

**DOCUMENT 00 90 00
ADDENDUM**

ADDENDUM NO. [2] **Date: October 8, 2018**

RE: **GLENWOOD COMMUNITY SCHOOL DISTRICT
ATHLETIC COMPLEX IMPROVEMENTS BID PACKAGE 2
400 SIVERS ROAD
GLENWOOD, IOWA 51534
HSR PROJECT NO. 18005**

FROM: HSR Associates, Inc
100 Milwaukee Street
La Crosse, WI 54603
(608) 784-1830

To: Prospective Bidders

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated September 2018. Acknowledge receipt of this Addendum in the space provided on the bid form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of [4] pages, [1] Revised Bid Form, [2] specification sections, and [12] 30 x 42 drawings.

CHANGES TO PRIOR ADDENDA:

1. Addendum 1, Item 12; Section 13 34 16 PERMANENT GRANDSTANDS AND ENCLOSURES
 - a. 1.01, A, 2: Add “or aluminum” after “steel”.
 - b. 2.01, A, 10, c, (1): Delete paragraph and replace with the following (changes in bold):
Home Side grandstand system shall be a closed deck to be constructed via a one-piece, galvanized steel tread and riser system resulting in a water-tight seal. The water-tight seal must be covered under the manufacturer’s 5-year warranty described above. **If multiple-piece aluminum decking is proposed, then a water-tight underside ceiling system must be designed and provided by the grandstand manufacturer for entire footprint of stadium.** Ceiling system must be supported by grandstand structure, not an independent support system. Detail must be provided to the Architect showing how the ceiling system will obtain the watertight seal and must be covered under the specified 5-year warranty. ~~Multiple-piece aluminum decking is not acceptable. (Aluminum decking is a Contractor’s option).~~

CHANGES TO BIDDING REQUIREMENTS AND CONDITIONS OF THE CONTRACT:

2. Section 00 41 00 BID FORM – Revision 2
 - a. Add revised section attached hereto to Contract Documents.

GENERAL REQUIREMENTS:

3. Section 01 21 00 ALLOWANCES

- a. Add section attached hereto to Contract Documents

4. Section 01 23 00 ALTERNATES

- a. Add Alternate 11 as follows:

Alternate No. 11: STORM PIPING REPLACEMENT AT NEW DRIVE ENTRANCE

The following work shall be priced under Alternate No. 11: State the amount to be added to the base bid to excavate and expose the existing 24 inch diameter metal storm piping located under the new access drive across the ditch at the SW portion of the site; remove the metal pipe and replace with 24 inch concrete pipe at extents and with connections as detailed on Sheet C109R1 attached hereto. Work includes, but is not limited to excavation, pipe removal, pipe installation, installation of compacted fill to original grade. Note that the Work extents for the double box concrete culvert installed under the new drive in the base bid is not altered by this Alternate scope. It shall be installed once the new storm pipe installation is complete.

- b. Add Alternate 12 as follows:

Alternate No. 12: TPO MEMBRANE ROOFING

The following work shall be priced under Alternate No. 12: State the amount to be deducted from the base bid to install grey 60 mil TPO Induction Welded System membrane at all B, C and D roofs in lieu of the KEE membrane roofing as identified on A120. The KEE membrane system at 'A' roofs shall remain as noted.

5. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS

- a. 1.10: Construction schedule will necessitate winter protection. Contractors are responsible for including costs for proper protection to create required environment for installation of products in winter weather.

CHANGES TO SPECIFICATIONS:

6. Section 07 54 00 THERMOPLASTIC MEMBRANE ROOFING

- a. Add section attached hereto to Contract Documents.

7. Section 22 0719 – PLUMBING PIPING INSULATION

i. Plumbing Systems:

- a) Domestic hot and cold water pipe in area shown to have heat tape.
 - (1) Glass Fiber Insulation
 - (i) Pipe Size Range: All sizes, 2 inch thickness

CHANGES TO DRAWINGS

8. Sheet C109R1 SITE UTILITY PLAN (ATHLETIC SITE) BID PACKAGE 2 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. Remove section of existing 24" CMP storm pipe in swale, under proposed box culvert along Sivers Rd. Install new 24" RCP storm pipe, connect to existing 24" CMP storm pipe to the north and existing manhole to the south.

9. Sheet A100 FIRST FLOOR GATEWAY BUILDING and A400 ENLARGED PLANS

- a. At Accessory Schedule the HL lockers are supplied by Owner installed by Contractor. Delete the 'X' in the 'Contractor Furnished' column.

10. Sheet A200 GATEWAY BUILDING EXTERIOR ELEVATIONS

- a. 4A200: The columns at the entry sign shall be as follows: HSS 4 x 4 x 3/8 inch with a 10 x 3/4 x 10 inch base plate using (4) 3/4" diameter bolts with 8" embedment. The rolled tubes across the top of the columns shall be the same size HSS.

11. Sheet S302R DETAILS 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. Details for exterior concrete stairs.

12. Sheet P100R GATEWAY & STADIUM UNDERFLOOR PLUMBING PLANS 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. 1-1/2" lawn irrigation service line to extend underground from Gateway building, see civil for continuation.
- c. 2-1/2" lawn irrigation service line to extend underground from the Stadium Janitor room to football field under alternate #1. See civil for continuation.
- d. 1" Domestic water line to extend underground from the Stadium Janitor room to football field. See civil for continuation.

13. Sheet P101R FIRST FLOOR GATEWAY BUILDING PLUMBING PLAN 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. 1-1/2" lawn irrigation service line extended from water service, see "Gateway Water Service Detail" on sheet P103, to building exterior. Lawn irrigation contractor to provide backflow device on exterior. See civil for continuation.

14. Sheet P102R FIRST FLOOR STADIUM PLUMBING PLAN 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. Extend 1" water line to east wall of Janitor room, see "Stadium Water Service Detail" on this sheet for further requirements.
- c. Under alternate #1 extend 2-1/2" lawn irrigation service line to east wall of Janitor room. See "Stadium Water Service Detail" for further requirements.

15. Sheet P103R PLUMB PRESS BOX, SCHEDULES, DETAILS & SYMBOLS 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. "Gateway Water Service Detail" has been revised to show lawn irrigation line addition.

16. Sheet E001R ELECTRICAL SITE PLAN 30 x 42 attached hereto

- a. Revisions clouded on Drawing.

17. Sheet E101R FIRST FLOOR STADIUM LIGHTING PLAN 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. Move Inv-1 to be adjacent to Panel 2B.

18. Sheet E200R GATEWAY POWER PLAN (Reference revised sheets) 30 x 42 attached hereto

- a. Revisions clouded on Drawing.
- b. Add fire alarm system to Gateway Building. System shall be an extension of Press Box/Bleacher Fire Alarm System.
- c. Add irrigation controls conduit.

- 19. Sheet E201R FIRST FLOOR STADIUM POWER PLAN 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Add irrigation controls outlet and conduit to football field.
 - c. Add freeze protection system.

- 20. Sheet E20R2 PRESS BOX FIRST AND SECOND LEVEL POWER PLANS 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Add rough-in for future speakers.

- 21. Sheet E300R ELECTRICAL SCHEDULES 30 x 42 attached hereto
 - a. Revisions clouded on Drawing.
 - b. Update panel schedules 1B, 2A, 2C, reference revised plan

PRIOR APPROVALS

- 1. The following manufacturers have received prior approval for bidding purposes subject to shop drawing review:

<u>List Equipment Here</u>	<u>List Manufacturer Here</u>
Shower (SH-1, SH-2)	Willoughby Industries
Lavatory System (L-1, L-2)	Willoughby Industries
Roof Hoods	Loren Cook
Louvers	Air Balance
Fire Dampers	Air Balance

- 2. The following light fixture manufacturers have received prior approval for bidding purposes subject to shop drawing review:

A. Type 4	Juno
B. Type 5	Kichler
C. Types 6, 10, 10E, 14	Metalux
D. Types 7, 13	Lumax
E. Types 8, 8E	Halo Commercial
F. Types 9, 11	Kirlin
G. Types 12A, 12AE, 12B, 12BE, B, ,C, D	McGraw-Edison
H. Types 15, 15E	Pinnacle, Lumenwerk
I. Types P1, P2	Eaton

END OF DOCUMENT 00 90 00

DOCUMENT 00 41 00

BID FORM (Revision 2)

BIDDER: _____

BID FOR SINGLE PRIME CONTRACT

PROJECT: **GLENWOOD COMMUNITY SCHOOL DISTRICT
ATHLETIC COMPLEX IMPROVEMENTS BID PACKAGE 2
400 SIVERS ROAD
GLENWOOD, IOWA 51534
HSR PROJECT NO. 18005**

TO: **GLENWOOD COMMUNITY SCHOOL DISTRICT
103 CENTRAL STREET, Suite 300
GLENWOOD, IOWA 51534
ATTENTION: Devin Embray**

BASE BID

The undersigned, having examined the site where the Work is to be executed and become familiar with local conditions affecting the cost of the Work and carefully examined the Project Manual, the Project Drawings, all other Bidding Documents and Addenda thereto prepared by the AE, HSR Associates, Inc., hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the ENTIRE WORK, in the time frame stipulated in these contract documents, for the Base Bid stipulated sum of:

_____ Dollars (\$_____ .00)

ALLOWANCE AMOUNT FROM ADDENDUM 2 MUST BE INCLUDED IN BASE BID

The Base Bid stipulated sum, stated above, includes work for the following packages intended for Work on this Project. **State the company providing the product and cost.** (This information is for Owners use and will not be shared publicly):

ARTIFICIAL TURF: _____

_____ Dollars (\$_____ .00)

(Name): _____

GRANDSTAND: _____

_____ Dollars (\$_____ .00)

(Name): _____

Page Intentionally Left Blank

ALTERNATE BIDS

The undersigned further agrees to perform the alternative portions of the Work as described in the Project Manual, Section 01 23 00 Alternates, for the following additions to or deductions from the Base Bid sum stipulated above:

Alternate No. 1 Grass Turf Installation at Football Field

Deduct _____ Dollars (\$_____.00)

Alternate No. 2 Modified Base Installation at Artificial Turf System

Add _____ Dollars (\$_____.00)

Alternate No. 3 Parking and Drive Concrete Pavement

Add / Deduct _____ Dollars (\$_____.00)

Alternate No. 4 Parking and Drive Lot Modified Base

Add _____ Dollars (\$_____.00)

Alternate No. 5 Running Track Concrete

Add / Deduct _____ Dollars (\$_____.00)

Alternate No. 6 Exterior Concrete Modified Base

Add _____ Dollars (\$_____.00)

Alternate No. 7 Concrete at Visitors Bleachers

Add _____ Dollars (\$_____.00)

Alternate No. 8 New Dugouts

Add _____ Dollars (\$_____.00)

Alternate No. 9 Baseball/Softball Field Fence Replacement

Add _____ Dollars (\$_____.00)

Alternate No. 10 Modified Base Installation Under Track

Add _____ Dollars (\$_____.00)

Page Intentionally Left Blank

Alternate No. 11 Storm Piping Replacement At New Drive Entrance

Add _____ Dollars (\$_____.00)

Alternate No. 12 TPO Membrane Roofing

Deduct _____ Dollars (\$_____.00)

UNIT PRICES

The undersigned agrees to add or deduct portions of the Work from the Contract as described in the Project Manual, Section 01 22 00 Unit Prices, for the following Unit Price amounts:

A. Unit Price UP-1: (Excess Excavation)

Per cubic yard _____ Dollars (\$_____.00)

B. Unit Price UP-2: (Compacted Modified Base)

Per cubic yard _____ Dollars (\$_____.00)

C. Unit Price UP-3: (Exterior Concrete Flatwork)

Per square foot _____ Dollars (\$_____.00)

D. Unit Price UP-4: (Gravel Base)

Per cubic yard _____ Dollars (\$_____.00)

E. Unit Price UP-5: (Exterior Concrete Paving)

Per square foot _____ Dollars (\$_____.00)

F. Unit Price UP-6: (Remedial Floor Coating)

Per square foot _____ Dollars (\$_____.00)

Page Intentionally Left Blank

BIDDER'S CHOICE SUBSTITUTIONS

The following Bidder's Choice Substitution is proposed for your consideration subject to the requirements set forth in Document 00 22 13 Supplementary Instructions to Bidders, Subparagraph 3.3.4:

Substitution No. S1:

For substituting _____

Type, Brand, Catalog No. _____

Manufacturer _____

Deduct from BASE BID _____ Dollars (\$ _____ .00)

In submitting this Bid, the undersigned agrees to:

1. Hold this Bid open for **30** days.
2. Accept the provisions of Instructions to Bidders regarding disposition of Bid Security.
3. Enter into and execute an Agreement, if awarded on the basis of this Bid, and to furnish Performance and Labor and Material Payment Bonds according to the Supplementary Conditions.
4. Accomplish work according to the Contract Documents.
5. Complete the work by the time stated in Section 01 10 00 Summary of the Work.

Receipt of the following Addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Attached hereto are the required:

- a. Bid Security
- b. Certificate of Organization and Authority
- c. Non-Collusive Affidavit: An affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this Bid or any other bid or the submitting of bids for the contract for which this bid is submitted.
- d. Certification of Non-segregated Facilities

Page Intentionally Left Blank

(Affix seal if
Corporation)

FIRM NAME: _____

By: _____

Title: _____

By: _____

Title: _____

Date: _____

Official Address: _____

Telephone: _____

END OF DOCUMENT 00 41 00

Page Intentionally Left Blank

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cash allowances.
- B. Inspecting and testing allowances.

1.02 RELATED REQUIREMENTS

- A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CASH ALLOWANCES

- A. The Contract Sum shall include allowances as indicated herein and all other expenses/costs in accord with Paragraph 3.8 "Allowances" of the General Conditions.
- B. Materials and services included in the Contract as an allowance shall be guaranteed in the same manner as all other materials and services specified in the Contract Documents.
- C. Allowances shall be reconciled with the actual cost of the work performed under the allowance by Change Order, including situations where the allowance amount and actual cost amount are the same

1.04 GENERAL

- A. Architect Responsibilities:
 - 1. Consult with Contractor for consideration and selection of products, suppliers, and installers.
 - 2. Select products in consultation with Owner and transmit decision to Contractor.
 - 3. Prepare Change Order.
- B. Contractor Responsibilities:
 - 1. Assist Architect in selection of products, suppliers, and installers.
 - 2. Obtain proposals from suppliers and installers and offer recommendations.
 - 3. On notification of which products have been selected, execute purchase agreement with designated supplier and installer.
 - 4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
 - 5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- C. Differences in costs will be adjusted by Change Order.

1.05 EXCESS MATERIALS

- A. Submit invoices or delivery slips to indicate the actual quantities of materials delivered to the Project Site for use in fulfillment of each allowance.
- B. Where economically feasible and so requested by the AE, return unused materials to manufacturer/supplier for credit to the Owner, after the installation has been completed and accepted. Where not economically feasible, prepare unused materials for the Owner's storage and deliver to the Owner's storage space as directed. Otherwise disposal of excess materials is the Contractor's responsibility

1.06 INSPECTING AND TESTING ALLOWANCES

- A. Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.
- B. Costs Not Included in the Inspecting and Testing Allowances:
 - 1. Costs of incidental labor and facilities required to assist inspecting or testing agency.
 - 2. Costs of testing services used by Contractor separate from Contract Document requirements.
 - 3. Costs of retesting upon failure of previous tests as determined by Architect.
- C. Payment Procedures:
 - 1. Submit one copy of the inspecting or testing firm's invoice with next application for payment.
 - 2. Pay invoice on approval by Architect.
- D. Differences in cost will be adjusted by Change Order.

1.07 ALLOWANCES SCHEDULE

- A. Division 26: Include the stipulated sum of \$40,000 for the sound system. Sound System Headend equipment will be located at Press Box Telecom Board.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 07 54 00
THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Mechanically attached, induction welded system with thermoplastic roofing membrane.
- B. Insulation, flat and tapered.
- C. Vapor retarder.
- D. Flashings.
- E. Roofing stack boots.

1.02 RELATED REQUIREMENTS

- A. Section 05 31 00 - Steel Deck: Acoustical deck insulation.
- B. Section 06 10 00 - Rough Carpentry: Wood nailers and curbs.
- C. Section 07 54 30 - Kee Membrane Roofing: KEE roofing system at sloped roof surfaces.
- D. Section 07 62 00 - Sheet Metal Flashing and Trim: Counterflashings.
- E. Division 22 - Roof drains, curbs for equipment.
- F. Division 23 - Equipment curbs requiring flashings.

1.03 REFERENCE STANDARDS

- A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2016.
- B. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2013.
- C. FM DS 1-28 - Wind Design; 2007.
- D. NRCA (RM) - The NRCA Roofing Manual; 2017.
- E. NRCA (WM) - The NRCA Waterproofing Manual; 2005.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, and fasteners.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation, and mechanical fastener layout.
- D. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the work of this section:
 - 1. Approved by membrane manufacturer.
 - 2. Prior approval required 10 days prior to bid date. Provide A/E with the following information:
 - a. Certification from manufacturer as an approved applicator.
 - b. Documentation of at least five years experience.
 - c. References for at least five jobs of equivalent size and type.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
- C. Protect foam insulation from direct exposure to sunlight.

1.07 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Type/Term:
 - 1. Provide a 20 year Roofing System (NDL) Warranty. Warranty shall include membrane, roof insulation, and all other products supplied by manufacturer/installer. (ALL DETAILS TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIAL REQUIREMENTS FOR 20 YEAR WARRANTY.)
- C. Correct defective Work within a one year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Thermoplastic Polyolefin (TPO) Induction Welded Membrane Materials:
 - 1. Carlisle Roofing Systems, Inc; Sure-Weld TPO: www.carlisle-syntec.com/#sle.
 - 2. Firestone Building Products, LLC: www.firestonebpco.com.
 - 3. GAF; EverGuard TPO 60 mil: www.gaf.com/#sle.
 - 4. Johns Manville: www.jm.com/#sle.
 - 5. Versico, a division of Carlisle Construction Materials Inc; VersiWeld TPO: www.versico.com/#sle.
 - 6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ROOFING

- A. Thermoplastic Membrane Roofing: One ply membrane, mechanically fastened/induction welded, over insulation.
- B. Acceptable Insulation Types - Constant Thickness Application:
 - 1. Minimum 2 layers of polyisocyanurate board.
 - 2. Bottom layer of polyisocyanurate board covered with additional layer(s) of polyisocyanurate board.
- C. Acceptable Insulation Types - Tapered Application: Any of the types specified.
 - 1. Tapered polyisocyanurate or extruded polystyrene board.
 - 2. Tapered polyisocyanurate board covered with uniform thickness cellulose, perlite, molded polystyrene, polyisocyanurate, glass fiber, extruded polystyrene, or composite board.
 - 3. Uniform thickness polyisocyanurate board covered with tapered polyisocyanurate board.

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane:
 - 1. Material: Thermoplastic polyolefin (TPO) complying with ASTM D6878/D6878M.
 - 2. Reinforcing: Internal fabric.
 - 3. Thickness: 0.060 inch, minimum.
 - 4. Sheet Width: Factory fabricated into largest sheets possible.
 - 5. Color: Gray.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Flexible Flashing Material: Same material as membrane.

2.04 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
 - 1. Classifications:
 - a. Type II:
 - 1) Class 2 - Faced with coated polymer-bonded glass fiber mat facers on both major surfaces of core foam.
 - 2) Compressive Strength: Classes 1-2-3, Grade 1 - 16 psi (110 kPa), minimum.
 - 3) Thermal Resistance, R-value: At 1-1/2 inch thick (UNO); Class 1, Grades 1-2-3 - 8.4 (1.48) at 75 degrees F.
 - 2. Structurally Sloped Areas which require only flat insulation:
 - a. Base Layer:
 - 1) Nominal Thickness: As indicated on plans.
 - 2) Board Size: Use roof system manufacturer recommended board size for type of adhesion process.
 - 3) Nominal Size: .

- b. Top Layer:
 - 1) Nominal Thickness: As required to meet overall thickness on plan.
 - 2) Nominal Size: Use roof system manufacturer recommended board size for type of adhesion process.
- c. Crickets where indicated on drawings.
- 3. Roof Areas with flat structure which require Tapered Insulation:
 - a. Base Layer:
 - 1) Nominal Thickness: As noted on plan.
 - 2) Nominal Size: Use roof system manufacturer recommended board size for type of adhesion process.
 - b. Tapered Layer:
 - 1) Nominal Thickness: tapered at 1/4" per foot unless noted otherwise.
 - 2) Nominal Size: Use roof system manufacturer recommended board size for type of adhesion process.
 - 3) Crickets where indicated on drawings.
 - c. Crickets
 - 1) Tapered polyisocyanurate.

2.05 SHEET MATERIALS

- A. Pre-Finished 24 gage Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.024 inch thick base metal, shop pre-coated with PVDF coating.
 - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: As selected by Architect from manufacturer's full line of colors.
- B. Fabrication
 - 1. Form sections true to shape, accurate in size, square, and free from distortion or defects.
 - 2. Form pieces in longest possible lengths.
 - 3. Hem exposed edges on underside 1/2 inch; miter and seam corners.
 - 4. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
 - 5. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
 - 6. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
 - 7. Roof Edge Flashings: 24 gage with continuous hook strip one gage heavier.
 - a. Extend over roof membrane as recommended by roof system requirements and extend down wall as detailed-minimum cover blocking plus 1 inch. Lap joints minimum 2 inches, set in sealant bead. Corners shall be miter seamed and sealed. Coordinate with installation of gutters where shown on plan.
 - 8. Cap Flashings/Copings: 24 gage with continuous hook strip one gage heavier.
 - a. Formed in 10 foot sections. Cover top of wall and extend down each side as detailed-minimum cover, blocking plus 1 inch. Cross joints made with 3/16 inch expansion joint, 4 inch wide cover plate, set in sealant bead. Secure in place with continuous cleats set in continuous sealant and nailed to wood blocking at 6" on center. Coping corners shall be miter seamed and sealed.
 - 9. Overflow Scuppers: 24 gage formed to perimeter of scupper openings. Flash/form per SMACNA standards. Coordinate tie-in to roof system.

2.06 ACCESSORIES

- A. Insulation Fasteners: Heavy duty threaded fasteners in size and drive type as recommended by manufacturer for specified system.
- B. TPO Welding Plate: 3 inch diameter 0.028 inch thick corrosion resistant steel plate with high solids coating on top surface that allows plate to be welded to bottom of membrane using manufacturers induction tool.
- C. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- D. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

- E. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
 - 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- F. Membrane Adhesive: As recommended by membrane manufacturer.
- G. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- H. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- I. Insulation Adhesive: As recommended by insulation manufacturer.
- J. Roofing Nails: Galvanized, hot dipped type, size and configuration as required to suit application.
- K. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- L. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, including those provided by mechanical contractor, and penetrations through roof are solidly set, and nailing strips are in place.

3.02 INSTALLATION - GENERAL

- A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.
- B. Do not apply roofing membrane during unsuitable weather.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- F. Coordinate this work with installation of associated counterflashings installed by other sections as the work of this section proceeds.
- G. Install sheet metal pitch pocket at grouped pipe penetrations. Coordinate locations with Divisions 22, 23 and 26

3.03 VAPOR RETARDER AND INSULATION - UNDER MEMBRANE

- A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- C. Attachment of Insulation:
 - 1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements using the required size and length of fastener through the welding plate. Insulation shall be installed in minimum two layers with joints staggered minimum 6 inches from joints of layer below. Space fasteners/plates in accordance with manufacturer and code requirements.
 - 2. Avoid fastener overdrive to prevent plate from deforming.
- D. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- E. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.

- F. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- G. Fill all voids and gaps in insulation with expanding foam insulation.
- H. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- I. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.
- J. Do not apply more insulation than can be covered with membrane in same day.

3.04 MEMBRANE APPLICATION

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Using the induction weld tool place over washer plate locations, activate induction welding and leave in place until heating cycle is complete. Following manufacturers instruction, place magnet over plates to complete the installation cycle.
- D. Overlap edges and ends and seal seams by heat welding, minimum 3 inches. Seal permanently waterproof. Splice intersections shall be overlaid with non-reinforced flashing or T-joint covers.
- E. Apply cut edge sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut edge sealant is not required on vertical splices.
- F. At parapet walls extend and adhesive apply membrane to wall and over top of parapet wall and secure with continuous flashing receiver at opposite side.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.
- H. Coordinate installation of roof drains and sumps and related flashings.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field quality control and inspection.
- B. Field inspection, testing and certification shall be performed as required by the manufacturer.

3.06 CLEANING

- A. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- B. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

Page Intentionally Left Blank