructed. If bonding adhesive cannot be sufficiently cleaned from the seam area, cut out and replace the affected area, or otherwise modify the roofing installation to ensure proper seam construction with no buckwater laps.

c. Allow adhesive to cure until tacky prior to mating the two surfaces.

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d. After the EPDM has been mated to the insulation, broom or roll with a carpet roller to promote adhesion of the new membrane.

D. Create lap widths as required to meet the 20-year warranty requirements of the specific roofing manufacturer, but at no time less than a minimum 4-inch seam width.

1. Laps must be constructed using the roofing system manufacturer's seam tape techniques.

a. Depending on the specific roofing manufacturer selected for this project, pre-taped seams or 6-inch wide seam tape may be required for warranty purposes.

2. Application of lap sealant is not required, except for:

a. As specified by the membrane manufacturer to seal the edges of various types of patches, flashings, and deficiencies in the seam tape application where the tape does not extend out of the seam a minimum 1/8-inch.

b. Cut edges of reinforced EPDM roofing sheets must be sealed.

3. Pre-taped seams do not require lap sealant where seam tape does not extend 1/8-inch out of the seam.

4. Where the seam tape extends out of the seam more than 1/2-inch, strip in the seam with pressure-sensitive flashing material.

5. Patch fishmouths, wrinkles or overlaps in the seam tape with uncured T-lap patches or uncured flashing material as required by the manufacturer.

E. Install new EPDM flashings as illustrated on the Project Drawings and as required by the roofing manufacturer.

F. Where possible, extend the 60-mil reinforced EPDM field membrane up walls and curbs as the flashing membrane to minimize field seams. Use the membrane manufacturer's 60-mil flashing material installed according to the standard details of the manufacturer for other flashings at the perimeter and roof projections.

1. Ensure installed flashing details meet the specific requirements of the roofing system manufacturer. Should the manufacturer's requirements exceed the typical details shown on the drawings, or vice versa, the more stringent requirements apply.

2. At small exhaust fans, lift the fan units and wrap the EPDM field membrane up and over the top of the existing curb. Fan units must be reset and fastened to the curb using threaded fasteners with EPDM washers as soon as the flashing work is complete.

3. At larger units where lifting is not possible, terminate at the top of the flashing substrate, and then cover with a sheet metal slip or counterflashing.

a. Water block mastic must be placed between the substrate and EPDM membrane prior to installing the flashing top termination, or other termination applications such as vertical termination bars.

b. The manufacturer's multipurpose polyurethane sealant or an equivalent is required for application on termination bars and other sheet metal flashing applications.

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c. The use of lap sealant on termination bars or other sheet metal components is not permitted.

4. At roof-to-roof expansion joints, install an EPDM insulation envelope across the expansion joint extending down below the deck level, properly detailed and terminated to be watertight as shown in the project details. Add insulation as needed to fill the envelope, and install foam rod, the primary EPDM roofing membrane, and flashings for a complete and watertight Work product.

5. Install vertical termination bars and sheet metal trim where needed to terminate edges of the new roofing membrane. Fasten vertical termination bars in place 6 inches on center and sealed with the specified sealant.

G. Use uncured EPDM flashing material to seal corners and pipe penetrations, and as strip in material, as required by the roofing system manufacturer.

H. Holes, tears or cuts in the EPDM membrane are required to be patched with cured 60-mil membrane.

I. Where required, daily tie-ins to existing roofing are to be seamed to be watertight, and constructed to envelope the leading edge of the existing roofing materials to prevent entrapped moisture from migrating into the new roofing.

J. Prior to beginning a new day's work, cut off the EPDM at the temporary tie-in and remove it.

1. Construction of permanent membrane seams with EPDM contaminated with old seam tape, adhesives, insulation facers, or debris from the previous day's tie-in is not acceptable.

2. Construction of permanent membrane seams with contaminated EPDM membrane will result in the affected area being removed and replaced at the Contractor's expense.

3.5 SHEET METAL AND ACCESSORIES

A. Refer to Section 07 62 00, Sheet Metal Flashings, for more specific information regarding area divider, snap on edge metal system, and other sheet metal components. General information is provided below.

1. Install new sheet metal slip flashings, penetration flashings, and counterflashing components as shown or required to satisfy roof system integrity.

2. Provide fasteners that meet the requirement of the Industrial Fasteners Institute, Fasteners Standards and FM requirements for wind up-lift. Fasteners that are improperly installed must be removed and replaced.

a. Provide expansion shield type fasteners that are metal sleeved.

b. Use stainless steel for securing stainless steel.

c. Provide threaded fasteners that incorporate self-sealing EPDM washers.

3. Contractor to determine:

a. Proper drill bit for drilling correct hole size (diameter and depth) into substrate,

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b. Fastener length to provide proper attachment of the roofing system components to the respective substrates.

B. Apply specified new sealant to provide watertight and weather tight construction at exterior joints as needed. Follow sealant manufacturer's printed instructions.

1. The use of lap sealant on building joints, or roofing appurtenances, is not permitted.

C. Install the manufacturer’s standard self-adhering rubber walkway pads as follows.

1. Install walkway pads on all four sides of exhaust fans or other mechanical units, or

2. Provide a minimum of two (2) rows of walkway pads along all four sides of large HVAC equipment and air handlers.

D. Install protection pads and specified pipe and conduit supports, including required spacers and pipe straps necessary for proper support and attachment.

3.6 CLEAN UP AND PROTECTION

A. Protect completed work until acceptance by Owner.

B. Remove debris from work areas and leave in neat condition.

C. Clean the roof, grounds and staging areas of roofing related debris. Examine the staging areas and buildings for damages which may have occurred to building components, pavements or landscaping during the course of the work. Repair damaged areas to original condition at no additional cost to the Owner.

D. Clean and water test roof drains in the work area to verify proper function upon completion of roofing activities. If drains have become clogged or restricted as the result of the roofing project, clean out the drains and retest with water to verify proper flow.

E. Remove stains from walls, floors, walkways, and parking areas.

F. Carefully inspect completed work. Correct defects prior to Owner's final inspection.

END OF SECTION 07 53 23

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SECTION 07 62 00

SHEET METAL FLASHINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Conditions of the Contract Documents for this Project apply to the work described in this section.

B. Related work is described in:

1. Section 07 53 23, Adhered EPDM Roofing

1.2 DESCRIPTION OF WORK

A. Furnish and install new perimeter edge metal system, expansion joint flashing, counterflashings, slip flashings and other miscellaneous sheet metal components as required for a complete work product.

1.3 QUALITY ASSURANCE

A. The Contractor (installer) shall be a firm with 10 years of successful experience fabricating and installing sheet metal flashing components used in building restoration work and equivalent to work described in this Section.

B. Comply with applicable recommendations and details in the latest editions of "Architectural Sheet Metal Manual" by Sheet Metal and Air Conditioning Contractors National Association (SMACNA).

1.4 SUBMITTALS

A. Submit manufacturer's and fabricator's specifications, installation instructions and general recommendations for installation and application of the products provided. Include certification or other data substantiating that materials comply with requirements of the project and current standards, and are appropriate for this project.

B. Submit electronic copies of shop drawings showing manner of forming, joining, and securing sheet metal flashings. Drawings must show standard construction, flashing details and any adjoining masonry or roofing work.

C. Match sheet metal colors for each color on the building. Provide standard sheet metal color charts for matching color of the existing perimeter metal and counterflashings on masonry walls.

1.5 WARRANTY

A. Provide two (2) year warranty for defects in workmanship and materials for the work after final acceptance by the Owner. The Contractor shall agree to replace defects in the work during this time period at no cost to the Owner.

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B. Provide perimeter edge metal system manufacturer's wind uplift resistance warranty documentation.

C. Provide the Owner the manufacturer's 5-year warranty against defects or fading of the color for coatings on all prefinished steel used for flashing applications.

PART 2 - PRODUCTS

2.1 SHEET METAL

A. Perimeter Edge: ANSI/SPRI ES-1 Certified.

1. Basis of Design is METAL-ERA, AnchorGard for single-ply roofing systems. Other pre-fabricated edge metal systems of equal materials, performance and uplift resistance will are acceptable.

2. Provide perimeter edge that includes a snap-on edge metal detail incorporated into the existing building perimeter.

3. Snap-on metal to match the color of the existing fascia.

4. Provide flashing and counterflashing as needed for extensions and transitions for existing work to remain in place.

B. Acceptable manufacturers:

1. M & M Systems

2. Colorklad

3. Metal-Era

4. Hickman

5. Shop fabrication edge metal is not permitted.

C. Other Sheet Metal Flashings:

1. Sheet metal used in non-exposed areas such as slip or counterflashings on mechanical curbs, sleeves and rain collars on hot stacks, and flashings on other roof penetration flashings, shall match the sheet metal material of the component requiring new metal to reduce the risk of galvanic reaction.

a. Galvanized steel to conform to ASTM A361, 24-gauge minimum, with a G90 galvanized coating.

b. Aluminum to conform to 0.032 mill finish aluminum.

c. Stainless steel to conform to 316 / 316L stainless, 26 gauge or 24 gauge thickness based on usage.

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2. Shop fabricate replacement scupper drain using material to match the original component to be removed and replaced.

    a. Weld or solder seams for watertight construction.

3. Local suppliers and shop fabrication: Contractor to provide the name and address of the sheet metal supplier, and product data confirming the materials comply with project specifications and warranty requirements.

D. Continuous cleats, where required, shall be a minimum one gauge thicker than the fascia, with the exception of the pre-fabricated edge metal system.

E. Where dissimilar metals such as aluminum and galvanized steel come into contact, provide a separation barrier between the two materials.

F. Metal component design and fabrication shall comply with the latest edition of the Architectural Sheet Metal Manual published by SMACNA.

2.2 MISCELLANEOUS MATERIALS

A. Use Type 316 / 316L stainless steel screws in areas which are exposed to weathering.

B. If required, provide rivets that are stainless steel with stainless steel mandrels.

C. Provide soft metal expansion type fasteners for use in masonry.

D. Provide self-tapping galvanized screws with integral EPDM washers to install galvanized steel slip or counterflashings.

E. Sealants are specified in Section 07 53 23.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate sheet metal work with roofing and other work for a complete work product and proper sequencing. Do not leave roof edges unfinished for an extended period of time.

B. Ensure all related roof flashings are completed and watertight, and termination bar is installed and sealed before covering with new sheet metal flashings.

C. Verify surfaces are clean and free of projections, under driven fasteners or debris that will interfere with a smooth appearance of the finished work product.

3.2 FABRICATION

A. Non-edge metal sheet metal can be shop-fabricated. Comply with details shown, and with applicable requirements of SMACNA “Architectural Sheet Metal Manual” and other recognized industry standards and practices.

B. Fabricate for waterproof and weather resistant performance, with expansion provisions for running work, and sufficient to permanently prevent leakage, damage or deterioration of the

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work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations for forming material.

C. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces free of buckles, excessive waves and avoidable tool marks, considering temper and reflectivity of metal.

D. Provide uniform, neat seams with minimum exposure of sealant. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.

1. Provide counterflashings with a minimum 4” face for curbs to cover the top termination of the baseflashing or slip flashings.

E. Provide for separation of metal from non-compatible metal, or corrosive substrates, by coating concealed surfaces with bituminous coating or other permanent separation at locations of contact, as recommended by manufacturer and fabricator.

3.3 INSTALLATION

A. Install new edge metal detail in accordance with details on the drawings.

1. Coordinate new edge metal work with the existing flashings to be equivalent to the colors, sheet metal type and profiles.

B. Fabricate and install new counterflashings on wall substrates as shown on Project Details or required to meet specific conditions uncovered during demolition.

C. Install sheet metal counterflashings, slip flashings, sleeves and rain collars as shown on Project Drawings or required for a complete and watertight roofing system.

3.4 CLEANING AND PROTECTION

A. Remove protective film (if any) from exposed surfaces of metal flashing promptly upon installation. Strip with care to avoid damage to finishes.

B. Remove all sheet metal scraps and fasteners from the project site. Properly dispose of all discarded materials and debris.

END OF SECTION 07 62 00

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SECTION 22 14 26

PLUMBING

PART 1 - GENERAL

1.1 SUMMARY

A. Work included in this section consists of installation of new roof drains as required by the Owner's Representatives:

1. Remove entire existing roof drain down to the first coupling beneath the deck, and replace with new components of same size as original, and with similar profile.

2. Do not over or undersize, match to existing, based on specific project conditions.

3. Provide clamping ring, drain pan, and associated piping, fittings, hangers, insulation or other accessories.

4. This requirement is mandatory for each drain.

5. Where there are scuppers, remove and replace scuppers in-kind with new materials.

a. Scuppers may be shop fabricated, or fabricated on-site.

b. Specification is for reference, other similar tasks may be required based on the specific conditions at each location. Provide equipment and materials bases on the specific conditions types, and sizes.

1.2 RELATED WORK

A. Section 07 53 23, Adhered EPDM Roofing

1.3 SUBMITTALS

A. Provide product data for all required new drain and overflow drain components, piping, hangers and other accessories to be used on this project.

B. Provide shop drawings for new drain, pipe, hangers, and connection to existing drainage system.

1.4 QUALITY ASSURANCE

A. Comply with ASME B31.9, "Building Services Piping", for materials, products and installation.

B. Comply with all state and local plumbing codes.

C. Provide documentation that the components to be used meet current standards.

1.5 APPROVALS

A. Provide shop drawings and material data to local building authority for review and approval.

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PART 2 - PRODUCTS

2.1 ROOF DRAINS

A. Provide lacquered cast iron drain body with a 6-inch diameter outlet (based on location on the roof) designed for installation in steel decking, and similar drain components for installation in concrete roof deck. Other requirements include a removable metal dome strainer, solid one piece membrane clamping ring, adjustable under deck clamp, and leveling and support framing. Connection to be hub-less type.

B. Approved Manufacturers:

1. Jay R. Smith Manufacturing Co., 1310 General Purpose Roof Drain

2. Other manufacturers of equivalent cast iron roof drains as approved by Project Consultant.

2.2 PIPING

A. Hubless C.I. drain pipe and fittings and all parts of the clamp assembly to conform to the C.I. Soil Pipe Standard 301.67T.

1. PVC piping may be used if authorized by the Owner.

2.3 EXPANSION JOINT COUPLINGS

A. All new roof drains and overflow drains shall be provided with flexible, no-hub, expansion joint couplings between the drain outlets and the existing or new drain lines.

2.4 ACCESSOIRES

A. Pipe Hangers: Clevis type hangers with treaded steel rods, designed for non-insulated pipes. Conform to Federal Specification WWW-H-171 (Type 1) with FMG and UL approvals.

1. Approved Manufacturers:

a. Tolco by NICBO Inc.,

b. Erico International Corp.

B. Provide fasteners for steel roof decking on Roof Area F as approved by the hanger manufacturer for supporting the anticipated load of the pipe and water at maximum water flow.

C. Provide stainless steel threaded fasteners with expansion type masonry anchor for attachment of downspout nozzle to masonry wall. Size to fit bronze flange.

D. Expanding foam required to insulate and seal around penetration through the masonry wall shall be closed cell, UL-790 Class.

E. Insulation to be glass fiber as described below

1. Manufacturers:

a. CertainTeed Insulation

b. Other acceptable manufacturers offering equivalent products.

1) Knauf Fiber Glass

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2) Manville Insulation, Inc.

3) Owens-Corning Fiberglass

2. Insulation: ASTM C547; rigid molded, noncombustible.

a. 'K' ('ksi') value : ASTM C335, 0.24 at 75 degrees F.

b. Minimum Service Temperature: -20 degrees F.

c. Maximum Service Temperature: 300 degrees F.

d. Maximum Moisture Absorption: 0.2 percent by volume.

3. Vapor Barrier Jacket

a. ASTM C921, White kraft paper reinforced with glass fiber yarn and bonded to aluminized film.

b. Moisture Vapor Transmission: ASTM E96; 0.02 perm inches.

c. Secure with self-sealing longitudinal laps and butt strips.

d. Secure with vapor barrier mastic.

4. Tie Wire: 18 gage stainless steel with twisted ends on maximum 12 inch centers.

2.5 SCUPPER

A. Shop fabricated roof edge scupper to match existing.

1. Verify existing scupper installations to match to new, size and configurations to be in accordance with existing field conditions.

2. Provide downspout to ground level or existing conductor if missing or damaged.

PART 3 - EXECUTION

3.1 INSTALLATION – ROOF DRAIN

A. No cutting of structural members, or drilling or coring of holes shall be done without the written approval of the Owner's Representative. Such activities shall be reviewed by the Project Consultant before the Owner issues approval.

B. All openings in the roof or ceilings made by the contractor shall be neatly patched by the contractor after the work is complete.

C. Assemble new roof drains, plumbing, fittings, and other components according to manufacturers' written instructions.

D. Install new cast iron drains or overflow drains at locations indicated on the project drawings.

E. Install new C.I. pipes connecting the new roof drains to the existing building roof drainage system for leak free service.

F. Install new pipe hangers to support the new roof drain pipes, with a maximum spacing of 6 feet.

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1. All hangers, attachments and other accessories required for a complete work product must be appropriate for cast iron piping and the specific deck or substrate type to which new components are to be anchored.

2. Contractor to verify in the field, and consult with the manufacturer before installing new components.

G. Install new insulation as specified by the pipe insulation manufacturer.

H. Provide replacement drains and accessories, if needed, in accordance with Items 2.1 to 2.4 above in this Section.

3.2 SCUPPERS

A. Remove and replace or install new scuppers where shown on the Drawings.

B. Shop-fabricate scupper drain assembly to fit the existing conditions, with soldered or welded seams.

C. Install downspout to match existing downspouts.

1. Re-use existing downspouts where possible.

D. Install splash block at ground for existing scuppers that currently discharge onto the ground.

1. Re-use existing splash blocks where possible.

E. Verify and repair or replace damaged downspouts that feed into underground storm drain conductors.

3.3 FIELD QUALITY CONTROL

A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

B. Check that plumbing connections and accessories are complete and compatible with other specified components.

C. Inspect installed plumbing for damage. Replace damaged fixtures and components.

D. Water test new drains and drain piping system for leaks. Replace defective components and retest if needed. Repeat procedure until new system is operating properly.

3.4 PROTECTION AND RESTORATION OF CEILINGS

A. Protect all completed work from damage by other trades until accepted by the Owner's Representative.

B. Restore ceilings impacted by the new drain work by reinstalling existing ceiling tile and grid, replacement of ceiling tile, or patching plaster or gypsum board ceilings.

END OF SECTION 22 14 26

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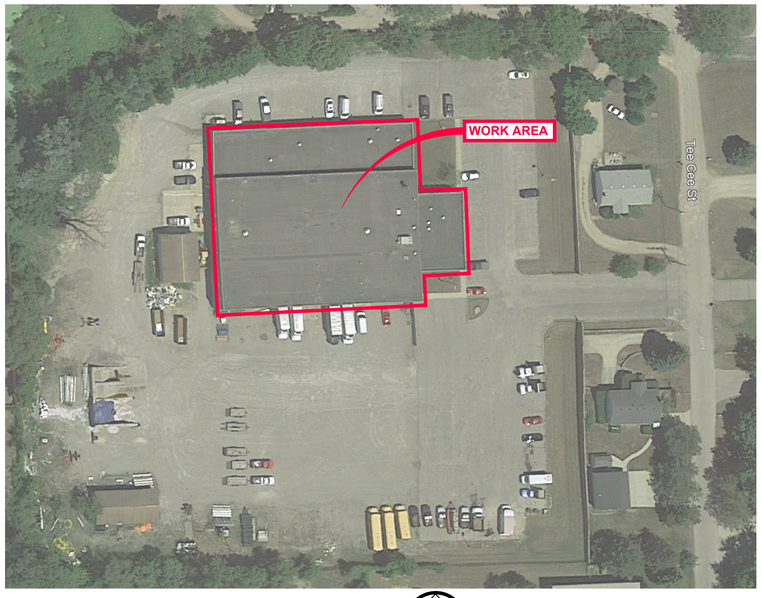
2019 Waterford Schools
Central Warehouse Roof Replacement
1145 Tee Cee Street
Waterford Twp., Michigan

GENERAL NOTES

1. WATERFORD SCHOOLS CENTRAL WAREHOUSE WILL REMAIN PARTIALLY OCCUPIED WITH THE OWNER'S SCHEDULED SUMMER MAINTENANCE, CONSTRUCTION DURING THE COURSE OF THIS PROJECT. CLOSELY COORDINATE WORK WITH THE OWNER'S REPRESENTATIVE AND OTHER ACTIVITIES THAT MAY BE OCCURRING AT THE SITE.
2. WHERE NOT INDICATED ON THE PROJECT DRAWINGS OR DESCRIBED IN THE SUMMARY OF WORK, PROVIDE THE MANUFACTURER'S STANDARD DETAILS. ALSO PROVIDE CONTRACTOR'S PERTINENT SHOP DRAWINGS AND SPECIAL DETAILING REQUIREMENTS WITH THE PROJECT SUBMITTALS.
3. PROVIDE NECESSARY TEMPORARY FENCING, BARRICADES, OR STRUCTURES AND OTHER SUCH MEASURES AS NEEDED TO PROTECT PEDESTRIAN AND VEHICLE TRAFFIC ADJACENT TO THE WORK AREA.
4. PROVIDE TEMPORARY PROTECTION FOR EXTERIOR WALLS AND WINDOWS, ENTRANCES, LANDSCAPING AND PAVEMENTS. RESTORE DAMAGES CAUSED BY ROOFING OPERATIONS TO PRE-PROJECT CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
5. IN ADDITION TO ITEM 4 ABOVE, PROVIDE TEMPORARY PROTECTION FOR ROOFING THAT WILL BE TRAFFICKED OVER, OR USED FOR STAGING PURPOSES, INCLUDING BOTH NEW AND OLD ROOF AREAS, TO REDUCE THE POTENTIAL FOR LEAKAGE. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO REPAIR NEW AND OLDER SECTIONS DAMAGED DURING THIS PROJECT. REFER TO SECTION 01 50 00 CONSTRUCTION CONTROLS PARAGRAPH 1.2, SUBPARAGRAPH C, FOR MORE INFORMATION.
6. PROVIDE TEMPORARY ROOFING, TIE-INS, WATER BLOCKS, AND INTERIOR PROTECTION DURING THE ROOFING REPLACEMENT TO PREVENT LEAKAGE INTO THE BUILDING, AND WATER DAMAGE TO INTERIOR FURNISHINGS, FINISHES, STORED MATERIALS AND EQUIPMENT.
7. SPREAD OUT STORED MATERIALS ON THE ROOF SO AS NOT TO OVERLOAD THE STEEL ROOF DECK.
8. STORE MATERIALS OFF THE GROUND ON PALLETS, AND COVERED WITH OPAQUE, BREATHABLE WATERPROOF TARPAULINS TO PROTECT FROM UV EXPOSURE AND WET WEATHER.
9. STORE CONTAINERS OF MATERIALS SENSITIVE TO HIGH TEMPERATURES IN THE SHADE, OR IN CLIMATE CONTROLLED LOCATIONS.
10. STORAGE OF MATERIALS INSIDE THE BUILDING IS PROHIBITED UNLESS WRITTEN AUTHORIZATION IS RECEIVED FROM THE OWNER'S REPRESENTATIVE. NO STORAGE OF FLAMMABLE MATERIALS ON OR WITHIN THE BUILDING IS PERMITTED. HOIST FLAMMABLES TO THE GROUND AND EITHER SECURELY STORE OR REMOVE FROM THE SITE AT THE END OF EACH WORK DAY. STORE FLAMMABLE FLUIDS A MINIMUM 50 FEET AWAY FROM THE BUILDING WHEN NOT IN USE.
11. REMOVE DEBRIS FROM THE ROOF AND GROUNDS DAILY AND DISPOSE OF IN A PROPER MANNER.
12. PROMPTLY REPORT UNANTICIPATED CONDITIONS UNCOVERED DURING ROOFING REMOVAL AND REPLACEMENT THAT ARE CONTRARY TO THE PROJECT DOCUMENTS, OR WILL NEGATIVELY IMPACT THE NEW ROOFING SYSTEM, TO THE CONSULTANT AND OWNER'S REPRESENTATIVE FOR ADVISEMENT.
13. VERIFY DIMENSIONS AND FIELD CONDITIONS BEFORE ORDERING MATERIALS. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND VERIFYING WORK ITEMS REQUIRED FOR A COMPLETE WORK PRODUCT. THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE UNDERSIDE OF THE ROOF DECK FOR CONDUITS OF OTHER UTILITIES THAT MAY BE DAMAGED FROM THE ROOFING PROJECT.
14. INSTALL THE NEW ROOFING IN COMPLIANCE WITH THE REQUIREMENTS AND RECOMMENDATIONS OF THE LATEST REVISED EDITION OF THE NRCA ROOFING AND WATERPROOFING MANUAL, AND THE ROOFING MANUFACTURER.
15. PROVIDE SHEET METAL COMPONENTS THAT COMPLY WITH THE LATEST EDITION OF THE SMACNA ARCHITECTURAL SHEET METAL MANUAL.
16. SUBMIT THE SPECIFIC ROOFING MANUFACTURER'S PRODUCT DATA SHEETS, INSTALLATION GUIDELINES AND CONSTRUCTION DETAILS, AND THE SHEET METAL MANUFACTURER'S PRODUCT DATA SHEETS AND INSTALLATION INSTRUCTION TO THE OWNER AND CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO ORDERING ANY MATERIALS.
17. THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL, PLUMBING OR HVAC SUBCONTRACTORS THAT MAY BE NEEDED TO DISCONNECT AND RECONNECT MECHANICAL UNITS WHERE CURB HEIGHTS NEED TO BE RAISED, OR TO INSTALL AND CONNECT NEW DRAIN OR SCUPPER COMPONENTS. ALL MECHANICAL UNITS MUST BE OPERATIONAL AND DRAINS FREE FLOWING AT THE COMPLETION OF THE PROJECT. THIS INCLUDES CONDUITS DAMAGED BY SCREWS OR OTHER ITEMS THAT MAY DAMAGE THE UTILITIES.
18. GOOSE-NECK ENCLOSURE ARE REQUIRED ON THIS PROJECT FOR CERTAIN FLASHINGS. THE OWNER DOES NOT ALLOW SEALER POCKTES FOR DETAILING.
19. DRAINS ARE TO BE REPLACED DOWN TO THE FIRST COUPLING BENEATH THE DECK FOR ALL STANDARD DRAIN AND SCUPPER DRAINS ARE TO BE REMOVED AND REPLACED.



WORK LOCATION
NOT TO SCALE

LOCATION MAP
NOT TO SCALE

OWNER / CLIENT

WATERFORD SCHOOL DISTRICT
501 N. CASS LAKE ROAD
WATERFORD, MICHIGAN 48328
(248) 682-7800
CONTACT:
www.waterford.k12.mi.us

CONSULTANT:

SME
43980 PLYMOUTH OAKS BLVD.
PLYMOUTH, MI 48170
(734) 454-9900
CONTACT: RON PELKIE
www.sme-usa.com

LIST OF DRAWINGS

SHEET NO.	SHEET TITLE
A1.0	COVER SHEET
A1.1	ROOF PLAN
A1.2	TAPERED INSULATION PLAN
A2.1	DETAILS

SCOPE OF WORK

BASE BID WORK: THE BASE BID WORK INCLUDES PROVIDING LABOR, MATERIALS, EQUIPMENT, AND ADMINISTRATION NECESSARY TO INTEGRATE A NEW ADHERED, REINFORCED BLACK 60-MIL EPDM SINGLE-PLY ROOFING, WITH A 20-YEAR MEMBRANE WARRANTY, INTO THE TOTAL BUILDING SYSTEM FOR THE 2019 ROOF REPLACEMENT AT WATERFORD SCHOOLS CENTRAL WAREHOUSE, INCLUDING ALL AREAS SHOWN ON THE ROOF PLAN, SHEET 2 OF THIS DRAWING SET. ALL AREAS COMPRISES OF APPROXIMATELY 29,000 SQUARE FEET.

WORK TASKS INCLUDE:

A. REMOVE THE EXISTING AGGREGATE SURFACED BUILT-UP ROOF (BUR) MEMBRANE AND INSULATION TO EXPOSE THE EXISTING ROOF DECK. BE AWARE OF POTENTIAL SECTIONS OF DETERIORATED STEEL ROOF DECK.

B. REVIEW ROOFING SUBSTRATES AND REPAIR OR REPLACE DETERIORATED ROOF DECK, AND NAILERS AS NEEDED BASED ON UNCOVERED CONDITIONS DURING DEMOLITION.

C. INSTALL MAXIMUM 2 LAYERS OF 2-INCH FLAT STOCK POLYISOCYANURATE BASE INSULATION.

D. INSTALL 1/4-INCH PER FOOT TAPERED INSULATION SADDLES FOR DRAINAGE.

E. FASTEN INSULATION COMMONLY USING THE ROOFING MANUFACTURER'S STANDARD FASTENERS AND PLATES FOR GYPSUM DECK.

F. INSTALL NEW ADHERED, REINFORCED, 60-MIL BLACK EPDM ROOFING MEMBRANE, INCLUDING ALL FLASHINGS, ACCESSORIES AND SEALANTS REQUIRED FOR A COMPLETE AND WATERTIGHT ROOFING SYSTEM AS SHOWN ON PROJECT DRAWINGS OR REQUIRED BY THE ROOFING MANUFACTURER.

G. INSTALL NEW SHEET METAL FLASHINGS AS SHOWN ON THE PROJECT DRAWINGS.

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Orientation | Scale

Project
2019 WATERFORD SCHOOLS CENTRAL WAREHOUSE ROOF REPLACEMENT

Project Location
WATERFORD SCHOOLS CENTRAL WAREHOUSE 1145 TEE CEE STREET, WATERFORD, MI 48327

Sheet Name
COVER SHEET

Engineer's Seal

Revisions

REV	ISSUED FOR	DATE	BY
1	BID	4-23-19	RP

Date
4-23-19

SME Project No.
080400.00

Project Manager:
RKP

Designer:
RKP

CADD:
GUS

Checked By:
RKP

Sheet No.
A1.0

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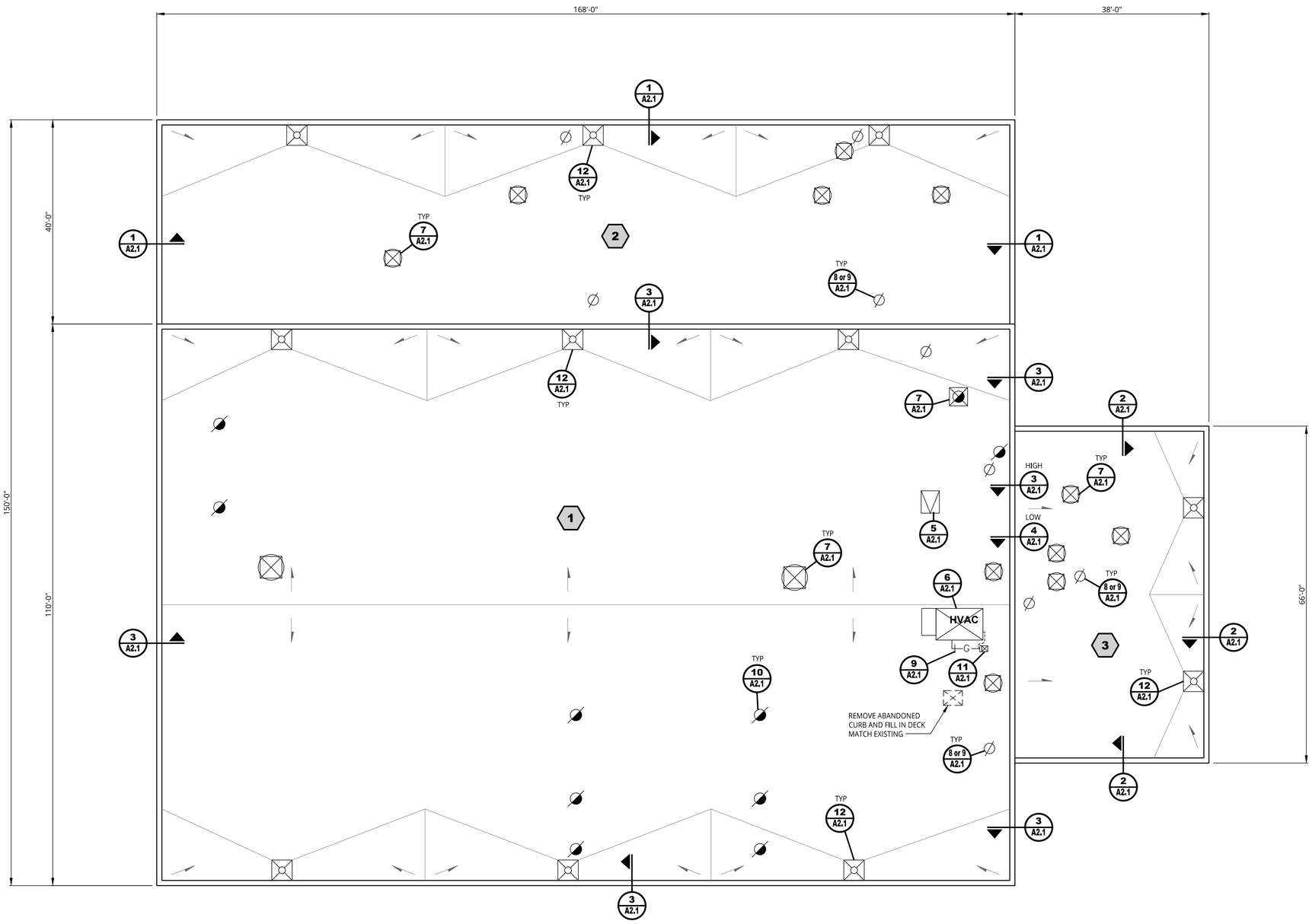

ROOF PLAN

SCALE: 3/32" = 1'-0"

LEGEND

- A — ROOF AREA
- HVAC — CURBED HVAC ROOF TOP UNIT
- EXHAUST FAN WITH CURB FLASHING
- MECHANICAL UNIT PIPE AND WIRE ENCLOSURE
- ROOF ACCESS HATCH WITH CURB FLASING
- ROOF DRAIN
- SOIL PIPE
- HOT STACK
- HOT STACK WITH CURB FLASHING
- WATER SHED DIRECTION
- ACTIVE CONDUIT
- G — ACTIVE GAS PIPE TO REMAIN

NOTE:
FIELD VERIFY ALL DIMENSIONS

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Project
2019 WATERFORD SCHOOLS
CENTRAL WAREHOUSE
ROOF REPLACEMENT

Project Location
WATERFORD SCHOOLS
CENTRAL WAREHOUSE
1145 TEE CEE STREET,
WATERFORD, MI 48327

Sheet Name
ROOF PLAN

Engineer's Seal

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Sheet No.
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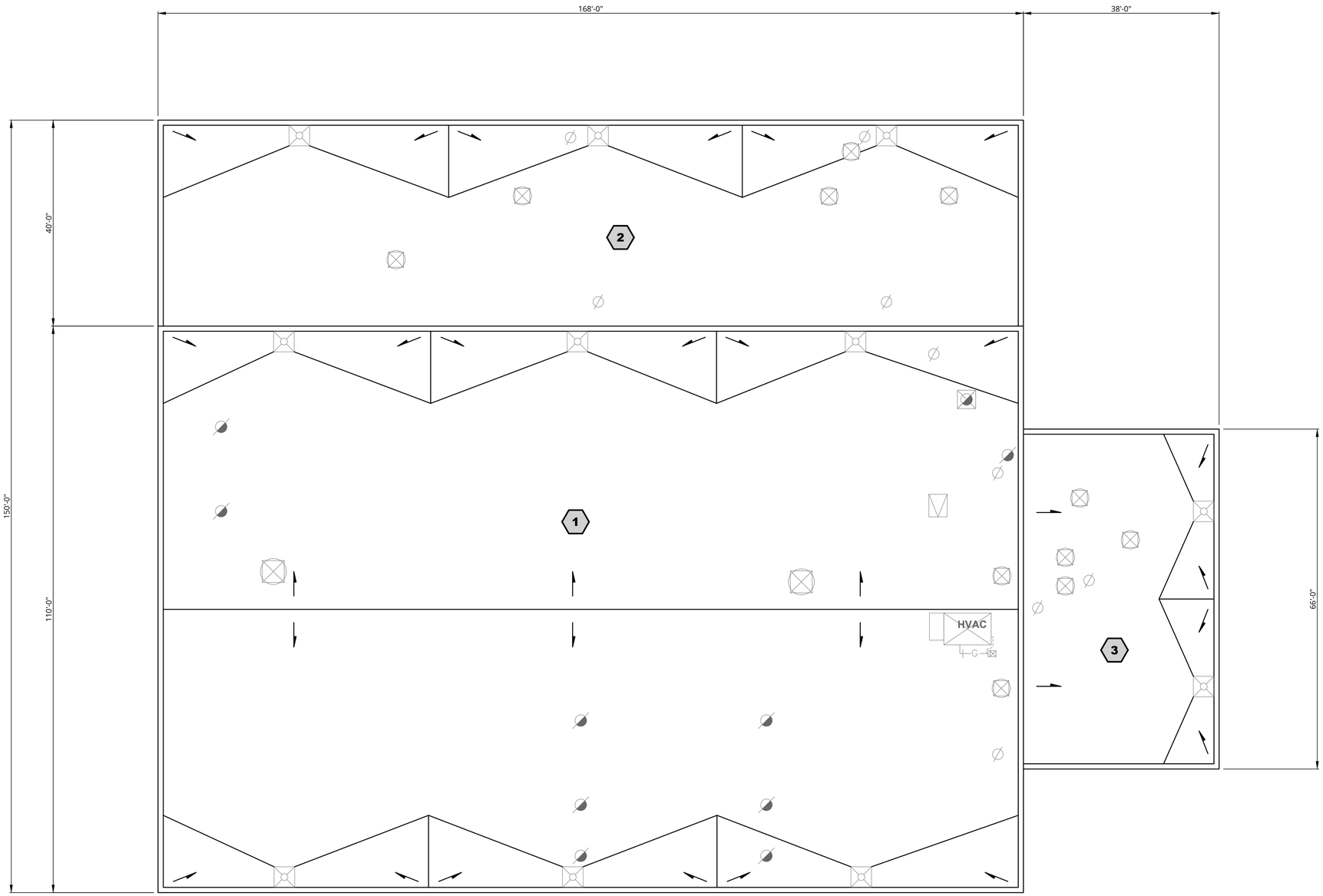

NORTH

TAPERED INSULATION PLAN

SCALE: 3/32" = 1'-0"

LEGEND

- A — ROOF AREA
- HVAC — CURBED HVAC ROOF TOP UNIT
- EXHAUST FAN WITH CURB FLASHING
- MECHANICAL UNIT PIPE AND WIRE ENCLOSURE
- ROOF ACCESS HATCH WITH CURB FLASING
- ROOF DRAIN
- SOIL PIPE
- HOT STACK
- HOT STACK WITH CURB FLASHING
- WATER SHED DIRECTION
- ACTIVE CONDUIT
- G — ACTIVE GAS PIPE TO REMAIN

NOTE:
FIELD VERIFY ALL DIMENSIONS

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Orientation	Scale

Project

2019 WATERFORD SCHOOLS CENTRAL WAREHOUSE ROOF REPLACEMENT

Project Location

WATERFORD SCHOOLS CENTRAL WAREHOUSE 1145 TEE CEE STREET, WATERFORD, MI 48327

Sheet Name

TAPERED INSULATION PLAN

Engineer's Seal

Revisions

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Sheet No.
A1.2

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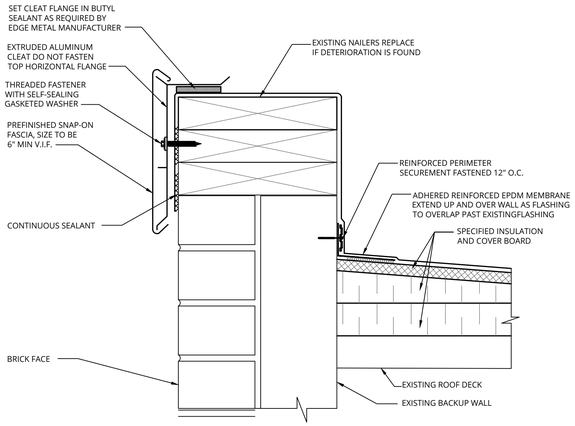
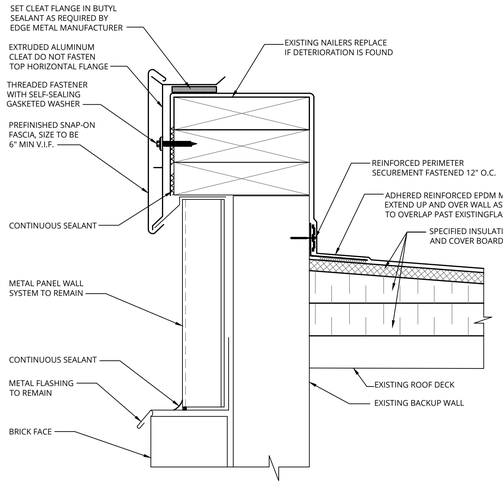
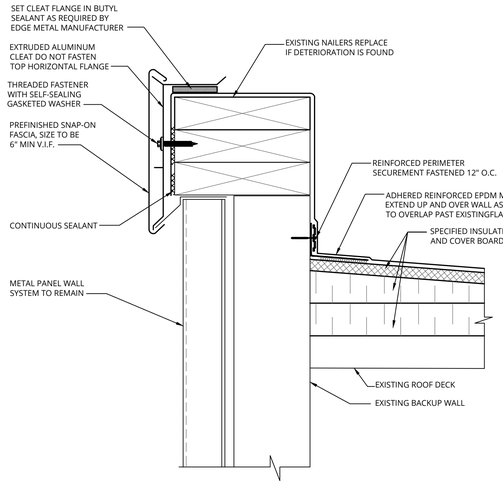


NOTES:
1. ANGLES AND SUBSTRATES VARY ALONG THE EXISTING COPING DO NOT REMOVE OR ALTER EXISTING SUBSTRATE UNLESS DETERIORATION OF ATTACHMENTS OR OTHER DISTRESS IS ENCOUNTERED.
2. CONTRACTOR MUST MEASURE AND VERIFY PROFILE OF SNAP-ON EDGE METAL CONFIGURATION PRIOR TO ORDERING MATERIALS.

1 A2.1 SNAP ON PERIMETER EDGE METAL @ BRICK
NOT TO SCALE



2 A2.1 SNAP ON PERIMETER EDGE METAL @ SHORT METAL PANEL
NOT TO SCALE



3 A2.1 SNAP ON PERIMETER EDGE METAL @ METAL PANEL WALL
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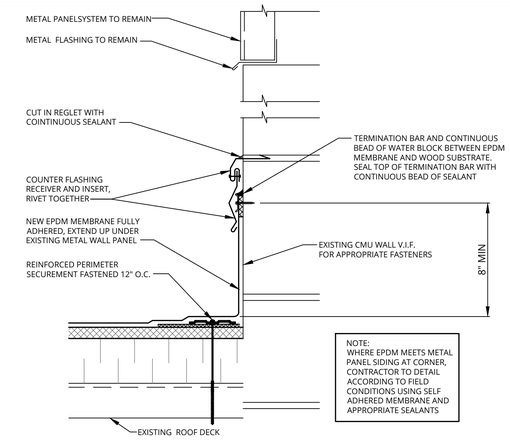
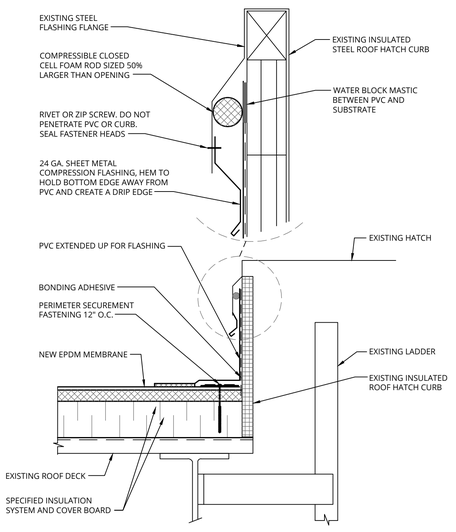


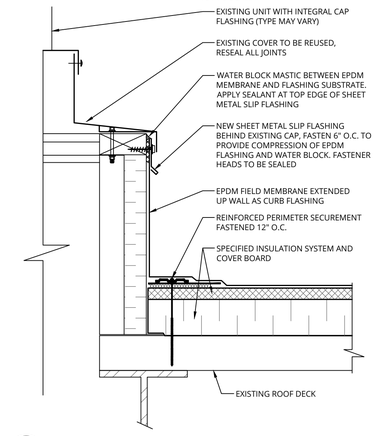
NOTES:
1. PROVIDE SHEET METAL END DAMS WHERE WALL PANELS INTERSECT WITH PERIMETER EDGE METAL OF EPDM ROOF.
2. SOLDER OR RIVET SHEET METAL END DAMS AND STRIP-IN WITH SELF ADHERED FLASHING MEMBRANE FOR WATERTIGHT TIE-INS.

4 A2.1 EPDM AT METAL WALL PANEL BOTTOM EDGE
NOT TO SCALE

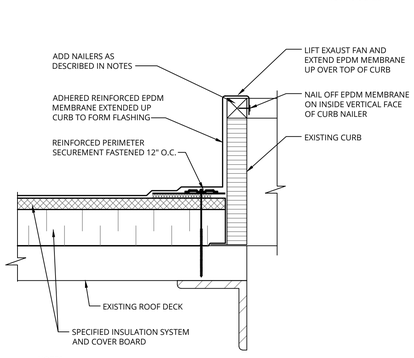


5 A2.1 TYPICAL ROOF HATCH FLASHING
NOT TO SCALE

NOTES:
1. ALL ITEMS NEW UNLESS NOTED AS EXISTING.
2. INSTALL SHEET METAL COMPRESSION FLASHING AS SHOWN. DO NOT RELY ON FOAM ROD AND TABS TO HOLD TOP OF FLASHING IN PLACE.

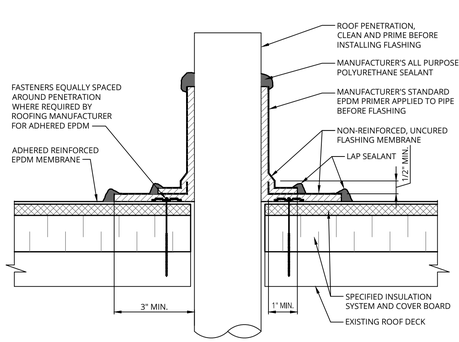


6 A2.1 TYPICAL CURB WITH SLIP FLASHING
NOT TO SCALE



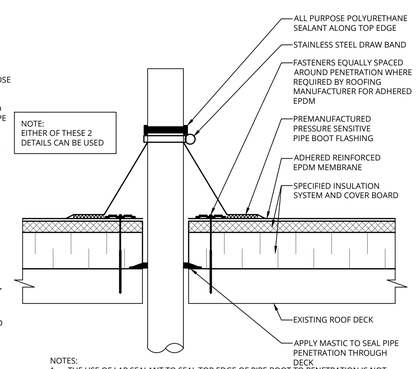
NOTES:
1. DETAIL REQUIRES TEMPORARY LIFTING OF EXHAUST FANS OFF CURB, INSTALLING FLASHING, THEN REINSTALLING FAN UNITS, AND VERIFYING FANS ARE OPERATIONAL.
2. AT LOCATIONS WHERE UNIT CANNOT BE LIFTED OFF CURB, INSTALL TERMINATION BAR AND SLIP FLASHING UNDER EXISTING CAP FLANGE.
3. ADD 1½" TO 4½" OF NEW NAILER AS NEEDED TO ACCOMMODATE TAPERED INSULATION AND MAINTAIN 8" FLASHING HEIGHT.

7 A2.1 TYPICAL UP AND OVER CURB FLASHING
NOT TO SCALE



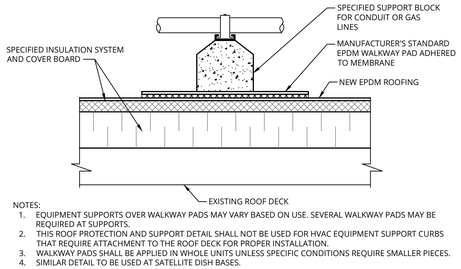
NOTES:
1. REMOVE ALL EXISTING FLASHING BEFORE INSTALLING FIELD-FABRICATED PIPE SEAL.
2. NAILER REQUIRED TO STABILIZE STEEL DECK AROUND ALL PIPES GREATER THAN 12 INCHES IN DIAMETER.
3. MANUFACTURER'S PREFABRICATED PIPE BOOT MAY BE INSTALLED IN LIEU OF THIS DETAIL WHERE APPLICABLE.
4. NOT TO BE USED FOR HOT EXHAUST STACKS.
5. FASTENERS AROUND PIPES 4" DIAMETER MAY BE OMITTED IF APPROVED BY ROOFING MEMBRANE MANUFACTURER.

8 A2.1 FIELD WRAPPED ROOF PENETRATION FLASHING
NOT TO SCALE



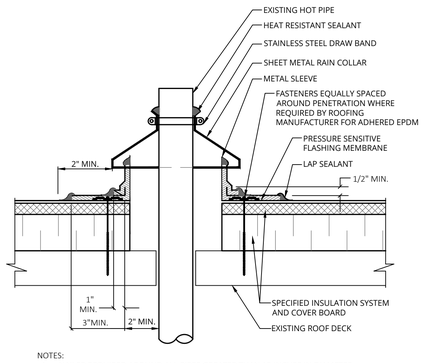
NOTES:
1. THE USE OF LAP SEALANT TO SEAL TOP EDGE OF PIPE BOOT TO PENETRATION IS NOT PERMITTED. CONTRACTOR SHALL USE ROOFING MANUFACTURER'S MULTIPURPOSE POLYURETHANE SEALANT OR SEALANT LISTED IN SPECIFICATIONS.
2. PIPE BOOTS ARE NOT TO BE APPLIED DIRECTLY TO HOT VENTS.
3. NAILERS REQUIRED TO STABILIZE STEEL DECK AT PENETRATIONS LARGER THAN 12" DIAMETER.
4. FASTENERS MAY BE OMITTED AT PENETRATIONS LESS THAN 18" DIAMETER OR AS OTHERWISE INDICATED BY THE ROOFING MANUFACTURER.

9 A2.1 TYPICAL PIPE BOOT
NOT TO SCALE



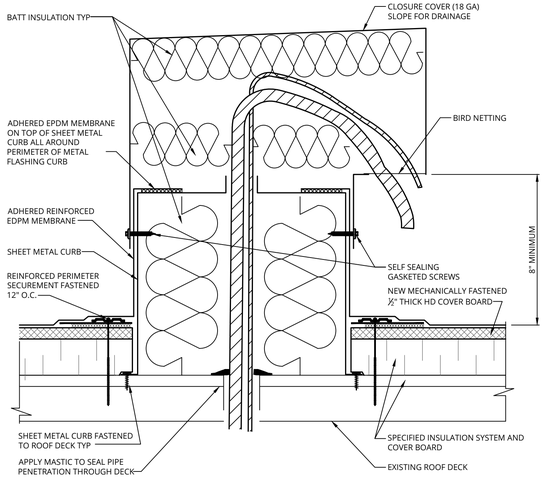
NOTES:
1. EQUIPMENT SUPPORTS OVER WALKWAY PADS MAY VARY BASED ON USE. SEVERAL WALKWAY PADS MAY BE REQUIRED AT SUPPORTS.
2. THIS ROOF PROTECTION AND SUPPORT DETAIL SHALL NOT BE USED FOR HVAC EQUIPMENT SUPPORT CURBS THAT REQUIRE ATTACHMENT TO THE ROOF DECK FOR PROPER INSTALLATION.
3. WALKWAY PADS SHALL BE APPLIED IN WHOLE UNITS UNLESS SPECIFIC CONDITIONS REQUIRE SMALLER PIECES.
4. SIMILAR DETAIL TO BE USED AT SATELLITE DISH BASES.
5. THE USE OF WOOD BLOCKING FOR PIPE OR CONDUIT IS NOT PERMITTED.

9 A2.1 ROOF PROTECTION PAD UNDER CONDUIT/GAS PIPE SUPPORTS
NOT TO SCALE



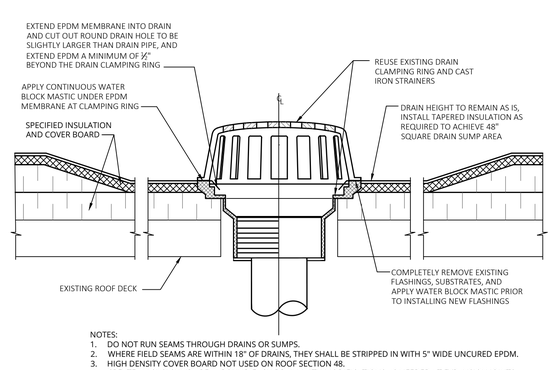
NOTES:
1. NAILER REQUIRED AROUND ALL PIPES GREATER THAN 12 INCHES IN DIAMETER.
2. UNCURED EPDM FLASHING WRAPPED AROUND COLLAR SHALL HAVE 3 INCH MINIMUM SPLICE ONTO FIELD MEMBRANE.
3. TEMPERATURE OF METAL SLEEVE MUST NOT EXCEED 180° F.

10 A3.1 TYPICAL HOT PIPE FLASHING
NOT TO SCALE



NOTE:
1. DETAIL IS REQUIRED FOR LOCATIONS WHERE MULTIPLE PENETRATIONS EXIST IN A SINGLE LOCATION, FOR BRAIDED CABLE OR SPIRAL CONDUIT. POURABLE SEALER POCKETS ARE NOT PERMITTED.
2. ALL LAP SEAMS IN SHEET METAL TO BE WELDED/SOLDERED.
3. SIZE METAL CLOSURE BOX ACCORDING TO FIELD CONDITION WITH MINIMUM SIZE OF 12"x12".

11 A2.1 CURBED MECHANICAL PENETRATION FLASHING
NOT TO SCALE



NOTES:
1. DO NOT RUN SEAMS THROUGH DRAINS OR SUMPS.
2. WHERE FIELD SEAMS ARE WITHIN 18" OF DRAINS, THEY SHALL BE STRIPPED IN WITH 5" WIDE UNCURED EPDM.
3. HIGH DENSITY COVER BOARD NOT USED ON ROOF SECTION 48.
4. CREATE AN 8'x8' SUMP AREA AROUND EACH DRAIN, WITH MODIFICATIONS AS NEEDED AT EXPANSION JOINTS AND TIGHT SPACES. NEW 1½" INSULATION MAY NEED TO BE OMITTED TO ALLOW SUMPED AREA.
5. DRAINS ARE TO BE REPLACED DOWN TO THE FIRST COUPLING BENEATH THE DECK FOR ALL STANDARD DRAIN AND SCUPPER DRAINS ARE TO BE REMOVED AND REPLACED.

12 A2.1 TYPICAL ROOF DRAIN
NOT TO SCALE

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Orientation	Scale

Project

2019 WATERFORD SCHOOLS CENTRAL WAREHOUSE ROOF REPLACEMENT

Project Location

WATERFORD SCHOOLS CENTRAL WAREHOUSE 1145 TEE CEE STREET, WATERFORD, MI 48327

Sheet Name

DETAILS

Engineer's Seal

Revisions

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1	BID	4-23-19	RP

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