

### ***MODIFICATIONS DURING BIDDING***

This Addendum describes revisions to the Bidding Documents issued 4-8-2021.

***ACCOMPANYING DOCUMENTS:*** The following documents accompany this write-up and are a part of this Addendum:

- Whole Drawings, Sheet Nos.: None
  - Partial Drawings: None
  - Project Manual Documents:
    - Section 000100 – Table of Contents
    - Section 003113 – Preliminary Schedules
    - Section 004113 – Bid Form
    - Section 013300 – Submittal Procedures
    - Section 013301 – Submittal Routing Transmittal A
    - Section 072100 – Thermal Insulation
    - Section 074113 – Standing-Seam Metal Roof Panels
    - Section 075323 – Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
    - Section 283100 – Fire Alarm Systems
  - Miscellaneous  
Bidding Questions and Answers
- 

### ***REVISIONS TO PROJECT MANUAL:***

ITEM NO. 1 Refer to Section 000100 – Table of Contents

a) Added Section 283100 - Fire Alarm Systems to the Table of Contents

ITEM NO. 2 Refer to Section 001113 – Advertisement for Bids

a) Article 1.6 - Time of Completion: this article has been revised noting the date of substantial completion shall be established by the bidder at time of bid. Refer to Bid Form.

ITEM NO. 3 Refer to Section 003113 – Preliminary Schedules

a) Article 1.1, Item D: revised item no. 9 Substantial Completion date and duration to read TBD (To Be Determined). Bidder shall establish the date of substantial completion on their bid form.

ITEM NO. 4 Refer to Section 004113 – Bid Form

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- a) Article 1.5 - Time of Completion: this article has been revised to require the Bidder to establish the date of substantial completion. This section has been revised and replaced in its entirety.

ITEM NO. 5 Refer to Section 013300 – Submittal Procedures

- a) This section has been modified to incorporate NSA Routing Transmittal and Electronic Submittals as primary format. This section has been revised and replaced in its entirety.

ITEM NO. 6 Refer to Section 072100 – Thermal Insulation

- a) Article 2.3 - Spray Polyurethane Foam Insulation, Item A: Subject to full compliance with the specifications, the following additional manufacturer is approved: Johns Manville – JM Corbond III closed cell spray polyurethane foam insulation.

ITEM NO. 7 Refer to Section 074113 – Standing Seam Metal Roofing Panels

- a) Article 1.11 Warranty, Item B, Number 2: Revised finish warranty to 35 years.  
b) Article 1.11 Warranty, Item C, Number 1: Revised weathertightness warranty to 30 years.  
c) Article 2.2 Standing Seam Metal Roof Panels, Item B: This section has been revised and replaced in its entirety.  
d) Article 2.3 Underlayment Materials, Item A: Revised underlayment to two (2) layers or Firestone Clad-Gard SA.  
e) Article 2.4 Insulation Materials: This section has been revised and replaced in its entirety.

ITEM NO. 8 Refer to Section 075323 – Ethylene-Propylene-Diene-Monomer (EPDM) Roofing

- a) Article 1.1 Summary, Item B: Delete Item 2 Mechanically-Fastened EPDM Roofing System. Only fully adhered roofing systems will be acceptable.  
b) Article 2.2, Deleted Item E - Solar Reflectance Index and Item F - Energy Performance.  
c) Article 2.3, Item B: Subject to full compliance with the specifications, the following additional manufacturers are approved: Versico Roofing Systems and Mule-Hide Products Co. Inc.  
d) Article 2.6; Deleted Item B - Cellulosic-Fiber Board Insulation.  
e) Article 2.8, Deleted this article in its entirety.  
f) Article 3.5 Mechanically Fastened Membrane Roofing Installation. Deleted this article in its entirety. Only fully adhered roofing systems will be acceptable.  
g) This section has been revised and replaced in its entirety.

ITEM NO. 9 Refer to Section 081100 – Steel Doors and Frames

- a) Article 2.1, Item A: Added Republic to the list of acceptable manufacturers.

ITEM NO. 10 Refer to Section 083006 – Interior Sliding Doors

- a) Article 2.1, Item A2: Revised to indicate AD Systems is an acceptable manufacturer for the sliding door systems.

ITEM NO. 11 Refer to Section 087100 – Door Hardware

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- a) Article 2.10, Item A1: Add e) Falcon 24/25 Exit Device to the list of acceptable manufacturers.
- b) Article 2.16, Item A1: Add e) Falcon SC71 Door Closure to the list of acceptable manufacturers.

ITEM NO. 12 Refer to Section 105113 – Metal Lockers

- a) Article 2.3 Welded Corridor Lockers, Item A1: added Lightning Lockers LLC., as an acceptable manufacturer.

ITEM NO. 13 Refer to Section 233000 – Air Distribution

- a) Article 2.19, deleted Humidifier.

ITEM NO. 14 Refer to Sections 233522 - Vehicle Exhaust Magnetic Grabber

- a) This Section represents a voluntary bid alternate. Base Bid is Section 233523 –Vehicle Exhaust Removal System Pneumatic Grabber.

ITEM NO. 15 Refer to Section 283100 – Fire Alarm Systems

- a) This specification section has been added.

ITEM NO. 16 Refer to Drawing A-121

- a) Revised roof material: note at lower roof and clerestory to be “Fully Adhered EPDM Roofing Membrane System on Poly Iso Insulation (Min R-29.3) on Metal Deck (See Structural).

ITEM NO. 17 Refer to Drawing A-601

- b) Revised Room 109 Informal Floor finish to be LVT-2.
- c) Revised Room 134 Residential Laundry to be VCT-1.

ITEM NO. 16 Refer to Drawing I-101

- a) Revised Room Storage 113 floor finish to be VCT-1.
- b) Revised Room 134 Residential Laundry to be VCT-1.

ITEM NO. 17 Refer to Drawing M-302

- a) Water Heater Schedule: added Expansion Tank for Domestic Water Heaters: Bell & Gosset PT-12, 4.7 Gallons, 3.2 Gallon Acceptance, Diaphragm Tank with Polypropylene Liner, Air Charging Valve, and Pre-Charged to 40 PSI. Typical for WH1 & 2.
- b) Domestic Hot Water Pumps: added Bell & Gossett Series 100 all Bronze inline booster rated 6 GPM @ 8' HD, Motor 1/12 HP@115 volt. Install pump approximately 4'-0" AF in vertical pipe. Mechanical Contractor shall furnish and set a Honeywell L6006C1018 strap-on Aquastat and adjust to start pump when pipe temperature falls below 80 degrees and stop pump when pipe

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temperature rises above 100 degrees. Electrical trades will provide starter with thermal overload elements and all wiring.

- c) Electric ReHeat Coil Schedule: added ERC-1, Trane or Equal Electric ReHeat Coil 1 KW 208/1/60 HZ 10"x6" Duct size 200 CFM.

ITEM NO.18 Refer to Drawing M-301

- a) Exhaust fan EF-5 shall be 208/1 PH in lieu of 120/1PH

ITEM NO. 19 Refer to Drawings E-201 and E303

- a) Changed breaker for EF-5 to a 15A/2 pole and connect circuit to EM1-45, 47. Make circuit EM1-23 a spare breaker.
- b) Added 30A 208V receptacle in Kitchen 118 for range. Route (3) #10, (1) #10 GND – ¾" C. connect to 30A/2 pole shunt trip breaker in Panel EM2 circuit 44,46. Connect shunt trip to Ansul panel with a relay.
- c) Added Fire Alarm Control Panel with NEMA type 1 enclosure painted red, 120v input power supply, battery backup, (1) interior horn/strobe in corridor, (1) exterior weatherproof horn/strobe, (1) smoke detector for above the panel, (1) manual pull station in corridor. Install Fire Alarm Control Panel in Mechanical Room 132 and connect Ansul panel, audio/visual devices, smoke detector, pull station, flow and tamper switches to Fire Alarm Control Panel. See attached specification 283100 - Fire Alarm Systems.
- d) Connect gas valve solenoid for range to Ansul panel.

ITEM NO. 20 Refer to Drawing E-303

- a) Added Surge Protective Device in Panels EM2 and EM3. Add a 30A/3pole breaker in each panel and connect to Surge Suppressor Device with (3) #10, (1) #10GND -3/4" C.

ITEM NO. 21 BIDDER QUESTIONS & ANSWERS

- a) Attached please find Bidder Questions & Answers from 4/14/2021 through 4-29-2021.

END OF ADDENDUM WRITE-UP

Prepared by:  
NSA Architecture

Gregory Mason, AIA  
Senior Project Manager

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# Table of Contents

000010	Title Page
000100	Table of Contents; Document Set

**BIDDING REQUIREMENTS, CONTRACT CONDITIONS and GENERAL REQUIREMENTS**

Refer to Contract Bidding Documents

**SPECIFICATIONS**

**SECT.  
NO. SECTION TITLE**

**DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS**

001113	Advertisement for Bids
001630	Redford Township Standard Forms
002113	Instructions to Bidders <ul style="list-style-type: none"> <li>• AIA-A701-2018 Instructions to Bidders Sample</li> </ul>
002213	Supplementary Instructions to Bidders
002513	Prebid Meetings
002600	Procurement Substitution Procedures
002601	Procurement Substitution Form
003113	Preliminary Schedules
003119	Existing Conditions Information
003132	Geotechnical Data <ul style="list-style-type: none"> <li>• Geotechnical Report</li> </ul>
003143	Permit Application
004113	Bid Form – Stipulated Sum (Single Prime Contract) <ul style="list-style-type: none"> <li>• AIA-A101-2017 Standard Form of Agreement Between Owner and Contractor Draft</li> <li>• AIA-A201-2017 General Condition of the Contract for Construction Modified</li> </ul>
004313	Bid Security Forms <ul style="list-style-type: none"> <li>• AIA-310-2010 Bid Bond</li> <li>• AIA-312-2010 Performance Bond</li> <li>• AIA-312-2010 Payment Bond</li> <li>• AIA-312-2010 Warranty Bond</li> </ul>
004321	Allowance Form
004322	Unit Price Form
004323	Alternates Form
004373	Proposed Schedule of Values Form
008000	Supplementary Conditions
008100	Insurance

**DIVISION 1 – GENERAL REQUIREMENTS**

011000	Summary
012100	Allowances
012200	Unit Prices

04/29/21

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012300	Alternates
012500	Substitution Procedures <ul style="list-style-type: none"> <li>• Substitution Request Submittal Form</li> </ul>
012600	Contract Modification Procedures
012663	Fees for Changes in the Work
013100	Project Management and Coordination
013200	Construction Progress Documentation
013300	Submittal Procedures <ul style="list-style-type: none"> <li>• Submittal Routing Transmittals</li> </ul>
014000	Quality Requirements
014100	Special Inspections and Testing
014200	References
015000	Temporary Facilities and Controls
016000	Product Requirements
017300	Execution
017329	Cutting and Patching
017419	Construction Waste Management and Disposal
017700	Closeout Procedures
017823	Operation and Maintenance Data
017839	Project Record Documents
017900	Demonstration and Training

**DIVISION 2 – EXISTING CONDITIONS**

024119	Selective Demolition
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**DIVISION 3 – CONCRETE**

031000	Concrete Formwork
032000	Concrete Reinforcement
033000	Cast-In-Place Concrete
034113	Precast Prestressed Hollowcore Plank
035300	Concrete Floor Toppings

**DIVISION 4 – MASONRY**

042000	Unit Masonry
047200	Cast Stone Masonry

**DIVISION 5 – METALS**

051213	Architecturally Exposed Structural Steel Framing
051220	Structural Steel Framing
052100	Steel Joists Framing
053100	Steel Decking
054000	Cold Formed Metal Framing
055000	Metal Fabrications
055100	Metal Stairs
055300	Gratings

**DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES**

061053	Miscellaneous Rough Carpentry
061600	Sheathing

062013	Exterior Carpentry
062023	Interior Carpentry
064116	Plastic-Laminate-Faced Architectural Cabinets
064600	Wood Trim
066400	Plastic Paneling

**DIVISION 7 – THERMAL AND MOISTURE  
PROTECTION**

072100	Thermal Insulation
072500	Weather Barriers
072726	Fluid-Applied Membrane Air Barriers
074113	Standing-Seam Metal Roof Panels
074150	Metal Soffits
074646	Fiber Cement Fascia & Siding
075323	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
076200	Sheet Metal Flashing and Trim
077100	Manufactured Roof Specialties
077253	Snow Guards
078413	Penetration Firestopping
078446	Fire-Resistive Joint Systems
079200	Joint Sealants

**DIVISION 8 – OPENINGS**

081113	Hollow Metal Doors and Frames
081416	Flush Wood Doors
083006	Interior Sliding Doors
083113	Access Doors and Frames
083613	Sectional Overhead Doors (Alternate No. 2)
084113	Aluminum Entrances, Windows, & Door Framing
086120	Bi-Fold Garage Door
087100	Door Hardware
088000	Glazing
088300	Mirrors
089119	Fixed Louvers & Screen Walls

**DIVISION 9 – FINISHES**

092216	Non-Structural Metal Framing
092900	Gypsum Board
093013	Ceramic Tiling
095113	Acoustical Panel Ceilings
096513	Resilient Base and Accessories
096519	Resilient Tile Flooring
096723	Epoxy Resinous Flooring
096766	Fluid-Applied Athletic Flooring
096800	Tile Carpeting
099100	Painting
099300	Staining and Transparent Finishing

**DIVISION 10 – SPECIALTIES**

101423	Signage
102113	Phenolic Toilet Compartments
102600	Wall and Corner Protection
102800	Toilet, Bath, and Laundry Accessories

104413	Fire Protection Cabinets
104416	Fire Extinguishers
105113	Metal Lockers
107516	Ground-Set Flagpoles

**DIVISION 12 - FURNISHINGS**

123623.13	Plastic-Laminate-Clad Countertops
123661.10	Solid Surfacing Countertops

**DIVISION 21 – FIRE SUPPRESSION**

210500	Fire Protection Requirements
210510	Fire Protection Testing, Cleaning, Water Treatment and Startup
211000	Fire Protection Piping

**DIVISION 22– PLUMBING**

220500	Plumbing Requirements
220510	Plumbing Systems Testing, Cleaning, Water Treatment and Startup
220553	Plumbing System Identification
220600	Plumbing Specialties
220700	Plumbing Pipe Insulation
221000	Plumbing Piping
221500	Compressed Air Piping

**DIVISION 23 – HEATING, VENTILATING, AND  
AIR CONDITIONING**

230500	HVAC Requirements
230516	Piping Expansion Compensation
230519	Gages and Meters
230548	Vibration Isolation
230553	HVAC Identification
230593	Testing, Adjusting and Balancing
230713	External Duct Insulation
230716	Miscellaneous Equipment Insulation
230719	HVAC Pipe Insulation
230900	Temperature Control System
230913.23	Sensors & Transmitters
232500	HVAC Systems Testing, Cleaning, Water Treatment and Startup
233000	Air Distribution
233522	Vehicle Exhaust Removal System Magnetic Grabber (Alternate)
233523	Vehicle Exhaust Removal System Pneumatic Grabber (Base Bid)
235523	Natural Gas Fired Radiant Heater
237400	Rooftop HVAC Unit

**DIVISION 26 – ELECTRICAL**

260100	Basic Electrical Requirements
260519	Building Wire and Cable
260526	Grounding and Bonding
260529	Supporting Devices
260533.13	Conduit
260533.16	Boxes
260553	Electrical Identification

260583	Equipment Connections
260923	Occupancy Sensor Controls
262100	Utility Service Entrance
262416	Panelboards
262726	Wiring Devices
262813	Fuses
262816	Enclosed Switches
262913	Enclosed Motor Controllers
263200	Packaged Engine Generator/Transfer Switch
265113	Interior Luminaries
265613	Site Lighting

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

283100	Fire Alarm Systems
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**DIVISION 27 – COMMUNICATIONS**

270528	Pathways for Communication System
272000	Data and TV Communications
275116	Public Address

**DIVISION 31 – EARTHWORK**

311000	Site Clearing
312000	Earth Moving
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312319	Dewatering
312500	Soil Erosion and Sedimentation Controls

**DIVISION 32 – EXTERIOR IMPROVEMENTS**

321216	Asphalt Paving
321313	Concrete Paving, Walks, Curbs and Gutters
321723	Pavement Markings
328400	Irrigation Systems
329000	Plants
329113	Soil Preparation
329119	Landscape Grading
329219	Seeding
329223	Sodding
329400	Landscape Maintenance and Warranty

*Refer to Landscape Plan and Specifications Sheets  
L-1.0, L-2.1, and L-2.2*

**DIVISION 33 – SITE UTILITIES**

331116	Water Supply System
334100	Sewer Collection and Storm Drainage Systems

**DOCUMENT SET**

The Contract Drawings that accompany this Project Manual and with it form the Document Set are identified by the same Architect Project No. as this Project Manual.

Verification of Document Set Verify that the Document Set transmitted is complete. Compare Drawings received with lists. Documents in the Project Manual, except standard pre-printed Documents, are terminated with "END OF ..." statement.

The Document Set will include additional Documents, if any, that are issued in conjunction with addenda and bulletins.

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## SECTION 001113 - ADVERTISEMENT FOR BIDS

### 1.1 PROJECT INFORMATION

- A. Notice to Bidders: Qualified bidders may submit bids for project as described in this Document. Submit bids according to the Instructions to Bidders.
  - 1. Regulatory Requirements: The Charter Township of Redford shall govern submittal, opening, and award of bids.
- B. Project Identification: Redford Township North Fire Station – NSA Project Number 220012.00.
  - 1. Project Location: 18420 Beech Daly Road Redford, MI 48240.
- C. Owner: Charter Township of Redford, 15145 Beech Daly Road Redford, MI 48239
  - 1. Owner's Representatives: Chief Scott Demoff, Fire Chief and Diane Webb Twp. Superintendent.
- D. Architect: NSA Architecture, 23761 Research Drive, Farmington Hills, MI 48335.
  - 1. Architect's Representative: Gregory Mason, Senior Project Manager (248) 477-2475.
- E. Project Description: Project consists of a new single story Fire Station approximately 14,705 s.f. with a 959 s.f. mezzanine. Site improvements will include a 21-space surface parking lot.
  - 1. Project cost range is anticipated to be under Four Million Nine Hundred Seventy-Five Thousand Dollars (\$4,975,000.00).
- F. Construction Contract: Bids will be received for the following Work:
  - 1. General Contract (all trades).

### 1.2 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed lump sum bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
  - 1. Bid Date: Thursday May 6, 2021.
  - 2. Bid Time: 3:00 PM EDT.
  - 3. Location: Charter Township of Redford Clerk's Office,
- B. Bid results will be posted on [www.bidnetdirect.com](http://www.bidnetdirect.com) the following day.

### 1.3 BID SECURITY

- A. Bid must be accompanied by Bid security made payable to OWNER in an amount of 5% of Bidder's Maximum Bid price. The Charter Township of Redford or a Bid Bond by a surety licensed to conduct business in the State of Michigan and named in the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S.



Treasury Department. Attorneys-in-fact who execute the Bid Security or Bid Bond on behalf of the Surety shall affix to the bond a certified and copy of the power of attorney. The Bid security of the successful Bidder will be retained until the Agreement has been executed and the successful bidder has furnished the required Contract security, whereupon Bid Security will be returned. If Bidder fails to execute and deliver the Agreement and furnish the required Contract security within ten days of receipt of the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid Security of any Bidder whom OWNER believes to have a reasonable chance of receiving the Award may be retained by the OWNER until the earlier of the seven (7) days after the effective date of the Agreement or 120 days after the Bid opening. Bid Security of other Bidders will be returned within seven (7) days of the Bid opening.

#### 1.4 PREBID MEETING

- A. Prebid Meeting: See Document 002513 "Prebid Meetings."
- B. Prebid Meeting: A mandatory Prebid Zoom meeting for all bidders will be held on Thursday, April 15, 2021 at 10:00 a.m., prevailing Eastern Time. Prospective prime bidders are required to attend. The Zoom Meeting login and password will be posted on [www.bidnetdirect.com](http://www.bidnetdirect.com). During this meeting there will be an overview of the bidding documents along with a question-and-answer period. All bidders are required to perform a site visit prior to submitting a bid for this project to familiarize themselves with the existing conditions.
  - 1. Bidders' Questions: Bidders' Questions will be received up to 12:00 P.M. prevailing Eastern Time, Thursday, April 29, 2021. An Addendum responding to Bidder's Questions will be issued at 5:00 P.M., prevailing Eastern Time, Friday, April 30, 2021.

#### 1.5 DOCUMENTS

- A. Online Procurement and Contracting Documents: Obtain access on or after Thursday April 8, 2021, by contacting [www.bidnetdirect.com](http://www.bidnetdirect.com). Online access will be provided to all registered bidders and suppliers.

#### 1.6 TIME OF COMPLETION

- A. Successful bidder shall begin the Work on receipt of the Notice to Proceed scheduled for May 26, 2021, and shall be substantially completed by the day submitted by the bidder at time of bid on the bid form. Project will be subject to liquidated damages if Work is not substantially completed by the project completion date in the amount of \$500.00 per calendar day.

#### 1.7 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, Payment Bond, Warranty Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder. The Bonding must be issued by a surety licensed to conduct business in the State of Michigan and named in the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Treasury Department.

**1.8 BIDDER INTERVIEW**

- A. At the Owners sole discretion Interviews of Bidders under consideration following receipt of the bids will be conducted on May 13, 2021. Candidates will be notified 3 days in advance if they have been selected to be interviewed. Bidders should keep this date available on their calendars in the event they are selected for interviews.

**1.9 NOTIFICATION**

- A. This Advertisement for Bids document is issued through the Bidnet Direct Purchasing Group, [www.bidnetdirect.com](http://www.bidnetdirect.com). Bid results and notification of award will be posted on this site.

END OF DOCUMENT 001113

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## **SECTION 003113 - PRELIMINARY SCHEDULES**

### **1.1 PROJECT SCHEDULE**

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but do not affect Contract Time requirements. This Document and its attachments are not part of the Contract Documents.
- B. Available Project information includes the following:
  - 1. Redford Township North Fire Station: Refer to tentative schedule below.
- C. Project schedule including design and construction milestones and Owner's occupancy requirements is available for viewing as appended to this Document.
- D. Tentative Schedule is as follows:

	<b>START</b>	<b>COMPLETION</b>	<b>DURATION</b>
1. Project Advertisement:	3/24/2021	5/06/2021	4 weeks
2. Release Bidding Documents:	4/8/2021	4/8/2021	1 day
3. Pre-Bid Zoom Meeting:	4/15/2021	4/15/2021 - 10:00 AM	1 day
4. Bidders Questions Deadline:	4/29/2021	4/29/2021 - 12:00 PM	1 day
5. Bid Due Date:	5/6/2021	5/6/2021 - 3:00 PM	1 day
6. Bidder Interviews:	5/13/2021	5/13/2021	1 day
7. Bid Award:	5/25/2021	5/25/2021	1 day
8. Notice to Proceed:	5/26/2021	5/27/2021	1 day
9. Substantial Completion:	TBD	TBD	TBD

- E. Related Requirements:
  - 1. Document 004113 "Bid Form - Stipulated Sum (Single-Prime Contract)" for Contract Time.
  - 2. Section 011000 "Summary" for any applicable phased construction requirements.
  - 3. Section 013200 "Construction Progress Documentation" for Contractor's construction schedule requirements.

END OF DOCUMENT 003113

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## SECTION 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

### 1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name:  
1. Redford Township North Fire Station
- C. Project Location:  
1. 18420 Beech Daly Road Redford, MI 48239
- D. Owner: Charter Township of Redford, 15145 Beech Daly Road Redford, MI 48238
- E. Architect: NSA Architects, Engineers, Planners.
- F. Architect Project Number:  
1. 220012.00

### 1.2 CERTIFICATIONS AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by NSA Architecture and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

Redford Township North Fire Station

1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
2. The above amount may be modified by amounts indicated by the Bidder on the attached Document 004322 "Unit Prices Form" and Document 004323 "Alternates Form."

### 1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:

1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

**1.4 SUBCONTRACTORS AND SUPPLIERS**

- A. The following companies shall execute subcontracts for the portions of the Work indicated:
1. Concrete Work: \_\_\_\_\_.
  2. Masonry Work: \_\_\_\_\_.
  3. Roofing Work: \_\_\_\_\_.
  4. Plumbing Work: \_\_\_\_\_.
  5. HVAC Work: \_\_\_\_\_.
  6. Electrical Work: \_\_\_\_\_.

**1.5 TIME OF COMPLETION**

The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect on or before May 26, 2021, and shall be substantially complete with the Work by

\_\_\_\_\_  
(Bidder Insert Substantial Completion Date)

The Owner shall impose liquidated damages in the amount of \$500.00 per calendar day if the Work is not substantially completed by the substantial completion date provided by the Bidder.

**1.6 ACKNOWLEDGEMENT OF ADDENDA**

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:
1. Addendum No. 1, dated \_\_\_\_\_.
  2. Addendum No. 2, dated \_\_\_\_\_.
  3. Addendum No. 3, dated \_\_\_\_\_.

**1.7 FEES FOR CHANGE IN WORK**

- A. The undersigned Bidder agrees that if awarded the contract for this work, upon request by the Owner, perform additional work or omit specified work, or cause same to be performed or omitted by subcontractors, for the following percentage fees which have been computed in accordance with requirements specified in Section 012663.

Work By Contractor's Own forces                      12 ½ %

Work By Subcontractor's Forces                      7 ½ %

All tiers below GC, cumulative mark-up not to exceed 15%

It is agreed that in this context a subcontractor shall be as specified in Article 5 of the General Conditions.

**1.8 BID SUPPLEMENTS**

- A. The following supplements are a part of this Bid Form and are attached hereto.
  - 1. Bid Form Supplement - Alternates.
  - 2. Bid Form Supplement - Unit Prices.
  - 3. Bid Form Supplement - Bid Bond Form (AIA Document A310).

**1.9 CONTRACTOR'S LICENSE**

- A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in the State of Michigan, Charter Township of Redford, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

**1.10 SUBMISSION OF BID**

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2012.
- B. Submitted By: \_\_\_\_\_ (Name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_ (Handwritten signature).
- D. Signed By: \_\_\_\_\_ (Type or print name).
- E. Title: \_\_\_\_\_ (Owner/Partner/President/Vice President).
- F. Witness By: \_\_\_\_\_ (Handwritten signature).
- G. Attest: \_\_\_\_\_ (Handwritten signature).
- H. By: \_\_\_\_\_ (Type or print name).
- I. Title: \_\_\_\_\_ (Corporate Secretary or Assistant Secretary).
- J. Street Address: \_\_\_\_\_.
- K. City, State, Zip: \_\_\_\_\_.
- L. Phone: \_\_\_\_\_.
- M. License No.: \_\_\_\_\_.
- N. Federal ID No.: \_\_\_\_\_ (Affix Corporate Seal Here).

END OF DOCUMENT 004113



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## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.
3. See also related Submittal Form that must be used and filled out completely for all submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 013301 "Submittal Routing Transmittals" for transmittal to accompany all submittals.
5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections to 3<sup>rd</sup> Party Testing Agency.
6. Section 014100 "Special Inspections and Tests" for submitting tests and inspection reports, and schedules of tests and inspections to 3<sup>rd</sup> Party Testing Agency.
7. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
8. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
9. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
10. Section 017900 "Demonstration and Training" for submitting related photo documentation or video recordings of demonstration of equipment and training of Owner's personnel.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

#### 1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
  4. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Submittal Category: Action; informational.
    - d. Name of subcontractor.
    - e. Description of the Work covered.
    - f. Scheduled date for Architect's final release or approval.

#### 1.5 SUBMITTAL FORMATS

- A. Submittal Information: Utilize the NSA Submittal Routing Transmittal (Section 013301) and include the following information in each submittal:
1. Project name.
  2. Date.
  3. Name of Architect.
  4. Name of Contractor.
  5. Name of firm or entity that prepared submittal.
  6. Names of subcontractor, manufacturer, and supplier.
  7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
  8. Category and type of submittal.
  9. Submittal purpose and description.
  10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
  11. Drawing number and detail references, as appropriate.
  12. Indication of full or partial submittal.
  13. Location(s) where product is to be installed, as appropriate.
  14. Other necessary identification.
  15. Remarks.
  16. Signature of transmitter.
- B. Options: Identify options requiring selection by Architect.

- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. PDF Submittals: Unless noted otherwise all submittals shall be in Electronic PDF files issued through Web-Based Project Software. Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number using NSA Routing Transmittal. Exceptions for required Material Samples.
- E. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.
- F. Optional Paper Submittals if requested by Architect:
  - 1. Paper Submittals are required for submittals over 25 sheets, or sheet sizes over 11x17.
  - 2. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
  - 3. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  - 4. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
  - 5. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
  - 6. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- G. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using NSA Routing Transmittal form included in Project Manual (Section 013301)
- H. Prepare and submit submittals (and also RFI inquiries) required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- I. Electronic Delivery and Return:
  - 1. Deliver Submittals electronically to this NSA e-mail address: RFI@nsa-architecture.com.
  - 2. Web-Based Project Software: Any project or contractor required website for coordination of the project to be handled totally by the Contractor.
  - 3. Architect will return annotated file via NSA e-mail system.
  - 4. Material Samples will obviously require mailing.
  - 5. Architect will track internal submittals and RFI's for the purpose of creating tracking\ exception reports.
- J. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- K. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 working days for submittals of 25 sheets or less, and 15 working days for submittals of 25 sheets or more, as well as steel and sequential submittals for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow the same number of working days for each resubmittal as is required for review of the initial submittal.
- L. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- M. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- N. Use for Construction: Retain complete and record copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action noted on the transmittal form.

## 1.6 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams that show factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit electronic Shop Drawings on actual sheet size.
  3. BIM Incorporation: Develop and incorporate Shop Drawing files into BIM established for Project.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
    - a. Project name and submittal number.
    - b. Generic description of Sample.
    - c. Product name and name of manufacturer.
    - d. Sample source.
    - e. Number and title of applicable Specification Section.
    - f. Specification paragraph number and generic name of each item.
  3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

- a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return one sample of the selected product submittal sample with options selected.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
  2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
  3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
  4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
  5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
  6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
  2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
  3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - a. Name of evaluation organization.
  - b. Date of evaluation.
  - c. Time period when report is in effect.
  - d. Product and manufacturers' names.
  - e. Description of product.
  - f. Test procedures and results.
  - g. Limitations of use.

#### **1.7 DELEGATED-DESIGN SERVICES**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, registered in the State of Michigan, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM Incorporation: Incorporate delegated-design drawing and data files into BIM established for Project.
  1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as original Drawings.

#### **1.8 CONTRACTOR'S REVIEW**

- A. Action Submittals and Informational Submittals: Contractor to review each submittal and check for coordination, proper fit and finish with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents. Approval also indicates materials; field measurements; and quantities have been verified.



1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.
2. Architect's review is for design intent only. Architect will not review detailed dimensions, quantities, completeness of submittal as related to other submittals, or coordination of the submittal with other adjacent or related work.

### **1.9 ARCHITECT'S REVIEW**

- A. Action Submittals: Architect will review each submittal for general compliance with the Contract Documents, indicate observed corrections or revisions required, and return it.
  1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action on the Transmittal Form.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will discard submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 013300  
(Submittal Transmittal Follows)

# SUBMITTAL ROUTING TRANSMITTAL

**NSA Project No. 220012.00**

*Redford Township North Fire Station*

NSA Submittal No. **↑**

**INSTRUCTIONS: Do not cover with separate transmittal. Strike-out previous routing steps.**

<p><b>1 From Prime Contractor to NSA</b></p> <p>TO: NSA Architecture                  Attn: Construction Administration                  23761 Research Drive                  Farmington Hills, MI 48335                  Phone: 248-477-2444  <a href="mailto:rfi@nsa-architecture.com">rfi@nsa-architecture.com</a></p> <p>FROM:</p> <p>Phone: _____ Fax: _____</p> <p>Contractor Submittal Package No. _____                  NEW <input type="radio"/> RESUBMITTAL <input type="radio"/></p> <p>We have examined the items accompanying this form and believe them to be in compliance with Contract Documents, except where deviation is clearly noted.</p> <p>Contractor Representative's Signature _____                  Date: _____</p>	<p><b>2 NSA In-House Routing</b> Date Received: _____</p> <p><b>NSA IN-HOUSE ROUTING:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Discipline</th> <th style="width: 15%;">Reviewed</th> </tr> </thead> <tbody> <tr> <td>A <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>D <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>M <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>E <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>PA <input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Discipline	Reviewed	A <input type="checkbox"/>	<input type="checkbox"/>	D <input type="checkbox"/>	<input type="checkbox"/>	M <input type="checkbox"/>	<input type="checkbox"/>	E <input type="checkbox"/>	<input type="checkbox"/>	PA <input type="checkbox"/>	<input type="checkbox"/>	<p><b>3A To Consultant For Review</b> Date Received: _____</p> <p>TO: _____</p> <p>Attn: _____</p> <p>Sent By: _____</p> <p>Via: _____</p> <p>Date Sent: _____</p> <hr/> <p><b>3B From Consultant to NSA</b> Date Received: _____</p> <p>TO: NSA                  Attn: Construction Administration  <a href="mailto:rfi@nsa-architecture.com">rfi@nsa-architecture.com</a></p> <p>Submittal Review By: _____</p> <p>Returned Via: _____                  Date Sent: _____</p>	<p><b>4 From NSA to Contractor</b> Date Received: _____</p> <p>TO: _____</p> <p>Attn:</p> <p>The items submitted have been reviewed for compliance with the Contract Documents. The Contractor remains responsible for the complete submittal of all material required by the Contract Documents, and for the satisfactory completion of work in compliance with the Contract Documents.</p> <p>Submittal Review By: _____</p> <p><input type="radio"/> Contractor notified by phone on _____, by _____.</p> <p>Sent By: _____</p> <p>Via: _____                  Date Sent: _____</p>
Discipline	Reviewed														
A <input type="checkbox"/>	<input type="checkbox"/>														
D <input type="checkbox"/>	<input type="checkbox"/>														
M <input type="checkbox"/>	<input type="checkbox"/>														
E <input type="checkbox"/>	<input type="checkbox"/>														
PA <input type="checkbox"/>	<input type="checkbox"/>														

**INSTRUCTIONS: Group submittals into separate packages of related materials. Package and number Mechanical and Electrical submittals separately.**

Item No.	No. of Copies	Manufacturer/Supplier/Subcontractor	Item Description	Spec Section	3A #/Copies to Consult	3B #/Copies to NSA	4 #/Copies to Owner	Review Code	#/Copies to Contr.
1	_____	_____	_____	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	_____	_____	_____	_____	_____

**NSA REVIEW CODE:      1-REVIEWED AS NOTED      2-REVISE AND RESUBMIT      3-NOT ACCEPTED      4-REVIEWED      5-NOT REQUESTED**

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## **SECTION 072100 - THERMAL INSULATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Extruded polystyrene foam-plastic board.
  - 2. Glass-fiber blanket.
  - 3. Spray-applied polyurethane insulation.
  - 4. Vapor Retarders.
  - 5. Exterior Sheathing.
  - 6. Air Barriers.
  
- B. Related Requirements:
  - 1. Section 092900 "Gypsum Board" for sound attenuation blanket used as acoustic insulation.
  - 2. Section 133419 "Metal Building Systems" for pre-engineered building insulation.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
  - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.

3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

## **PART 2 - PRODUCTS**

### **2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD**

- A. Extruded polystyrene boards in this article are also called "XPS boards." Roman numeral designators in ASTM C 578 are assigned in a fixed random sequence, and their numeric order does not reflect increasing strength or other characteristics.
- B. Extruded Polystyrene Board, (Perimeter Slab and Foundation Insulation) ASTM C 578, Type X, 15-psi (104-kPa) minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Diversi Foam Products.
    - b. Dow Chemical Company (The).
    - c. Owens Corning.
    - d. Pactiv Building Products.
  2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- C. Ultra-Extruded Polystyrene (XPS) Board (cavity insulation) ASTM C 518, Type XPS, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 10 and 150, respectively, per ASTM E 84.
  1. Manufacturers: Basis of Design Dupont Styrofoam Brand Cavitymate Ultra XPS Foam Insulation. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Diversi Foam Products.
    - b. Owens Corning
    - c. Pactiv Building Products.

### **2.2 GLASS-FIBER BLANKET INSULATION**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. CertainTeed Corporation.
  2. Guardian Building Products, Inc.
  3. Johns Manville.
  4. Knauf Insulation.
  5. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Cavity Sound Attenuation Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

- C. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

### **2.3 SPRAY POLYURETHANE FOAM INSULATION**

- A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. BASF Corporation.
    - b. BaySystems NorthAmerica, LLC.
    - c. Dow Chemical Company (The).
    - d. ERSystems, Inc.
    - e. Gaco Western Inc.
    - f. Henry Company.
    - g. NCFI; Division of Barnhardt Mfg. Co.
    - h. SWD Urethane Company.
    - i. Volatile Free, Inc.
    - j. Johns Manville
  - 2. Minimum density of 1.5 lb/cu. ft. (24 kg/cu. m), thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F (43 K x m/W at 24 deg C).

### **2.4 VAPOR RETARDERS**

- A. Polyethylene Vapor Retarders: ASTM D 4397, 10 mils (0.25 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

### **2.5 EXTERIOR SHEATHING BOARD**

- A. Description: Polyisocyanurate insulation with factory assembled aluminum facing sheathing.
- B. Design Basis: Dow Chemical Company, "Thermax Xarmor (ci) Exterior Insulation.
- C. Polyiso Insulation: Complies with ASTM C 1289, Type I, Class 2.
- D. Flame and Smoke: Flame Spread Index of less than 75 and Smoke Developed Index of less than 450.
- E. Aluminum coated air/moisture facing, tape all seams and joints in accordance with manufacturer recommendations for continuous air/moisture barrier.
- F. R-Value: Long Term Thermal Resistance (LTR) Value as indicated on the Drawings or as required to meet the Michigan Energy Code.
- G. Subject to requirements, other manufacturers offering similar products:
  - 1. Atlas Roofing
  - 2. Dupont
  - 3. Johns Manville

4. RMax

- D. Board Thickness: As indicated on the Drawings or as required to meet the Michigan Energy Code.
- E. Board Width and Length: 48 inch (1219 mm) wide by 96 inch (2438 mm) long.
- F. Board Edges: Tongue and groove edge.

**2.6 ACCESSORIES**

- A. Insulation for Miscellaneous Voids:
  - 1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
  - 2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
- B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.
- C. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide ventilation between insulated attic spaces and vented eaves.
- D. Exterior Sheathing Accessories:
  - 1. Insulation Fasteners: Provide corrosion resistant mechanical fasteners with large heads or washers as recommended by insulation manufacturers.
  - 2. Cover exposed insulation above grade with wall cladding, specifically manufactured for use on rigid foam insulation.
  - 3. Sealing Tape: Provide at least 3 inch (76 mm) wide, solvent acrylic adhesive backed sheathing tape.
    - a. Products:
      - 1) Atlas EPS - ThermalStar 007.
      - 2) 3M - 8087.
      - 3) Dow – Weathermate.
  - 4. Flashing Tape: Provide flashing tape to flash windows, doorways, pipes, or transitions as necessary.
    - a. Products:
      - 1) Grace – Vycor.
      - 2) Protectowrap – BTXL20.
      - 3) 3M – 8067.
  - 5. Edge Covering: Provide J-channel edge protection for exposed insulation.
  - 6. Adhesives: Provide adhesive compatible with rigid insulation board.
    - a. Products:
      - 1) Liquid Nails - Ultra Quik Grip.
      - 2) Loctite - PL Premium.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

### **3.2 INSTALLATION, GENERAL**

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

### **3.3 INSTALLATION OF PERIMETER SLAB INSULATION**

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
  - 1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below exterior grade line.

### **3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION**

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  - 4. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
  - 5. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
  - 6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
    - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.



7. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
  - a. Exterior Walls: Set units with facing placed toward exterior of construction or as indicated on Drawings.
  - b. Interior Walls: Set units with facing placed as indicated on Drawings.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
  1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
  2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.
- C. Spray-Applied Cellulosic Insulation: Apply spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.

### 3.5 EXTERIOR SHEATHING INSTALLATION

- A. Install sheathing in accordance with manufacturers written installation instructions.
- B. Install sheathing in a single layer as required to achieve thermal transmittance required, and as indicated on the Drawings.
- C. Cut and fit board tightly around any substrate projections and penetrations.
- D. Joints: Stagger insulation board joints in one direction for each course, and abut edges and ends tightly to adjacent boards. Nest boards together with the tongue and groove seams.
- E. Secure sheathing to substrate with mechanical fasteners in compliance with manufacturer's requirements.
- F. Sheathing and Underlayment Installation:
  1. Install on exterior side of stud framing with long dimension positioned vertically.
  2. Fasten insulation to stud framing at 12 inch (305 mm) on center, maximum, using mechanical fasteners as recommended by insulation manufacturer.
  3. Seal joints with approved tape at corners, transitions to adjacent walls, floors, ceilings, or foundation as applicable to insulated areas.
  4. Gravity lap the tape, starting at the bottom and working up the wall.

### 3.6 AIR BARRIER INSTALLATION

- A. Install liquid air barrier in strict accordance with manufacturer specifications and recommendations.
- B. Application: Spray or roll-on. Apply in two coats.
- C. Penetrations: Ensure that all penetrations and cavity wall attachments are sealed air and water-tight.
- D. Apply at a rate that will ensure manufacturer's specified wet and dry film (cured) thicknesses for warranty.

- E. Protect membrane to cure per manufacturer recommendations.
- F. Clean up any overspray with water while wet, or by mechanical means if cured.

### **3.6 EXTERIOR INSULATION INSTALLATION**

- C. Install insulation in accordance with manufacturers written installation instructions.
- D. Install insulation in a single layer as required to achieve thermal transmittance required, and as indicated on the Drawings.
- G. Cut and fit insulation tightly around substrate projections and penetrations.
- H. Joints: Stagger insulation board joints in one direction for each course, and abut edges and ends tightly to adjacent boards. Nest boards together with the tongue and groove seams.
- I. Secure insulation to substrate with mechanical fasteners in compliance with manufacturer's requirements.
- J. Sheathing and Underlayment Installation:
  - 1. Install on exterior side of stud framing with long dimension positioned vertically.
  - 2. Fasten insulation to stud framing at 12 inch (305 mm) on center, maximum, using mechanical fasteners as recommended by insulation manufacturer.
  - 3. Seal joints with approved tape at corners, transitions to adjacent walls, floors, ceilings, or foundation as applicable to insulated areas.
  - 4. Gravity lap the tape, starting at the bottom and working up the wall.

### **3.7 CLEANING**

- A. Remove and legally dispose of waste materials and construction debris.
- B. Clean EPS insulation may be recycled through a national program; <http://www.epsrecycling.org/>.

### **3.7 PROTECTION**

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

## **SECTION 074113 - STANDING-SEAM METAL ROOF PANELS & METAL FASCIA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes standing-seam metal roof panels and prefinished metal fascia coverings.
- B. Related Sections:
  - 1. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Pre-installation Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
  - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
  - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
  - 5. Review structural loading limitations of deck, purlins and rafters during and after roofing.
  - 6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
  - 7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
  - 8. Review temporary protection requirements for metal panel systems during and after installation.
  - 9. Review procedures for repair of metal panels damaged after installation.
  - 10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
  2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.
1. Include similar Samples of trim and accessories involving color selection.

#### **1.5 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

#### **1.6 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For metal panels to include in maintenance manuals.

#### **1.7 QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  1. Build mockup of typical roof area and eave, including fascia, as shown on Drawings; approximately 48 inches square by full thickness, including attachments, underlayment, and accessories.
  2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

- D. Retain strippable protective covering on metal panels during installation.
- E. Copper Panels: Wear gloves when handling to prevent fingerprints and soiling of surface.

## 1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

## 1.10 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

## 1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including rupturing, cracking, or puncturing.
    - b. Deterioration of metals and other materials beyond normal weathering.
  - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 35 years from date of Substantial Completion.
- C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
  - 1. Warranty Period: 30 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Drawings.
  2. Other Design Loads: As indicated on Drawings.
  3. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E 1680 or ASTM E 283 at the following test-pressure difference:
1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 or ASTM E 331 at the following test-pressure difference:
1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.
- E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
1. Uplift Rating: UL 90.
- F. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
1. Fire/Windstorm Classification: Class 1A- 90.
  2. Hail Resistance: SH.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 STANDING-SEAM METAL ROOF PANELS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
  2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1637.
- B. Integral-Standing-Seam Metal Roof Panels: Formed with symmetrical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for non-sequential installation by mechanically attaching panels to supports using concealed clips and seam cap.
1. Design Basis: Firestone UNA-CLAD UC-3RS-Double-Lock Standing Seam Roofing.”
  2. Other Manufacturers: Subject to compliance with requirements, provide products by one of the other following manufacturers:
    - a. Morin - A Kingspan Group Company.
    - b. Petersen Aluminum Corporation.
  3. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

- a. Nominal Thickness: 0.032-inch (22 gauge) minimum.
- b. Exterior Finish: Two-coat Kynar 500 fluoropolymer.
- c. Color: Refer to Exterior Finish Schedule
4. Clips: Two-piece floating stainless steel to accommodate thermal movement.
  - a. Material: 0.028-inch- nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
5. Panel Coverage: 20 inches. w/ two equally spaced pencil ribs.
6. Panel Height: 1.5 inches.
7. Provide continuous panels with no transverse seams.

### 2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Basis of Design Firestone Clad-Gard SA Metal Underlayment. 60 mil self-adhering Styrene-Butadiene-Styrene (SBS) rubber modified self-adhesive membrane reinforced with non-woven fiberglass mat. Applied two (2) layers directly below metal roofing and over ISOGARD HG composite insulation.
  1. Thermal Stability: Stable after testing at 240 deg F; ASTM D 1970.
  2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D 1970.
  3. Design Basis: Firestone Clad Gard SA (30-year warranty) provide layer required to accommodate warranty.
  4. Other Manufacturers: Subject to compliance with requirements, provide compatible roof products by one of the following other acceptable manufacturers:
    - a. Carlisle Residential; a division of Carlisle Construction Materials.
    - b. GCP Applied Technologies Inc. (formerly Grace Construction Products).
    - c. Owens Corning.
- B. ISOGARD HG Composite Insulation – mechanically fastened.
- C. Install in accordance with manufacturers recommendations and in accordance with warranty limitations.

### 2.4 INSULATION MATERIALS

- A. Basis of design shall be Firestone ISOGARD HG Composite closed cell polyisocyanurate foam core laminated to black glass reinforced mat facer on one side and 7/16" oriented strand board on the other side over minimum (2) layers of polyisocyanurate board insulation with black glass reinforced mat laminated to faces, stagger joints. Total thickness to be approximately 5 1/2" inches. Mechanically fastened to metal deck with fasteners and spacing in accordance with the manufacturers recommendation and building code.
  1. Compressive Strength: 22 psi (D 1621)
  2. Density: 2 pcf (D 1622)
  3. Dimensional Stability < 2% (D 2126)
  4. Water Vapor Transmission < 1.0 perm (E 96)
  5. Water Absorbtion: < 1 % by volume
  6. Thickness: 1.5 Inches R-8.6 minimum (one layer)
- B. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam board with black glass reinforced mat laminated to faces, complying with ASTM C 1289 Type II Class 1, with the following additional characteristics:
  1. Compressive Strength: 20 psi (138 kPa) when tested in accordance with ASTM C 1289.
  2. Thickness: As indicated elsewhere.
  3. Size: 48 inches (1220 mm) by 96 inches (2440 mm), nominal.

4. a. Exception: Insulation to be attached using adhesive may be no larger than 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
  5. R-Value (LTTR): 5.7 minimum.
  6. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
  7. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
- C. Insulation shall be mechanically fastened to metal decking as detailed on the drawings. Manufacturer shall be responsible for fasteners and spacing to comply with building code and insurance requirements.

## 2.5 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Sub-framing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
  2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
  3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing, Trim and Fascia Coverings: Provide flashing, Fascia Coverings and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels. Minimum Gauge 22. Installation measures and techniques to prevent oil canning.
- D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 36 inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.
- E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot-long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.
- F. Panel Fasteners: Self-tapping screws designed to withstand design loads.
- G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.
1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape 1/2 inch wide and 1/8 inch thick.



2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

## 2.6 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
  1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
  2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
  4. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
  5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
  6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
    - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

## 2.7 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:
  1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
- D. Color Selection
1. Refer to Exterior Finish Schedule for metal color selections.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
  2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
    - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Miscellaneous Supports: Install sub-framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

### **3.3 UNDERLAYMENT INSTALLATION**

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.
1. Apply over the entire roof surface.
- B. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

### **3.4 METAL PANEL INSTALLATION**

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
  2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
  3. Install screw fasteners in predrilled holes.
  4. Locate and space fastenings in uniform vertical and horizontal alignment.
  5. Install flashing and trim as metal panel work proceeds.
  6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
  7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
  8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
1. Install clips to supports with self-tapping fasteners.
  2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
  3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
  4. Watertight Installation:
    - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    - c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently

weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

- H. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.
  - 1. Connect downspouts to underground drainage system indicated.

### **3.5 ERECTION TOLERANCES**

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

### **3.6 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

### **3.7 CLEANING AND PROTECTION**

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113

## **SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. General: New roofing systems to match existing systems. Existing systems to be patched are to be by same manufacturer and certified installer as to not void existing system's warranty.
- B. Section Includes:
  - 1. Adhered ethylene-propylene-diene-monomer (EPDM) roofing system.
  - 2. Roof insulation.

#### **1.2 DEFINITIONS**

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Pre-installation Roofing Conference: Conduct conference at Project site.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Verification: For the following products:
  - 1. Sheet roofing, of color required.

#### **1.5 INFORMATIONAL SUBMITTALS**

- A. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
- B. Sample Warranties: For manufacturer's special warranties.

#### **1.6 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For roofing system to include in maintenance manuals.

## **1.7 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

## **1.8 WARRANTY**

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations: Obtain components including roof insulation fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

### **2.2 PERFORMANCE REQUIREMENTS**

- A. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
- B. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- C. Roofing System Uplift Design: Tested by a qualified testing agency to resist the following uplift pressures:
  - 1. Corner Uplift Pressure: per the 2015 Michigan Building Code and ASCE 7, or as defined on the Structural Drawings.
  - 2. Perimeter Uplift Pressure: per the 2015 Michigan Building Code and ASCE 7, or as defined on the Structural Drawings.
  - 3. Field-of-Roof Uplift Pressure: per the 2015 Michigan Building Code and ASCE 7, or as defined on the Structural Drawings.
- D. Uplift Design Standard: Roofing system shall meet uplift design as defined by the "ANSI/ SPRI Wind Design Standard Practice for Roofing Assemblies."
- E. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

### **2.3 EPDM ROOFING**

- A. EPDM: ASTM D 4637, Type II, scrim or fabric internally reinforced, uniform, flexible EPDM sheet.

- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Carlisle Syntec Incorporated.
  - 2. Firestone Building Products.
  - 3. GAF Materials Corporation.
  - 4. Gen Flex Roofing Systems.
  - 5. Johns Manville, a Berkshire Hathaway Company.
  - 6. Versico Roofing Systems
  - 7. Mule-Hide Products Co. Inc.
- C. Thickness: 60 mils (1.5 mm) thickness, nominal.
- D. Exposed Face Color: Black.

## **2.4 AUXILIARY ROOFING MATERIALS**

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
  - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil- (1.5-mm-) thick EPDM, partially cured or cured, according to application.
- C. Protection Sheet: Epichlorohydrin or neoprene non-reinforced flexible sheet, 55- to 60-mil- (1.4- to 1.5-mm-) thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease, and oil.
- D. Bonding Adhesive: Manufacturer's standard.
- E. Seaming Material: Single-component, butyl splicing adhesive and splice cleaner or manufacturer's standard, synthetic-rubber polymer primer and 3-inch- (75-mm-) wide minimum, butyl splice tape with release film.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening membrane to substrate, and acceptable to roofing system manufacturer.
- G. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

## **2.5 SUBSTRATE BOARDS**

- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch (13 mm) thick.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Certain Teed Corporation.
    - b. Georgia-Pacific Building Products.

- c. National Gypsum Company.
  - d. Temple Inland Building Products.
  - e. United States Gypsum Company.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening substrate panel to roof deck.

## **2.6 ROOF INSULATION**

- A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces. Minimum R value below all membrane roofing areas shall be R-29.
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Atlas Roofing.
    - b. Carlisle SynTec Incorporated.
    - c. Firestone Building Products.
    - d. GAF Materials Corporation.
    - e. Johns Manville, a Berkshire Hathaway Company.
    - f. Rmax, Inc.
- B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.
- C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

## **2.7 INSULATION ACCESSORIES**

- A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
- B. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- C. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch (13 mm).
- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Certainteed.
    - b. Georgia-Pacific Building Products.
    - c. National Gypsum.
    - d. Temple-Inland Building Products.
    - e. United States Gypsum Company.
- D. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.



## **PART 3 - EXECUTION**

### **3.1 ROOFING INSTALLATION, GENERAL**

- A. Install roofing system according to roofing system manufacturer's written instructions.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weather-tightness of transition and to not void warranty for existing roofing system.

### **3.2 SUBSTRATE BOARD INSTALLATION**

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
  - 1. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions.

### **3.3 INSULATION INSTALLATION**

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Install tapered insulation under area of roofing to conform to slopes indicated.
- C. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
  - 1. Where installing composite and non-composite insulation in two or more layers, install non-composite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
- D. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
  - 1. Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m), and allow primer to dry.
  - 2. Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
  - 3. Set each layer of insulation in insulation adhesive, firmly pressing and maintaining insulation in place.
- E. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

- F. Mechanically Fastened and Adhered Insulation: Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.
  - 2. Set each subsequent layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
  - 3. Set each subsequent layer of insulation in insulation adhesive, firmly pressing and maintaining insulation in place.
- G. Loosely Laid Insulation: Loosely lay insulation units over substrate.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck.
  - 1. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.

### **3.4 ADHERED MEMBRANE ROOFING INSTALLATION**

- A. Adhere roofing over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll membrane roofing and allow to relax before installing.
- B. Accurately align roofing, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by manufacturer, and allow to partially dry before installing roofing. Do not apply to splice area of roofing.
- D. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeters.
- E. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing terminations.
  - 1. Apply a continuous bead of in-seam sealant before closing splice if required by roofing system manufacturer.
- F. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing terminations.
- G. Repair tears, voids, and lapped seams in roofing that do not comply with requirements.
- H. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal membrane roofing in place with clamping ring.

### **3.5 BASE FLASHING INSTALLATION**

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

### **3.6 PROTECTING AND CLEANING**

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075323

## SECTION 28 31 00 - FIRE ALARM SYSTEMS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Point addressable main fire alarm panel and devices,
- B. Fire alarm system shall not be limited to: Manual pull stations, ceiling smoke detectors, speaker/strobes, monitoring module devices, audio and visual devices. Include all associated code mandated components, wiring for a complete operating system. Fire alarm system shall include 25% reserve capacity for future devices.
- C. Fire alarm ADA signaling devices.
- D. Fire alarm wiring.
- E. The Fire Alarm vendor shall include in their bid any cost for requesting AutoCAD backgrounds for their use from the Architect or Engineer. The cost will be \$150.00 for the first plan, and \$50.00 for each additional plan that may be requested for AutoCAD use. A waiver of responsibility for the Architect and Engineer related to Contractor use of the CAD files shall be signed by the Fire Alarm vendor.

#### 1.2 RELATED SECTIONS

- A. All drawings and specification sections apply to work in this section. Furnish all items, articles, materials, equipment, operations or methods that are mentioned, listed or scheduled on drawings or are in this specification including all labor, equipment, materials and miscellaneous incidentals necessary and/or required for the completion of this project. The work covered under this section of the specifications is in no way complete within itself but is supplementary to the entire specification and drawings.

#### 1.3 REFERENCES

- A. Conform to requirements of 2015 Michigan Building Code, 2017 National Electrical Code, 2017 State of Michigan Code Rules Part 8, 2009 ICC/ANSI 117.1 and local code requirements.
- B. NFPA 72 - Current adopted code.
- C. NFPA 101 - Life Safety Code, current adopted code.
- D. State of Michigan – Bureau of Fire Services.
- E. UL References:
  - UL 864
  - UL268
  - UL268A
  - UL 217
  - UL 521
  - UL 228
  - UL 464
  - UL 38
  - UL 1481
  - UL 1711

**1.4 PROJECT RECORD DOCUMENTS**

- A. Record actual locations for complete fire alarm system.

**1.5 OPERATION AND MAINTENANCE DATA**

- A. Submit as specified.
- B. Operation Data: Operating instructions.
- C. Maintenance Data: Maintenance and repair procedures.

**1.6 REGULATORY REQUIREMENTS**

- A. Conform to requirements of 2015 Michigan Building Code, 2017 National Electrical Code, 2017 State of Michigan Code Rules Part 8, 2009 ICC/ANSI 117.1 and local code requirements.
- B. NFPA 72 - Current adopted edition.
- C. NFPA 101 - Life Safety Code, current adopted edition.
- D. State of Michigan, Bureau of Fire Services.
- E. UL References:
  - UL 864
  - UL268
  - UL268A
  - UL 217
  - UL 521
  - UL 228
  - UL 464
  - UL 38
  - UL 1481
  - UL 1711

**1.7 SCOPE OF WORK**

- A. This bid package shall include a voice/evacuation point addressable fire alarm panel, all devices, wiring and system certification ready for interconnection to one main fire alarm control panel as specified.

**1.7 SUBMITTALS**

- A. Submit for approval copies of the following shop drawings and product literature. Shop drawings shall contain title blocks identifying the project name and number. Submittals shall be marked to indicate the specific models, sizes, types, and options being provided. Submittals not so marked and incomplete submittals will be rejected.
  1. Plan drawings showing the locations (with room names and numbers) of the system components, including any adjustments in the quantities and locations of initiating devices and notification appliances to meet code requirements.
  2. Riser diagram showing system components, interconnecting wiring and connections to other building systems and equipment.
  3. Wiring diagrams showing manufacturer and field connections at component terminals, complete with conductor color codes and wire numbers.

4. System configuration list showing inputs, outputs, device addresses and custom location labels, device configurations and program logic.
5. Submit bill of materials, and not part of the submittal, with O&M Manuals.
6. Catalog pages showing system components.
7. System battery sizing calculations.
8. Power supply, amplifier and circuit sizing calculations.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Acceptable Manufacturers:
1. Simplex.
  2. National Time & Signal.
  3. Gamewell Fire Alarm (represented by Life Safety Systems).
  4. Honeywell.
- B. Other manufacturers may submit as voluntary alternate.

### **2.2 SYSTEM COMMUNICATIONS**

- A. The fire alarm control panel shall communicate with each addressable initiating and control device individually via shielded twisted pair signaling line circuits.
- B. Each signaling line circuit shall be capable of accessing up to 127/250 addressable devices.
- C. Each signaling line circuit shall allow up to 10,000 feet of wire length to the furthest addressable device.
- D. Communications shall be completely digital and shall include parity data bit error checking routines for address codes and check sum routines for the data transmission protocol.
- E. Each device shall be uniquely identified by the device address.
- F. There shall be no limit to the number of initiating devices which may be activated simultaneously.
- G. Each device shall be individually annunciated at the panel. Annunciation shall include the following conditions for each device.
1. Alarm, supervisory or trouble condition.
  2. Open, short or ground.
  3. Device failure or incorrect device installed.

### **2.3 SYSTEM DESIGN REQUIREMENTS**

- A. The system shall be device addressable and power limited.
- B. Provide a fire alarm control panel with the following:
1. Digital display.
  2. Multiple pushbutton keypad.
  3. LED status indicating lights.
  4. Audible status signals.
  5. Output relays.
  6. Battery charger and batteries.
  7. RS-232 communications card.

- C. Evaluate and document the appropriate notification appliance circuit class designation.
  - 1. In general, provide Class B notification appliance circuits.
  - 2. Size the control panel power supplies, amplifiers, and batteries for 25 percent spare capacity calculated with, 1 watt speaker loads, and 150 ma strobe light loads.
  - 3. Provide sufficient spare capacity on each notification appliance circuit for an additional 25 percent of notification appliances.
- D. The system shall supervise the following circuits and components:
  - 1. Initiating device circuits.
  - 2. Signaling line circuits.
  - 3. Notification appliance circuits.
  - 4. Addressable initiating and control devices.
  - 5. Control output wiring.
  - 6. Auxiliary control switches.
  - 7. System, NAC panels, remote annunciator, and remote microphone.
  - 8. Primary power supply.
  - 9. Secondary power supply.
- E. The system shall be capable of being programmed by the Owner on site to accommodate expansion or sequence of operation changes.
- F. Provide 120 volts AC primary power to the system.
- G. Provide a control panel battery charger capable of fully charging a 200 amp-hour battery within 24 hours.
- H. Provide sufficient secondary power battery capacity to operate the entire system upon the loss of primary power for a period of 24 hours in a normal supervisory mode followed by 5 minutes of evacuation alarm operation.
  - 1. The system shall automatically transfer to and from the secondary power batteries upon an interruption of primary power without initiating a nuisance alarm.
  - 2. The system shall delay initiating a trouble condition for two seconds upon a transfer to or from primary power to avoid nuisance trouble conditions during emergency generator testing.
- I. Provide smoke detectors as required by code and as shown.
- J. Provide sufficient audible notification appliances to achieve a sound level of 15 dBA above ambient sound level, but not less than 60 dBA nor more than 110 dBA in all occupiable spaces. The sound level in mechanical rooms shall be not less than 90 dBA. The sound shall be a three-pulse temporal pattern evacuation tone.
- K. Provide visual notification appliances in accordance with the intensity and spacing requirements of NFPA 72.
  - 1. Provide speaker/strobes in accordance with plans and specifications.
  - 2. Synchronize strobes.
- L. Provide individually addressable monitor modules to monitor non-addressable initiating devices and status contacts of other systems.
  - 1. Monitor modules shall use Class B initiating device circuits to monitor the initiating devices and status contacts.
- M. Provide panel auxiliary relay contacts and individually addressable control module contacts, including the required panel control logic programming, to interface with control circuits of other systems and equipment.
- N. Assign each initiating device and control module a unique device address. Label each device with its unique address using a clear adhesive backed nylon or Mylar tape with black text. Install the label on the base of any device with a removable or replaceable head.
- O. Label each initiating device and control module that describes the type, room number/name and exact location of the device.

- P. Provide transient voltage surge suppression for the system.

#### 2.4 SYSTEM PERFORMANCE REQUIREMENTS

- A. Under normal conditions, the control panel digital display shall display a "SYSTEM NORMAL" message and the current time and date.
- B. Should an abnormal condition be detected, the appropriate alarm, supervisory, or trouble panel LED shall flash and the appropriate panel audible signal shall sound.
- C. The appropriate panel alarm, supervisory, trouble, or supervisory maintenance alert output relay contact shall close and send a signal through the MOSCAD alarm transmitter to the Division of Public Safety and Security (DPSS).
- D. The fire alarm control panel shall manage all input and output signals through software programming and hardware configuration.
- E. The panel shall display the following information relative to the abnormal condition:
  - 1. Custom location label (40 characters minimum).
  - 2. Type of initiating device.
  - 3. Type of abnormal condition (alarm, supervisory or trouble).
- F. If the abnormal condition is an alarm, the following actions shall occur:
  - 1. Speaker/strobe notification appliances shall sound and flash throughout the building.
- G. Pressing the appropriate Acknowledge pushbutton shall acknowledge the alarm, supervisory or trouble condition unless the system is in the silence inhibit mode. Once acknowledged, the appropriate LED shall latch on and the panel audible signal shall be silenced.
- H. If the abnormal condition is an alarm, pressing the Silence pushbutton shall silence the audible notification appliances and stop the visual notification appliances from flashing.
- I. Upon a subsequent abnormal condition from another device, the appropriate panel LED shall flash, the panel audible signal shall again pulse and the panel display shall show the new abnormal condition.
- J. After all of the points have been acknowledged and silenced, the LED's shall glow steady and the panel audible signals shall be silenced. The total number of alarms, supervisory, and trouble conditions shall be displayed along with a prompt to review each list chronologically. The end of the list shall be indicated.
- K. Pressing the System Reset pushbutton shall return the system to its normal state if the abnormal conditions have been remedied.
  - 1. The display shall step the user through the reset process with simple English language messages. Messages including "IN PROCESS", "RESET COMPLETED", and "SYSTEM NORMAL" shall provide operator assurance of the sequential steps as they occur.
  - 2. The ventilation system motors shall restart sequentially.
  - 3. The outputs to control circuits of other systems and equipment shall return to normal.
- L. Should an abnormal condition continue to exist, the system shall remain in an abnormal state. The system control relays shall not reset. The panel LED's shall remain on. The display shall indicate the total number of alarm, supervisory and trouble conditions present in the system along with a prompting to review the points. These points shall not require acknowledgment if they were previously acknowledged.
- M. Should a trouble condition continue to exist, the trouble audible signal shall resound at preprogrammed time intervals to act as a reminder that the fire alarm system is not 100 percent operational. Both the time interval and the trouble audible signal shall be programmable to suit the Owner's application.
- N. Should the Alarm Silence Inhibit function be active, the System Reset pushbutton shall be ignored and a "RESET INHIBITED" message shall be displayed for a short time to indicate that action was not taken. For operator assurance, a "RESET NO LONGER INHIBITED" message shall be displayed when the inhibit function times out.



- O. The fire alarm control panel shall communicate with each addressable initiating and control device individually via shielded twisted pair signaling line circuits.
- P. Each signaling line circuit shall be capable of accessing up to 127/250 addressable devices.
- Q. Each signaling line circuit shall allow up to 10,000 feet of wire length to the furthest addressable device.
- R. Communications shall be completely digital and shall include parity data bit error checking routines for address codes and check sum routines for the data transmission protocol.
- S. Each device shall be uniquely identified by a device address.
- T. There shall be no limit to the number of initiating devices which may be activated simultaneously.
- U. Each device shall be individually annunciated at the panel. Annunciation shall include the following conditions for each device.
  - 1. Alarm, supervisory or trouble condition.
  - 2. Open, short or ground.
  - 3. Device failure or incorrect device installed.

## 2.5 FIRE ALARM CONTROL PANEL

- A. The fire alarm control panel shall be modular with solid state, microprocessor based electronics.
- B. The panel shall display only those primary controls and displays essential to operation during a fire alarm condition.
- C. The panel shall include a LCD digital display, with a minimum of 80 characters.
  - 1. The display shall be backlit for enhanced readability. It shall not be lit during an AC power failure unless an alarm condition occurs or there is keypad activity.
  - 2. The display shall support both upper and lower case letters. Lower case letters shall be used for soft key titles and for prompting the user. Uppercase letters shall be used for system status information. A cursor shall be visible when entering information.
- D. A panel audible signal shall sound during alarm, supervisory, or trouble conditions. This audible signal shall sound differently during each condition to distinguish one condition from another. The audible signal shall also sound differently during each key press to provide audible feedback (chirp) indicating that the key has been pressed properly.
- E. The system program shall be stored in a non-volatile flash EPROM memory within the panel. Loss of primary and secondary power shall not erase the program stored in memory.
  - 1. The program shall be capable of selective input/output control functions.
  - 2. The program shall enable initiating devices to be individually configured on site to provide either alarm and trouble, supervisory and trouble, alarm only, supervisory only, trouble only, current limited alarm, no alarm, normally closed device monitoring, a non-latching circuit or an alarm verification circuit.
  - 3. The program shall enable initiating devices to be disabled or enabled individually.
- F. The panel or the field devices shall determine the alarm decision for each detector by comparing the detector value to stored values.
  - 1. The panel shall automatically maintain a constant smoke obscuration sensitivity in percent of smoke obscuration format for each detector.
  - 2. The panel shall maintain a moving average of each smoke detector's smoke chamber value to automatically compensate for dust and dirty conditions that could affect detection operation.
  - 3. The smoke obscuration sensitivity shall be adjustable to within 0.3 percent of either limit of the UL window (0.5 percent to 4.0 percent) to compensate for any environment.

4. When a detector's average value reaches a predetermined value, a "MAINTENANCE ALERT" condition shall be audibly and visually indicated at the panel. The LED on the detector base shall glow steady giving a visible indication at the detector location. If a dirty detector is left unattended and its average value increases to a second predetermined value, a "TROUBLE" condition shall be indicated at the panel. To prevent nuisance alarms, these dirty conditions shall in no way decrease the amount of smoke obscuration necessary for system activation.
  5. The panel shall continuously perform an automatic self-test routine on each detector which shall functionally check detector electronics and ensure the accuracy of the obscuration values being transmitted to the panel. Any detector that fails this test shall indicate a "SELF TEST ABNORMAL" or "TROUBLE" condition at the panel.
  6. Each detector shall be scanned by the panel for its type identification to prevent inadvertent substitution of another detector type. The panel shall operate with the installed device but shall initiate a "WRONG DEVICE" or "TROUBLE" condition until the proper type is installed or the programmed detector type is changed.
  7. An operator at the panel, having a proper access level, shall have the ability to manually access the following information for each detector.
    - a. Device type.
    - b. Device status.
    - c. Present average value.
    - d. Peak detection values.
    - e. Present sensitivity selected.
    - f. Detector range (normal, dirty, etc.).
  8. An operator at the panel, having a proper access level, shall have the ability to perform the following for each detector:
    - a. Enable or disable the point.
    - b. Clear peak detection values.
    - c. Clear verification tally.
    - d. Control a detector's relay driver output.
  9. The panel shall be programmable to automatically change the sensitivity settings of each detector based on time-of-day and day-of-week (for example, to be more sensitive during unoccupied periods and less sensitive during occupied periods). There shall be seven sensitivity settings available for each detector.
  10. The panel shall be programmable for a pre-alarm or two-stage function. This function allows an indication to occur when, for example, a detector with a 3 percent set point reaches a threshold of 1.5 percent smoke obscuration.
  11. Smoke detectors shall be provided with the ability for alarm verification. When in alarm verification mode, only a verified alarm shall initiate the alarm sequence operation.
    - a. The activation of a smoke detector shall initiate an alarm verification operation whereby the panel resets the activated detector and waits for a second alarm activation. If, within an adjustable time delay, a second alarm is reported from the same or any other smoke detector, the system shall process the alarm. If no second alarm occurs within the time delay, the system shall resume normal operation.
    - b. The alarm verification shall operate only on smoke detector alarms. Other activated initiating devices shall be processed immediately. The alarm verification operation shall be selectable by device.
    - c. The panel shall have the capability to display the number of times a device has gone into a verification mode.
    - d. Detectors in alarm verification mode shall have the ability of being divided into different groups whereby any two activations from a group shall cause the panel to follow its programmed alarm sequence.
- G. The panel shall have four pass code controlled access levels. Pass codes shall be entered using the panel key pad.
1. To maintain security when entering a pass code, the digits entered shall not be displayed.
  2. When a correct pass code is entered, an "ACCESS GRANTED" message shall be displayed. The access level shall be in effect until the keypad is inactive for 10 minutes or the operator logs out.

3. Should an invalid code be entered, the operator shall be notified with a message and shall be allowed up to two more chances to enter a valid code. After three unsuccessful tries, an "ACCESS DENIED" message shall be displayed.
  4. Access to a level shall only allow the operator to perform actions within that level and actions of lower levels, not actions of higher levels.
  5. Access levels shall be associated with the following functions:
    - a. Alarm silence.
    - b. System reset.
    - c. Set time and date.
    - d. On/Off/Auto control selection.
    - e. Manual control.
    - f. Disable and enable circuits and devices.
    - g. Clear historical logs.
    - h. Walk test.
    - i. Change alarm verification.
    - j. Change detector sensitivity.
    - k. Function keys.
  6. An access level shall also be associated with acknowledge keys. If the operator presses an Acknowledge key with insufficient access, an error message shall be displayed. The points on the log shall scroll with each key press, but the points shall not be acknowledged.
- H. The panel shall have the ability to store a minimum of 300 events in an alarm log plus a minimum of 300 events in a separate trouble log. These events shall be stored in a battery protected random access memory. Real time and date shall accompany history event recordings.
- I. The panel shall supervise subordinate module LED's for burnout or disarrangement. Should a problem occur, the panel shall display the module and LED location numbers to facilitate location of that LED.
- J. The panel shall have function keys programmed as follows for disabling and enabling circuits or groups of devices for maintenance or testing purposes. While circuits or devices are disabled, the panel shall indicate "TROUBLE".
- K. The panel enclosure shall be equipped with opaque door panels and locks providing security from tampering.

## 2.6 BATTERIES

- A. Batteries shall be lead calcium and supervised so that a failure produces a "TROUBLE" signal.

## 2.7 ADDRESSABLE DETECTOR BASES

- A. Detector mounting bases shall be individually addressable, suitable for two wire operation, with a twist-lock head locking feature a DIP switch or electronic addressing means, and an LED that provides power "on", alarm and trouble indications. The bases shall be listed for ceiling and wall mounting. Removal of the detector head shall cause a trouble condition at the panel.
- B. The bases shall include an auxiliary relay that is controlled from the panel.
- C. Bases shall be connected to remote alarm indicators mounted in plain view at 48 inches above the floor.

## 2.8 PHOTOELECTRIC SMOKE DETECTOR HEADS

- A. Photoelectric type smoke detector heads shall include a pulsed LED light source and a silicon photodiode receiver, at least seven levels of sensitivity selectable at the panel, an integral insect screen and 360 degree smoke entry.

## 2.9 MANUAL PULL STATIONS

- A. Manual pull stations shall be individually addressable, suitable for two wire operation, with a high impact red Lexan body and raised white lettering. Stations shall include an ADA compliant single action operating mechanism with a mechanical latch to hold an operated station open until reset.

- B. Reset shall be accomplished through use of a key common to the panel or a small flat-blade screwdriver. Stations which use Allen wrenches or special tools to reset are not acceptable. The point of reset shall be front accessible so stations with tamper-resistant covers can be reset easily.

#### **2.10 MONITOR MODULES**

- A. Monitor modules for individual two wire contact monitoring shall be individually addressable, suitable for two wire operation, with a DIP switch or electronic addressing means, and a programmable latch feature for monitoring momentary contacts. Monitor modules shall monitor a single normally open dry contact using a Class B, Style B, initiating device circuit.
- B. Monitor modules for zone or four wire device monitoring shall be individually addressable, suitable for four wire operation utilizing 24 volt DC power from the panel, and with a DIP switch or electronic addressing means. Zone monitor modules shall monitor multiple normally open dry contacts using a Class B, Style B, two wire initiating device circuit, or monitor a four wire device using a Class B, Style D, four wire initiating device circuit.

#### **2.11 SPEAKERS**

- A. Speakers shall be rated 125 to 12,000 Hertz, include four taps rated at from 1/4 to 2 watts, produce a sound level of 82 dBA at 10 feet when set at the 1/2 watt tap, and with a semi-flush body capable of wall or ceiling mounting.
- B. Speakers for locations with high ambient noise may be high efficiency horns rated 500 to 6,000 Hertz minimum, 10 watts minimum, include four or more taps, produce a sound level of 106 dBA minimum at 1 meter when set at the 1 watt tap, and be capable of wall or ceiling mounting.

#### **2.12 STROBES**

- A. Strobes shall be rated 15, 30, 60, 75, 110, or 177 candela as shown for proper illuminance, with a 1 Hertz flash rate, Xenon flash tube, white body, clear Lexan lens with red "FIRE" or international fire symbol lettering, capable of being synchronized, and capable of wall or ceiling mounting.

#### **2.13 COMBINATION SPEAKER/STROBES**

- A. Combination speaker/strobes shall consist of the speakers and strobes specified above, but combined on a single mounting plate. Combination units used outdoors and in wet areas shall be waterproof and mounted to waterproof back boxes.

#### **2.19 FIRE ALARM WIRING**

- A. Use (1) pair #18/2 twisted shielded for initiating devices unless directed otherwise by the manufacturer.
- B. Use (1) pair #14 for power duct smoke detectors as directed by the manufacturer.
- C. Use (1) pair #14 for speaker/strobe circuits as directed by the manufacturer.
- D. Use (2) pair #18 for control to remote alarm and test station with duct smoke detector.
- E. All fire alarm wiring shall be in compliance with NEC Article 760.
- F. Fire alarm supplier to provide circuiting to comply with voltage drop and load calculations per Code requirements.
- G. All wire sizes indicated are minimum.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install fire alarm wiring in conduit for all wall mounted fire alarm devices and fire alarm manual pull stations.
- B. All junction boxes for fire alarm raceway system shall be painted red labeled "FIRE ALARM".
- C. Provide and install the fire alarm system in strict accordance with the plans and specifications, codes and manufacturer's instructions.
- D. Fully test the fire alarm system in accordance with NFPA 72, Chapter 7.
- E. Electrical Trades and the fire alarm vendor shall be responsible for furnishing devices above those shown on the drawings as required to meet the inspector's system walk-thru.
- F. Audio/visual and visual units shall be installed in accordance with Michigan Building Code under the fire protection system section or NFPA 72 Fire Alarm Code wall mounted appliance shall be mounted such that the entire lens is not less than 80 inches, and not greater than 96 inches above the finished floor. Ceiling mounted device is an acceptable method. Ceiling mounting devices are designated with a C subscript letter.
- G. Manual pull stations shall be mounted a maximum of 48" from the floor level to the activating handle or to the lever. The current adopted Michigan Building Code edition fire protection system Section 907 shall govern over NFPA 72 Fire Alarm Code for mounting heights. Use conduit for manual pull stations. Conceal the conduit drop in all finished spaces.
- H. Electrical Trade shall complete the entire fire alarm system in accordance with plans and specifications.
- I. All fire alarm wiring installed through non-accessible ceiling spaces need not be installed in conduit. Free air method will be acceptable for those spaces. Properly secure to ceiling structure, use J hooks or D-rings as the cable management method. The cable shall be plenum rated for this application.
- J. Ceiling mounted fire alarm device locations are shown diagrammatic. The design requirement shall be to install the device centered in the classrooms, corridor, offices, etc. Confirm the location with lighting, speaker, HVAC diffusers, to avoid interferences.
- K. Electrical Trades shall complete all fire alarm interface wiring food service fire suppression (Ansul) system connections.
- L. Electrical Trades shall furnish and install a circuit breaker lock for the 120 volt circuit serving the fire alarm panel. Label the panelboard directory branch circuit text in red.

### **3.2 MANUFACTURERS FIELD SERVICES**

- A. The manufacturer shall provide on-site technical for start-up, commissioning, programming, and trouble shooting.
- B. Provide certification that system operates to meet Local and State requirements.
- C. Owner training. Provide (2) 2 hour system training sessions at Owner's facility.
- D. Sound coverage. Fire alarm vendor shall be responsible for proper audibility levels. Include all costs for additional devices, inspection and testing.

**3.3 TESTING**

- A. Demonstrate complete operation of the fire alarm system in accordance with NFPA 72, NFPA 101, the Michigan Building Code, and Manufacturer's instructions.
- B. Also submit a signed and dated FS-12A Form to the Michigan Bureau of Fire Services.

**3.3 WARRANTY**

- A. Provide a one-year guarantee from date of system acceptance by the Owner.

**3.4 CLOSE-OUT**

- A. Provide O&M manuals, warranty letter, as-built drawings and inspection sign-off.

END OF SECTION 283100

The following are responses to questions asked by bidders. Responses are bolded.

1. Regarding becoming an approved vendor: we noticed that we were not an approved supplier for the generator and its accessories. Before we fulfill those requests, I wanted to make sure that we have permission to do so. If you do not mind letting me know if this is okay, that would be great. I am more than willing to provide you with any information necessary to help with your decision.

**Response: You are welcome to follow the criteria specified for substitutions under Section 012500, then we will review the request.**

2. Regarding items for clarification: items for clarification.
  - a. Bid Form item 1.9, attests "that all fees, permits etc., pursuant to submitting this proposal have been paid in full". Please clarify what would need to be paid.

**Response: The intent of this requirement is stipulating that there are no unpaid permits costs or fees associated with past projects your firm has been involved with Redford Township prior to submitting your bid. We will correct the "City of Novi" to "Redford Township" on the next addendum. Also please refer to Addendum One, Item 6. The Contractor will be responsible for pulling all permits and paying for all permits with the following exception. Redford Township will waive the permit fees for the building and trades. Contractor will, however, be responsible for any follow up inspection fees associated with rejected work. All other County and other municipal permits and inspection fees will be the responsibility of the Contractor.**

- b. Who is responsible for Builders Risk?

**Response: Contractor will be responsible for all Insurance requirements stipulated under Section 008100 – Insurance, of the specifications. Please review these carefully.**

- c. Liquidated Damages (\$500/calendar day) & Substantial Completion date (5/31/2022), while typically 12 months is very workable, please clarify your anticipated plan for appropriate schedule/date changes to account for unforeseen extended lead time on materials and extended time onsite by trades to allow for social distancing as may be required?

**Response: Following execution of the Contract for Construction changes to the schedule would require the approval of the Owner, Architect, and Contractor through a signed Change Order. The execution plan to achieve the project completion date will be the responsibility of the selected Contractor. The Bidder will establish the date of substantial completion on the bid form per Addendum No. 3.**

3. Regarding finish schedules:

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copy: F. Ray, G. Mason

- a. In room 134 it calls for VCT-2, however there is no spec for it, it shows VCT-1 in the room finish schedule.

**Response: Room 134 Residential Laundry Floor Finish is VCT-1**

- b. In room 113 the room finish schedule calls for VCT-1, but it shows LVT-2 in the finish plan.

**Response: Room 113 Storage Floor Finish is VCT-1**

- c. In room 109 it shows CPT-4, there is no CPT-4 and in the finish plan it shows LVT-2.

**Response: Room 109 Floor Finish is LVT-2**

4. Regarding Display Sign: Please provide a drawing showing the base for the owner provided display sign.

**Response: Please refer to details no. 3, 4, 5, & 6 on sheet A-615 of the contract drawings for the alternate sign base details.**

5. Regarding Precast Topping: Section 35300 Concrete Floor Topping calls for an HD Emery Aggregate topping that is typically specified in areas with high impact loads.

- a. Please confirm if standard limestone aggregate size applicably for a 2" topping is acceptable to top the hollow core precast at the mezzanine.

**Response: Standard limestone aggregate size would be acceptable.**

- b. Is there somewhere else within the project that section 035300 is to be used?

**Response: No, this is only applicable at the mezzanine in the Apparatus Bay.**

6. Regarding Vehicle Exhaust Multiple Specs: There are (2) different vehicle exhaust specifications issued. Which is to be included in the bid?

**Response: Basis of Design is the pneumatic system and should be included in the base lump sum bid, the magnetic system may be bid as a volunteer alternate.**

7. Regarding Range Hood Fire Suppression: Is there a fire suppression system required for the range hood?

**Response: Yes, we have an Ansul system specified on drawing M-201 for the Range Hood.**

8. Regarding Fire Alarm – Other than smoke detectors in the Bunk Rooms we do not see any fire alarm systems. Please clarify if the range hood, smoke detectors and fire protection (sprinkler) system is to be monitored by a supervisory station and is this to be signaled to a third-party alarm company or just within the fire station itself?



**Response: Plans call for 9 smoke detectors, 6 in the bunk rooms, 1 in Office 129, 1 in Dayroom 119, and 1 in Office 114. There are tamper and flow switch and an exterior horn/strobe device connected by the electrical contractor. The Ansul system will be wired by the electrical contractor per wiring diagram on M-FS-1. All are to be monitored inside the building. Refer to Addendum 3 for additional fire alarm requirements.**

9. Regarding Mechanical Specs: Division 23 specifies systems humidification and hydronic piping systems that are not applicable to the work shown on the drawings. Please clarify.

**Response: Humidification and hydronic piping systems will not be required for this project. This is clarified under Addendum 3.**

10. Regarding Unit Pricing: Please accept our request to re-consider the requirement for the Unit Pricing (30-line items) to be submitted on the day of the bid. Again, the time spent compiling this pricing could be better spent vetting other bids in order to provide the most complete and cost-effective proposal. This is especially true in the present market where costs are escalating dramatically. These Unit Prices vary from subcontractor to subcontractor and the bidding GC will have to complete these line items before a determination is made as to who they wish contract with. These Unit Prices could be submitted with the Schedule of Values from the low competitive bidders within 48 hours of the close of business.

**Response: Unit pricing is required to be submitted with the bid on the bid due date. We would suggest reaching out to your Excavator 48 hours in advance of the bid due date and request completion of the unit pricing forms in advance of the bid submittal.**

11. Regarding window treatments: Who is responsible for window treatments?

**Response: Window Treatments will be provided by the Township**

12. Regarding walk-through: Is there a scheduled walk-through date and time?

**Response: There are no scheduled site walk-throughs. Bidders are responsible for visiting the site and familiarizing themselves with the existing conditions prior to submitting a bid. The Contract Documents include a site survey, site demolition plan, and geotechnical report.**

13. Regarding Existing Structures: Are there any existing building structures on site?

**Response: Refer to response above. There are no building structures on the target site, refer to site demolition plan.**

14. Regarding delivery of bids: Will a person be at the Clerk's office to receive bids on Thursday, May 6, up until 3pm?

**Response: Bids are to be submitted in person to the Clerk's office on May 6<sup>th</sup> before 3 pm. The Clerk's office is occupied.**

15. Regarding Vehicle Exhaust Removal System: Per the Table of contents and section 233523 there is a reference to a vehicle exhaust removal system Alternate. The alternate bid form section 004323 doesn't have an alternate listed for vehicle exhaust system, please advise if alternate is required.

**Response: There is no Alternate for Vehicle Exhaust System removal, this has been clarified under Addendum 3.**

16. Regarding Exterior Signage: Is there any exterior or interior signage in the scope of work? Please advise.

**Response: This project contains both interior and exterior signage. Please access drawings and specifications through BidnetDirect.com - Redford Twp. North Fire Station for information on signage.**

17. Regarding Steel Fabrication Certification – Section 051200 require an AISC Certified Fabricator with a Sophisticated Paint Endorsement and An AISC Certified Erector. This really limits who can bid this work and will cause the cost to be higher. Work can be contracted to meet AISC standards without requiring certification. With that said, will these qualifications be waived?

**Response: AISC Certified Fabricator and SPE paint requirements can be waived as long as work is adhered to AISC and SPE standards and abided by an equivalent quality control and inspection program.**

18. Regarding Steel Erector Certification – Section 051200 also call for an AISC Certified Erector which has even fewer participants locally than AISC certified fabricators. Is the erection is done to AISC standards, will these qualifications be waived as well?

**Response: AISC Certified Erector requirements can be waived as long as work is adhered to AISC standards and abided by an equivalent quality control and inspection program.**

19. Regarding Cabinet Manufacturer Certification – Section 064116 calls for the cabinet manufacturer to be AWI certified. This too will limit the number of subcontractors who can participate. The work can still be contracted to meet AWI standards without requiring certification. Will these certifications be waived?

**Response: AWI Certified requirements can be waived as long as work is adhered to AWI standards and abided by an equivalent quality control and inspection program.**

20. Regarding Existing Electrical OH Wires (referencing drawing C-1.0):

- a. Drawing notes indicate existing overhead electrical wire on site to be removed and rerouted by service provider before construction. Where in the process is this?

**Response: The Application for relocation of the existing utilities as indicated on the plans has been made by the Township and awaiting DTE commitment for when the work will be completed.**

- b. Is Owner also responsible for/coordinating communications/low-voltage (e.g. Spectrum) relocation?

**Response: Low voltage communication wiring associated with the building will be the responsibility of the Contractor as indicated on the Electrical Drawings; final connections will be by the Townships Vendor (Spectrum). The General Contractor will be responsible for coordinating the final connections effort with Spectrum.**

- c. If yes, where in that process are we currently?

**Response: Spectrum has reviewed the documents and fully committed to their portion of the effort; the Spectrum contact will be provided to the selected GC.**

21. Regarding New Electrical Service (referencing drawings C-4.0 and E-303):

- a. Does the pole to the new service connection have 3 phase power at it?

**Response: The 3 Phase power is available on Beech Daly where the Electrical Drawings show the connection from.**

- b. If no, is DTE aware of the situation and started the design process at all?

**Response: Contact has been made with DTE and a contact has been assigned for the new service. The selected GC will be provided this information.**

- c. If no, as this design process to installation can take three to six months, is the schedule listed and liquidated damages still applicable?

**Response: The Completion date for the Project will be defined by the Bidder in accordance with Addendum No. 3 and should include a reasonable time frame for installation of the electrical service. Consideration will be given for time extension to the contract if delays associated with the local utility company are proven to be unreasonable.**

22. Regarding New Fire Hydrant (referencing drawing C-2.0 and C-4.0):

- a. Who is responsible for the supply and install of the proposed new fire hydrant shown on the drawings?

**Response: The selected General Contractor will be responsible for providing and installing the new fire hydrant as outlined on the drawings.**

- b. If contractor, please provide further details, specifications, and/or requirements.

**Response: The selected Contractor shall coordinate with the Township Water and Sewer Department Superintendent, Paul Horen, [phoren@redfordtwp.com](mailto:phoren@redfordtwp.com), (313) 387-2615. The Township will turn off the water main. The Contractor shall expose the new HDPE watermain on Pickford, install cut-in-tee (provide HDPE-to-DI-tee), install 27 LF 6" DIWM per plans, furnish and install EJIW 5BR-250 hydrant per specifications on Township**

Standard Detail Sheet "W" in plans. Finish grade per Grading Plan, adjust per field conditions if required.

23. Regarding Existing Trees (referencing drawing C-1.0): Civil and Landscaping drawings show different information in regards to which existing trees are to be saved or removed, particularly along east/west property line between Parcel 3 and adjacent property. Please confirm which trees are to be protected.

**Response: There are three existing 24" dia. Trees between the subject parcel and parcel #3. The west (2) trees are on-site and shall be removed. The eastmost 24" dia. tree is located off-site and is incorrectly shown to be removed on the Demolition Plan. This is a black locust tree (invasive in most communities), however due to the canopy size and proximity to the existing residence the tree is to remain. Some trimming will be required in cooperation with the adjacent property Owner to accommodate the new fire station. The Township should discuss with the property Owner prior to any field work.**

24. Regarding Charter Township of Redford Vendor Requirements (referencing drawing L-1.0): Are there any standing contracts/preferred vendors with the Township that require bid invitations, awards, etc. to subcontractors for any trade?

**Response: This proposal is a lump sum solicitation for a single General Contractor to build the new Fire Station. Any and all subcontracts would be with the selected General Contractor. This is an open bid solicitation with final selection based upon bid price, time frame to complete the project, and qualification of the General Contractor and their team.**

25. Regarding Unit Pricing: Can we submit unit pricing AFTER we submit our proposal?

**Response: Unit prices will be required at time of bid.**

26. Regarding Ductwork: The ductwork from both supply and return from both RTUs are joined together. Can you have them explain the concept of connecting the duct on both RTUs?

**Response: The Office area is 40 hours per week and balance of the facility is 24 hours/7 days a week. The two units are looped together with backdraft dampers to allow one unit to service the entire building if the other unit is shut down for repairs.**

27. Regarding Roofing: The roof plan noted in addendum #1 – A121 stated PVC roofing membrane but the specifications only List EPDM, please clarify?

**Response: Membrane Roofing System is fully adhered EPDM, please refer to Addendum No. 3 for clarifications.**

28. Regarding Roofing: Specifications 074113 mentioned metal fascia in the title, but no panel is mentioned, are we to shop fabricate this fascia per the drawings or is this to be revised with panel/manufacturer?

**Response: Refer to Section 074113, Article 2.5, Item C, Trim and Fascia Panels are to be formed from the same material as the metal roof panels, basis of design is Firestone UNA-CLAD UC 3, Firestone will fabricate the fascia panels as well. Refer to drawing sheet A-201, Exterior Material Finishes for color and locations of metal fascia panels and trim.**

29. Regarding Roofing: The roofing specification 075323 states insulation to be either (loose, mechanically attached or glued), but the coverboard mentioned mechanically attached, please clarify, as how the insulation is to be attached or if this is dependent on the roofing manufacturer?

**Response: Please refer to Addendum No. 3 for clarification, Roofing Membrane shall be fully adhered EPDM, Cellulosic Fiber board has been removed from the specification.**

30. Regarding Roofing: 074113 standing seam specification mentioned (2) layers of Isogard HD (R-27), whereas the roof plan mentioned (1) layer of composite, (1) layer of regular polyiso and R-29, please clarify correct system and R value?

**Response: Please refer to Addendum No. 3 for clarification, Metal Roofing Panels shall be applied over (2) layers of Firestone Clad-Guard SA over (1) layer 1.5" Firestone ISOGARD HG composite polyiso insul. over (2) layers of 2" Polyisococyanurate Insulation board with staggered joints (5 ½" total system thickness).**

31. Regarding Siding: Is the siding manufacturer responsible for the wood fiber board and the soffit panels?

**Response: Refer to Section 074646 – Fiber-Cement Fascia & Siding and Section 074150 – Metal Soffits of the specifications. Refer to drawing A-201, Exterior Material Finishes for color and locations of finish materials.**

32. Regarding Bonds: Are there any bond required for this project?

**Response: Bonding requirements were discussed in detail at the pre-bid meeting which has been uploaded to the BidNetDirect.com website under Addendum No. 2. Also refer to Section 004313 – Bid Security Forms for a complete listing of bonds required for this project.**

33. Regarding Roofing: What is the anticipated roofing schedule for this project?

**Response: The construction schedule will be the responsibility of the selected Contractor to develop and submit for approval, however, due to recent new material delay developments in our industry, Addendum Three requires that the Bidder establishes the date of substantial completion for the project.**

34. Regarding the acoustical metal decking under the standing seam roof: Is the steel contractor responsible for the flute filler, or is the roofer responsible for this?

**Response: The flute filler material over the perforated metal decking will be supplied by the metal deck supplier.**

35. Regarding Roofing: Roofing specification 075323 mentioned reinforced membrane but then mentioned 60 mil (nominal), please clarify whether the membrane is to be reinforced or non-reinforced?

**Response: Refer to Section 075323, Article 2.3, Item A: EPDM membrane sheet will be reinforced.**

36. Regarding signage: Who is responsible for the building signage?

**1. Response: The General Contractor is responsible for building mounted signage letters and numbers including on the monuments sign. Refer to drawings A201 (Notes 39 & 40); A316 (Monument Signage) and specifications Section 101423. There are also two toilet room handicap identification signs required for rooms 107 & 108 (Sheet A-601, Note 25).**

a. Drawing A316 shows a LOGO being installed. Is this provided by Owner?

**Response: The Owner will provide all building mounted LOGO's.**

37. Regarding Schedules of Items: Is there a schedule of items that are owner-furnished, contractor-installed?

**Response: Refer to Section 011000 – Summary, Article 1.7 for listing of Owner provided Contractor installed items.**

38. Regarding Unit Pricing: Can the Unit Pricing be part of the post bid award and not part of the proposal?

**Response: Unit Pricing is required to be submitted with the bid. Refer to question and response to question number 10 above.**

39. Regarding BIM: Is BIM required? If it is can you please list the trades that have to meet this requirement.

**Response: There are no requirements for BIM on this project**

40. Regarding Beams: For the beams in elevation and the beams over the kitchen, what are they made of, and are we to hang them from the structure above?

**Response: The Ceiling beams over the kitchen as shown on drawing A-411 will be premium red oak, refer to details 4 & 5 on sheet A507 for suspension of beams.**

41. Regarding Unit Pricing: I agree with previous GC request to NOT supply the (56) unit prices on bid day but to follow up with low (3) bidders – it's way too much to coordinate on bid day and mistakes are likely to happen.

**Response: Unit Pricing is required to be submitted with the bid. Refer to question and response to question number 10 above.**

42. Regarding Bidding Due Date: is there a possibility that the bid due date can be extended into the week of 5/10?

**Response: Bid are due May 6<sup>th</sup> at 3:00 p.m. at the Redford Township Clerks Office.**

43. Regarding the PA System: Sheet E-303 shows amp as Bogen WU250, that doesn't seem to exist. There is a Bogen WV250, but that is wall mount not rack mount. Please clarify what amp is desired.

**Response: The Model number for the amplifier is V250 rack mounted.**

44. Regarding the PA System: Sheet E-303 shows Patton SmartNode. There are quite a few different versions of this, please clarify which part number is desired.

**Response: The model number for the Smartnode is SN200/2JS2V/EUI**

45. Regarding Sinks: Can I ask what stainless sink you want us to price for the kitchen – the plumber may supply it but some generals have said they want it included in the stainless counter top “welded “. I can't find a size or model number anywhere both on the architectural or the mechanical drawings.

**Response: Refer to Plumbing Fixture SK-1 on drawing M-302**

46. Regarding Carpet - On finish plan I-101 Room #106 is indicated as Cpt-1, but the finish schedule says Cpt-4 which is not listed on the material schedule. Is there a Cpt-4 on this project?

**Response: Conference/Training Room 106 indicate CPT-1. Please refer to response to question no. 3c for additional information regarding CPT-4**

47. Regarding Interior Room Signage - There are specs for interior signs but no schedule on the drawings indicating size, quantity required and locations. Please provide.

**Response: Please refer to the response provided for questions no. 36 for signage.**

48. Regarding Laminated Sheet Sign - Signs “Laminated Sheet sign” on 101423-3, Line 2. Can you provide sign sizes and what the laminated sheet sign is and where they are used, not indicated on the drawings?

**Response: Please refer to the response provided for questions no. 36 for signage.**

49. Regarding Kitchen #118 Wood Beams on Ceiling – Can you provide required beam size and wood type, also detail how it is to be supported from the structure above?

**Response: Please refer to the response provided for question no. 40 for kitchen beams.**

50. Regarding 14" Gyp Board - Sheet A401 Note #20 "Add ¼" gyp bd on gypsum board wall this wall only". Where does this occur?

**Response: This occurs in Toilet Room 108, at the north wall.**

51. Regarding Future Wall - Sheet A401 Note #28 "Location of Future Wall". Where does this occur?

**Response: The future wall location is shown in the Conference/Training Room 106**

52. Regarding Alternate #3 Foundation Schedule 40 "Pole" – Is this furnished and installed by the Owner's sign manufacturer? If by GC, is this a driven pile? Concrete filled? Conduit? Other?

**Response: Refer to Specification Section 012300- Alternates issued under Addendum One for Alternate No. 3 description. Per drawing ES-101 the electrical contractor is required to provide power and a 1" empty conduit to the new sign location.**

53. Regarding Addendum 1 item 22 - C1 through 3, revised to 5-year warranty. What is C1 and C3?

**Response: The warranty for the Solid Vinyl Plank and Tile has been changed from 20- year limited commercial wear warranty to 5 years for each of the (3) LVT products specified.**

54. Regarding Addendum 1 item 22 - Clarify items C1 C2 C3.

**Response: The edge treatment for the specified LVT products is a bevel edge in lieu of square edge.**

55. Regarding Addendum 1 item 22 - C2 and C3 change to Bevel Edge. Not sure what products they are referring to?

**Response: This is the profile of the specified LVT product as manufactured.**

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