

above ground storage tank
air quality
asbestos/lead-based paint
baseline environmental assessment
brownfield redevelopment
building/infrastructure restoration
caisson/piles
coatings
concrete
construction materials services
corrosion
dewatering
drilling
due care analysis
earth retention system
environmental compliance
environmental site assessment
facility asset management
failure analyses
forensic engineering
foundation engineering
geodynamic/vibration
geophysical survey
geosynthetic
greyfield redevelopment
ground modification
hydrogeologic evaluation
industrial hygiene
indoor air quality/mold
instrumentation
masonry/stone
metals
nondestructive testing
pavement evaluation/design
property condition assessment
regulatory compliance
remediation
risk assessment
roof system management
sealants/waterproofing
settlement analysis
slope stability
storm water management
structural steel/welding
underground storage tank

PROJECT MANUAL
Partial Roof Replacement

Portage Fire Station No. 2
6101 Oakland Drive
Portage, Michigan

SME Project Number 070629.00
September 11, 2014



00 01 01-1

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Soil and Materials Engineers, Inc.

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Partial Roof Replacement
Portage Fire Station No. 2, Portage, Michigan

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END OF SECTION 00 01 10

**List of Drawings
Partial Roof Replacement
Portage Fire Station No. 2, Portage, Michigan**

**SECTION 00 01 15
LIST OF DRAWINGS**

The following drawings, dated September 11, 2014, are included as part of these Bidding Documents.

Full Size Drawings:

Sheet 1 – Cover Sheet

Sheet 2 - Roof Plan

Sheet 3 - Details

END OF SECTION 00 01 15

NOTICE

Thank you for your inquiry regarding the City of Portage project listed below:

If your firm plans to bid on this project, please send an email response to johnsonj@portagemi.gov with the following information:

Firm Name: _____

Project Name: _____

Firm's Contact Person: _____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

Postal Address: _____

The City of Portage Purchasing Department will use this information to communicate with you in the event an addendum or change to this project is issued. If you do not send this information to the City of Portage, you will not receive any follow-up notification of any changes to the project.

Date of Issue: September 10, 2014

NOTICE TO BIDDERS

The City of Portage will open sealed bids on September 24, 2014 at 3:00 p.m. prevailing local time in the City Hall Conference Room #1 at 7900 South Westnedge Avenue for:

Portage Fire Station No. 2 Partial Roof Replacement

You are invited to submit a bid for this project. Sealed bids may be mailed or delivered to the City of Portage, Purchasing Department, 7900 South Westnedge Avenue, Portage, MI 49002. Envelopes should be plainly marked:

SEALED BID: Portage Fire Station No. 2 Partial Roof Replacement

FOR OPENING: September 24, 2014

General specifications, description and conditions upon which the bid proposal is to be based are available at the City of Portage website www.portagemi.gov/Departments/Purchasing/BidOpportunities.aspx. Bid packages will also be mailed upon request.

The City reserves the right to reject any or all bids, to waive any irregularities, and further reserves the right to accept any bid or parts of bids which it deems to best serve the interest of the City.

There will be a non-mandatory pre-bid meeting at 10:00 a.m. on September 18, 2014 at Fire Station No. 2 at 6101 Oakland Drive, Portage, Michigan.

If you have any questions regarding purchasing procedures, please phone the Purchasing Department at (269) 329-4534. If you have any questions regarding the specifications, please contact Ron Pelkie, CDT, Soil and Materials Engineers, Inc., at 734-454-9900.

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Attachments

Draft Contract Agreement
Plans

1. INSTRUCTIONS TO BIDDERS

- 1.1. FORM -- Each Bid shall be made on a form prepared therefor by the Purchasing Agent and included as one of the Contract Documents, and except for bids submitted via facsimile equipment, shall be submitted in a sealed envelope bearing the title of work and the name of the bidder, and shall be signed by an individual authorized to execute the proposal on behalf of the bidder.
- 1.2. EXAMINATION OF BID DOCUMENTS AND VISIT TO SITE -- Before submitting a Proposal, Bidders shall carefully examine the Specifications, and other Contract Documents, shall visit the site of work, and shall fully inform themselves as to all existing conditions and limitations and shall indicate on the Proposal the sum to cover the cost of all items included on the proposal form.

All Questions are to be directed to Ron Pelkie, CDT, Soil and Materials Engineers, Inc., 734-454-9900, or pelkie@sme-usa.com

Questions must be submitted by 5:00 PM on Friday, September 19, 2014. Questions submitted after that date and time will not be answered.

- 1.3. DELIVERY OF PROPOSALS -- Proposals shall be delivered by the time and to the place stipulated in the Advertisement. It is the sole responsibility of the Bidder to see that his Proposal is received in proper time. Any bids received after the bid opening date and time shall be returned to the Bidder unopened.
- 1.4. WITHDRAWAL -- Any Bidder may withdraw his Proposal, either personally, by facsimile, or by written request, at any time prior to the scheduled closing time for receipt of Proposals.
- 1.5. OPENING -- Bids will be opened and publicly read aloud at the time and place set forth in the Notice to Bidders.
- 1.6. INTERPRETATION OF DOCUMENTS -- If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of any drawing or specification, he may submit to the Purchasing Agent a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by Addendum duly issued and a copy of the Addendum will be mailed or delivered to each person on record as receiving a set of the Contract Document. Neither the City nor the Purchasing Agent will be responsible for any other explanations or interpretations of the Contract Documents.
- 1.7. ADDENDA -- Any addenda issued during the time of bidding, or forming a part of the Contract Documents provided to the Bidder for the preparation of his Proposal, shall be covered in the Proposal and shall be made a part of the Contract. Receipt of

each Addendum shall be acknowledged in the Proposal.

- 1.8. BIDDERS INTERESTED IN MORE THAN ONE PROPOSAL -- No person, firm or corporation shall be allowed to make, file or to be interested in more than one Proposal for the same work, unless alternate Proposals are called for. A person, firm, or corporation who has submitted a sub-proposal to a Bidder is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders.
- 1.9. NONDISCRIMINATION The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larsen Civil Rights Act, Article 2, Act no. 453, Public Act of 1976 as amended; the Michigan Handicapper's Civil Rights Act, Article 2, Act. No. 220; Public Act of 1976, as amended and all other applicable Federal, State and Local laws and regulations. Specifically, contractors and subcontractors are required not to discriminate against any employee or applicant for employment with respect to such person's hire, tenure, terms, conditions, or privileges of employment, or any matter directly or indirectly related to employment because of such person's height, weight, race, color, religion, national origin, ancestry, age, marital status, sex or disability, as defined by law. Breach of this covenant may be regarded as a material breach of the contract.

The City of Portage in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color or national origin in consideration for an award.

This project is NOT a prevailing wage job.

- 1.10. PROPOSAL GUARANTEE -- Each proposal shall be accompanied by a certified check or bid bond acceptable to the City in an amount equal to at least five percent (5%) of the proposal, payable without condition to the City as a guaranty that the bidder, if awarded the Contract, will promptly execute the Agreement in accordance with the proposal and the other contract documents, and will furnish good and sufficient bond for the faithful performance of the same, and for the payment to all persons supplying labor and material for the work. Bids that do not include a certified check or bid bond will be considered non-responsive and will be rejected. Company or personal checks will not be accepted as substitute for a certified check or bid bond. Bids offering personal or company checks in lieu of a certified check or bid bond will be considered non-responsive and will be rejected. The Proposal Guarantees of all Bidders, except the three lowest, will be returned promptly after the canvass of Proposals.

1.11. PERFORMANCE, MAINTENANCE AND LABOR & MATERIAL BONDS -- The successful Bidder, simultaneously with the execution of the contract, will be required to furnish a faithful Performance Bond in an amount equal to one hundred percent (100%) of the Contract Amount, a Maintenance and Guarantee Bond equal to twenty-five percent (25%) of the Contract Amount which shall be effective for two years beyond the date of final payment, and a Labor and Material Payment Bond equal to one hundred percent (100%) of the Contract Amount; said bonds shall be secured from an insurance company satisfactory to the City. Typical Bond forms are included in the Contract Documents.

1.12. DURATION OF PROPOSAL -- Each proposal shall be considered binding and in effect for a period of ninety (90) days after the date of opening set forth in the advertisement.

1.13. BIDS SUBMITTED VIA FACSIMILE EQUIPMENT -- Bids may be submitted via facsimile equipment in the following manner.

1.13.1. Transmittal page must be plainly marked:

“Sealed Bid _____ for opening _____.”
Bid Name Date

1.13.2. When bids are submitted via facsimile equipment, both the original document and the facsimile printout are counterpart originals.

1.13.3. Whenever a proposal guaranty/bond is required, bids submitted via facsimile equipment can comply with this provision by submitting a facsimile copy of the bond document. When a cashier’s check is elected to meet the proposal guaranty/bond requirement, the cashier’s check must be physically in the possession of the City by the date and time outlined on the Notice to Bidders, or such bid may be considered non-responsive.

1.13.4. **In electing to use the facsimile option, the bidder assumes full responsibility for any and all errors, omissions, or mistakes that result in a bid not being submitted in a timely manner, whether or not the mistake was the fault of the bidder.**

1.14. PRE-BID MEETING

There will be a pre-bid meeting at 10:00 a.m. on September 18, 2014 at Fire Station No. 2 at 6101 Oakland Drive, Portage, Michigan. The pre-bid meeting is non-mandatory.

1.15. CITY OF PORTAGE CONTRACT CONDITIONS AND SPECIFICATIONS

All bids submitted shall be in full compliance with the Contract Conditions and Specifications of the City of Portage. The Contract Conditions and Specifications can be obtained from the Purchasing Department. The first set will be provided to the Firm at no cost and subsequent sets or copies must be purchased for \$25.00.

1.16. LAWS AND MUNICIPAL ORDINANCES

The Contractor shall be fully informed of all laws and municipal ordinances and regulation sin any manner affecting those engaged or employed in the work, or the equipment and materials used in the work, and all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all items observe and comply with all such existing laws, codes, ordinances, regulations, orders and decrees. In particular, all work shall be in compliance with the Laws of the State of Michigan, City Ordinances, as well as all other bodies having jurisdictional authority.

If the corporation is not a Michigan corporation, a “Certificate of Authority to Transact Business in the State of Michigan” if required by MCLA 450.2001, et. Seq., shall be submitted to the City by the successful bidder.

1.17. INSURANCE REQUIREMENTS

Prior to commencement of the Work, the Contractor shall purchase and maintain during the entire term of the project such insurance as will protect the Contractor, the City, and the Engineer(s) from claims arising out of the Work described in this contract and performed by the Contractor, Subcontractor(s), or Sub-subcontractor(s). The contractor’s insurance policy shall be primary for the additional insured, and not excess over any policy held by the additional insured. The certificate of insurance must contain the following statement: The City of Portage, its agents, elected officials, and employees, is included as an additionally insured party. This insurance must consist of:

1.17.1. Workers Compensation

Workers Compensation insurance, including Employer’s Liability to cover employee injuries or disease compensable under the Workers Compensation statues of the states in which work is conducted under this contract.

1.17.2. Comprehensive General Liability

A Comprehensive General Liability policy to cover bodily injury to persons other than employees and for damage to tangible property, including loss of use thereof, including the following exposures.

- A) All premises and operations.
- B) Explosion, collapse and underground damage.
- C) Protective coverage for Independent Contractors or Subcontractors employed by the Contractor.
- D) Contractual Liability for the obligation assumed in the Indemnification or Hold Harmless agreement found in the contract.
- E) Personal Injury Liability endorsement with no exclusions pertaining to employment.
- F) Products and Completed Operations coverage. This coverage shall extend through the contract guarantee period.

1.17.3. Comprehensive Automobile Liability

A Comprehensive Automobile Liability policy to cover bodily injury and property damage arising out of the ownership, maintenance or use of any motor vehicle, including owned, non-owned, and hired vehicles. In the light of standard policy provisions concerning (a) loading and unloading and (b) definitions pertaining to motor vehicles licensed for road use vs. unlicensed or self-propelled construction equipment, it is strongly recommended that the Comprehensive General Liability and the Comprehensive Auto Liability be written by the same insurance carrier, though not necessarily in one policy.

1.17.4. Umbrella or Excess Liability

The City, or representatives of the City, may for certain projects, require limits higher than those stated as follows. The Contractor is granted the option of arranging coverage under a single policy for the full limit required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy equal to the total limit(s) requested. Umbrella or Excess policy wording shall be at least as broad as the primary or underlying policy and shall apply to both the general liability, and to the automobile liability insurance of the Contractor.

1.17.5. Limits of Liability

The required limits of liability for insurance coverage shall not be less than the following:

- | | | |
|----|--|------------------------|
| A. | Workers Compensation | Statutory |
| B. | Comprehensive General Liability
Combined Single Limit (including sub-contractors) | \$1,000,000/occurrence |

C.	Comprehensive Automobile Liability Combined Single Limit (Injury and Property Damage)	\$1,000,000
D.	Umbrella or Excess Liability	\$2,000,000

1.17.6. Notice of Cancellation or Intent not to Renew

The certificates of insurance indicated above shall be endorsed to provide prior written notice to the City of cancellation, material change in policy or of intent not to renew or cancellation notice for non-payment of premium.

1.17.7. Evidence of Coverage

The Insurance Certificates referenced above must be submitted within ten (10) working days of notification of award and prior to the execution of any Work under this contract.

It shall be the responsibility of the Contractor to provide similar insurance for each Subcontractor, or to provide evidence that each Subcontractor carries insurance in like amounts, prior to the time such Subcontractor proceeds to perform under the contract.

1.18. Retainage Requirement

In accordance with the State of Michigan Public Act 524 of 1980, retainage will be withheld for any construction contract in excess of \$30,000. Ten percent (10%) retainage will be withheld from the first fifty percent (50%) of the contracted amount.

1.19. Basis of Award

Award will be made to a responsive and responsible bidder whose lowest total base bid is determined by the City to be in the best interest of the City. Each proposal shall have the unit prices and extensions checked for correctness. If discrepancies appear between the unit prices and extensions submitted, the unit price submitted for the particular pay item shall govern, and the dollar amount of the proposal adjusted accordingly. The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial contract price.

No contract is created until it is executed by all parties.

1.20. Project Schedule

Whenever the total contract amount is \$500,000 or more, contractor shall submit a detailed Microsoft Project® schedule for review and approval the Engineer. In addition, the Contractor shall submit updates on a bi-weekly basis.

The Engineer may choose to waive this requirement on contract with a value of less than \$500,000.

1.21. Indemnification

To the fullest extent permitted by Laws and Regulations, the Contractor, at its sole cost and expense, shall indemnify and hold harmless the City and its officers, directors, employees, agents and consultants (hereinafter referred to as “Indemnified Parties”) from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work or from the failure to comply with any covenant or term of the contract, provided that any such claim, cost, loss or damage: (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom or (ii) is caused in whole or in part by any act or omission of the Contractor, its agents, officers, contractors, subcontractors, employees, invitees, suppliers or any other person or entity, directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable. Provided, however, that the Contractor shall not be required to indemnify the Indemnified Party for injury, death, loss or damage caused by the sole negligence of the Indemnified Party. If such injury or damage is caused in whole or in part by the acts or omissions of the Indemnified Parties, then the indemnification obligation shall be reduced in proportion to the Indemnified Party’s percentage of responsibility for such injury or damage.

In any and all claims against the City or any consultants, agents, officers, directors or employees of the City by any employee (or the survivor or personal representative of such employee) of the Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any such Subcontractor, Supplier or other person or organization under workers’ compensation Acts, disability benefit Acts or other employee benefit Acts.

Insurance coverage required by the contractor constitutes the minimum requirements and those requirements shall in no way lessen or limit the liability of the contractor under the terms of the contract. The contractor shall procure and maintain at contractor’s own cost and expense any additional claims or amounts of insurance that, in the judgment of the City, may be necessary for contractor’s proper protection in the prosecution of the work.

2. SCOPE AND SPECIFICATIONS

- 2.1. The Project Scope consists of the removal and replacement of the roofing on the low and hose tower roofs at the City of Portage Fire Station No. 2. See Section 01 11 13, Summary of Work in the attached Soil and Materials Engineers, Inc. referenced in Item 2.2 below.
- 2.2. Specifications and Drawings titled “City of Portage Fire Station No. 2 Partial Roof Replacement” developed by SME and dated September 11, 2014, attached to this document.

CITY OF PORTAGE PROPOSAL FORM

The undersigned has examined the specifications and sites of the work and is fully informed of the nature of the work and understands that the quantities shown are approximate and are subject to increase or decrease.

The undersigned hereby proposes to furnish all labor, construction equipment, materials and supplies; and to do all the work in strict accordance with the plans and specifications applying to the work specified for which prices are submitted.

The undersigned hereby acknowledges the fact that the City of Portage will award the project to the successful bidder conditional upon the availability of funds.

The City of Portage reserves the right to accept or reject any or all bids in the best interest of the City. Each division may be awarded separately or jointly as may be determined to be in the best interest of the City. The Contractor's qualifications to complete the work in a timely and satisfactory manner will be considered in making the award.

The undersigned affirms that in making such Proposal neither he nor any company that he may represent, nor anyone in behalf of him or company, directly or indirectly, has entered into any combination, collusion, undertaking or agreement with any other bidder or bidders to maintain the prices of said work, and further affirms that such proposal is made without regard or reference to any other bidder or Proposal and without any agreement or understanding or combination, either directly or indirectly, with any other person or persons with reference to such bidding in any way or manner whatsoever.

The undersigned hereby agrees that if the foregoing proposal shall be accepted by the City, he will within ten (10) consecutive calendar days after receiving notice of the acceptance of such proposal, enter into contract in the appropriate form to furnish the labor, materials and equipment necessary for the full and complete execution of the work, at and for the price named in his proposal; and, he will furnish the labor, materials and equipment necessary for the full and complete execution of the work, at and for the price named in his proposal; and, he will furnish the labor, materials and equipment necessary for the full and complete execution of the work, at and for the price named in his proposal. No contract is created until it is executed by all parties.

The undersigned affirms that he has examined the surface and subsurface conditions where the work is to be performed, the legal requirements and conditions affecting cost, progress or performance of the work and has made such independent investigations as the contract deems necessary.

The undersigned attaches hereto a bidder's bond in the sum of _____ Dollars (\$ _____) as required in the Instructions to Bidders, and the undersigned agrees that, in case he shall fail to fulfill his obligations under the foregoing Proposal and agreement, the City may, at its option, determine that the undersigned has abandoned his rights and interests in such Proposal and that the certified check or bidder's bond accompanying his proposal has been forfeited to the City; but otherwise, the Certified check or bidder's bond shall be returned to the undersigned upon the rejection of his Proposal.

Disclosure: Asphalt, concrete or other material(s) requiring removal from the job site will be disposed of at: _____
 (address of disposal site*)

Name & Address of _____

Disposal Site Owner _____

*Attach separate Sheet(s) for multiple disposal sites.

BASE BID BREAKDOWN

The bidder shall list the required price information below. Base Bid and Contingency Allowance must equal Total Maximum Contract below.

Base Bid Items	Amount
1. General Conditions	\$
2. Demolition and Disposal	\$
3. ACRM Removal Requirements	\$
4. Roofing Materials and Labor	\$
5. Insulation Materials and Labor	\$
6. Cover Board Materials and Labor	\$
7. Sheet Metal Materials and Labor	\$
8 Contingency Allowance	\$ 6,500
TOTAL BASE BID	\$

Quantities and Unit Prices

(See Section 01 21 06, Contingency Allowance, and the Unit Price Cost Data table below)

UNIT PRICE COST DATA

Description of Cost Item	Unit Price
Cleaning and coating of minor steel deck corrosion	\$ /sf
Install 18 ga. flat stock steel over holes in deck less than 12" diam.	\$ /sf
Clean, coat and overlay deteriorated steel roof deck	\$ /sf
Remove and replace deteriorated roof deck (2 span minimum)	\$ /sf
Provide and install 2 x 12 lumber over stone coping	\$ /lf
Replacement of damaged roof drain	\$ /ea
	\$

The City of Portage Project Information Sheet included immediately after this Proposal Form must be completed and submitted with the Bid Form

BIDDER FIRM: _____

BY: _____
Signature

DATE: _____

BY: _____
Print or Type

POSITION: _____

ADDRESS: _____

PHONE: _____ FAX: _____

CITY OF PORTAGE PROJECT INFORMATION SHEET

If adequate space is not provided for complete response, please attach additional pages as necessary and identify by number. Proposals will not be considered responsive unless all requests for information are provided. Please use such terms as none, not applicable, unknown, etc., if requested information does not pertain or cannot be provided.

Please indicate the response that best describes your business:

1. Sole Proprietor Partnership Corporation
 Other (please explain) _____

2. Firm Name: _____
Address: _____
Telephone Number: _____ Fax: _____

3. First Date in Business: _____

4. Is your Firm involved in any proceedings that may affect the ability of the Firm to continue under the current Firm name for the duration of the project?
 Yes No

If yes, please explain (use additional Page)

5. Is your Firm up for sale? Yes No

If yes, please explain (use additional page).

6. Primary staff to be assigned to the project:

Owner/Partner: _____

Project Supervisor: _____

Other Significant Employees to be Assigned:

7. References: Please indicate three references for work similar to the Portage project. Please restrict projects listed to those projects performed by the individuals identified for the Portage project. Under the Self-Evaluation Section, please rate how you believe the contact person in charge of the project would rate services if they were contacted by the City of Portage and asked to rate overall satisfaction with the services provided by your Firm. Please restrict your Self-Evaluation responses to the terms Excellent, Good, Satisfactory, and Unsatisfactory.

<u>Name</u> <u>Company</u>	<u>Project</u> <u>Contact</u> <u>Person</u>	<u>Phone</u>	<u>Construction</u> <u>Cost</u>	<u>Self</u> <u>Evaluation</u>
-------------------------------	---	--------------	------------------------------------	----------------------------------

A.

B.

C.

8. Examples of Similar Projects

Contractor to provide five (5) examples of similar projects to the Portage Fire Station No. 2 project that were successfully completed by the Contractor. Attach descriptions of example projects to this City of Portage Project Information Sheet and submit with proposal.

Submitted proposals that do not have the required references, roofing manufacturer certified installer information, experience description, and example project descriptions will be considered “non-responsive” and may be disqualified.

9. Subcontractors

Do you propose to use any subcontractors to perform work in accordance with this proposal? Yes No. (If yes, please identify subcontractor and work to be performed.

10. Certification

A. Roofing System Manufacturer Certification is required.

B. Manufacturer: _____ Certified: YES NO
(Check One)

C. If not Certified, please provide an explanation below.

I certify that all information provided above is complete, accurate, and to the best of my knowledge, true. I further certify that I am fully authorized by the Firm identified in Question 2 above to execute this information sheet on behalf of that Firm.

I hereby state that I have read, understand, and agree to be bound by all terms of this Request for Proposal Document.

FIRM: _____

BY: _____
(Signature)

NAME: _____
(Please Print)

POSITION: _____

TELEPHONE: _____

CITY OF PORTAGE

CONTRACT

THIS CONTRACT made the _____ day of _____, 2014, by and between _____, hereinafter called the “Contractor,” and the City of Portage, 7900 South Westnedge Avenue, Portage, Michigan 49002, hereinafter called the “City.”

WITNESSETH, THAT the Contractor and the City for the consideration stated herein agree as follows:

ARTICLE I - SCOPE OF WORK

The Contractor shall perform everything to be performed and shall provide and furnish all of the labor, materials, necessary tools, expendable equipment, and all utility and transportation services required to perform and complete in a workmanlike manner all the work required for the Portage Fire Station No. 2 Partial Roof Replacement Project, all in strict accordance with the Plans and Specifications, including any and all addenda, which plans and specifications are made a part of this contract, and in strict compliance with the Contractor’s proposal and other contract documents herein mentioned which are a part of this contract; and the Contractor shall do everything required by this contract and the other documents constituting a part hereof.

ARTICLE II - COMPENSATION TO BE PAID TO THE CONTRACTOR

In consideration of the completion of the work described herein and in fulfillment of all stipulations of this contract to the satisfaction and acceptance of the City, the City shall pay and the said Contractor further agrees to receive and accept payment based on the prices bid per unit for material and labor as set forth in the conformed copy of the Contractor’s proposal (or bid) as filed with the City on the _____ day of _____, 2014, the sum of which shall be,

_____	\$ _____
(amount in words)	(in figures)

as full compensation for furnishing all the equipment and materials, and for the costs of all premiums on insurance and bonds and for doing all the work contemplated and specified in this contract; also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same; and for all risks of every description connected with the work; and for well and faithfully completing the work and the whole thereof, in full compliance with the Plans and Specifications and the requirements under them. Payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the contract documents hereto attached.

ARTICLE III - COMPONENT PARTS OF THIS CONTRACT

This contract consists of the following component parts, all of which are as fully a part of this contract as if herein set out verbatim, or, if not attached, as if hereto attached.

- 1. Contract (this document)
- 2. City of Portage Contract Conditions and Specifications
- 3. Contractor's Proposal (or bid)
- 4. Advertisement for Bids
- 5. Instructions to Bidders
- 6. Specifications
- 7. Plans

In the event that any provision in any of the above component parts of this contract conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically, except as may be otherwise specifically stated.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed in four original counterparts the day and year first above written.

(SEAL)

CONTRACTOR

Attest:

By: _____
Signature

Print name and Title

Print Name and Title

(SEAL)

CITY OF PORTAGE

Attest:

By: _____
Maurice S. Evans, City Manager

Approved as to Form:

Randall L. Brown, Portage City Attorney

INSTRUCTIONS FOR EXECUTING CONTRACT WITH CITY OF PORTAGE

A. If the contractor is a corporation, the following certificate must be executed:

I, _____, certify that I am the Secretary of
print or type name
the corporate entity named as Contractor in the contract and that such corporate entity is a
corporation in good standing in the State of _____ and has authority
print or type name of state
to transact business in the State of Michigan. [If the corporation is not a Michigan corporation,
then a "Certificate of Authority to Transact Business in the State of Michigan" must be attached.]
I certify that the contract between the City of Portage and _____,
Inc.
print or type name of corporation
was validly executed on behalf of the corporation by _____
print or type name
who was then the _____ of said corporation and has the
print or type name of title
authority to bind the corporation to the contractual agreements pursuant to the authority of its
governing body and by-laws and is within the scope of its corporate powers.

Print or type name of corporation

Dated: _____, 2014

By: _____
Its: _____

B. If contractor is an LLC, the following certificate must be executed:

I, _____, certify that I am a member of the
print or type name
Limited liability company named as Contractor in the contract and that such LLC is in good
standing in the State of _____ and that the LLC has the
print or type name of state
authority to transact business in the State of Michigan. [If the LLC is not a Michigan LLC, then
a "Certificate of Authority to Transact Business in the State of Michigan" must be attached.] I
certify that the contract between the City of Portage and
_____ LLC
print or type name of LLC
was validly executed on behalf of the LLC by _____
print or type name
who was then a member of said LLC and has the authority to bind the LLC to contractual
agreements and that such contract is within the scope of its powers.

Print or type name of LLC

Dated: _____, 2014

By: _____
Its: _____

C. If the contractor is a sole proprietorship/partnership, the following certificate must be executed:

I, _____, certify that I am the
owner/partner of the company named as Contractor in the contract and that I have the authority to
bind _____, to
contractual _____, to
agreements. _____

print or type name

print or type name of business (insert d/b/a if one exists)

Print or type name of company/DBA

Dated: _____, 2014

By: _____

Its: _____

Notes to Certificate:

1. The full name and business address of the Contractor must be inserted in the contract and the contract must be signed with his/her official signature. The name of the signing party or parties are to be typewritten or printed under all signatures of the contract.
2. If the contract is signed by the secretary of the corporation, the above certificate must be executed by some other officer of the corporation, under the corporate seal. In lieu of the foregoing certificate, there may be attached to the contract copies of so much of the records of the corporation and will show the official character and authority of the officers signing, duly certified by the secretary or assistant secretary under the corporate seal to be true copies.
3. If the Contractor is operating as a partnership, each partner must sign the contract, or if not signed by each partner, there must be attached to the contract a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such contract and on behalf of the partnership.
4. If the Contractor is an individual, the trade name (if the Contractor is operating under a trade name) must be indicated in the contract and the contract must be signed by such individual. If signed by someone other than the Contractor, there must be attached to the contract a duly authenticated power of attorney evidencing the signer's authority to execute such contract for and in behalf of the Contractor.
5. If an LLC, the contract must be signed by a member of the LLC. If signed by someone other than the member, there must be attached to the contract the duly authenticated power of attorney evidencing the signer's authority to execute such contract for and on behalf of the contractor.

CITY OF PORTAGE

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____,
hereinafter called the Principal, and _____, hereinafter called the
Surety, are held and firmly bound unto CITY OF PORTAGE, 7900 South Westnedge Avenue,
Portage, Michigan 49002, in the sum of _____ Dollars
(\$_____) lawful money of the United States of America, to the Payment whereof, well and
truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns,
jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, _____.

WHEREAS, the above named Principal has entered into a certain contract with the CITY
OF PORTAGE dated the _____ day of _____, _____ (hereinafter called the
“Contract”) for _____ (**name of project**), which contract and
specifications for said work shall be deemed a part hereof as fully if set out herein.

AND WHEREAS, this bond given in compliance with and subject to the provisions of
Act No. 213 of the Public Acts of Michigan, for the year 1963.

NOW, THEREFORE, the condition of this obligation is such that if payment shall be
made by the Principal to any Subcontractor or by him or any Subcontracts as the same may
become due and payable of all indebtedness which may arise from him to a Subcontractor or a
party performing labor or furnishing materials or supplies, or any Subcontractor to any person,
firm, or corporation on account of any labor performed or materials or supplies furnished in the
performance of said contract, then this obligation shall be void, otherwise the same shall be in
full force and effect.

AND PROVIDED, that any alterations which may be made in the terms of said contract, or in the work to be done under it, or the giving by the party of the first part to said contract any extension of time for the performance of said contract or any other forbearance on the part of either party to the other, shall not in any way release the Principal and the Surety or either of them, their heirs, executors, administrators, successors or assigns from any liability hereunder, notice to the Surety of any such alterations, extensions of time or of any forbearance being hereby waived.

IN WITNESS THEREOF, the parties thereto have caused this instrument to be executed by their respective authorized officers this _____ day of _____, _____.

Signed, sealed, and delivered in _____ : PRINCIPAL:
the presence of:

Its: _____

SURETY:

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, THAT _____

Contractors, as principal and _____,

as surety, are held and firmly bound unto the _____

in the sum of _____

Dollars (\$ _____) to be paid to the City for which payment well and truly to be made we, jointly and severally bind ourselves, our heirs, executors, administrators, and assigns firmly by the presents.

THE CONDITIONS OF THE ABOVE OBLIGATIONS ARE SUCH THAT, WHEREAS, the said

_____ did, on the _____ day of _____, 2014

enter into contract with the City for the _____.

NOW, THEREFORE, if said Contractor shall save and hold harmless the said CITY from all public liability and damages of every description in connection therewith, shall well and faithfully in all things fulfill the said contract according to all the conditions and stipulations therein contained in all respects, and shall save and hold harmless the said CITY from and against all liens and claims of every description in connection therewith, then this obligation shall be void and of no effect; but otherwise it shall remain in full force and virtue, and, in the event that said CITY shall extend the time for completion of said work or otherwise modify elements of the contract in accordance with provisions thereof, such extension of item or modification of the contract shall not in any way release the sureties of this bond.

WITNESS our hands and seal this _____ day of _____, 2014.

WITNESSES:

_____ (Seal)

Principal

_____ (Seal)

Surety

MAINTENANCE AND GUARANTEE BOND

KNOW ALL MEN BY THESE PRESENTS, that _____
_____, Contractor, as principal and
_____, as surety are held and firmly
bound unto the City of Portage, Michigan, 7900 South Westnedge Avenue, Portage, Michigan
49002, hereinafter known as the City, in the sum of _____
Dollars (\$) _____) to be paid to said City, its legal
representatives and assigns, for which payment well and truly be made, we bind ourselves, our
heirs, executors, administrators, successors and assigns, and each and every one of them jointly,
firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 2014.

WHEREAS, the above named Principal has entered into a certain contract with the City
of Portage, Michigan, dated this _____ day of _____,
20____ wherein the said principal covenanted and agreed as follows, to wit:

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that by
and under said contract, the above named principal has agreed with the City that for a period of
two (2) years from the date of payment of Final Estimate, to keep in good order and repair any
defect in all the work done under said contract wither by the principal or his subcontractors, or
his material supplies, that may develop during said period due to improper materials, defective
equipment, workmanship or arrangements, and any other work affected in making good such
imperfections, shall also be made good all without the consent or approval of the principal after
the final acceptance of the work, and that whenever directed to do so by the City, by notice
served in writing, either personally or by mail, on the principal at

_____ or _____
—

_____ legal representatives, or successors, or on the surety at

WILL PROCEED at once to make such repairs as directed by said City and in case of failure to
do so within one week from the date of service of such notice, or within reasonable time not less
than one week, as shall be fixed in said notice, then the said City shall have the right to purchase
such materials and employ such labor and equipment as may be necessary for the purpose, and to
undertake, do and make such repairs and charge the expense thereof to, and receive same, from
said principal or surety.

Maintenance and Guarantee Bond

If any repair is necessary to be made at once to protect life and property, then and in that case, the said City may take immediate steps to repair or barricade such defects without notice to the Contractor. In such accounting the said City shall not be held to obtain the lowest figures for the doing of the work, or any part thereof, but all sums actual paid therefore shall be charged to the principal surety. In this connection the judgement of the said City is Final and conclusive. If the said principal for a period of two (2) years from the date of payment of Final Estimated, shall keep said work so constructed under said contract in good order and repair, excepting only such part or parts of said work which may have been disturbed without the consent or approval of said principal after the final acceptance of the same, and shall whenever notice is given as hereinbefore specified, at once proceed to make repair as in said notice directed, or shall reimburse the City for any expense incurred by making such repairs, should the principal or surety fail to do as hereinbefore specified, and shall fully indemnify, defend and save harmless the said City from all suits and actions for damages of every name and description brought or claimed against it for or on account of any injury or damage to person or property received or sustained by any party or parties, by or from any of the acts or omissions or through negligence of said principal, servants, agents, or employees in the prosecution of the work included in said contract, and from any and all claims arising under the Worker's Compensation Act, so-called, of the State of Michigan, then the above obligation shall be void, otherwise too remain in full force and effect.

IN WITNESS THEREOF, the parties hereto have caused this instrument to be executed by their respective authorized officers this _____ day of _____, 2014.

Signed, sealed, and Delivered
in the Presence of:

_____ (Seal)

Principal

_____ (Seal)

Surety

SECTION 00 31 26

EXISTING HAZARDOUS MATERIALS INFORMATION

1.0 AVAILABLE DOCUMENTATION

The following information is being provided regarding asbestos testing of existing roofing materials.

2.0 ASBESTOS SAMPLING AND ANALYSIS RESULTS

See information on the following pages.

Existing Hazardous Materials Information
 Partial Roof Replacement
 Portage Fire Station No. 2, Portage, Michigan



International Asbestos
 Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
 Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client:	Soil & Materials Engineers Inc. 43980 Plymouth Oaks Road Plymouth MI 48170	Report Date:	9/3/2014
		Report No.:	344106
		Project:	Portage Fire Station No 2
		Project No.:	070629.00

BULK SAMPLE ANALYSIS SUMMARY

Lab No.:	5415196	Description / Location:	Black/Silver Roof Material Built-Up Roofing, SW Quadrant Of Low Roof	
Client No.:	TC-1			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	5 Trace	Fibrous Glass Synthetic	95
Lab No.:	5415196	Description / Location:	Black Tar Built-Up Roofing, SW Quadrant Of Low Roof	Layer No.: 2
Client No.:	TC-1			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	None Detected	None Detected	100
Lab No.:	5415196	Description / Location:	Black Roof Material Built-Up Roofing, SW Quadrant Of Low Roof	Layer No.: 3
Client No.:	TC-1			
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>
None Detected	None Detected	15	Cellulose	85

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188
This confidential report relates only to those item(s) listed and does not represent an endorsement by NIST-NVLAP, AIHA or any agency of the U.S. government.
 This report shall not be reproduced except in full, without written approval of the laboratory.

Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

Comments: Quantification at ±0.25% by volume is possible with this method. (FC) Indicates Stratified Point Count Method performed. (FC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (see analysis until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, TEM is not considered a reliable method in detecting asbestos in non-fibrous organically bound (NCE) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can precisely measure materials as non-asbestos containing.

Analysis Performed By: R. McQuiggan

Approved By:

Date: 9/3/2014

Frank E. Ehrenfeld, III
 Laboratory Director

**Existing Hazardous Materials Information
 Partial Roof Replacement
 Portage Fire Station No. 2, Portage, Michigan**



International Asbestos
 Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
 Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client:	Soil & Materials Engineers Inc. 43980 Plymouth Oaks Road Plymouth MI 48170	Report Date:	9/3/2014
		Report No.:	344106
		Project:	Portage Fire Station No 2
		Project No.:	070629.00

BULK SAMPLE ANALYSIS SUMMARY

Lab No.:	5415197	Description / Location:	Black/Silver Roof Material
Client No.:	TC-2		Built-Up Roofing, 20' N Of TC-1
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type
None Detected	None Detected	5	Fibrous Glass
		Trace	Synthetic
			% Non-Fibrous Material
			95

Lab No.:	5415197	Description / Location:	Black Tar	Layer No.:	2
Client No.:	TC-2		Built-Up Roofing, 20' N Of TC-1		
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material	
None Detected	None Detected	None Detected	None Detected	100	

Lab No.:	5415197	Description / Location:	Black Roof Material	Layer No.:	3
Client No.:	TC-2		Built-Up Roofing, 20' N Of TC-1		
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material	
None Detected	None Detected	15	Cellulose	85	

Lab No.:	5415197	Description / Location:	Black Tar	Layer No.:	4
Client No.:	TC-2		Built-Up Roofing, 20' N Of TC-1		
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material	
None Detected	None Detected	Trace	Synthetic	100	

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

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Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: R. McQuiggan

Date: 9/3/2014

**Existing Hazardous Materials Information
 Partial Roof Replacement
 Portage Fire Station No. 2, Portage, Michigan**



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 Testing Laboratories

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 Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client:	Soil & Materials Engineers Inc. 43980 Plymouth Oaks Road Plymouth MI 48170	Report Date:	9/3/2014
		Report No.:	344106
		Project:	Portage Fire Station No 2
		Project No.:	070629.00

BULK SAMPLE ANALYSIS SUMMARY

Lab No.:	5415197E	Description / Location:	Black Roof Material
Client No.:	TC-2		Built-Up Roofing, 20'N Of TC-1
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	15	Cellulose
			<u>% Non-Fibrous Material</u>
			85

Lab No.:	5415198	Description / Location:	Black/Silver Roof Material
Client No.:	TC-3		Built-Up Roofing, 40' West Of TC-1
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	5	Fibrous Glass
		3	Synthetic
			<u>% Non-Fibrous Material</u>
			92

Lab No.:	5415198	Description / Location:	Black Tar	Layer No.:	2
Client No.:	TC-3		Built-Up Roofing, 40' West Of TC-1		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>	
None Detected	None Detected	None Detected	None Detected	100	

Lab No.:	5415198	Description / Location:	Black Roof Material	Layer No.:	3
Client No.:	TC-3		Built-Up Roofing, 40' West Of TC-1		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>	
None Detected	None Detected	15	Cellulose	85	

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

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Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: R. McQuiggan

Date: 9/3/2014

**Existing Hazardous Materials Information
Partial Roof Replacement
Portage Fire Station No. 2, Portage, Michigan**



International Asbestos
Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client:	Soil & Materials Engineers Inc. 43980 Plymouth Oaks Road Plymouth MI 48170	Report Date:	9/3/2014
		Report No.:	344106
		Project:	Portage Fire Station No 2
		Project No.:	070629.00

BULK SAMPLE ANALYSIS SUMMARY

Lab No.:	5415199	Description / Location:	Black/Silver Roof Material Baseflashing, 6' West Of NE Corner
Client No.:	BF-1		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	25	Synthetic
			<u>% Non-Fibrous Material</u>
			75

Lab No.:	5415199	Description / Location:	Black Tar Baseflashing, 6' West Of NE Corner	Layer No.:	2
Client No.:	BF-1				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>	
None Detected	None Detected	None Detected	None Detected	100	

Lab No.:	5415200	Description / Location:	Black Roof Material Baseflashing, 6' East Of West Roof Drain
Client No.:	BF-2		
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>
None Detected	None Detected	25	Synthetic
			<u>% Non-Fibrous Material</u>
			75

Lab No.:	5415200	Description / Location:	Black Tar/Roof Material Baseflashing, 6' East Of West Roof Drain	Layer No.:	2
Client No.:	BF-2				
<u>% Asbestos</u>	<u>Type</u>	<u>% Non-Asbestos Fibrous Material</u>	<u>Type</u>	<u>% Non-Fibrous Material</u>	
PC 2.3	Chrysotile	None Detected	None Detected	PC 97.7	

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188

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Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: R. McQuiggan

Date: 9/3/2014

**Existing Hazardous Materials Information
 Partial Roof Replacement
 Portage Fire Station No. 2, Portage, Michigan**



International Asbestos
 Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
 Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client:	Soil & Materials Engineers Inc. 43980 Plymouth Oaks Road Plymouth MI 48170	Report Date:	9/3/2014
		Report No.:	344106
		Project:	Portage Fire Station No 2
		Project No.:	070629.00

BULK SAMPLE ANALYSIS SUMMARY

Lab No.:	5415201	Description / Location:	Black/Silver Roof Material
Client No.:	BF-3		Baseflashing,Center Of West Parapet Wall
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type
None Detected	None Detected	25	Synthetic
			% Non-Fibrous Material
			75

Lab No.:	5415201	Description / Location:	Black Tar	Layer No.:	2
Client No.:	BF-3		Baseflashing,Center Of West Parapet Wall		
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material	
None Detected	None Detected	None Detected	None Detected	100	

Lab No.:	5415201	Description / Location:	Black Roof Material	Layer No.:	3
Client No.:	BF-3		Baseflashing,Center Of West Parapet Wall		
% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material	
PC 6.2	Chrysotile	None Detected	None Detected	PC 93.8	

Accreditations: NIST-NVLAP No. 101165-0 NY-DOH No. 11021 AIHA-LAP, LLC No. 100188
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Analytical Method: US EPA 600/R-93/116 by Polarized Light Microscopy, (ELAP 198.1 where applicable)

Comments: Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analysis Performed By: R. McQuiggan

Date: 9/3/2014

**Existing Hazardous Materials Information
 Partial Roof Replacement
 Portage Fire Station No. 2, Portage, Michigan**



9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
 Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody
 -Bulk Asbestos-

Contact Information	
Client Company: Soil and Materials Engineers, Inc.	Project Number: 070629.00
Office Address: 43980 Plymouth Oaks Blvd.	Project Name: Portage Fire Station No. 2
City, State, Zip: Plymouth, MI 48170	Primary Contact: Ron Pelkie
Fax Number: 734-454-0629	Office Phone: 734-454-9900
Email Address: pelkie@sme-usa.com	Cell Phone: 734-637-0097

PLM Instructions:

PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
 PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
 PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
 PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
 PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
 TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

PLM: Point Counting
 PC: via ELAP 198.1
 PC: 400 Points
 PC: 800 Points *
 PC: 1600 Points *

PLM: Instructions for Multi-Layered Samples
 Analyze and Report All Separable Layers per EPA 600
 Report Composite for Drywall Systems per NESHAP
 Report All Layers and Composite Where Applicable
 Only Analyze and Report Specifically Noted Layer

PLM: Analyze Until Positive (Positive Stop)
 AUP: by Homogenous Area as Noted
 AUP: by Material Type as Noted
 PLM: NOB via 198.6
 PLM: Friable via EPA 600 2.3
 If <1% by PLM, to TEM via 198.4 *
 If <1% by PLM, Hold for Instructions

PLM: Non-Building Material*** (Dust, Wipe, Tape)
 Soil or Vermiculite Analysis
 CARB 435

Special Instructions: _____

* Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

E-MAILED
[Handwritten Signature]

Turnaround Time

Preliminary Results Requested Date: _____ Verbal Email Fax

Specific date / time
 10 Day 5 Day 3 Day 2 Day 1 Day* 12 Hour** 6 Hour** RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization): Ron Pelkie, Soil and Materials Engineers, Inc.	Date: August 26, 2014	Time: 4:00 PM EST
Received (Name / iATL): _____	Date: _____	Time: _____
Sample Login (Name / iATL): <i>RM 5131M</i>	Date: <i>9/2/14</i>	Time: _____
Analysis(Name(s) / iATL): _____	Date: <i>9-3-14</i>	Time: _____
QA/QC Review (Name / iATL): _____	Date: _____	Time: _____
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Ronald L. Pelkie
 8/26/2014 -1-

END OF SECTION 00 31 26

SECTION 01 00 00

GENERAL REQUIREMENTS

1. USE OF PREMISES

The Contractor expressly undertakes at its own expense:

- A. To take every precaution against injuries to persons or damages to property. The Contractor shall exercise due care to avoid damaging paving, landscaping features, and the building exterior.
- B. 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.
- C. 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 any subcontractors, and to minimize disruption of site traffic, and access to the building.

2. CONTRACTOR'S SUPERINTENDENT

- A. The Contractor shall 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 shall be in charge of the Work at all times, shall be provided with such assistance as is necessary to properly carry on the individual branches of the Work, and shall maintain competent supervision of the Contractor's own Work, and that of its subcontractors, to ensure compliance with the Contract requirements.
- C. The Contractor shall 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 shall be solely responsible for construction means, methods, techniques, sequence and procedures, and for coordinating all portions of the Work under the Contract.
- E. The Contractor shall be 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.

3. CUTTING AND PATCHING

- A. The Contractor shall do cutting, fitting or patching that may be required to make the various parts of the Work come together properly.
- B. Any cost caused by defective or ill-timed work shall be borne by the Contractor.
- C. The Contractor shall not endanger any work by cutting or otherwise, and shall not cut or alter the work of any other contractor, except with the written consent of the Owner.

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4. CLEANING

- A. The Contractor shall 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, the Contractor shall remove rubbish, tools, equipment, temporary work, and surplus materials from and about the premises, and shall 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. All rubbish and debris shall be disposed of off the Owner's property in an approved landfill site. No open burning of debris or rubbish will be permitted. The jobsite shall be left 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, the Contractor shall 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 all 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 of, or removal of, protective measures.
 - 5. Cleaning by washing soiled pavements and building walls where necessary.
- E. The Contractor's employees shall at no time wear dirty work boots, gloves or clothing into the building, except across temporary protective surfaces, or as required in the case of an emergency. Contractor shall clean stains resulting from dirty boots or clothing from the interior and exterior of the building.

5. TEMPORARY ELECTRICAL SERVICE

- A. The Contractor shall provide and maintain any temporary electrical service required for the Work. At the completion of the Work, all such temporary electrical facilities shall be removed and disposed of by the Contractor.

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- B. Temporary service shall comply with the regulations and requirements of the National Electrical Code and any local rules and regulations governing temporary electrical installation.
- C. Electrical power is available at the site. However, the Contractor shall obtain the Owner's approval prior to using on site electrical service.

6. TEMPORARY TELEPHONE SERVICE

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

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 shall be responsible for water damage to the building that may result from their use of water for dust control. There shall 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. Methods of conveying this water shall be approved by the Owner's Representative and shall not interfere with the operations of the facility.
- D. At the completion of the Work, such methods of conveying water shall be removed.

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 all drinking cups, or plastic bottles and other containers brought to the site by the Contractor's employees.
- E. The Contractor shall provide necessary temporary sanitary facilities. Use of Owner's facilities will not be permitted. The location of temporary sanitary facilities shall be approved by the Owner prior to site delivery.

9. CONTRACTOR'S MEASUREMENTS

Before ordering material, preparing Shop Drawings, or doing any work, the Contractor and each Subcontractor shall perform field measurements at the building to verify dimensions which may affect the Work. The Contractor assumes full responsibility for the accuracy of field

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measurements. No allowance for additional compensation will be considered for discrepancies between dimensions on the Drawings and actual field dimensions.

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 in any way to superintend so as to relieve the Contractor of responsibility for any consequences of neglect, carelessness, or poor workmanship.

11. PROGRESS MEETINGS

A. Based on the size of this project, progress meetings are not anticipated.

12. WORK SCHEDULE

Before the signing of the Contract, a definite time schedule shall be agreed upon in general by all parties concerned. The Contractor shall submit to the Owner a schedule of operations 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.

13. LAYING OUT THE WORK

The Contractor shall lay out Work in accordance with existing ordinances, clearances and conditions and establish all equipment locations.

14. CONTINUITY OF SERVICES

- A. Continuity of existing services in the building shall be maintained throughout the construction period. Where it is necessary to tie into the existing electrical service, water or waste systems, it shall be done as directed by the Owner. The Contractor shall also 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, the Contractor shall coordinate with the Owner for their preferred Electrical and HVAC service providers.
- C. If power lines exist in the Work Zone, the Contractor shall coordinate with the appropriate utility company for shielding/insulating the affected power transmission or feeder lines.

15. GLASS PROTECTION

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

16. FIRE PREVENTION

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

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- Combustible debris shall be removed from the building and storage areas on a daily basis, including empty paint, adhesive and primer containers, oily rags, etc.
 - Tarpaulins or other covers for stored materials, openings in walls, etc. shall be flameproof.
 - Paints, thinners, adhesives, primers or other highly flammable materials shall be stored only in well-ventilated areas, and all mixing and preparation shall be restricted to such areas. All such materials shall be handled in accordance with safe practice and the requirements of authorities having jurisdiction, and in no case shall empty containers, or oily or paint soaked rags be left in the building at end of a shift. The Contractor shall follow all the Owner's fire prevention requirements for storage of flammable materials at the site.
 - Insofar as possible, avoid storage of large quantities of flammable materials at the site.
 - No open fires on the site.
 - Gasoline may not be stored in any building at any stage of construction.
- 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. Each station shall be located 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 the extinguishers shall be enclosed in a heated cabinet. Check units frequently to maintain in a serviceable condition. Current Inspection and Certification tags shall be affixed to all Contractor provided fire extinguishers located at the site.

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. Welding, insofar as possible, shall be done 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.

18. SMOKING

There shall be no smoking on the Portage Fire Station No. 2 Property. The Contractor shall be responsible for the conduct of the Contractor's employees relative to this smoking restriction.

19. USE OF SYSTEM

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

**General Requirements
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20. STANDARD SPECIFICATIONS

- A. Code Listing: Any reference to standards of any society, institute, association, or governmental agency which is part of the Building Code in effect for this project, shall 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: Any reference to standards of any society, institute, association, or governmental agency which is not part of the Building Code for this project shall be the edition in effect at the time of opening of bids, except as otherwise specifically stated in this Project Manual.

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, and the Contractor shall 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 shall 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 shall 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 all 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 all 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 shall pay for the tests, shall remove work and materials so failing to conform, and replace it with work and materials which are in full conformity.

22. SUBMITTALS

- A. Product data, scheduling/logistics, and general information submittals required by the Specifications shall be submitted in electronic form, including the specific data listed in individual Specification Sections.
- B. Each sample shall be clearly identified 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. Each submittal shall be covered by a transmittal letter, properly identified with the project title and number and a brief description of the item being submitted.

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- D. Contractor shall be responsible for the costs of packing, shipping and incidental expenses connected with delivery of any 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 shall be replaced with satisfactory materials at the Contractor's expense.

23. PARKING

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

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, the accident shall be reported immediately by telephone or messenger to the Owner's Representative and Consultant.
- B. If any claim is made by anyone against the Contractor or any Subcontractor on account of any accident, promptly report the facts in writing to the Owner's Representative and the Consultant giving full detail of the claim.

25. PROJECT SAFETY

- A. Contractor shall 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 any Occupational Safety and Health Act.
- B. The requirements outlined hereinafter are to be considered as minimal, and where the requirements of any of the above authorities having jurisdiction conflict with the requirements of this section, the maximum condition shall prevail.
- C. Any items damaged due to failure to comply with these requirements shall 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 any protective measures indicated in specific sections of the Work. See Item 2, E. of this Section.
- 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.

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26. OWNER-OCCUPIED AREAS

On projects where the Owner continues to occupy the building during alteration work, the Contractor shall 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.

27. FORM OF GUARANTEE

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

28. COMPLIANCE WITH CODES AND REGULATIONS

The entire work shall be carried out in full compliance with 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. All permits and associated fees shall be the responsibility of the Contractor to apply for and pay for.

END OF SECTION 01 00 00

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 work includes labor, materials, equipment, and administration necessary to integrate a new single-ply EPDM roofing into the total building envelope at the Portage Fire Station No. 2, in Portage, Michigan. Base Bid Work includes, but is not limited to, the following tasks on Low Roof and Hose Tower Roof as shown on the Roof Plan.
 - 1. Removal of the superimposed bituminous roofing, flashings and sheet metal down to the roof deck and flashing substrates in the areas indicated on the project drawings, and delineated at the time of the Pre-Bid Meeting.
 - a) Baseflashings contain asbestos and shall be removed by hand methods.
 - 2. Existing embedded copper flashings in the fluted masonry wall are to remain.
 - 3. Replacement or repair of deteriorated wood nailers identified during the demolition process.
 - 4. Replacement or repair of deteriorated steel roof deck identified during the demolition process.
 - 5. Addition of new nailers on exhaust fan curbs as required to achieve a minimum 8-inch flashing height.
 - 6. Installation of specified flat stock insulation.
 - 7. Installation of new 1/2-inch per foot tapered saddles on the down slope side of the low roof to enhance drainage.
 - 8. Installation of new high density polyisocyanurate cover board and 60-mil EPDM roofing, including all flashings and accessories required for a complete, watertight roofing system.
 - 9. Installation of sheet metal flashings as shown on the detail drawings.
 - 10. Clean up the job site, and restore damaged building components, pavements and landscaping to pre-project conditions.

Summary of Work
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1.3 BACKGROUND INFORMATION

- A. The total area of the work is approximately 3,000 square feet.
- B. Three roof test cores were performed on the roof. All three test cores consisted of the same roof composition as listed below, but with variances in the insulation thicknesses.

Test Core Nos. 1 - 3:

- 2-Ply modified bitumen roofing with aluminum coating
- 1" thick perlite insulation
- 1-1/2" thick polyisocyanurate insulation
- 1/2" thick layer of slag aggregate in a bituminous flood coat
- 4-Ply hot mopped coal tar pitch roofing membrane
- 2" thick perlite insulation
- Steel roof deck

- C. All three roof test-cores were dry.
- D. This information is provided for informational purposes only.

1.4 WORK SEQUENCE

- A. Work Sequence: Conduct the Project in a manner that will not disrupt the normal usage of the fire station.
- B. Roofing shall be closely coordinated with sheet metal work and other construction to ensure each day's work is watertight at the end of the work day.
- C. All temporary tie-ins must be made watertight each time a tie-in is created. The Contractor shall be 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.

1.5 WORK BY OWNER

- A. 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 shall be coordinated with Owner's maintenance staff.
 - 1. Contractors are not authorized to impair any services without written authorizations and advance coordination and scheduling.
 - 2. Contractor shall anticipate service interruption and restoration as needed based on the pre-bid walk through, and include pricing for electrical or HVAC subcontractors to disconnect and reconnect affected units. The contractor shall not rely on the Owner's electricians and HVAC mechanics unless expressly indicated by the Owner.

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PART 2 - PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 11 13

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 City of Portage “Notice to Bidders” and “Contract and Bond Forms”, and Section 01 00 00, General Requirements, which also contains 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 in any way as consequence of use.
- C. Where construction traffic must occur on the roof, the Contractor shall provide temporary protection. See Specification Section 07 53 23, Subparagraph 1.8, B. for specific roof protection requirements. Protection is required for both existing and new roofing systems. The Contractor shall be liable for all 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. Roofing operations shall not be conducted when winds can disturb materials. Incomplete work and stored materials shall be protected by providing suitable ballast to prevent blow off by wind.
- E. Removed materials shall not be thrown from the roof. Chutes or appropriate devices or equipment shall be employed to convey debris to proper containers.
- F. The Contractor shall clean out roof drains and conductors prior to start of work and maintain and protect them throughout the course of the Work. Roof drains shall not be left in a temporary condition at any time. Drain clamping rings are to be reinstalled the same day the roofing membrane is installed at each drain location.

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PART 2 - PRODUCTS

2.1 MATERIALS OF TEMPORARY FACILITIES AND ENCLOSURES

- A. Provide either new or used materials and equipment which are 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: Tarpaulins shall be 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 (and reduce need for temporary lighting).
- D. The Contractor shall provide two rolls of translucent type tarpaulins specified above, which shall 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: Plywood shall be 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. The Contractor shall review the ground level site conditions to document pre-project conditions for the purpose of determining damaged caused by the roofing replacement project. Photographs of proposed staging and storage area, and equipment and truck travel routes shall be submitted to the Owner and Consultant prior to starting construction.
 - 2. Asphalt paved surfaces and concrete sidewalks shall be protected with steel plates or plywood against spillage of adhesives or breakage due to construction traffic associated with materials storage and staging. Stained or broken pavement and sidewalks resulting from roofing operations shall be cleaned, repaired or replaced by the Contractor at no additional cost to the Owner.

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3. As much as possible, grassy landscaped surfaces, shrubs and trees shall be protected with plywood sheathing to minimize damages. Landscaping shall be returned to the original condition at the close of the project.
4. Site irrigation shall be marked by the Owner's Representative prior to project start up. Irrigation zones affecting materials storage and staging shall be turned off. The Contractor shall be responsible for protecting existing irrigation lines and sprinkler heads from construction activities. All damages to the irrigation system as a result of roofing activities shall be repaired by the Contractor at no cost to the Owner.

B. Storage

1. Storage for materials may be available on site where approved by the Owner. If the roof is used to store materials, care shall be taken to not overload the roof deck.
2. Stored materials shall not 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. Contractor shall 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. However, at no time shall a water hose be left running onto the roof surface while the existing roofing is being torn off or before the new roofing is completely watertight.
 - c. Water damage to the building, its furnishings, or equipment that results from an open hose running on the roof during roofing activities shall be repaired by the Contractor at no additional cost to the Owner.
2. See Section 02 41 13 for removal of asbestos containing roofing materials (ACRM).
3. 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, all of the critical equipment and furniture within the space shall be covered as directed by the Owner.
 - b. Temporarily shut down air handling units in the immediate vicinity of roof deck removal and replacement operations.

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- c. During removal and replacement of roof decking, or at the time of removal of abandoned roof top 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. A drop cloth shall also be placed under the removal area. The superintendent shall check the space at least every 30 minutes.
- 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.

D. Security

1. Fire Department personnel will coordinate site access with the Contractor to minimize inconveniences to the Owner. Do not allow unauthorized persons in the work area. Carefully monitor and control all access to work areas.
2. Exercise all due care, caution, and control as required to secure and maintain the work and staging areas.
3. Ensure all 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. See Section 01 00 00, General Requirements.

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 which comply only with requirements for materials hoisting. Selection of type, size, and number of hoisting facilities for temporary use at project site is Contractor's option. 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.

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- b. All such ladders shall be removed from the building at the end of each work day and transported off site to prevent access to the roof by school students and the general public.

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. Any 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. Contractor shall submit their site specific "Site Safety Plan" to the Owner, and have 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, the Contractor shall promptly remove each temporary facility unless requested by the Owner's Representative to retain it for a longer period of time. Complete work which may have been delayed because of interferences caused by temporary facilities, and restore work which may have been

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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

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 City of Portage “Notice to Bidders” and “Contract and Bond Forms”, and Section 01 00 00, General Requirements, which also contains 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 in any way as consequence of use.
- C. Where construction traffic must occur on the roof, the Contractor shall provide temporary protection. See Specification Section 07 53 23, Subparagraph 1.8, B. for specific roof protection requirements. Protection is required for both existing and new roofing systems. The Contractor shall be liable for all 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. Roofing operations shall not be conducted when winds can disturb materials. Incomplete work and stored materials shall be protected by providing suitable ballast to prevent blow off by wind.
- E. Removed materials shall not be thrown from the roof. Chutes or appropriate devices or equipment shall be employed to convey debris to proper containers.
- F. The Contractor shall clean out roof drains and conductors prior to start of work and maintain and protect them throughout the course of the Work. Roof drains shall not be left in a temporary condition at any time. Drain clamping rings are to be reinstalled the same day the roofing membrane is installed at each drain location.

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PART 2 - PRODUCTS

2.1 MATERIALS OF TEMPORARY FACILITIES AND ENCLOSURES

- A. Provide either new or used materials and equipment which are 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: Tarpaulins shall be 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 (and reduce need for temporary lighting).
- D. The Contractor shall provide two rolls of translucent type tarpaulins specified above, which shall 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: Plywood shall be 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. The Contractor shall review the ground level site conditions to document pre-project conditions for the purpose of determining damaged caused by the roofing replacement project. Photographs of proposed staging and storage area, and equipment and truck travel routes shall be submitted to the Owner and Consultant prior to starting construction.
 - 2. Asphalt paved surfaces and concrete sidewalks shall be protected with steel plates or plywood against spillage of adhesives or breakage due to construction traffic associated with materials storage and staging. Stained or broken pavement and sidewalks resulting from roofing operations shall be cleaned, repaired or replaced by the Contractor at no additional cost to the Owner.

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3. As much as possible, grassy landscaped surfaces, shrubs and trees shall be protected with plywood sheathing to minimize damages. Landscaping shall be returned to the original condition at the close of the project.
4. Site irrigation shall be marked by the Owner's Representative prior to project start up. Irrigation zones affecting materials storage and staging shall be turned off. The Contractor shall be responsible for protecting existing irrigation lines and sprinkler heads from construction activities. All damages to the irrigation system as a result of roofing activities shall be repaired by the Contractor at no cost to the Owner.

B. Storage

1. Storage for materials may be available on site where approved by the Owner. If the roof is used to store materials, care shall be taken to not overload the roof deck.
2. Stored materials shall not 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. Contractor shall 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. However, at no time shall a water hose be left running onto the roof surface while the existing roofing is being torn off or before the new roofing is completely watertight.
 - c. Water damage to the building, its furnishings, or equipment that results from an open hose running on the roof during roofing activities shall be repaired by the Contractor at no additional cost to the Owner.
2. See Section 02 41 13 for removal of asbestos containing roofing materials (ACRM).
3. 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, all of the critical equipment and furniture within the space shall be covered as directed by the Owner.
 - b. Temporarily shut down air handling units in the immediate vicinity of roof deck removal and replacement operations.

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- c. During removal and replacement of roof decking, or at the time of removal of abandoned roof top 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. A drop cloth shall also be placed under the removal area. The superintendent shall check the space at least every 30 minutes.
- 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.

D. Security

1. Fire Department personnel will coordinate site access with the Contractor to minimize inconveniences to the Owner. Do not allow unauthorized persons in the work area. Carefully monitor and control all access to work areas.
2. Exercise all due care, caution, and control as required to secure and maintain the work and staging areas.
3. Ensure all 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. See Section 01 00 00, General Requirements.

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 which comply only with requirements for materials hoisting. Selection of type, size, and number of hoisting facilities for temporary use at project site is Contractor's option. 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.

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- b. All such ladders shall be removed from the building at the end of each work day and transported off site to prevent access to the roof by school students and the general public.

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. Any 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. Contractor shall submit their site specific "Site Safety Plan" to the Owner, and have 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, the Contractor shall promptly remove each temporary facility unless requested by the Owner's Representative to retain it for a longer period of time. Complete work which may have been delayed because of interferences caused by temporary facilities, and restore work which may have been

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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

SECTION 02 41 13

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Selective demolition work tasks include the following items.
 - 1. Removal of the existing roofing assembly down to the steel roof deck and flashing substrates.
 - 2. Removal of sheet metal edge flashing on the low roof.
 - 3. Hand removal of asbestos containing roofing material (ACRM).
 - a. Baseflashings were found to contain chrysotile.
- B. Related work is described in:
 - 1. Section 07 53 23, Elastomeric Membrane Roofing
 - 2. Section 07 62 00, Sheet Metal Flashings
 - 3. Section 07 92 00, Joint Sealants
 - 4. Section 22 14 26, Replacement Roof Drain (If Required)
- C. Items shown or scheduled for removal or demolition are the property of the Contractor unless noted otherwise as being saved for reinstallation. Remove and dispose of items legally, off-site, in accordance with requirements of the Standard General Conditions and Construction Documents.

1.2 SITE CONDITIONS

- A. The Contractor shall be responsible for providing necessary engineering controls, personal protection equipment (PPE), training and medical surveillance required to accomplish work associated with the potential removal of ACRM.
 - 1. Engineering controls included, but not limited to, hand removal of bituminous baseflashings, water mist, HEPA filtered vacuum equipment, and lowering baseflashing debris to the ground by hand or lift equipment. Equipment that grinds or abrades the ACRM, rendering it friable, is not permitted.
 - 2. Contractor shall provide workers trained in removal of ACRM, with valid certification and ID cards.

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3. Contractor shall provide negative exposure assessment data if available.
 4. If no historical negative exposure assessment data exists, or if it is outdated, the Contractor shall perform personal breathing zone air sampling during the first day of ACRM removal, and have the air sampling results available to within 24 hours.
 5. If air samples indicate elevated fiber counts, further assessment of the conditions is required, additional engineering controls and personal protective may be required.
- B. Staging area, driveways and sidewalks must be protected from falling objects and debris at all times during construction activities over the doors. Protection provided may be removed upon completion of the roofing. Coordinate with the Owner so as not to block truck bay doors.
- C. Confine equipment, storage of materials and debris, and the operations and movement of workmen within limits established by the Owner's Representative.
- D. See Sections 01 00 00, General Requirements and Section 01 50 00, Construction Controls for additional information.

1.3 REFERENCE DOCUMENTS

- A. FMG - Factory Mutual Global
- B. NRCA - National Roofing Contractors Association
- C. SMACNA - Sheet Metal and Air Conditioning Contractors National Association
- D. ASTM - American Society for Testing and Materials
- E. UL - Underwriters Laboratory
- F. SPRI - Single Ply Roofing Institute
- G. ANSI – American National Standards Institute
- H. NFPA – National Fire Protection Association
- I. LPI – Lightning Protection Institute

1.4 SUBMITTALS

- A. The Contractor shall be responsible for providing to the Owner's Representative the following submittals.
 1. Method statement for the following:
 - a.) Removal and temporary storage of items to be reinstalled.

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- b.) Removal of demolition debris from the roof.
 - c.) Method for transporting materials and debris to and from the work area from the ground.
- B. The Contractor shall also provide the Owner and Owner's Consultant the emergency 24 hours per day, seven days per week, contact information for responsible parties during this project.

PART 2 - MATERIALS AND EQUIPMENT

2.1 PRODUCTS

- A. Contractor shall provide products and materials necessary to complete the work in a timely manner. Items to be used shall be reviewed and approved by the Owner and Owner's Consultant prior to use.
- B. Materials that may be required are:
 - 1. Material for temporary protection.
 - 2. Other miscellaneous supplies and equipment.

2.2 EQUIPMENT

- A. Contractor shall provide tools and equipment required to accomplish the work in a timely manner. Included are saws, grinders, hammer drills, and other equipment as necessary for removal of existing masonry, ballast, and roofing materials.
- B. Contractor shall provide proper type blades and discs for each materials where cutting blades and discs are required. Use of improper equipment may result in safety hazards, and adversely affect the quality of workmanship.
- C. Equipment may also include small motorized carts, hoppers, dump boxes for hoisting debris, and other equipment that may be needed to satisfy the recommendations of the site Logistics Plan.

PART 3 - EXECUTION

3.1 GENERAL

- A. Selective demolition activities are to be performed in a manner to allow the Contractor enough time to make the work area watertight by the end of each work day.
- B. Roofing and flashing removal shall only occur at a rate that can be made watertight again on the same day the materials are removed.

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- C. The Contractor shall utilize MIOSHA approved fall protection systems at all times when working near roof perimeters.
- D. Selective demolition shall be performed in a manner that will minimize disruption to normal operations at the site.
 - 1. Coordinate Work with the Owner a minimum 48 hours before starting Work. Notify the Owner daily with regard to the anticipated work locations for the following day.

3.2 SELECTIVE DEMOLITION

A. Roofing Assembly:

- 1. Roofing consists of an original coal tar pitch built-up roofing system overlaid with a smooth surfaced modified bitumen roofing system. The total roofing thickness is approximately 5-1/2 inches thick.
- 2. Remove roofing, flashings and sheet metal down to the steel roof deck and flashing substrates, leaving only residual staining.
- 3. Clean deck ribs free of loose aggregate and other debris.
- 4. Verify condition of roof drains and immediately notify Owner of conditions that will require repair or replacement.
 - a. Should roof drain replacement be necessary, refer to Section 22 14 26, Replacement Roof Drain.

3.3 REMOVAL OF ASBESTOS CONTAINING ROOFING MATERIALS (ACRM)

- A. Remove asbestos containing bituminous baseflashings by hand methods.
- B. ACRM shall be lowered off the roof by mechanical means or lowering by hand. Using a chute or throwing ACRM debris off the roof by hand is not permitted.
- C. Contractor shall have proof of training onsite for the entirety of the project.
- D. Provide the Owner disposal records for ACRM waste.

END OF SECTION 02 41 13

SECTION 05 31 23

STEEL ROOF DECK REPAIR (If Required)

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This work consists of furnishing labor, material and equipment required to complete repairs for deterioration of existing roof deck to provide for a structurally sound roof deck, should such distress be identified upon removal of the existing roofing.
- B. The Contractor shall be responsible for all demolition work and installation of new steel roof deck units at locations of roof deck corrosion uncovered during selective demolition.
- C. The Contractor shall photographically document areas of deteriorated steel decking prior to, and after completion of repairs. Documentation of pre and post deck repair shall be submitted 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 02 41 13, Selective Demolition
- B. Section 07 53 23, Adhered EPDM Roofing

1.3 CODES, PERMITS AND INSPECTION

- A. Work shall be executed and inspected in accordance with the codes of state, county and local authorities having jurisdiction.
- B. Fees for permits and inspection shall be paid by the Contractor.
- C. Should changes in the Specifications and Drawings be required to conform to the regulations of the state, county and local agencies, the Contractor shall notify the Owner's Representative at the time of bid submittal. After entering into the Contract, the Contractor will complete all work necessary for the complete and approved installation without extra expense to the Owner.

1.4 COORDINATION OF THE WORK

- A. The Contractor shall coordinate the deck repair with roofing rehabilitation to avoid delays and interferences.
 - 1. Pre-ordering steel deck to match the existing in-place deck type and profile may be required.
 - 2. Review of 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.
- B. Should conflicts or interferences occur with the work of other contractors on the job, the Contractor shall consult with the Owner and other trades for the proper allocation of space

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and for the arrangement of equipment and materials. In the event of disagreement the matter shall be referred to the Owner's Representative for settlement.

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 any authorized 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 shall be responsible for the proper submittal of all shop drawings for review. The drawings shall have been checked by the Contractor prior to such submission and shall carry a notice of the Contractor's approval. Drawings shall clearly state the name of the manufacturer and 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. The Contractor shall carry on work in such a manner as to conform to the dates outlined in the project schedule.
- B. Materials shall be stored where directed by the Owner's Representative, and all means of access to the building shall be kept clear.

1.7 CUTTING AND PATCHING

- A. All cutting necessary shall be carefully done by the Contractor. Damage through the neglect of this clause shall be made good by the Contractor.
- B. No cutting of structural members, or burning or drilling of holes through beams, shall be done without written approval of the Owner's Representative.
- C. After the work is completed, all openings made by the Contractor shall be neatly patched 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 from all causes. Material or equipment lost or damaged shall be replaced 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 shall be 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. Other deck manufacturers may be submitted for the Owner's Representative's review and approval prior to award of contract.
- B. New deck units shall have a minimum yield strength of 33 ksi, as specified by the Steel Deck Institute (SDI). New deck sheets shall be 36 inches wide by the length required to meet project conditions.
 - 1. New steel deck shall match 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. Fasteners for securing the metal deck to the existing framing shall be #12 self-taping hot dipped galvanized steel screws. Provide length for properly securing metal deck units to the roof purlins.
- D. Where required, perimeter closure plates shall be fabricated from ASTM A526 galvanized sheet metal being the same thickness as the steel roof deck.
- E. Fasteners for side laps shall be #12 carbon steel screws, case hardened in accordance with AISI 1022. Thread-per-inch rating and minimum length requirements of fasteners shall 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. Flat stock sheet metal for repair of holes, smaller than 12 inches in diameter, shall be minimum 18 gauge, and shall conform to ASTM A361, with a G90 galvanized coating.
- G. Where corrosion exists on the in-place steel decking or structural steel components, and cleaning and coating is required, coating shall be a direct-to-rust, polyamide-epoxy mastic.

PART 3 - EXECUTION

3.1 GENERAL

- A. Before starting work, shut off utilities that will effect installation of new roof deck sections. This activity shall be coordinated 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.

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- C. New steel roof deck, accessories and fasteners shall be installed in accordance with the deck manufacturer's recommendations and SDI design standards. Should a discrepancy arise, the more stringent standard shall apply.
 - 1. Roofing shall be installed 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. Exposed structural steel found to exhibit corrosion shall be cleaned of loose material and corrosion products, and treated with a 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 any 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. Care shall be taken not to bend or damage the side lap interlocks.
- B. Ends shall be centered over bearing points. Position units to be aligned accurately and to provide a minimum 4 inch end lap before anchoring in place.
- C. At no time shall the end of a new steel deck panel have less than 3 inches bearing on structural steel.
- D. New steel deck replacement units shall be a minimum of two spans (3 joists). Single span deck replacement is not acceptable.
- E. New deck units shall be fastened to the supporting steel with threaded steel fasteners specifically designed for anchoring metal roof deck to structural steel. Fasteners shall be installed six inches on center in the deck ribs.
- F. Fasten side laps with self-tapping #12 threaded fasteners spaced a maximum of 36 inches on center.
- G. Steel closure plate shall be installed in locations along the perimeters where deck layout results in conditions unsuitable for supporting the new roof insulation. All gaps 2 inches wide or larger shall be covered.

3.4 ALTERNATE ROOF DECK OVERLAY

- A. Should areas of deck corrosion be localized, overlayment with new steel decking is acceptable.
- B. Areas of corroded decking shall be cleaned free of corrosion byproducts, and the existing decking coated with the specified direct to rust coating.

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- C. Upon approval by the Owner, single span deck units may be used for overlay purposes.
- D. New deck units to be used for overlay shall be installed directly over the area of corrosion, and fastened in place as specified in Article 3.3 of this Section.

3.5 FLAT STOCK REPAIRS

- A. The Contractor shall clean the existing roof deck free of dirt, debris and loose corrosion byproducts, and apply the specified coating.
- B. New 18 gauge galvanized steel flat stock shall be cut to size for placement over deck corrosion. Flat stock shall be sized 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. Fasteners shall be 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. Flat stock repairs shall include locations of abandoned roof penetration removal less than 12 inches in size.

3.6 SURFACE RUST TREATMENT

- A. In areas where the roof deck exhibits red rust corrosion, but does not exhibit holes, loss of vertical ribs, or cross section less, clean loose debris from the deck with a wire wheel or similar tools.
- B. Apply specified coating over the cleaned deck areas.

3.7 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

SECTION 06 10 53

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Wood blocking and nailers.

1.2 SUBMITTALS

- A. Product Data: Provide submittal 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 any 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: AWWPA 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 all miscellaneous carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber as indicated below:

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1. Perimeter nailers along parapet walls.
 2. Rooftop equipment bases and support curbs.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.
- C. For concealed boards, provide lumber of any 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 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 AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- 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 2" x 12" or 2" x 10" lumber as needed to replace rotted or otherwise damaged nailers if required. Cut to size to fit site conditions.
- B. Install new nominal 2" x 4" lumber to raise exhaust fans as needed to maintain a minimal 8-inch flashing height.
- C. Where necessary, resecure existing wood components.

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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. New anchors shall be staggered and penetrate the substrate a minimum of 1-1/2 inches.
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 all ends of nailers.
3. Anchorage shall be 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. Fasteners shall be installed perpendicular to the work surface.

END OF SECTION 06 10 53

SECTION 07 53 23

ADHERED EPDM ROOFING

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 SCOPE OF WORK

- A. The work includes labor, materials, equipment, and administration necessary to integrate a new single-ply EPDM roofing into the total building envelope at the Portage Fire Station No. 2, in Portage, Michigan. Base Bid Work includes, but is not limited to, the following tasks on Low Roof and Hose Tower Roof as shown on the Roof Plan.
 - 1. Removal of the superimposed bituminous roofing, flashings and sheet metal down to the roof deck and flashing substrates in the areas indicated on the project drawings, and delineated at the time of the Pre-Bid Meeting.
 - a. Baseflashings were found to contain chrysotile asbestos and shall be removed by hand. Contractor to comply with current regulations regarding non-friable bituminous materials containing asbestos.
 - 2. Existing embedded copper flashings in the fluted masonry wall are to remain.
 - 3. Replacement or repair of deteriorated wood nailers identified during the demolition process.
 - 4. Replacement or repair of deteriorated steel roof deck identified during the demolition process.
 - 5. Addition of new nailers on exhaust fan curbs as required to provide a minimum 8-inch flashing height.
 - 6. Installation of specified flat stock insulation.
 - 7. Installation of new 1/2-inch per foot tapered saddles on the down slope side of the low roof to enhance drainage.
 - 8. Installation of new high density polyisocyanurate cover board and 60-mil EPDM roofing, including all flashings and accessories required for a complete, watertight roofing system.
 - 9. Installation of sheet metal flashings as shown on the detail drawings.

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

B. Related Work:

1. Section 02 41 13, Selective Demolition
2. Section 05 31 23, Steel Roof Deck Repair
3. Section 07 62 00, Sheet Metal Flashings
4. Section 07 92 00, Joint Sealants
5. Section 22 14 26, Replacement Roof Drain (If Required)

- C.** General requirements and specific recommendations of the material manufacturers are included as part of these specifications.

1.3 BACKGROUND INFORMATION

- A.** See Section 01 11 13, Summary of Work, Article 1.3, for information regarding roof type, thickness, and size of the work area.

1.4 QUALITY ASSURANCE

- A.** Applicator: Company specializing in installation of adhered EPDM roofing, having a minimum of ten (15) years documented roofing installation experience, and approved by the specified single-ply roofing system manufacturer.
- B.** After all 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 shall attend the pre-construction meeting.
- C.** Roofing work shall comply with the recommendations in the latest edition of the NRCA Roofing and Waterproofing Manual.
- D.** All sheet metal work shall 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 may employ and pay for the services of a Consultant to perform quality control and testing during installation to determine if materials and methods conform to the Specifications.
 2. The Consultant 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

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materials shall not prevent later rejection when such defect is discovered, nor shall 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 shall not relieve the Contractor of the responsibility to furnish materials and construction in full compliance with the plans and specifications.

3. The Contractor shall 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.

1.5 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

1.6 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 all materials including insulation to be used, and a statement that the materials conform to specified standards.
 3. Manufacturer's technical data sheet for materials to be used on the project.
 4. Product safety data sheets (SDS) for each material to be used on the project.

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- a. SDS to be formatted in accordance with 2013 OSHA revisions to be consistent with international conventions for hazard communication and labeling.
5. Shop drawings showing the new roof insulation with tapered saddles, components required by the system manufacturer, and drawings detailing special joint or termination conditions and conditions of interface with other materials.
6. Any changes or deviations from Project or manufacturer's standard requirements.
7. Contractor shall provide the Owner and the Consultant a list of emergency telephone numbers. This list shall include the names and numbers of Contractor representatives who can be contacted in the event of an emergency during non working hours.
8. The Contractor shall 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. Fastening patterns shall be submitted to the Owner's Consultant for review and approval before materials are installed.
 - b. 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.
9. An as-built drawing shall be submitted by the Contractor to the Owner, Owner's Consultant and the roof membrane manufacturer prior to the final warranty inspection by the membrane manufacturer.
10. Copy of application for manufacturer's warranty indicating the type and time period.
- B. The Contractor shall 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.
 2. A copy of the roofing system warranties shall also be provided to the Consultant.

1.7 DELIVERY AND STORAGE OF MATERIALS

- A. Deliver only acceptable materials to the site in original unopened containers, with all 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. New roofing materials stored on the roof shall be spread out so as not to overload the roof.

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- C. Materials stored on site and exposed to weather conditions shall be 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. All materials shall be covered by the end of each working day or whenever work is interrupted.
- D. Low rise foam adhesives shall be stored between 60 and 80 degrees Fahrenheit for 24 hours prior to usage unless otherwise required by the adhesive manufacturer. Low rise foam adhesives shall be stored out of direct sunlight, and shall be stored in "hot boxes" during cold weather roofing installation.
- E. Pressure sensitive flashings, seam tapes and other products that may be affected by high temperatures and UV exposure shall be stored out of direct sunlight.
- F. Use of wet, damp, or damaged materials is unacceptable. All 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.

1.8 SITE CONDITIONS

- A. The Contractor shall be responsible for furnishing all applicable permits for material deliveries and disposal, and inspections. Copies of the permits shall be supplied to the Owner and/or the Owner's Representative before staging set-up begins. Additionally the Contractor shall be 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;
 - 2. Posting warning signs to inform personnel at site and the general public where hazards may exist;
 - 3. Providing lighting where appropriate and needed for recognition of the facility or work or staging areas; and
 - 4. 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.
- B. Traffic over completed work areas shall be avoided whenever possible. In the event frequent traffic over completed work is anticipated, temporary protection consisting of a minimum 1-1/2 inch thick layer of rigid insulation overlaid by 1/2-inch thick plywood shall be provided over the affected roofing.
- C. Temporary protection measures shall be provided and maintained by the Contractor to protect the building and its contents from weather and construction related damages during reroofing.

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- D. The Contractor shall remove all 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.
- E. The scheduling and sequencing of the demolition and roofing operations shall be carefully coordinated with the Owner.
- F. Storage of removed items at this facility shall be permitted only at areas designated or approved by the Owner.

1.9 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. Application of roofing shall not be performed under excessive wind conditions, wet conditions, or when the ambient temperature is less than 40 degrees Fahrenheit, without prior approval of the Owner. The Owner's Consultant shall verify weather conditions during the work and record them in a daily observation report.
- C. When roofing operations are performed during periods of cold weather, the contractor shall provide for temporary protection of materials and warm storage of all adhesives, primers, seam tapes and sealants.

1.10 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. 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 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, an inspection shall be made by a Technical Representative of the roofing membrane manufacturer to determine if the roofing system has been installed to current specifications and details, and meets the manufacturer's warranty requirements. Copies of the manufacturer's warranty inspection report shall be provided to the Owner and the Consultant.

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

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:** Roofing system shall 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 monomer membrane (EPDM).
 3. **Insulation System:** Rigid polyisocyanurate roof insulation.
 4. **Deck Type:** Class 1 - Steel Deck.
 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. Non-reinforced, black 60-mil EPDM.

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- 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. Bonding adhesives, primers, seam tapes, water block mastics and sealants shall be products of the roofing membrane manufacturer.
 - b. Seaming shall be performed using the membrane manufacturer's seam tape techniques.
 - c. Flashings, sealants and accessories shall be the products of the roofing membrane manufacturer. Where possible, pressure sensitive flashing and strip-in products shall be used.
 - d. Walkway pads shall be manufactured from rubber polymers, and shall be the roofing system Manufacturer's standard walkway pad for use with adhered EPDM roofing assemblies.

2.2 INSULATION

- A. Roof insulation shall be closed cell polyisocyanurate board with the following characteristics:
 - 1. Polyisocyanurate insulation shall be 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 shall be removed from the site and replaced with new insulation at no additional cost.
 - c. The Contractor shall bear the cost of all compressive strength testing on insulation samples that fail, and the cost of subsequent testing of the replacement material delivered to the site.
 - 2. Insulation profile to be as follows:
 - a. Mechanically fastened base layer, 2-1/2" thickness.
 - b. Second layer adhered with low rise foam adhesive, 2-1/2" thickness
 - c. Tapered saddles adhered with low rise foam where shown, 1/2" per foot slope.
 - d. High density polyisocyanurate cover board, 1/2" thickness.

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3. Insulation shall be nominal 48 inches by 96 inches for mechanically fastened flat stock insulation, and 48 inches by 48 inches for adhered insulation and cover boards.
4. Provide tapered insulation drain sump 48 inches (4 feet) square at drain locations. Insulation thickness at drain bowl shall be flush with drain bowl or no less than 1 inch thick.
5. Saddles between drains shall be 1/2-inch per foot tapered insulation to counter the slope of the tapered insulation.
6. Cover Board: High density polyisocyanurate meeting ASTM C-1289, Type II, Class 4, Grade 1 minimum 80 psi compressive strength.

2.3 ACCESSORIES

- A. All accessories required to complete installation of the insulated single-ply roofing system shall be provided by the roofing membrane manufacturer for incorporation into the roofing system except as specified. This includes but is not limited to all water cut-off mastics, pre-molded flashings, and night seals.
- B. Fasteners for reinforced perimeter securement strip shall be the roofing system manufacturer's standard size 12 minimum, fluoropolymer coated screws, fitted with two inch diameter steel seam plates.
- C. Wood Components: See Section 06 10 53, Rough Carpentry.
- D. Gas line and electrical conduit supports, if necessary, shall be as furnished by one of the following manufacturers (If Required).
 1. Miro Industries
 2. Dura-Blok
 3. FNW
- E. Protection pads for equipment shall be the roofing system manufacturer's standard EPDM walkway pad seamed to the EPDM membrane to restrict movement.
 1. Walkway pads to be placed around mechanical units on the roof which require routine maintenance.

2.4 METAL COMPONENTS

- A. Sheet metal flashings are specified in Section 07 62 00.
- B. Termination bars for membrane for flashings shall be a minimum 1/8 inch thick and 1 inch wide extruded aluminum bar pre-punched 6 inches on center. Lengths of termination bar are

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to be a maximum of 10 feet. Termination bars shall incorporate a sealant ledge or kick to support sealant.

- C. Securement fasteners shall be appropriate for the purpose intended and approved by the roof system manufacturer. Threaded fasteners shall have a fluoropolymer coating for protection against corrosion. Other fasteners (friction or compression) shall have a galvanized zinc coating.
- D. Metal component design and fabrication shall comply with the latest edition of the Architectural Sheet Metal Manual from SMACNA.
- E. See Section 05 31 23 for material requirements for incidental roof deck repairs that may be required on this project.

2.5 SEALANTS

- A. See Section 07 92 00, Joint Sealants.

PART 3 - EXECUTION

3.1 GENERAL

- A. Work shall be executed so that each area of installation begun on a day is completed on the same day. Included are all flashings within and adjoining the membrane. Temporary tie-ins shall be seamed to be watertight. Loose laid laps at tie-ins are not acceptable.
- B. The roofing and flashing shall be applied to a smooth and firm surface free from ice, frost, moisture, dirt, projections, and foreign materials. Items penetrating the roof surface shall be secured in position and properly prepared for flashing. Surfaces shall be reviewed by the Contractor and Consultant, and approved immediately prior to application of roofing and flashing materials.
- C. The Contractor is responsible for all 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. Resecure mechanical units or exhaust fans to support curbing or framework. Caulk securement fasteners that penetrate metal flashings.
- D. If conditions are uncovered that would be detrimental to the application of specified work, immediately notify the Owner and Owner's 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.
- E. Applied insulation and completed roofing shall be protected at all times 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.

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3.2 SURFACE PREPARATION

- A. Remove all layers of the existing bituminous roofing and all associated flashings and accessories to expose the steel roof deck and flashing substrates.
 - 1. Loose aggregate and other debris must be removed from the deck ribs prior to installing new insulation.
 - 2. 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. Remove all sheet metal counterflashings as necessary to facilitate the installation of new materials.
- C. Inspect for areas of deteriorated steel roof deck, and perform repairs as specified in Section 05 31 23. Notify the Owner's representative prior to starting deck repair or replacement to allow the Owner or Owner's Consultant the opportunity to observe or document the distress and repairs.
 - 1. Document deck repair or replacement for payment of unit price work as described in Section 05 31 23, Steel Roof Deck Repair, Item 1.1, C.
- D. 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.
- E. Where necessary, resecure existing wood components in accordance with Section 06 10 53, Rough Carpentry.
- F. Install new wood nailers on curbs as required to achieve a minimum 8" flashing height.
- G. Prior to the beginning of roofing operations, the deck shall be dry, smooth and swept clean of all dust, dirt, grime, debris and other foreign material.

3.3 INSULATION

- A. Lay out new insulation boards 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. Attach base layer of insulation to the steel deck using the roofing system manufacturer's standard flouropolymer coated threaded fasteners and 3-inch insulation plates, in accordance with the roofing system manufacturers fastening pattern, including corner and roof edge enhancements.

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2. Adhere second layer of insulation and insulation saddles using the roofing system manufacturer's low rise foam adhesive.
- B. Insulation joints shall be staggered between layers and rows. Continuous vertical joints in the tapered insulation are not permitted.
1. Edges shall be butted to provide moderate contact, but not deformed.
 2. Edges of insulation boards shall be mitered at ridges, penetration flanges, and elsewhere to prevent open joints or irregular surfaces.
 3. Maximum allowable gap between roof insulation boards is 1/4 inch.
 4. Gaps greater than 1/4 inch shall be filled by the Contractor prior to membrane installation.
- C. Install tapered insulation saddles between roof drains or other locations as shown on project drawings.
- D. Install tapered crickets at upslope sides of mechanical units, at corners, or other locations to promote drainage of the roof.
- E. Install high density polyisocyanurate cover board over the new insulation using the roofing system manufacturer's low rise foam adhesive, staggering end and side joints. Install cover board over the new tapered insulation saddles and crickets.
- F. Installed insulation that has become wet must be removed and replaced with dry material. Torches are not permissible to dry insulation on this project.

3.4 **ROOFING MEMBRANE AND FLASHINGS**

- A. Install the 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. The securement strip shall be adhered 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.

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3. Care shall be taken not to contaminate the mating surfaces of the perimeter securement strip and EPDM roofing membrane with bonding adhesive during perimeter fastening strip or membrane installation.
- B. 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. Seams shall not be located so they run through roof drains or sumps.
 - a. Seams that occur within 18 inches of a roof drain shall be stripped in with the manufacturer's uncured pressure sensitive strip-in material.
 - b. Should seams pass through roof drains, a 48 inch square target patch shall be installed 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. All 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. All such areas shall be cleaned free of the bonding adhesive before seams are constructed. If bonding adhesive cannot be sufficiently cleaned from the seam area, the Contractor shall cut out and replace the affected area, or otherwise modify the roofing installation to ensure proper seam construction with no buckwater laps.
 - c. Adhesive shall be allowed to cure until tacky prior to mating the two surfaces.
 - d. After the EPDM has been mated to the insulation, the membrane shall be broomed or rolled with a carpet roller to promote adhesion.
- C. Lap widths shall be as required to meet the 20 year warranty requirements of the specific roofing manufacturer, but at no time shall they consist of less than a minimum 4-inch seam width.
1. Laps must be constructed using the roofing system manufacturer's seam tape techniques.

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- a. Depending on the manufacturer selected for this project, pre-taped seams may be required for warranty purposes.
 2. Application of lap sealant is not required, except 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.
 3. Where the seam tape extends out of the seam more than 1/2-inch, the seam shall be stripped in with a minimum 5-inch wide pressure-sensitive flashing material.
 4. Fishmouths, wrinkles or overlaps in the seam tape shall be patched with uncured T-lap patches or uncured flashing material as required by the manufacturer.
- D. Install new EPDM flashings as illustrated on the Project Drawings and as required by the roofing manufacturer.
- E. Where possible, the 60-mil EPDM field membrane shall be extended up walls and curbs as the flashing membrane to minimize field seams. Other flashings at the perimeter and roof projections shall use the membrane manufacturer's 60-mil flashing material installed according to the standard details and directions of the manufacturer.
1. The Contractor shall 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 shall apply.
 2. At exhaust fans, the contractor shall 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, the flashing shall be terminated at the top of the flashing substrate, then covered with a sheet metal 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.
 - c. The use of lap sealant on termination bars or other sheet metal components is not permitted.

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4. Vertical termination bars and sheet metal trim shall be used where needed to terminate edges of the new roofing membrane. Vertical termination bars shall be fastened in place 6 inches on center and sealed with the specified sealant.
- F. Uncured EPDM flashing material shall be used to seal corners and pipe penetrations, and as strip in material as required by the roofing system manufacturer.
- G. Holes, tears or cuts in the EPDM membrane are required to be patched with cured 60-mil membrane.
- H. Where required, daily tie-ins to existing roofing shall 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.
- I. Prior to beginning a new day's work, the EPDM at the temporary tie-in shall be cut off and removed.
 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 such contaminated EPDM membrane will result in the affected area being removed and replaced at the Contractor's expense.
 3. Termination bars shall be fastened 12 inches on center (maximum), and adjoining termination bar lengths must be separated a minimum of 1/8 inch to allow for movement.

3.5 SHEET METAL AND ACCESSORIES

- A. See Section 07 62 00, Sheet Metal Flashings, for more specific information regarding area divider, snap on edge metal system, and other sheet metal components.
- B. Install new sheet metal counterflashings, and penetration flashings components as shown or required to satisfy roof system integrity.
- C. Install new ANSI/SPRI ES-1 approver snap-on edge metal system in accordance with the manufacturer's installation guide.
- D. Fasteners shall meet the requirement of the Industrial Fasteners Institute, Fasteners Standards and FM requirements for wind up-lift. Fasteners that are improperly installed shall be removed and replaced.
 1. Expansion shield type fasteners shall be metal sleeved.
 2. Use stainless steel for securing stainless steel.
 3. All threaded fasteners shall incorporate self-sealing EPDM washers.

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- E. Contractor to determine:
 - 1. Proper drill bit for drilling correct hole size (diameter and depth) into substrate,
 - 2. Fastener length to provide proper attachment of the roofing system components to the respective substrates.
- F. Apply specified new sealant to provide watertight and weather tight construction at all 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.
- G. Install the manufacturer's standard rubber walkway pads around mechanical units requiring routine maintenance. Walkway pads shall be adhered to the surface of the new roof membrane, but must not be adhered over the top of membrane seams.
- H. Install protection pads and specified pipe and conduit supports, including required spacers and pipe straps necessary for proper support and attachment, if required.

3.6 CLEAN UP AND PROTECTION

- A. Protect completed work until acceptance by Owner.
- B. Remove debris from all 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.
 - 1. If drains have become clogged or restricted as the result of the roofing project, the contractor shall clean out the drains and retest with water to verify proper flow.
- E. Remove all stains from walls, floors, walkways, and parking areas.
- F. Carefully inspect all completed work. Correct all defects prior to Owner's final inspection.

END OF SECTION 07 53 23

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 on this section.
- B. Related work is described in:
 - 1. Section 02 41 13, Selective Demolition
 - 2. Section 07 53 23, Elastomeric Membrane Roofing
 - 3. Section 07 92 00, Sealants

1.2 DESCRIPTION OF WORK

- A. Fabrication and installation of new copper counterflashings along building walls, and the hose tower parapet as shown on the project drawings, or required for a complete and watertight work product.
- B. Removal of edge metal flashing and installation of a new ANSI/SPRI ES-1 snap on fascia system.

1.3 QUALITY ASSURANCE

- A. The Contractor (installer) shall be a firm with 15 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) and Factory Mutual Global (FMG) Loss Prevention Data Sheets.

1.4 SUBMITTALS

- A. Submit manufacturer's and fabricator's product data and 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 and are appropriate for this project.
- B. Submit electronic shop drawings showing manner of forming, joining and securing sheet metal flashings. Drawings shall show standard construction, flashing details and any adjoining masonry or roofing work.

**Sheet Metal Flashings
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1.5 WARRANTY

- A. The Contractor shall 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.
- B. In addition, the Contractor shall provide the Owner the manufacturer's 20 year warranty for coatings on all prefinished steel used for flashing applications.

PART 2 - PRODUCTS

2.1 SHEET METAL

- A. Fabricate sheet metal components as shown on the Project Drawings.
- B. Submit products and colors to the Owner for approval prior to ordering materials.
- C. Sheet metal types to be used on this project are listed below.
 - 1. Pre-manufactured snap-on perimeter edge metal for all parapets or roof edges, meeting the requirements of ANSI/SPRI ES-1.
 - a) Attachment cleat to be minimum 0.040 extruded aluminum.
 - b) Fascia metal to be flouropolymer finished steel as manufactured by the edge metal system manufacturer, color to match existing sheet metal trim and screen wall color on the project. Sheet metal thickness to be as required by the manufacturer for a complete edge metal system warranty.
 - c) Manufacturers:
 - 1) Metal-Era
 - 2) Hickman
 - 3) Pac-Clad
 - 4) Shop fabricated edge metal systems are not permitted.
 - 2. Counterflashings and slip flashings are to be minimum 16 oz. domestic copper to match the size and profile of existing copper flashings.
 - a) Existing embedded copper flashings in the fluted masonry walls are to be left in place. Contractor to take care to not damage the drainage plane created by the embedded copper flashings.

2.2 MISCELLANEOUS MATERIALS

- A. Type 316 Stainless steel screws may be used in areas which are exposed to weathering.
- B. Rivets for attachment of copper counterflashings shall be copper with brass mandrels.

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- C. Sealants shall be as specified in Section 07 92 00.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate sheet metal work with roofing for a complete work product and proper sequencing. Roof top terminations of flashings shall not be left unfinished for an extended period of time.
- B. Ensure all related roof flashings are completed and watertight, and EPDM flashing 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. Use pre-manufactured or shop-fabricated work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry standards and practices.
- B. Install for waterproof and weather resistant performance, with expansion provisions for running work, and sufficient to permanently prevent leakage, damage or deterioration of the 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.
- D. Form exposed faces free of buckles, excessive waves and avoidable tool marks, considering temper and reflectivity of metal.
- E. Provide uniform, neat seams with minimum exposure of sealant.
- F. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.
- G. Fabricate copper counterflashings to allow room for the roof termination behind the counterflashing, and compression against the wall along the bottom hemmed drip edge. Counterflashings to match size of existing to ensure they will fit existing conditions.
- H. 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.

3.4 INSTALLATION

- A. Install new snap-on fascia on parapets as shown on the Project Drawings, and in accordance with the edge metal system manufacturer's installation requirements.
- B. Install copper counterflashings in existing receiver of the embedded copper flashings as shown on the Project Drawings.

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- C. Install sheet metal collars and rain caps as needed for hot stacks and other penetrations that cannot be flashed directly with EPDM materials, if required.

3.5 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.
- C. Remove and properly dispose of all wood pallets, packaging and other construction related debris.

END OF SECTION 07 62 00

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 Related Documents

- A. Drawings and General Conditions of the Contract Documents of the Project apply to the work described on this section.
- B. Related work is described in:
 - 1. Section 07 53 23, Elastomeric Membrane Roofing
 - 2. Section 07 62 00, Sheet Metal Flashings

1.2 DESCRIPTION OF WORK

- A. Proper cleaning of substrates to receive new sealants, and the installation of new sealants where required for a complete and watertight work product.
- B. Installation of new sealant joints associated with:
 - 1. EPDM roofing terminations.
 - 2. Wall flashings, and rivet mandrels.
 - 3. Deteriorated masonry joints.
 - 4. Other ancillary sealants required for a complete work product.

1.3 QUALITY ASSURANCE

- A. The Contractor (installer) shall be a firm with 10 years of successful experience in the application of sealant assemblies used in building restoration work and equivalent to work described in this section.
- B. The work shall comply with the latest editions of the following standard specifications unless otherwise specified.
 - 1. ASTM C920, Type S, Grande NS, Class 25.
 - 2. American Society of Testing and Materials (ASTM) Standards.
 - 3. US Federal Specification TT-2 00230C, Type II, Class A.
 - 4. Federal Specification TT-S-001543A (COM-NBS) Class A

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- C. The Contractor shall 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 defective sealant assemblies during this time period at not cost to the Owner.

1.4 SUBMITTALS

- A. The Contractor is responsible for providing electronic copies of the following submittals to the Owner and Owner's Consultant. These submittals must be reviewed and approved prior to the start of Work.
 - 1. A complete list of materials proposed to be used including names, sources and descriptions.
 - 2. Manufacturer's product data with application and installation instructions for proprietary materials and items.
 - 3. A letter from the manufacturer stating acceptance of the applicator for the proposed work.
 - 4. Manufacturer's literature and usage directions for proposed concrete repair system.
 - 5. Safety Data Sheets (SDS) for material anticipated to be used on this project.

1.5 QUALITY CONTROL

- A. Notify the Owner's Consultant 24 hours in advance of surface repair material placement operations, to permit inspection and checking by the Consultant.

1.6 SITE CONDITIONS

- A. Sealant work for flashings shall be completed at the same time as the associated roofing and sheet metal work to ensure a complete and watertight Work product. All site protection, staging, and disposal requirements for that work shall apply to this section.
- B. Proceed with this work only when weather conditions will permit unrestricted use of materials and installation methods for the work being done. No sealant work is to be done if the temperature is anticipated to be below 45 degrees Fahrenheit for the next 24 hour period, unless written approval is provided by the sealant manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. All materials shall be delivered to the site in their original containers with seals unbroken, and with each container bearing a label identifying the contents and the manufacturer. All materials shall be of manufacturers listed herein and accepted by the Owner's Representative.
- B. All labels shall clearly indicate:
 - 1. Name of manufacturer
 - 2. Manufacturer's product name or product number

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3. Manufacturer's lot number
 4. SPI hazardous material rating and appropriate warnings for handling.
- C. Store materials in dry areas and protect from exposure to the weather. All material shall be stored at temperatures above 40° F. Any material damaged by moisture, temperature, and/or poor storage or handling procedures shall be replaced at the Contractor's expense.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C920 and other requirements indicated, including those requirements referencing ASTM C920 classifications for Type, Grade, Class, and Uses.
- B. One-Part Polyurethane Sealant: One-component, low-modulus, moisture-curing polyurethane sealant complying with ASTM C920. Type S, Grade NS, Class 50, Use NT, M, and A.
1. Vulkem 921 by Tremco Commercial Sealants and Waterproofing.
 2. Sika-Flex 15LM by Sika Corporation
 3. Sonolastic NP by BASF
- C. One-Part Silicone Sealant: One-component, ultra-low modulus, neutral-cure elastomeric silicone sealant complying with ASTM C920. Type S, Grade NS, Class 100/50, Use NT, G, M, and A:
1. 790 Silicone Building Sealant byDow Corning Corporation.
 2. Sikasil WS290 bySika Corporation.
 3. Spectrem by Tremco Commercial Sealants and Waterproofing
- D. Primer shall be of the type recommended by the sealant manufacturer.
- E. Backer rods shall be closed cell polyethylene or an open cell polyethylene rod, or as recommended by the sealant manufacturer. Backer rods shall be a minimum of 50% larger than the opening to be caulked.
- F. Bond breakers shall be a tape material recommended by the sealant manufacturer.

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PART 3 - EXECUTION

3.1 PREPARATION

- A. Conduct work operations to ensure the safety of all persons and to prevent damage to existing structures and utilities to be left in place, construction in progress, and other property.
- B. Mechanically clean all surfaces to receive sealant to remove all loose paint, adhesives or mastics, dust and foreign materials that will affect the bonding compatibility of the sealant. The surface shall be protected from recontamination. All applicable manufacturer recommendations and procedures shall be strictly followed.
- C. Protect roofing membrane and other components adjacent to the sealant application from the effects of preparation and sealant application. All spillage of cleaners or sealant products must be completely removed. If new roofing or wall materials are damaged, the Contractor shall immediately notify the Owner and Owner's Consultant.
- D. Primers recommended by the sealant manufacturer shall be used, including recommended procedures including application rates and drying time.
- E. Backer rods and bond breakers shall be used as required by the sealant manufacturer to prevent three point bonding of sealant assemblies.
- F. Sealant colors shall be chosen to closely match the color of the surfaces where sealant joints are being installed. Different color variations may be required for various flashing applications. Contractor shall verify sealant colors with the Owner's Representative before application.
- G. Dispose daily of all debris resulting from this work off the site in an approved manner.

3.2 SEALANT APPLICATION – GENERAL (As Required)

- A. The vertical cracks on walls shall have the cracks routed or saw cut to uniform dimensions, but in no case shall the routed/cut crack be less than 3/8" in width.
 - 1. Install backer rod in accordance with the sealant manufacturer's directions.
 - 2. Apply sealant in accordance with the requirements of the sealant manufacturer and these specifications.
- B. Joint dimensions shall be as specified by the sealant manufacturer and the requirements of this specification.
 - 1. In joints up to 1/4" in width, the sealant depth shall be the same as the joint width.
 - 2. In joints over 1/4" in width the sealant depth shall be one-half the joint width, but in no case less than 1/4" nor greater than 3/8".
 - 3. Joints with widths in excess of 1" shall be installed in accordance with the manufacturer's written recommendations.

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- C. When joints exceed the depth requirements, back-up materials or bond breaker shall be installed to the necessary depth to achieve required sealant profile.
- D. When perimeter joints around frames are to be sealed that do not have built-in stops, insert backup material to provide a joint with a minimum depth of 3/8" and a maximum depth of 1/2".
- E. Sealant shall be applied under pressure to clean dry joints, using hand or power caulking guns or other approved methods.
- F. Joints shall be tooled slightly concave and recessed at least 1/8" from the top of the joint.

3.2 SEALANT APPLICATION – SHEET METAL FLASHINGS AND STRUCTURAL STEEL

- A. Apply polyurethane sealants as needed for sealing counterflashings and termination bars.
- B. Apply sealant as recommended by the manufacturer and protect the sealant from all traffic until it has cured. If the manufacturer recommends an adhesive it shall be applied prior to sealant installation in accordance to the manufacturers recommendations.
 - 1. Sealant beads shall be a nominal 3/8-inch unless otherwise required by specific site conditions.
 - 2. Sealant must be applied in a continuous bead with no voids or defects to ensure a water tight seal.
 - 3. Tool sealant for a smooth surface conducive to shedding water.
- C. Immediately following sealant application, all masking shall be removed and all excess or spilled sealant removed.
- D. The Contractor shall protect the sealant from damage by workman. Any damaged or improperly installed sealant shall be removed and replaced at the contractor's expense.

END OF SECTION 07 92 00

SECTION 22 14 26

ROOF DRAIN REPLACEMENT (If Required)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Conditions of the Contract Documents for this Project apply to the work described on this section.
- B. Related work is described in:
 - 1. Section 02 41 13, Selective Demolition
 - 2. Section 07 53 23, Elastomeric Membrane Roofing

1.2 DESCRIPTION OF WORK

- A. This section pertains to work required for roof drain replacement if conditions uncovered during roofing replacement indicate drain replacement is necessary.
- B. Drain replacement shall be performed on a unit price basis.

1.3 QUALITY ASSURANCE

- A. The Contractor (installer) shall be a firm with 15 years of successful installation of drain assemblies in concrete roof decks.
- B. Provide approval stamp label or other marking on piping indicating it is made to current standards.
- C. Comply with ASME B31.9, "Building Services Piping", for materials, products and installation.
- D. Comply with all state and local plumbing codes.

1.4 SUBMITTALS

- A. Submit drain manufacturer's product data and 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 and are appropriate for this project.
- B. Submit manufacturer's standard installation shop drawings in electronic format, including any underdeck clamps, fittings and other accessories for a complete Work product.

1.5 WARRANTY

- A. The Contractor shall 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.

**Roof Drain Replacement
Partial Roof Replacement
Portage Fire Station No. 2, Portage, Michigan**

PART 2 - PRODUCTS

2.1 ROOF DRAINS:

- A. New roof drain assemblies shall be cast iron body and clamping ring, with hubless connector. Drain shall be designed for installation in concrete roof deck.
 - 1. Adjustable 2-piece drain assemblies are not permitted
- B. Drain Strainers shall be cast iron. Polyethylene strainers are not permitted.
- C. Acceptable Products:
 - 1. Jay R. Smith, F.N. 1310Y
 - 2. Josam 21500 Series
 - 3. Wade Drains 3000 Series
 - 4. Other equivalent products as approved by the Owner and Owner's Consultant
- D. Contractor to field verify drain and pipe sizes prior to ordering materials.

2.2 ACCESSORIES:

- A. No-hub connector:
 - 1. coupling shall consist of an elastomeric gasket complying with ASTM C564, with a stainless steel exterior sheath, and stainless steel worm screw draw bands.
 - 2. No-hub connector shall be designed for drainage piping and compatible with the listed roof and overflow drains in this Section.
 - 3. Connectors shall be rated as heavy duty.
 - 4. Contractor to field verify drain and pipe sizes prior to ordering no-hub connectors.
- B. Pipe Insulation:
 - 1. Replacement insulation on the down pipes, if required, shall match existing in type, thickness and exterior facer material.
 - 2. Tape or adhesive shall be the insulation manufacturers standard product for joining insulation sections on drainage piping.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify the Owner 72 hours prior to performing roof drain replacement. This may result in the Contractor making the drain temporarily watertight for the notification period.

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- B. Coordinate drain removal and replacement with roofing contractor to ensure the roof will be water tight at the end of each work day.
- C. Verify drain and pipe sizes by performing field measurements. Accessing the ceiling space on the floor below is strongly advised.
- D. Provide temporary protection during drain and overflow removal and replacement to reduce potential for damaging the roofing membrane.

3.2 REMOVAL AND INSTALLATION

- A. Remove existing roof drain and clean the roof deck free of debris
- B. Install new roof drain assembly using deck clamps or other means to hold the assemblies in place as required by the drain manufacturer, and immediately connect the new drain to the existing piping using the specified no-hub connector to avoid leakage into the building. Install in same location removed from.
- C. Install roofing membrane, butyl sealant and clamping ring and maintain during all phases of demolition and construction.
- D. Water test each drain to verify there are no leaks.

3.3 CLEANING AND PROTECTION

- A. Remove all debris and packaging from the project site. Properly dispose of all discarded materials and debris.
- B. Protect new Work until accepted by the Owner.

END OF SECTION 22 14 26