

**ADDENDUM
NO. 6**

March 31, 2026

**THE NEW WALLACE AYLESWORTH MIDDLE SCHOOL
5910 Central Ave.
Portage, IN 46368**

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated October 28, 2025, by Fanning Howey Associate, Inc. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 6-1 through ADD 6-3 and attached Fanning Howey revised Specification Section 07 53 23 - Ethylene-Propylene-Diene-Monomer (EPDM) Roofing.

GENERAL NOTE: This Re-Bid is ONLY for Bid Category No. 5 - Roofing. Bid Opening is April 23, 2026, at 10:30AM (CDT) in the Portage Township Schools Administration Building.

A. NOTICE OF BIDDING DEADLINE CHANGE

1. All references to the Bidding Deadline or the Bids Received Date are to change to April 23, 2026 at 10:30AM (CDT) and will be publicly read aloud following the deadline.
 - a. Modify references in Specification Section - 00 00 10

B. SPECIFICATION SECTION 00 02 00 - NOTICE TO BIDDERS

1. Replace:

Specification Section 00 02 00 - Notice to Bidders with the attached revised section

C. SPECIFICATION SECTION 00 10 00 - INSTRUCTIONS TO BIDDERS

1. Revise:

1.18 TIME OF COMMENCEMENT AND COMPLETION

- A. The Contractor shall commence work within ten (10) days after the effective date of the Contract, or when notified in writing to proceed, and shall complete the Work within the time limitations established in the Form of Agreement, these instructions to Bidders, and in Section 01 12 00 – Multiple Contract Summary.
1. It is anticipated that construction will start within **12** calendar days after receipt of bids.
 2. Construction shall be complete within **1131** consecutive calendar days, or earlier, after Notice to Proceed.
 3. See Section 01 32 00 – Schedules and Reports, for Guideline Project Schedule.

D. SPECIFICATION SECTION 00 31 00 - BID FORM

1. Replace:

Specification Section 00 31 00 - Bid Form with the attached revised section

E. SPECIFICATION SECTION 00 34 10 - RESPONSIBLE BIDDING PRACTICES

1. Replace:

Specification Section 00 34 10 - Responsible Bidding Practices with the attached revised section

F. SPECIFICATION SECTION 01 12 00 - MULTIPLE CONTRACT SUMMARY

1. Revise:

1.16 TIME OF COMMENCEMENT AND COMPLETION

- A. The Contractor shall commence work within ten (10) days after being notified in writing to proceed and shall complete the Work within the time limitations established in the Form of Agreement.
1. It is anticipated that construction will start within **12** calendar days after receipt of bids.
 2. Construction shall be complete within **1131** consecutive calendar days, or earlier, after Notice to Proceed.

G. SPECIFICATION SECTION 01 21 00 - ALLOWANCES

1. Revise:

3.02 CONTINGENCY ALLOWANCES

Allow a lump sum additional work required but not indicated on Drawings or reasonably anticipated.

E. Bid Category No. 5 - Roofing/Metal Panels \$75,000

H. SPECIFICATION SECTION 01 23 00 - ALTERNATES

1. Replace:

Specification Section 01 23 00 - Alternates with the attached revised section

I. SPECIFICATION SECTION 01 32 00 - SCHEDULES AND REPORTS

1. Replace:

The Guideline Schedule with the attached revised Guideline Schedule

SECTION 00 02 00 - NOTICE TO BIDDERS

NOTICE TO BIDDERS

Notice is hereby given that sealed bids will be received:

By: Portage Township Schools
6240 US Highway 6
Portage, IN 46368

For: The New Wallace Aylesworth Middle School
Rebid of Bid Category No. 5 - Roofing
5910 Central Ave.
Portage, IN 46368

At: Portage Township Schools - Administration Office
6240 US Highway 6
Portage, IN 46368

Until: 10:30AM (CDT) on April 23, 2026

Bid Opening: **Bids will be received until 10:30AM (CDT) on April 23, 2026**, at the Portage Township Schools – Administration Building located at 6240 US Highway 6, Portage, IN 46368

All work for the complete construction of the Project will be under one or more prime contracts with the Owner based on bids received and on combinations awarded. The Construction Manager will manage the construction of the Project.

Construction shall be in full accordance with the Bidding Documents which are on file with the Owner and may be examined by prospective bidders at the following locations:

Office of the Construction Manager
The Skillman Corporation
8006 Aetna Street
Merrillville, IN 46410

The Skillman Plan Room
www.skillmanplanroom.com

Prime and Non-Prime Contract Bidders must place an order on www.skillmanplanroom.com to be able to download documents electronically or request printed documents. There is no cost for downloading the bidding documents. Bidders desiring printed documents shall pay for the cost of printing, shipping, and handling. Reprographic Services are provided by:

Reprographic Arts, 2824 E. Michigan Blvd., Michigan City, IN 46360, Phone (219) 872-9111

Bid security in the amount of ten percent (10%) of the Bid must accompany each Bid in accordance with the Instructions to Bidders.

The successful Bidders will be required to furnish Performance and Payment Bonds for one hundred percent (100%) of their Contract amount prior to execution of Contracts.

Contractors submitting bids for the performance of any Work as specified in this building Project should make such Bids to **Portage Township Schools**. Contractors are advised that the Contract as finally entered into with any successful Bidder may be entered into with either the School Corporation or the Building Corporation or certain portions of the Contract may be entered into by both the School Corporation and the Building Corporation.

The Owner reserves the right to accept or reject any Bid (or combination of Bids) and to waive any irregularities in bidding. All Bids may be held for a period not to exceed **60** days before awarding contracts.

Portage Township Schools

By: Dr. Amanda Alaniz, Superintendent

END OF SECTION 00 02 00

CONTRACTOR'S BID FOR PUBLIC WORKS FORM NO. 96

Format (Revised 2013)
(Amended for PTS)

**The New Wallace Aylesworth Middle School
Rebid of Bid Category No. 5 - Roofing
Portage, IN**

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

BIDDER (Firm) _____

Address _____ P.O. Box _____

City/State/Zip _____

Telephone Number: _____ Email Address: _____

Person to contact regarding this Bid _____

Pursuant to notices given, the undersigned offers to furnish labor and/or materials necessary to complete the public works project of:

Insert Category No. (s) and Name(s)

Of public works project, *The New Wallace Aylesworth Middle School Rebid of Bid Category No. 5 - Roofing*, in accordance with Plans and Specifications prepared by *Fanning Howey Associates, Inc., 350 E. New York St., Suite 300, Indianapolis, IN 46204*, as follows:

BASE BID

For the sum of _____
(Sum in words)

_____ DOLLARS (\$ _____)
(Sum in figures)

The undersigned acknowledges receipt of the following Addenda:

Receipt of Addenda No. (s) _____

PROPOSAL TIME

Bidder agrees that this Bid shall remain in force for a period of sixty (60) consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said sixty (60) consecutive calendar days shall be deemed rejected.

Attended pre-bid conference YES _____ NO _____

Has visited the jobsite YES _____ NO _____

The Bidder has reviewed the Guideline Schedule in Section 01 32 00 and the intent Of the schedule can be met. YES _____ NO _____

Bidder has included their Written Drug Testing Plan that covers all employees of the bidder who will perform work on the public work project and meets or exceeds the requirements set in IC 4-13-18-5 or IC 4-13-18-6. YES _____ NO _____

The Skillman Corporation’s diversity initiative is to create a program to encourage, assist and measure the active participation of Minority- Owned, Women-Owned, Veteran – Owned and Disabled Individual-Owned Businesses. The Program is to ensure that MWVDBEs are provided full and equal opportunity to participate in all Skillman Corporation’s Projects.

Bidder has included: DBE: YES _____ % NO _____
 MBE: YES _____ % NO _____
 WBE: YES _____ % NO _____
 VBE: YES _____ % NO _____

The undersigned further agrees to furnish a bond or certified check with this Bid for an amount specified in the Notice to Bidders. If Alternate Bids apply, submit a proposal for each in accordance with the Plans and Specifications.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit bases, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS (if applicable)

I, the undersigned bidder, or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ALTERNATE BIDS

A blank entry or an entry of "No Bid", "N/A", or similar entry on any Alternate will cause the bid to be rejected as non-responsive only if that Alternate is selected. If no change in the bid amount is required, indicate "No Change".

****MARK "ADD" OR "DEDUCT" FOR EACH ALTERNATE****

Alternate Bid No. 1 - Synthetic Grass Surfacing

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures)

ADD
DEDUCT

Alternate Bid No. 2 - Stadium Concession Building (Unit G)

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures)

ADD
DEDUCT

Alternate Bid No. 3 - Athletic Field Lighting

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures)

ADD
DEDUCT

Alternate Bid No. 4 - Paved Basketball Courts

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures)

ADD
DEDUCT

Alternate Bid No. 5 - Construction of North Parking Lot

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures)

ADD
DEDUCT

Alternate Bid No. 6 - Resilient Tile Flooring & Luxury Vinyl Tile (LVT)

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures) ADD
DEDUCT

Alternate Bid No. 7 - Resilient Athletic Flooring (MLRSAF)

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures) ADD
DEDUCT

Alternate Bid No. 8 - Cover Board for Roof Assembly

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures) ADD
DEDUCT

Alternate Bid No. 9 - Provide a 30 year Total System Warranty in lieu of a 20 Year

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____)
(sum in figures) ADD
DEDUCT

PART II

(For projects of \$150,000 or more – IC 36-1-12-4)

These statements to be submitted under oath by each bidder with and as a part of his bid. (Attach additional pages for each section as needed.)

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed Work. (Examples could include a narrative of when you could begin, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of all subcontractors (i.e. persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and addresses of each subcontractor, equipment to be used by the subcontractor, and whether you will required a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed Project? Any equipment used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which corroborate the process listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of Bidder's financial statement is mandatory. Any Bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the Contract must be specific enough in detail so that said governing body can make a proper determination of the Bidder's capability for completing the Project if awarded.

SECTION IV CONTRACTOR NON-COLLUSION AFFIDAVIT

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

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

SECTION 00 34 10 - RESPONSIBLE BIDDING PRACTICES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Responsible Bidding Practices requirements, a copy of which is included herein.

END OF SECTION 00 34 10

**Policy on Responsible Bidding Practices and
Requirements for Submitting Bids to Perform Public Work Projects**

WHEREAS, Portage Township Schools is required by law to award capital improvement contracts to the "lowest responsive and responsible" bidder;

WHEREAS, Portage Township Schools, based upon its experience, has determined that quality workmanship, efficient operation, safety, and timely completion of projects requires all bidders meet certain minimum requirements in order to be deemed a "responsive and responsible" bidder;

WHEREAS, applicable state law also requires that bidders meet certain minimum requirements in order to be a "responsive and responsible" bidder;

WHEREAS, Portage Township Schools seeks to enhance its ability to identify "responsive and responsible" bidders on all public work construction projects by instituting more comprehensive submission requirements in compliance with Indiana State law;

WHEREAS, this policy will preserve administrative resources by ensuring that only qualified contractors and subcontractors are awarded public work contracts on School construction projects;

WHEREAS, this policy will assure efficient use of taxpayer dollars, promote public safety, and is in the public interest; and,

WHEREAS, the "Responsible Bidding Practices and Requirements for Submitting Bids" Policy will help ensure that no contractor awarded work, or any subcontractor of any tier, engages in payroll fraud, including the misclassification of employees as independent contractors to avoid paying state, federal or local payroll taxes, workers compensation insurance, unemployment insurance premiums and failing to pay overtime and wages as required by law.

SECTION 1. This Policy, entitled "Responsible Bidding Practices and Requirements for Submitting Bids to Perform Public Work Projects," is hereby enacted and shall read as follows:

I. Bid Submission Requirements

Contractors submitting bids on any Portage Township Schools ("PTS") project estimated to be at least \$300,000 or more must, prior to the opening of bids, submit a statement made under oath and subject to perjury laws, on a form designated by Portage Township Schools and must include:

- (A) A copy of the Indiana Secretary of State's online records for the bidder dated within sixty (60) days of submission showing that the bidder is in existence, current with the Indiana Secretary of State's Business Entity Reports, and eligible for a certificate of good standing. If the bidder is an individual, sole proprietor or partnership, this subsection shall not apply;

- (B) A list identifying all former business names;
- (C) Any determinations by a court or governmental agency of violations of federal, state, or local laws including but not limited to violations of contracting or antitrust laws, tax or licensing laws, environmental laws, the Occupational Safety and Health Act (OSHA), or federal Davis-Bacon and Related Acts;
- (D) A statement on staffing capabilities, including labor sources;
- (E) Evidence of participation in apprenticeship training programs, approved by and registered with the United States Department of Labor Office of Apprenticeship or successor organization, applicable to the work to be performed on the project; and evidence that all apprenticeship programs have graduated at least five (5) apprentices in each of the past five (5) years for each of the construction crafts the bidder will perform on the project. Evidence of graduation rates are not required for apprenticeable crafts dedicated exclusively to the transportation of material and equipment to and from the public works project.

The required evidence includes but is not limited to a copy of all applicable apprenticeship standards and apprenticeship agreement(s) for any apprentice(s) who will perform work on the public works project; and documentation from each applicable apprenticeship program certifying that it has graduated at least five (5) apprentices in each of the past five (5) years for each construction craft the bidder will perform on the project. Additional evidence of participation and graduation requirements may be requested by Portage Township Schools at its discretion.

- (F) A copy of a written plan for employee drug testing that: (i) covers all employees of the bidder who will perform work on the public works project; and (ii) meets, or exceeds, the requirements set forth in IC 4-13-18-5 or IC 4-13-18-6;
- (G) The name and description of the experience of each of the bidder's project managers and superintendents that bidder intends to assign to work on the project;
- (H) Proof of any professional or trade license required by law for any trade or specialty area in which bidder is seeking a contract award; and disclosure of any suspension or revocation within the previous five (5) years of any professional or trade license held by the company, or of any director, officer, or manager employed by the bidder;
- (I) Evidence that the bidder is utilizing a surety company on the United States Department of Treasury's Listing of Approved Sureties;
- (J) A written statement of any federal, state, or local tax liens or tax delinquencies owed to any federal, state, or local taxing body in the last five years;
- (K) A statement that all individuals who will perform work on the project on behalf of the bidder will be properly classified as either (i) an employee or (ii) an independent contractor under all applicable state and federal laws and local ordinances;

- (L) A list of projects of similar size and scope of work that the bidder has performed in the State of Indiana within three (3) years prior to the date on which the bid is due;
- (M) For contracts estimated to cost at least three hundred thousand dollars (\$300,000), certification that the bidder and all subcontractors are qualified under IC 4-13.6-4 or IC 8-23-10;
- (N) A written list that discloses the name, address, and type of work for each subcontractor the bidder intends to employ on any part of the project, including individuals performing work as independent contractors.

Portage Township Schools reserves the right to demand supplemental information from the bidder, perform additional verifications of any information provided by the bidder, and may conduct inquiries of the bidder's current and prior customers.

II. Post-Bid Submissions from Subcontractors

Each subcontractor of any tier shall be required to adhere to the requirements of Section I of this Policy, but subcontractors shall submit the required information to the successful bidder, who shall then submit said information to Portage Township Schools prior to the subcontractor's first day of work on the public works project.

Failure of a subcontractor to submit the required information shall not disqualify the successful bidder from performing work on the project and shall not constitute a contractual default or breach by the successful bidder. However, payment shall be withheld from any subcontractor who fails to timely submit said information until such information is submitted and approved by Portage Township Schools. Additionally, Portage Township Schools may require the successful bidder and/or relevant subcontractor to remove a subcontractor from the project and replace it with a responsive and responsible subcontractor.

The disclosure of a subcontractor by a bidder or a subcontractor shall not create any rights in the disclosed subcontractor. Thus, a bidder and/or a subcontractor may substitute another subcontractor for a disclosed subcontractor by giving us written notice of the name, address, and type of work the substitute subcontractor will perform. The substitute subcontractor is subject to all the obligations of a subcontractor under this policy.

III. Validity of Pre-Qualification Classification

Upon designation by Portage Township Schools that a bidder's or subcontractor's submission is complete and timely, and upon any further consideration deemed necessary, the bidder or subcontractor may be pre-qualified for future public works projects. Pre-qualification shall exempt the bidder or subcontractor from the comprehensive submission requirements contained herein for a period of twelve (12) months. Thereafter, bidders or subcontractors who are pre-qualified must submit a complete application for continuation of pre-qualified standing, on a form provided by us, (i.e. a "short form") by December 31st for the upcoming calendar year. Failure by any pre-qualified bidder or subcontractor to timely submit its complete application for continuation of pre-qualified standing shall result in automatic removal of the designation effective January 1 of the upcoming year. However, the removed

bidder or subcontractor shall still be permitted to bid on or perform work on Portage Township Schools public work projects.

Any material changes to a contractor's status, at any time, must be reported in writing within ten (10) days of its occurrence. The pre-qualification designation is solely within the discretion of Portage Township Schools and specifically reserve the right to change or revoke the designation for a stated written reason(s).

Denial of pre-qualification shall be in writing and shall be forwarded to the contractor within seven (7) working days of such decision. Any contractor denied or losing pre-qualification status may request reconsideration of the decision by submitting such request in writing to us within five (5) business days of receipt of notice of denial.

IV. Incomplete Submissions by Bidders

It is the sole responsibility of the bidder to comply with all submission requirements herein no later than the public bid opening. Submissions deemed inadequate, incomplete, or untimely shall result in the automatic disqualification of the bid.

V. Responsive and Responsible Bidder Determination

After its review of complete and timely submissions, taking into account all information in the submission requirements, Portage Township Schools shall in its sole discretion, determine whether a bidder or subcontractor is responsive and responsible. Portage Township Schools reserves the right to utilize all information provided in the bidder or subcontractor's submission or any information obtained through independent verifications of the information provided.

VI. Certified Payroll

For projects in which the cost is at least three-hundred thousand dollars (\$300,000), the successful bidder and all subcontractors working on a public works project shall submit a certified payroll report utilizing federal form WH-347 or its successor form, which must be prepared on a weekly basis and submitted within ten (10) calendar days after the end of each week in which the successful bidder or subcontractor performed on the public works project. Certified payroll reports shall identify the job title and craft of each employee on the project (e.g., journeyman electrician or apprentice electrician). In the event any successful bidder or subcontractor uses independent contractors to perform work on the project, such individual must be identified on the federal form WH-347 or successor form with the same information as is required for employees.

Portage Township Schools may withhold payment due for work performed by a successful bidder or subcontractor for failure to timely submit their certified payroll reports until such time as the reports are submitted. Portage Township Schools will not withhold payment to a successful bidder or subcontractor for failure of the successful bidder or one or more other subcontractors to timely submit their certified payroll reports.

VII. Public Records

All information submitted by a bidder or a subcontractor pursuant to this policy, including

certified payrolls, are public records subject to review pursuant to the Indiana Access to Public Records law (IC 5-14-3).

VIII. Penalties for False, Deceptive, or Fraudulent Statements/Information

Any bidder or subcontractor that willfully makes, or willfully causes to be made, a false, deceptive, or fraudulent statement, or willfully submits false, deceptive, or fraudulent information in connection with any submission made to the Portage Township Schools shall be disqualified from bidding or working on all projects for a period of three (3) years.

IX. Conflicting Policies

Any other policy or provision of any other policy in conflict with the provisions of this policy is hereby repealed.

X. Severability

If any provision of this policy is found to be invalid, the remaining provisions of this policy will not be affected.

SECTION 2. It is hereby found and determined that all formal actions of the Board relating to the passage of this policy were adopted in open meeting(s) and that all deliberations of the Board and its committees that resulted in such formal actions were meetings open to the public, in compliance with all legal requirements.

SECTION 3. This Policy, entitled "Responsible Bidding Practices and Requirements for Submitting Bids to Perform Public Work Projects," shall be in full force and effect from and after the date of adoption by Portage Township Schools.

PASSED AND ADOPTED by Portage Township Schools, Porter County, Indiana on the 12 day of January, 2026.

ATTEST:

Dated this 12 day of January, 2026.

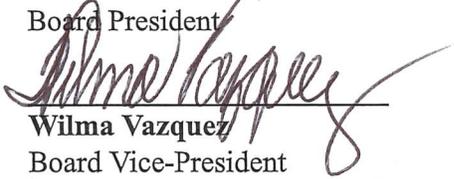
Portage Township Schools: City of Portage:


Amanda Alaniz
Superintendent

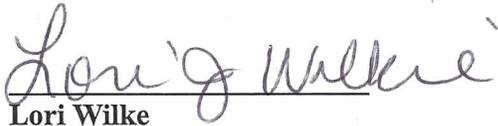
Austin Bonta
Mayor, City of Portage



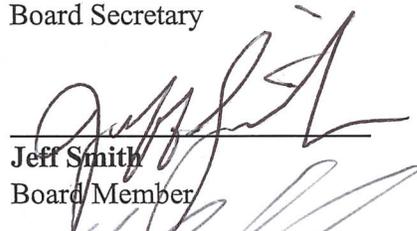
Andrew Maletta
Board President



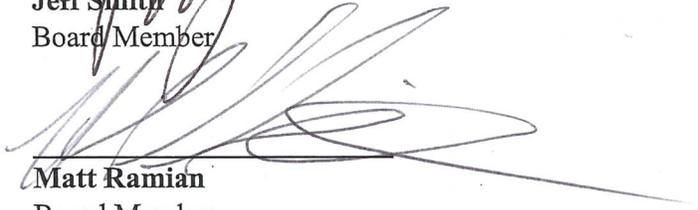
Wilma Vazquez
Board Vice-President



Lori Wilke
Board Secretary

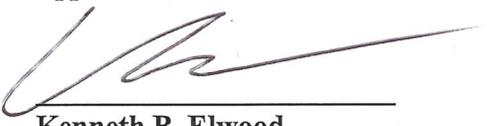


Jeff Smith
Board Member



Matt Ramian
Board Member

Approved as to form:



Kenneth B. Elwood
Board Attorney

Portage Township Schools

Responsible Bidding Practices Submission Form

**Project: New Wallace Aylesworth Middle School / Demo Aylesworth Elementary School Project
Rebid of Bid Category No. 5 - Roofing**

Bid Opening Date: April 23, 2026

Bid Opening Time: Bids Due at 10:30AM (CDT)

Name of Contractor: _____

Address: _____

Telephone No.: _____

Name of Primary Contact: _____

Category of Work: _____

Date of Submission: _____

Contractors proposing to submit bids on any Portage Township Schools (“School”) project estimated to be at least fifty thousand dollars (\$50,000) or more must, include with their bids, a statement made under oath and subject to perjury laws, the following:

- A. Attach to this form, a copy of a print-out of the Indiana Secretary of State’s on-line records for the bidder dated within sixty (60) days of the submission of said document showing that the bidder is in existence, current with the Indiana Secretary of State’s Business Entity Reports, and eligible for a certificate of good standing. If the bidder is an individual, sole proprietor or partnership, this section shall not apply.

- B. List all former business names:

C. Provide violations of federal, state, or local laws as determined by a court or governmental agency (Not limited to violations of contracting or antitrust laws, tax or licensing laws, environmental laws, the Occupational Safety, and health Act):

D. Provide a written statement on staffing capabilities, including labor sources:

E. Attach to this form, evidence of participation in apprenticeship and training programs, applicable to the work to be performed on the project, which are approved by and registered with the United States Department of Labor’s Office of Apprenticeship, or its successor organization. Include all applicable apprenticeship certificates or standards for these training programs.

F. Attach to this form, a copy of a written plan for employee drug testing that covers all employees of the bidder who will perform work on the public work project and meets, or exceeds, the requirements set forth in IC 4-13-18-5 or IC 4-13-18-6.

G. Provide the name and description of the management experience of each of the bidder's project managers and superintendents that bidder intends to assign to work on the project:

H. Attach to this form, proof of any professional or trade license required by law for any trade or specialty area in which bidder is seeking a contract award; and disclosure of any suspension or revocation within the previous five years of any professional or trade license held by the company, or of any director, office or manager employed by the bidder.

I. Attach to this form, evidence that the contractor is utilizing a surety company which is on the United States Department of Treasury's Listing of Approved Sureties.

J. Provide a written statement of any federal, state or local tax liens or tax delinquencies owed to any federal, state or local taxing body in the last five years:

K. Provide a written statement that individuals who will perform work on the public work project on behalf of the bidder will be properly classified as either (i) an employee or (ii) an independent contractor, under all applicable state and federal laws and local ordinances:

- L. List all projects of similar size and scope of work that the bidder has performed in the State of Indiana within three (3) years prior to the date on which the bid is due.

Print: _____

Signature: _____

Title: _____

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including amended General Conditions and other Division 1 Specification Sections, apply to work of this Section.

1.02 PURPOSE

- A. The Bids for the Alternates described herein are required in order for the Owner to obtain information necessary for the proper consideration of the Project in its entirety.

1.03 ALTERNATES

- A. Definitions: Alternates are defined as alternate products, materials, equipment, installations or systems for the Work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in the Owner-Contractor Agreement to either supplement or displace corresponding basic requirements of Contract Documents. Alternates may or may not substantially change scope and general character of the Work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

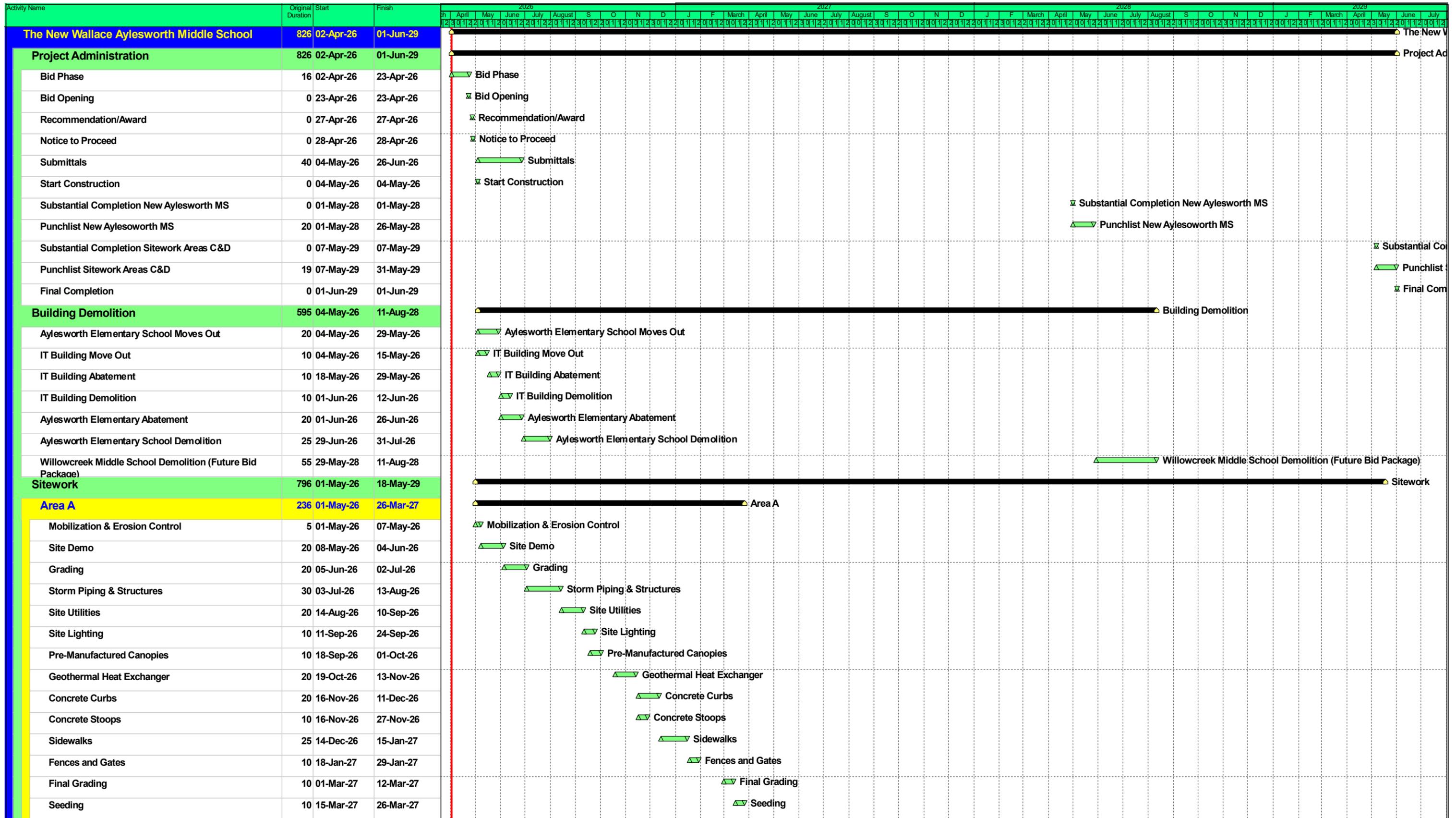
1.04 SCHEDULE OF ALTERNATES

- A. ALTERNATE NO. 1: State the cost to provide Synthetic Grass Surfacing as indicated on Drawing C503 in lieu of natural turf. The alternate shall include all subbase materials, perimeter curbs and underdrainage system to provide a complete system. **Base Bid:** Shall be natural turf.
- B. ALTERNATE NO. 2: State the cost to provide a complete stadium concession building (Unit G) as indicated on the various site, civil, structural, architectural, plumbing, mechanical, electrical and technology drawings. **Base Bid:** Shall be grading and seeding.
- C. ALTERNATE NO. 3: State the cost to provide Athletic Field Lighting with antenna as described in Specification Section 26 56 68 for the football field as indicated on the Electrical Site Drawing ES101. **Base Bid:** Shall be no athletic field lighting with a different location of antenna.
- D. ALTERNATE NO. 4: State the cost to provide paved basketball courts and adjacent improvements as indicated on the Site Drawings C501 and C502. **Base Bid:** Shall be grading and seeding.

- E. ALTERNATE NO. 5: State the cost to provide a complete construction of the north parking lot as indicated on Site Drawing C503 and Parking Lot Lighting on Drawing ES101. **Base Bid:** Shall be grading and seeding.
- F. ALTERNATE NO. 6: State the cost to provide Luxury Vinyl Tile (LVT) as described in Specification Section 09 65 19 in lieu of Linoleum Floor Tile (MCT) as indicated on the finish plans and the list of finishes. **Base Bid:** Linoleum Floor Tile (MCT).
- G. ALTERNATE NO. 7: State the cost to provide Resilient Athletic Flooring (MLRSAF) as described in Specification Section 09 65 66 in lieu of sealed concrete in Room F204 as indicated on Drawing IF12F. **Base Bid:** Sealed Concrete.
- H. ALTERNATE NO. 8: State the cost to provide Cover Board as specified in Specification Section 07 53 23, Article 2.8 E. as part of the Roof Assembly. **Base Bid:** No Cover Board.
- I. ALTERNATE NO. 9: State the cost to provide the complete Total System Warranty as specified in Specification Section 07 53 23, Article 1.12 A. for a period of 30 years from the date of Substantial Completion. **Base Bid:** 20 year warranty period.

PART 2 - PRODUCTS, PART 3 - EXECUTION (Not Used)

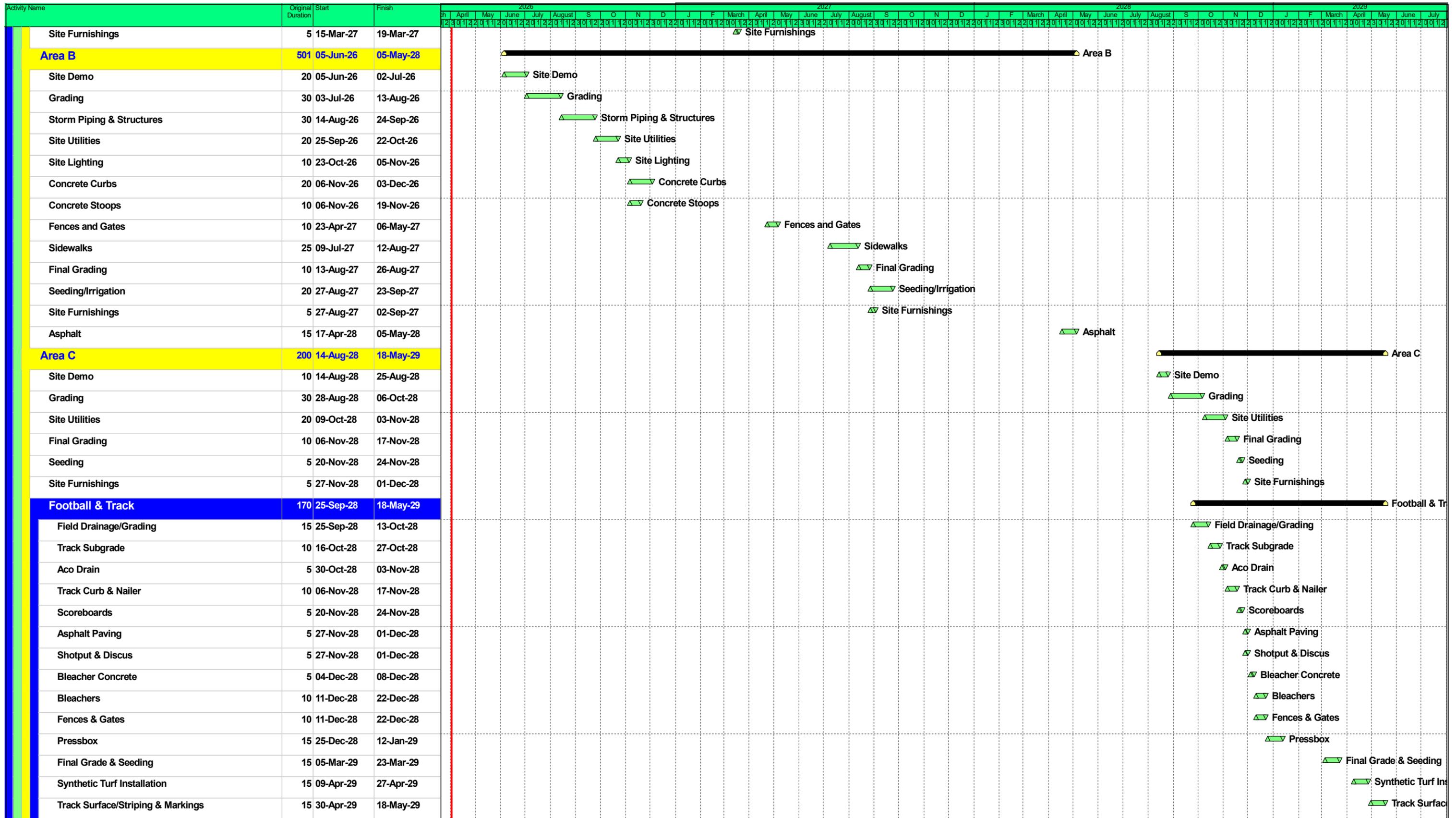
END OF SECTION 01 23 00



-  Actual Work
-  Remaining Work
-  Critical Remaining Work
-  Milestone
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Activity Name	Original Duration	Start	Finish	2026												2027												2028												2029																																																											
				Jan	Feb	Mar	Apr	May	June	July	Aug	S	O	N	D	Jan	Feb	Mar	Apr	May	June	July	Aug	S	O	N	D	Jan	Feb	Mar	Apr	May	June	July	Aug	S	O	N	D	Jan	Feb	Mar	Apr	May	June	July																																																					
Concession Building Unit G	88	28-Aug-28	27-Dec-28																																																	Concession Building Unit G																																															
Footings & Foundations	10	28-Aug-28	08-Sep-28																																																	Footings & Foundations																																															
Underground Utilities	5	11-Sep-28	15-Sep-28																																																	Underground Utilities																																															
Exterior CMU Walls	10	18-Sep-28	29-Sep-28																																																	Exterior CMU Walls																																															
Door Frames	5	18-Sep-28	22-Sep-28																																																	Door Frames																																															
Slab On Grade	5	02-Oct-28	06-Oct-28																																																	Slab On Grade																																															
Roof Trusses	5	02-Oct-28	06-Oct-28																																																	Roof Trusses																																															
Brick Veneer & Insulation	10	09-Oct-28	20-Oct-28																																																	Brick Veneer & Insulation																																															
Roofing	5	23-Oct-28	27-Oct-28																																																	Roofing																																															
Roofing Details	5	06-Nov-28	10-Nov-28																																																	Roofing Details																																															
Interior CMU Walls	5	06-Nov-28	10-Nov-28																																																	Interior CMU Walls																																															
Plumbing Rough-Ins	5	13-Nov-28	17-Nov-28																																																	Plumbing Rough-Ins																																															
Electrical Rough-Ins	5	13-Nov-28	17-Nov-28																																																	Electrical Rough-Ins																																															
Mechanical Equipment & Ductwork	5	13-Nov-28	17-Nov-28																																																	Mechanical Equipment & Ductwork																																															
Drywall & Tape	5	20-Nov-28	24-Nov-28																																																	Drywall & Tape																																															
Paint	5	27-Nov-28	01-Dec-28																																																	Paint																																															
Plumbing Fixtures	5	04-Dec-28	08-Dec-28																																																	Plumbing Fixtures																																															
Light Fixtures	5	11-Dec-28	15-Dec-28																																																	Light Fixtures																																															
Toilet Partitions	5	11-Dec-28	15-Dec-28																																																	Toilet Partitions																																															
Electrical Devices & Trim	3	18-Dec-28	20-Dec-28																																																	Electrical Devices & Trim																																															
Doors & Hardware	5	21-Dec-28	27-Dec-28																																																	Doors & Hardware																																															
Rolling Doors & Grilles	3	21-Dec-28	25-Dec-28																																																	Rolling Doors & Grilles																																															
Area D	160	01-Sep-28	12-Apr-29																																																	Area D																																															
Site Demo	20	01-Sep-28	28-Sep-28																																																	Site Demo																																															
Grading	20	29-Sep-28	26-Oct-28																																																	Grading																																															
Site Utilities	20	27-Oct-28	23-Nov-28																																																	Site Utilities																																															
Site Lighting	10	24-Nov-28	07-Dec-28																																																	Site Lighting																																															
Concrete Curbs	20	08-Dec-28	04-Jan-29																																																	Concrete Curbs																																															
Sidewalks	10	05-Jan-29	18-Jan-29																																																	Sidewalks																																															
Final Grading	10	19-Jan-29	01-Feb-29																																																	Final Grading																																															
Seeding	3	02-Feb-29	06-Feb-29																																																	Seeding																																															
Site Furnishings	5	02-Feb-29	08-Feb-29																																																	Site Furnishings																																															
Asphalt	20	16-Mar-29	12-Apr-29																																																	Asphalt																																															
Building Core & Shell	302	11-Sep-26	08-Nov-27																																																	Building Core & Shell																																															
Unit F	165	11-Sep-26	29-Apr-27																																																	Unit F																																															
Footings and Foundations	30	11-Sep-26	22-Oct-26																																																	Footings and Foundations																																															
Underground Utilities	10	23-Oct-26	05-Nov-26																																																	Underground Utilities																																															

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Activity Name	Original Duration	Start	Finish	2026												2027												2028												2029											
				Jan	Feb	Mar	Apr	May	June	July	August	S	O	N	D	Jan	Feb	March	April	May	June	July	August	S	O	N	D	Jan	Feb	March	April	May	June	July	August	S	O	N	D	Jan	Feb	March	April	May	June	July					
Structural Steel Erection and Detailing	20	06-Nov-26	03-Dec-26	Structural Steel Erection and Detailing																																															
Exterior CMU Walls	20	04-Dec-26	31-Dec-26	Exterior CMU Walls																																															
Slab On Grade	5	01-Jan-27	07-Jan-27	Slab On Grade																																															
Hollow Core Pre-Cast Slab Panels	5	08-Jan-27	14-Jan-27	Hollow Core Pre-Cast Slab Panels																																															
Slab On Deck	5	29-Jan-27	04-Feb-27	Slab On Deck																																															
Brick Veneer & Insulation	20	29-Jan-27	25-Feb-27	Brick Veneer & Insulation																																															
Membrane Roofing	15	26-Feb-27	18-Mar-27	Membrane Roofing																																															
Exterior Storefronts	5	19-Mar-27	25-Mar-27	Exterior Storefronts																																															
Window Frames & Glazing	5	26-Mar-27	01-Apr-27	Window Frames & Glazing																																															
Metal Stud Framing	5	26-Mar-27	01-Apr-27	Metal Stud Framing																																															
Roofing Details	5	02-Apr-27	08-Apr-27	Roofing Details																																															
Metal Wall Panels	15	09-Apr-27	29-Apr-27	Metal Wall Panels																																															
Unit E	130	23-Oct-26	22-Apr-27	Unit E																																															
Footings and Foundations	25	23-Oct-26	26-Nov-26	Footings and Foundations																																															
Underground Utilities	10	27-Nov-26	10-Dec-26	Underground Utilities																																															
Structural Steel Erection and Detailing	15	11-Dec-26	31-Dec-26	Structural Steel Erection and Detailing																																															
Exterior CMU Walls	15	01-Jan-27	21-Jan-27	Exterior CMU Walls																																															
Slab On Grade	5	22-Jan-27	28-Jan-27	Slab On Grade																																															
Metal Stud Framing	5	22-Jan-27	28-Jan-27	Metal Stud Framing																																															
Hollow Core Pre-Cast Slab Panels	5	29-Jan-27	04-Feb-27	Hollow Core Pre-Cast Slab Panels																																															
Brick Veneer & Insulation	15	12-Feb-27	04-Mar-27	Brick Veneer & Insulation																																															
Slab On Deck	5	19-Feb-27	25-Feb-27	Slab On Deck																																															
Membrane Roofing	10	05-Mar-27	18-Mar-27	Membrane Roofing																																															
Exterior Storefronts	5	19-Mar-27	25-Mar-27	Exterior Storefronts																																															
Exterior Doors & Hardware	5	26-Mar-27	01-Apr-27	Exterior Doors & Hardware																																															
Window Frames & Glazing	5	26-Mar-27	01-Apr-27	Window Frames & Glazing																																															
Roofing Details	5	02-Apr-27	08-Apr-27	Roofing Details																																															
Metal Wall Panels	10	09-Apr-27	22-Apr-27	Metal Wall Panels																																															
Unit D	145	27-Nov-26	17-Jun-27	Unit D																																															
Footings and Foundations	30	27-Nov-26	07-Jan-27	Footings and Foundations																																															
Underground Utilities	10	08-Jan-27	21-Jan-27	Underground Utilities																																															
Structural Steel Erection and Detailing	15	22-Jan-27	11-Feb-27	Structural Steel Erection and Detailing																																															
Exterior CMU Walls	20	12-Feb-27	11-Mar-27	Exterior CMU Walls																																															
Slab On Grade	5	12-Mar-27	18-Mar-27	Slab On Grade																																															
Metal Stud Framing	5	12-Mar-27	18-Mar-27	Metal Stud Framing																																															
Hollow Core Pre-Cast Slab Panels	5	19-Mar-27	25-Mar-27	Hollow Core Pre-Cast Slab Panels																																															
Brick Veneer & Insulation	20	02-Apr-27	29-Apr-27	Brick Veneer & Insulation																																															

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SECTION 07 53 23 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Adhered ethylene-propylene-diene-monomer (EPDM) roofing system.
 - 2. Substrate board.
 - 3. Vapor retarder.
 - 4. Roof insulation.
 - 5. Cover board.
 - 6. Walkways.
- B. This Section includes the installation of acoustical roof deck rib insulation strips furnished under Division 05 Section "Steel Decking".
- C. Related Sections include the following:
 - 1. Division 05 Section "Steel Decking" for furnishing acoustical deck rib insulation.
 - 2. Division 06 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 3. Division 06 Section "Sheathing" for wood-based parapet sheathing.
 - 4. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
 - 5. Division 07 Section "Roof Specialties" for roof edge terminations.
 - 6. Division 07 Section "Joint Sealants."
 - 7. Division 22 Section "Facility Storm Drainage Piping" for roof drains.

1.2 REFERENCES

- A. American Society of Civil Engineers: Document ASCE 7, Minimum Design Loads for Buildings and Other Structures.
- B. American Society of Testing and Materials (ASTM)
 - 1. ASTM C168 – Standard Terminology Relating to Thermal Insulation.
 - 2. ASTM C177 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
 - 3. ASTM C209 – Methods of Testing Insulating Board, Structural and Decorative.
 - 4. ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 5. ASTM C1289 – Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 6. ASTM C1303 – Standard Test Method for Estimating the Long Term Change in the Thermal Resistance of Unfaced Closed Cell Plastic Foams by Slicing and Scaling Under Controlled Laboratory Conditions.
 - 7. ASTM D1079 – Standard Terminology Related to Roofing and Waterproofing.
 - 8. ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - 9. ASTM D2126 – Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - 10. ASTM D2842 – Standard Test Method for Water Absorption for Rigid Cellular Plastics.
 - 11. ASTM E84 – Flame spread.
 - 12. ASTM E96 – Water vapor transmission.
 - 13. ASTM E108 – Spread of Flame.
- C. National Roofing Contractors Association (NRCA) – Roofing and Waterproofing Manual.
- D. Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA) – Architectural Sheet Metal Manual.

- E. Underwriters Laboratories (UL) – Roofing Materials and Systems Annual Directory.
- F. ANSI/SPRI WD-1: Wind Design Standard Practice for Roofing Assemblies.
- G. ANSI/SPRI ES-1: Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
- H. ANSI/SPRI RP-4: Wind Design Standard for Ballasted Single-Ply Roofing Systems.
- I. National Fire Protection Association (NFPA): NFPA 241-Safeguarding Building Construction Operations.
- J. Environmental Protection Agency (EPA): EPA Method 9045.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Positive Drainage: The drainage condition in which consideration has been made during design for all loading deflections of the deck, and additional roof slope has been provided to ensure drainage of the roof area within 48 hours of rainfall, during ambient drying conditions.
- C. Roof System: A system of interacting roof components generally consisting of a membrane, roof insulation and air or vapor retarder (if present) (not including the roof deck) designed to weatherproof a structure and improve thermal resistance.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Meeting: Conduct meeting at Project site after shop drawing review. Comply with requirements in Division 01 Section "Project Management and Coordination." A/E will schedule and conduct meeting. Review methods and procedures related to roofing system including, but not limited to, the following:
 1. Meet with Owner; A/E; CM, Owner's insurer if applicable; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.

1.5 SEQUENCING

- A. Work shall begin only after openings and penetrations are in place and adjacent work required for a complete tie-in is in place. This includes masonry with special attention being given to roof-to-wall transitions. Work shall not begin:
 1. Before the "Preinstallation Meeting" has occurred
 2. Until conditions exist necessary for successful completion of roofing.
 3. Without presence and approval of manufacturer's representative

- B. Prior to and during application, all dirt, devices and dust shall be removed from surfaces by vacuuming, sweeping, blowing with compressed air or similar methods.
- C. Arrange work sequence to avoid use of newly constructed roofing as a walking surface of for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas.
 - 1. Work shall begin at the furthest point from the designated spot where materials are shipped to the roof.
- D. After work on roof is started, no traffic will be permitted on the roof other than necessary for the roofing application and inspection. Materials shall not be piled on to the roof to the extent that design live loads are exceeded. Roofing materials shall not be transported over unfinished or finished roofing or existing roofs.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Submit specifications, installation instructions, and general recommendations from roofing materials manufacturer for type of roofing required. Indicate data substantiating that materials comply with requirements of this specification, inclusive of accelerated weathering data.
 - 1. Storage and handling requirements and recommendations.
 - 2. For insulation and roof system component fasteners include copy of FM Approvals' RoofNav, SPRI's Directory of Roof Assemblies listing, or Directory of Roof Assemblies (DORA) for assemblies.
 - 3. Roof Assembly letter from roof membrane manufacturer.
- B. Shop Drawings: For roofing system must be issued or approved by manufacturer before being submitted to A/E. Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Outline of roof and size.
 - 2. Location and type of all penetrations.
 - 3. Layout and thickness of insulation, fastener type and length.
 - 4. Perimeter and penetration details, including base flashings and membrane terminations.
 - 5. Tapered insulation, including slopes.
 - 6. Roof plan showing orientation of steel roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing.
 - 7. Insulation fastening patterns for corners, perimeter, and field-of-roof locations.
 - 8. Flashing Conditions: Show all roofing conditions, including but not limited to drains perimeter conditions, roof penetrations conditions, expansion joints, etc. The shop drawings must be reviewed and approved by the roofing system manufacturer to assure the completed installation will meet the manufacturer's warranty requirements.
 - 9. Wind Uplift Securement: Provide roof plan(s) marked-up to include extent of roof corners and perimeter areas, inclusive of fastener spacing/density. This drawing must be reviewed and approved by the roofing system manufacturer to assure the completed installation will meet the manufacturer's warranty requirements and the "Performance Requirements" listed in this specification.
 - 10. Tie-in with air barriers, where air barrier is required.
 - 11. Wind Uplift Resistance Submittal: For roofing system including compliance with wind uplift performance requirements.

1.7 INFORMATIONAL/QUALITY ASSURANCE/CONTROL SUBMITTALS

- A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system and qualified to receive manufacturer's 20 year, no-dollar-limit warranty (even if a lesser warranty is specified).
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of meeting performance requirements, including uplift resistance.

2. Submit insulation fastening patterns for corner, perimeter, and field-of-roof locations to meet performance requirements.
3. Submit a letter from the roof manufacturer certifying the proposed roofing assembly, compatibility of materials and total R-value of insulation.
4. Submit intent to warrant, executed by authorized representative of system manufacturer, indicating that manufacturer has reviewed drawings, specifications, and conditions affecting the work and proposes to provide warranties as referenced herein without further stipulation.

C. Sample Executable Warranty: Copy of manufacturer's warranty stating obligations, remedies, limitations, and exclusions before starting work.

1. Contractor shall submit manufacturers approved "Pre-Installation Notice" (PIN) to A/E.

1.8 CLOSEOUT SUBMITTALS:

A. General: Closeout Submittals are to be submitted with O and M Manuals only. Do not submit with other ACTION and INFORMATIONAL Submittals.

1. Maintenance Data: For roofing system to include in maintenance manuals. When warranties are delivered to the Owner, cover letter shall be included directing the Owner to inform (copy) the manufacturer as well as the Contractor when reporting roof problems, regardless of when they occurred during the warranty period.
 - a. Roofing membrane manufacturer shall submit a Roof Maintenance and Inspection Manual with warranties and project closeout submittals. (Final payment will not be made until roof maintenance manual is submitted.)
 - b. Roof Maintenance and Inspection Manual shall include:
 - 1) Cover letter recommending to the Owner that two roof maintenance inspections should be conducted per year.
 - 2) Table of Contents.
 - 3) Visual observation checklist indicating specific flashings and details to be observed. Include items such as base flashing seams, reglets and counterflashings, roof edge flashings, roof penetration flashings, roof curb flashings, boot flashings, roof drain areas, parapet wall flashings, copings, roof membrane seams, skylight flashings, etc. All applicable items shall be listed per project.
 - 4) Copies of "Project Record" roofing details.
 - 5) Roof plan indicating penetrations detail locations, roof drains, and seams.
 - 6) Final inspection report.
2. Warranties: Special executable warranties specified in this Section. When warranties are delivered to the Owner, a cover letter shall be included directing the Owner to inform (copy) the manufacturer as well as the Contractor, when reporting roofing problems, regardless of when they occurred during the warranty period, including any "Punch List" items.
3. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.9 QUALITY ASSURANCE

A. Qualifications

1. Manufacturer Qualifications: A qualified manufacture that is UL listed or listed in FM Approvals' RoofNav, listed in SPRI's Directory of Roof Assemblies or Directory of Roof Assemblies (DORA) for roofing system identical to that used for this Project.
 - a. Manufacturer must be in addition to attending Pre-Installation Meeting and final inspection participants in Field Quality Control inspections to verify products are being installed as recommended. Inspections shall be schedule at critical points to verify membrane perimeter and penetrations are properly terminated per written instructions and submittal documents. Refer to "Field Quality Control" article for additional manufacturers inspections.

- 1) Manufacturer's inspector shall be a field technical inspector employed by the manufacturer not engaged in the sale of products. Inspector shall be experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and to determine installer's compliance with the requirements for the Project and the manufacturer's warranty certification.
 - 2) Manufacturer's inspector services shall include examination of substrates and conditions prior to membrane installation including verification of fastening of substrate to structure. Inspections shall also include observation of membrane installation, detailing, flashing, in progress work, and complete portions of the work.
 - 3) Manufacturer's inspector may not approve a roof installation as warrantable or acceptable if any current condition of the application of the new system does not meet the current published manufacturer's standards or submittals without review by A/E. The warrantability issue is part of the Contract Documents and does not take precedent over all contract requirements.
 - 4) Manufacturer's inspector shall provide a written report to the A/E, roofing contractor, and CM existing conditions on day of inspection, work occurring, observation of work, workmanship and materials stored at the project site. A minimum of 5 pictures of roofing work shall be included in the reports. Reports shall be submitted within 7 days of the site visit.
2. 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 install and receive a manufacturer's 20 year (Base Bid) or 30 years (Alternate Bid) (or manufacturer longest period for specified product) no-dollar-limit warranty. Installer must verify this approval with a letter from manufacturer and supply letter even if a lesser warranty is specified.
- a. The Contractor shall obtain from the roofing manufacturer copies of each roof inspection and furnish a copy to the A/E. The Contractor shall inform the roofing manufacturer, with regard to warranties, that warranties shall be issued, based upon the acceptance of the roofing work, and that deficiencies noted on inspection reports have been corrected. The manufacturer shall not refuse or restrict the provisions of its warranty, based upon deficiencies noted on inspection reports, especially any report that may not have been furnished to the A/E. Inspections shall be a minimum of 3 and scheduled randomly (no prior notification) and selection of the roofing manufacturer's inspector(s) shall not be influenced by the roofing subcontractors preferences. The A/E will not approve final payment of roofing work until final and interim inspection reports and warranty are in hand. The A/E's representative shall accompany the manufacturer's inspector and Roofing Installer during final inspection prior to issuing manufacturer's warranty.
 - b. The roofing installer shall have on the job whenever roofing work is being done, a foreman/supervisor with a minimum 3 years experience in the type of roofing specified or the roofing manufacturer's technical field representative and provide adequate number of experienced workman regularly engaged in this type of work who are skilled in the application techniques of the materials specified.
3. Roofing and associated work shall be performed by a single firm called the "Installer" in this Section, so that there will be undivided responsibility for the specified performance of components parts including, but not limited to, the following (even though some parts may be subcontracted to others):
- a. Division 06 Section "Rough Carpentry": For wood insulation stops, wood nailers, and blocking required for installation of new roof and sheet metal.
 - b. Division 07 Section "Preparation for Reroofing": For general requirements for reroofing.
 - c. Division 07 Section "Sheet metal Flashing and Trim."
 - d. Division 07 Section "Roof Specialties."

- B. There shall be no deviations made from this specification or the shop drawings without prior written approval of A/E. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the A/E's consideration.
- C. Source Limitations: Obtain components for membrane roofing system from same manufacturer as roofing membrane or approved by roofing membrane manufacturer accompanied with a letter of endorsement.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
 - 1. All materials delivered from manufacturers and suppliers should be carefully inspected at the time of delivery and examined during unloading. Manufacturers' product labels should be intact. Any damaged or unsuitable material should be rejected. Material that has been exposed to weather in transit or storage should be examined carefully for deterioration and damage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
 - 2. Lids should be secured on cans of stored material.
 - 3. Water-based materials such as asphalt emulsions, acrylic coatings and water-based adhesives should be protected from freezing.
 - 4. Solvents, adhesives, and sealants should be stored at proper temperature.
 - 5. Store seam tapes and adhesives above 60 degrees F, unless otherwise recommended by manufacturer.
 - a. Jobsite storage temperatures in excess of 90 deg F. may effect shelf life of curable materials.
 - b. When the temperature is expected to fall below 40 deg F., outside storage boxes should be provided on the roof for temporary storage of liquid adhesives, sealants, primers and accessories. Containers must be rotated to maintain their temperature above 40 deg F.
 - 1) Prolonged exposure of pressure-sensitive flashing and tape to temperatures below 40 deg F. will cause the tape to lose tack and in extreme cases, not to bond to the substrate.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
 - 1. When moisture-sensitive materials are stored outside, they shall be placed on pallets or platforms that are raised off the ground or roof deck (at least 4 inches). Materials sensitive to moisture should be covered with water-resistant coverings that have been properly secured. Coverings that are "breathable," such as water resistant canvas tarpaulins are preferred. Cover top and sides of materials and secure cover. Remove wet products from project site.
 - a. During inclement seasons, or extended periods (two weeks) it is suggested that moisture sensitive materials be stored in vans or enclosed areas protected from moisture or elevated humidity.
 - b. Materials determined by A/E to be damaged or to have been subjected to adverse conditions shall be removed and replaced at contractor's expense.
 - 2. Protect insulation against concentrated loads, and standing loads exerting a force in excess of 50 percent of the materials compressive strength.
 - 3. Do not expose foam core to excessive heat, sparks, or open flame.

- D. Single-ply sheet materials may be stored as shipped with rolls laying horizontally or as recommended by manufacturer.
 - 1. When rolled materials are stored, the storage substrate should be swept to rid the surface of loose gravel, sharp objects and other debris that could damage the membrane material.
 - 2. Cover with tarps so moisture does not gather in the rolls. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weld ability.
- E. Provide continuous protection of products during delivery, storage, handling, and application.
- F. Do not store roofing materials in concentrated areas of roof deck.
 - 1. Stored material should be raised up off the roof surface out of any standing water.
- G. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
 - 1. Average live loads on the roof during the work shall not exceed twenty pounds per square foot at any time.
- H. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier.
 - 1. Liquid propane (LP) gas containers shall be stored upright at all times.
 - a. Comply with NFPA 58 "Standard for the Storage and Handling of Liquefied Petroleum Gases" as well as appropriate publications of the National LP Gas Association.

1.11 FIELD CONDITIONS

- A. Weather Condition Limitations:
 - 1. Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
 - a. Proceed only when the Installer is willing to guarantee the work as required and without additional reservations and restrictions.
 - 2. Apply in dry weather on a dry deck only. Where rain or inclement weather occur during application, the Work shall stop and not resume until the weather has cleared and the deck is dry.
 - a. When membrane roofing materials are applied, entrapment of moisture should be prevented. Moisture in or on materials may cause membrane problems. If precipitation occurs before completely installing the roof membrane, the membrane surface in the immediate work area and the substrate should be dried or allowed to dry before work resumes.
 - 3. Only as much roofing as can be made weathertight each day, including all flashing and detail work, shall be installed.
 - a. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.
 - 4. Cold Weather
 - a. When outside temperature is below 40 degrees F, certain combinations of temperature and humidity may cause condensation on surface of adhesives and primers. If this condition occurs, discontinue the application. When the ambient air conditions no longer cause condensation on adhesive surfaces and the membrane is clean and dry then reapply additional adhesive or primer and proceed.
 - b. The consistency of sealants, adhesives, and primers will begin to thicken as the temperature drops. To minimize this, the following is recommended:

- 1) Start work with sealants, adhesives, and primers that have been stored between 60 and 80 degrees F. Insulated and heated boxes may be helpful.
 - 2) Complete test areas to determine if conditions will cause problems such as condensation with the application of the materials.
 - 3) Stop the operation or change to another warm container when material becomes too thick to properly apply.
- c. When the outside temperature is below 40 degrees F, installation of the roofing system may require additional application procedures, consult with manufacturer:
- 1) Ensure that the roof surface is dry. Moisture, even trace amounts, may cause poor adhesion, and may lead to moisture entrapment within the roofing system.

B. Cautions and Warnings

1. Do not use bitumen base, oil base, or plastic roof cements with EPDM membrane.
2. Do not install EPDM membrane directly onto asphalt.
3. Do not expose membrane and accessories to a constant temperature in excess of 180 degrees F.
4. Splicing and bonding surfaces must be clean and dry.
5. Do not thin products.
6. Provide protection for all roof areas exposed to traffic during construction.
7. Roofing Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at site. Roofing Contractor shall conform to all regulations and precautions as required by applicable safety organizations.
8. All methods employed in performing the work, and all equipment, tools, machinery used for handling materials and executing any part of the work, shall be subject to the approval of the CM and A/E before the work is started, and whenever found unsatisfactory, shall be charged and improved as required.
9. Roofing System
 - a. Solvents, adhesives, and primers used in the application of single-ply roofing systems are extremely flammable and/or toxic. Provide any and all crew members with appropriate safety data information and training as provided by the roofing materials manufacturer. Provide each crew member with appropriate training as it relates to the specific chemical compound they may be expected to deal with. Each crew member shall be fully aware of first aid measures to be undertaken in case of accidents, etc.
10. Note some of the steps in a self-adhering EPDM roof system installation can generate static electricity, particularly in dry working conditions. To avoid igniting flammable vapors, keep adhesives, primers and cleaners out of direct sunlight and away from the immediate work area when not in use and tell workers to discharge built-up static charge from their bodies before opening containers. Make sure a fire extinguisher is always on hand, regularly contain and remove jobsite debris and rubbish, and establish a means of egress from the roof in the event of a fire.

C. Construction Traffic: Construction site traffic from all trades should be limited to designated areas and walkways. Completed roof membranes are not suitable as work platforms or staging areas for other trades. If construction traffic is anticipated or inevitable, the use of temporary roofs can act as a sacrificial traffic surface, allowing for construction traffic and abuse until the primary weatherproofing membrane is installed.

1. Coordination between various trades is essential to avoid unnecessary rooftop traffic over completed sections of the roof and to prevent subsequent damage to the membrane roofing system.

1.12 WARRANTY

A. Special Total System Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special "total system" warranty includes roofing membrane, base flashings, roofing accessories, roof insulation, fasteners, cover boards, substrate board, vapor retarder, and other components of membrane roofing system as required to keep the system watertight, including metal work i.e. coping and roof-edge specialties.
2. Warranty Period: 20 years (Base Bid) or 30 years (Alternate Bid) from date of Substantial Completion.
3. The warranty shall guarantee the roof membrane system at wind speeds up to 72 mph measured at 10 meters above ground.
4. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

B. Pro-rated System Warranties are not acceptable.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.
 2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.
- B. Products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product. The "Substitution Request Form" and complete technical data for evaluation must accompany requests for A/E's approval. All materials for evaluation must be received by the Project Manager and Specification Department at least 10 days prior to bid due date. Additional approved manufacturers will be issued by Addendum.
- C. Source Limitations: Obtain components for roofing system from Manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
1. Accelerated Weathering: Roofing system shall withstand 2,000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746, ASTM D 4272 or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.
- C. Roofing System Design: Provide a membrane roofing system that is listed on IBC ES-Reports or is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7/SEI and also as tested in accordance with FM 4474, UL 580, or UL 1897.
1. Fire/Windstorm Classification: Calculations shall not result in a roofing design less than FM Class 1A-60 requirements.

- D. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approval 4474, UL 580, or UL 1897;
1. Low Roof Areas (below 30 feet):
 - a. Field-of-Roof Uplift Pressure (Zone 1): 31.1 lbf/sq.ft
 - b. Perimeter Uplift Pressure (Zone 2): 52.2 lbf/sq.ft.
 - c. Corner Uplift Pressure (Zone 3): 78.5 lbf/sq.ft.
 2. Roof Areas (above 30 feet):
 - a. Field-of-Roof Uplift Pressure (Zone 1): 32.6 lbf/sq.ft
 - b. Perimeter Uplift Pressure (Zone 2): 54.8 lbf/sq.ft.
 - c. Corner Uplift Pressure (Zone 3): 82.4 lbf/sq.ft.
- E. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roof system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
1. Hail-Resistance Rating: FM Global Property Loss Prevention Data Sheet 1-34 SH.
- F. SPRI's Directory of Roof Assemblies Listing: Roof membranes, base flashings, and component materials shall comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a roofing system, and shall be listed in SPRI's Directory of Roof Assemblies for roof assembly identical to that specified for this Project.
- G. Polyisocyanurate Insulation
1. Compressive Strength: 20 psi min.
 2. Dimensional Stability – maximum dimensional change after installation (inches).
 - a. Length: +/- 1/8
 - b. Width: +/- 1/8
 - c. Thickness: +/- 1/16
 - d. Squareness: 1/16
 - e. Flatness: 1/16
 3. Moisture Vapor Transmission: ASTM E96, <1 perm.
 4. Water Absorption: ASTM C209, <1 percent by volume.
 5. Flame Spread: ASTM E84, <50.
 6. Service Temperature: Minus 100 degrees to 250 degrees F.
 7. Smoke Developed: ASTM E84, <450.
 8. Acidity: EPA Method 9045, 6 pH minimum, 8 pH maximum.
 9. Aged R-Value per Inch: ASTM C177 and C518, 5.6 R.
- H. 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 MEMBRANE

- A. EPDM Roofing Membrane: ASTM D 4637, Type II, scrim or fabric internally reinforced uniform, flexible fire-retardant sheet made from EPDM, and as follows:
1. Manufacturers:
 - a. Carlisle SynTec Incorporated.
 - b. Elevate (fka Firestone Building Products, Co.)
 - c. Johns Manville, Inc.
 2. Thickness: 60 mils, nominal.
 3. Exposed Face Color: Black.
 4. Performance Requirements:
 - a. Underwriters Laboratory: Roof system shall be a UL Class "A" roof.
 - b. Underwriters Laboratory: Roof system must have a UL 2218 Class 4 rating.

2.4 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
 - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

- B. Sheet Flashing: 60-mil thick EPDM, partially cured or cured, according to application.
 - 1. Provide manufacturers standard pre-molded pipe flashing and corners, where possible.
 - 2. Provide pressure-sensitive flashing, nominal 30 mil cured, pre-applied adhesive. Provide a minimum 6 inch wide roll to flash metal edging and seams where required herein.
 - 3. Exposed Face Color: Black.

- C. Protection Sheet (Chemical): Epichlorohydrin or neoprene non-reinforced flexible sheet, 55 to 60 mil thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease, and oil.
 - 1. Exposed Face Color: Black.

- D. Bonding Adhesive: Manufacturer's standard bonding adhesive., water-based bonding adhesive shall be utilized unless cold conditions require the use of solvent-based adhesives- and their use is approved by A/E.

- E. Low-Rise, Urethane, Fabric-Backed Membrane Adhesive: Roof system manufacturer's standard spray-applied, low rise, two-component urethane adhesive formulated for compatibility and use with fabric-backed membrane roofing.

- F. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch wide minimum, butyl splice tape with release film or factory-applied seam tape, width as recommended by manufacturer.

- G. Lap Sealant: Manufacturer's standard single-component sealant.
 - 1. Color to match membrane if white-on-black membrane is used.

- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

- I. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
 - 1. Use only where indicated. In areas where metal counterflashing or surface mounted reglets are used, they must be sealed with a sealant to prevent moisture migration behind the flashing.

- J. Fasteners: Membrane manufacturer to assure all warranty conditions are met and shall approve fasteners. The type of fastener shall be appropriate for the substrate to achieve maximum withdraw and anticorrosion characteristics. The membrane manufacturer approved fasteners shall also meet the following requirements.
 - 1. Mixing metal types and methods of contact shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins. All concrete fasteners and anchors shall have a minimum embedment of 1-1/4 inch and shall be approved for such use by the fastener manufacturer. All miscellaneous wood fasteners and anchors used for flashings shall have a minimum embedment of 1 inch and shall be approved or such use by the fastener manufacturer.
 - 2. Pullout Testing: Fastener shall provide a minimum pullout resistance of 450 pounds.
 - 3. Static Backout Resistance: Fastener shall provide a minimum static backout resistance of 10 inch pounds.

4. Where fasteners will be in contact with wood treated with preservative chemicals, provide fasteners and anchorage with hot dip zinc coating of G90 complying with ASTM A153 or of Type 304 or 316 stainless steel.
- K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.
1. Provide white flashing accessories for white EPDM membrane roofing.
- L. Liquid coating, specifically formulated for coating EPDM membrane roofing, as follows:
1. Type:
 - a. Acrylic emulsion complying with ASTM D 6083.
 - b. Chlorosulfonated polyethylene complying with ASTM D 3468.
 2. Color: Grey.
 3. Only utilize where required by project conditions and detailing requirements.
- M. Secondary Seal/Flexible Vapor Retarder: Continuous waterproof EPDM membrane ASTM D 4637, or Neoprene membrane within joint and attached to substrate on each side.
1. Expansion joints
- N. Thermal Insulation/Compressible Insulation: Mineral-fiber blanket, ASTM C 665, to fill space above secondary seal/flexible vapor retarder.
1. Maximum flame-spread and smoke-development indexes of 25 and 50 respectively, per ASTM E 84.
 2. Expansion joints.
- O. Flexible Foam Rod: Closed-cell support foam in configuration indicated on Drawings.
1. Expansion joints.

2.5 SUBSTRATE BOARDS

- A. Substrate Boards: ASTM C1177, glass mat, water resistant gypsum substrate.
1. Manufacturers:
 - a. DensDeck Prime with EONIC Technology; Georgia-Pacific Gypsum.
 - b. DEXcell FA; National Gypsum.
 - c. Glass Rock Roof Board; CertainTeed Corporation.
 - d. Securock UltraLight Coated Glass-Mat Roof Board; USG
 2. Thickness: Provide 5/8 inch as part of fire resistance rated roofing system (as indicated on "Code Plans") and over acoustical deck.
 3. Factory prime, where required by roofing system manufacturer for application indicated.
 - a. Coordinate face of facer material with vapor retarder adhesion requirements for fully adhered system.
- B. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening substrate panel to roof deck.

2.6 AIR AND VAPOR BARRIER

- A. Air and Vapor Barrier: Provide one of the following as recommended by membrane manufacturer for compatibility in roofing assembly indicated.
1. Self-Adhering-Sheet Air and Vapor Retarder: ASTM D 1970, polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil-total thickness; maximum water vapor permeance rating of 0.1 perm and air permeability of less than 0.04; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.

2. Self-Adhering-Sheet Air and Vapor Retarder: Polyethylene film laminated to layer of butyl rubber adhesive, minimum 30-mil total thickness; maximum water vapor permeance rating of 0.1 perm and air permeability of less than 0.04; cold-applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.
 3. A 106 mil thick self-adhered SBS polymer modified bitumen vapor retarder/air barrier with a non-woven polyester mat reinforcement and fine mineral aggregate (sand) topside.
 - a. Basis-of-Design: Vapor Retarder SA 106; Sika Corp.
 4. Where indicated air and vapor barrier shall be installed directly on metal deck. Adjust specific product as required by Manufacturer for installation on metal deck. Minimum thicknesses noted in above paragraphs are still applicable.
- B. Provide adhesive/primer supplied by air and vapor barrier manufacturer for adhesion to concrete or masonry surfaces.

2.7 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
1. Insulation must be manufactured by or approved in writing by membrane manufacturer for system specified. Insulation must meet requirements for manufacturers total system warranty requirements and comply with FM 4450 or UL 1256.
 - a. Insulation shall be approved for use in FM Approval's RoofNav listed roof assemblies or approved for use in SPRI's Directory of Roof Assemblies listed roof assemblies.
- B. Polyisocyanurate Board Insulation: ASTM C 1289-11A, Type II, Class 2, Grade 2 min., coated polymer bonded glass fiber mat facer on both major surfaces. Facers shall be non-organic biological growth resistant. Provide Grade 3 when required by manufacturer to meet Performance and Warranty requirements.
1. Thermal resistance of insulation shall be calculated as 5.6 per inch.
 2. Roof insulation assembly shall be a minimum thermal resistant value of R-20 average thickness.
 3. Bottom Layer: 2 inch, maximum.
 4. Size: Restrict boards installed in adhesive to 4 foot by 4 foot.
- C. Tapered Insulation (Field of Roof): Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated.
1. Polyisocyanurate Insulation to match roof insulation.
 - a. Minimum Thickness: 1/2 inch at start of tapered sections, unless otherwise noted.
 - b. Average Thickness: calculated using the Volumetric Average Thickness method as required to achieve R-20 average.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
1. 1/2 inch per foot, unless otherwise indicated on Drawings.

2.8 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

- B. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FM Approvals Corrosion Test, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer. The type of fastener shall be appropriate for the substrate to achieve maximum withdraw and anti-corrosion characteristics. The membrane manufacturer approved fasteners shall also meet the following requirements:
1. FM 4470 SPRI Corrosion Test Procedure and Guidelines for Roofing Fasteners. To pass, the fasteners shall not accumulate more than 15 percent red rust after the "required number cycles" in the Kesternich cabinet.
 - a. FM and SPRI recommended number, but in no case shall it be less than 15.
 2. Pullout Value: Fastener shall provide a minimum pullout of 450 lbs.
 3. Static Backout Resistance: Fastener shall provide a minimum static backout resistance of 10 inch pounds.
 4. Steel Deck
 - a. Fasteners to have self-drilling tip. Fastener tip shall be capable of cutting steel deck material of 20 gauge thickness at point of steel deck segment overlap without damage to the fastener tip.
 - b. Fasteners shall be installed in high flute of metal deck with a minimum of three-quarter inch (3/4") penetration. Fasteners shall not extend past the bottom of the metal deck.
- C. Bead-Applied Insulation Adhesive: Insulation manufacturer's recommended bead-applied, low-rise, multicomponent urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- D. Full-Spread Applied Insulation Adhesive: Insulation manufacturer's recommended spray-applied, low-rise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- E. Cover Board (Alternate): Provide one of the following coverboards as approved by roofing manufacturer for system specified:
1. ASTM C 1177, glass mat, water resistant gypsum substrate (primed). Facers shall be non-organic biological growth resistant).
 - a. Manufactures:
 - 1) DensDeck Prime with EONIC Technology; Georgia-Pacific Gypsum.
 - 2) DEXcell FA; National Gypsum.
 - 3) GlasRock Roof Board; CertainTeed Corporation.
 - 4) Securock UltraLight Coated Glass-Mat Roof Board; USG
 2. High-Density Polyisocyanurate: High-density polyisocyanurate technology bonded-in-line to mineral-surfaced, fiber glass reinforced facers with greater than 80 lbs. of compressive strength.
 - a. Thickness: 1/4-inch minimum. Provide 1/2-inch thickness where required to meet assembly and warranty requirements.
 - 1) R-Value: 1/2 inch, R-2.5.
 3. Fiber-Reinforced Cementitious Cover Board: ASTM C1325, fiber-mat-reinforced cementitious board.
 - a. Thickness: 1/2 inch.
 4. Not Acceptable: Do not substitute either cellulosic fiber (ASTM C208), Oriented Strand Board, or fiber-reinforced gypsum roof board (ASTM C1278).
- F. Sprayed-Polyurethane Foam Sealant: 1 or 2 component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb./cu.ft. density; flame spread index for 25 or less according to ASTM E 162; with primer and non corrosive substrate cleaner, if recommended by foam sealant manufacturer.
1. Provide single-component polyurethane sealant low-expansion sealing gaps less than 1/2 inch.
 2. Provide one component foam for voids from 1/4 to 2 inches.

3. Manufacturers
 - a. Dow Chemical Company
 - 1) Great Stuff Pro Gaps and Cracks; gap \leq 1/2 inch
 - 2) Froth Pak Foam Sealant; gap \leq 1/2 inch
 - b. Convenience Products
 - 1) Home Seal; gap \leq 1/2 inch
 - c. FOMO Products
 - 1) Extreme; gap \leq 1/2 inch
 - 2) Handi Foam; gap \leq 1/2 inch
 - d. Hilti Corporation
 - 1) CF810; gap \leq 1/2 inch

2.9 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 30- to 39-inches wide by at least 0.072-inch thick, and acceptable to membrane roofing system manufacturer.
 1. Color: Contrasting with roof membrane.

2.10 SOURCE QUALITY CONTROL

- A. Test Cuts and Seam Samples
 1. Take three random samples for roof applied. Sampling shall be done in accordance with manufacturer's protocols.
 2. Test cuts or seam samples may not represent the overall membrane seam construction. If test cuts or seam samples indicate defects, further sampling must be performed to establish the scope of corrective action.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 1. Material manufacturers printed installation instructions are available for information and review.
 2. Safety precautions and safety data sheets (SDS's) are available during application. The applicator shall follow all safety regulations as recommended by OSHA and other agencies.
 3. Specified materials and specified quantities, as verified by on-site inspection of product labels, are at the project site and are visually suitable for application (e.g., packaging not damaged, labels intact).
 4. Materials are stored according to the manufacturer's recommendations (e.g., proper temperature, covered, off ground, on pallets).
 5. Equipment is in good working order and functioning properly.
 6. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 7. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 8. Verify work required for complete tie-in is in place. This includes masonry with special attention given to roof to wall transitions.
 - a. Verify that all counterflashing receivers, curbs, etc., are constructed in such a manner as to provide a minimum 8 inch base flashing height measured from the finished roof's surface to the top of the base flashing membrane.
 9. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."
 10. Drainage patterns for proper roof membrane installation have been identified.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Start of roof insulation shall constitute acceptance of substrates by Contractor.

3.2 PREPARATION

- A. Review "Performance" and "Warranty" requirements with membrane manufacturer to ensure compliance before beginning roofing work.
- B. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
 - 1. All wall flashing areas must be smooth and dry. Irregular wall surfaces, old BUR, stucco, gypsum, rough stone, or masonry are not suitable for flashing. These surfaces must be covered with a minimum 3/4 inch exterior grade plywood fastened to resist a minimum 200 lb. pullout force.
- C. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
 - 1. Roof deck must be free of ponding water within 48 hours of rainfall. Use corrective measures to provide positive drainage.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
 - 1. When completion of flashings and terminations is not completed by the end of each workday, provisions must be provided to temporarily close the membrane to prevent water infiltration. Phased roofing is not acceptable.
 - 2. Temporarily seal loose membrane edge down slope so that the membrane edge will not buck water. Caution must be exercised to ensure that membrane is not temporarily sealed near drains in such a way as to promote water migration below membrane.
- E. Install acoustical roof deck rib insulation strips, specified in Division 05 Section "Steel Decking," according to acoustical roof deck manufacturer's written instructions, immediately before installation of overlying construction and to remain dry.

3.3 APPLICATION, GENERAL

- A. Application of the roofing products for installation shall be in accordance with the roofing material manufacturer's recommendations, FM Approvals' RoofNav or SPRI's Directory of Roof Assemblies assembly requirements, FM Global Property Loss Prevention Data Sheet 1-29 and additional requirements of the project specifications and drawings. Material manufacturer's recommendations related to weather (temperature, moisture, and humidity), surface preparation, and shelf life must be observed. The effect on the performance of materials, as well as installation costs and production, must be considered.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Only install as much roofing as can be made weathertight each day, including all flashing work.
 - 1. Where possible, roof membrane panels shall be installed in such a fashion to create water-shedding seams.
- D. Metal deck surface to receive substrate board and insulation shall be thoroughly dry. Should surface moisture occur, the Contractor shall provide the necessary equipment to dry the deck surface prior to application of roofing components.

1. This is acceptable for the metal roof deck only. Drying of roofing components including substrate board, insulation, and cover boards is not acceptable. If any of these products have moisture in them, or have had moisture on them they shall be removed and replaced.
 2. Roof decks shall be rigid, tight, dry, and clean of dust or debris. No work shall start without testing of deck dryness at the beginning of each work day or period. It shall be the responsibility of the Contractor to maintain the deck in the proper and acceptable condition of application of the roof covering.
 - a. Installer shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages.
- E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow-off or wind damage.
- F. Temporary water stops shall be installed at the end of each day's work, and shall be removed before proceeding with the next day's work. Temporary water stops shall be constructed to withstand protracted periods of inclement weather. Water stops shall be compatible with all materials and shall not emit dangerous or incompatible odors.
- G. The Contractor is cautioned that the roof membrane may be incompatible with certain substances. Such materials shall not come into contact with the roof membrane at any time. If such contacts occur, the material shall be cut out and discarded. The Contractor shall consult material manufacturer with respect to material compatibility precautions, and recommendations.
- H. Liquid materials such as solvents and adhesives shall be stored in accordance with requirements of the Safety Data Sheets provided by the respective manufacturer.
- I. Contaminants, such as grease, fats, oils and solvents, shall not be allowed to come into contact with the roofing membrane.
- J. If any unusual or concealed condition is discovered, stop the work and notify the CM immediately in writing.
- K. Coordinate installation and transition of roofing system component serving as an air barrier with air barrier specified.
- L. Quality Control (During Application) Checklist
1. Weather and job conditions are suitable for the application.
 2. Substrate is sufficiently dry and suitably prepared to receive the insulation and roof membrane.
 3. Insulation and cover boards, if applicable, are butted together, as required, with joints staggered and offset if more than one layer is being used.
 4. Insulation is firmly attached with specified type and number of fasteners, or embedded in adhesive to substrate or underlying insulation as specified.
 5. Temporary water cut-offs are installed at the end of each day's work as required.
 6. Membrane sheets are installed so side laps and end laps that buck water are minimized.
 7. Perimeter membrane fastening complies with specifications and manufacturer's requirements.
 8. Membrane flashings are installed along with each day's completed roof area.
 9. In high-traffic areas, protection board is being used over viewly completed membrane.
 - a. Roof is not being abused by other trades.

3.4 SUBSTRATE BOARD

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered not less than 24 inches in adjacent rows.
1. At steel roof decks, install substrate board at right angle to flutes of deck.
 - a. Locate end joints over crests of steel roof deck.
 2. Tightly butt substrate boards together.

3. Cut substrate board to fit tight around penetrations and projections, and to fit tight to intersecting sloping roofing decks.
4. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions and as required to meet "Performance Requirements".
 - a. Support the two opposite sides of each board on steel deck flanges, as close as practical to the center of the flange with a minimum bearing width of 1 inch. Trim board edges if they veer off the flange center.

3.5 AIR AND VAPOR BARRIER INSTALLATION

A. Air and Vapor Barrier Installation

1. All surfaces must be clean, sound, dry, and free of loose materials or contaminants such as water, frost, ice, oil, and grease that would interfere with proper adhesion and compromise the performance of the product.
2. Apply air and vapor barrier from high to low points in a shingle fashion, so that the laps will shed water. Overlap edges by at least 2-1/2 inches. End laps should be staggered. Position membrane carefully so as to avoid fish-mouths and wrinkles. Immediately after installation, roll the membrane with a 100 pound roller wrapped in a resilient material.
 - a. On steel decks install a 6 inch by 42 inch metal plate under the end lap to support the membrane between the steel flutes. Stagger the end laps by at least 12 inches.
3. Inspect all membranes for tears, punctures, fish-mouths, blisters, and voids due to misalignment at seams. Remove damaged membrane. Apply a new section of membrane extending at least 6 inches on to underlying adhered membrane on all sides. Firmly roll repaired area with a 2 inch hand roller to ensure a good seal.

B. Completely seal vapor retarder at terminations (perimeter), obstructions, and penetrations to prevent air movement into membrane roofing system.

1. Turn vapor retarder up parapet, prime and adhere to substrate.
2. Vapor retarder shall extend up full height of parapet and termination, transition and connect to wall air barrier system.
3. Apply manufacturer's mastic to seal around penetrations, T-joints, and fish mouths. Use a trowel to mound the mastic around the penetrations to seal the opening. Do not apply mastic where it may come into direct contact with the membrane.

3.6 INSULATION INSTALLATION

A. Comply with roofing system manufacturer's written instructions for installing roof insulation, including warranty requirements for installing insulation.

1. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
2. Size: Restrict boards installed in adhesive to 4 foot by 4 foot.

B. Roof Insulation - General: Lay in multiple layers. Edges shall be butted to provide moderate contact but not deformed or placed in surface compression. Neatly cut and fit insulation around projections and vertical surfaces. Edges shall be mitered at ridges and elsewhere to prevent open joints or irregular surfaces. Stagger end joints 6 inches in adjoining courses of base course. Stagger joints in succeeding layers with joints of layer below.

1. Insulation shall be installed in multiple layers except a single layer may be used for one board width, around roof drains, if thickness at drain is 2-1/2 inches or less.

C. Install tapered insulation under area of roofing to conform to slopes indicated. Tapered insulation combined with tapered saddles and drainage crickets shall achieve positive drainage. Tapered saddles at a 1/2 inch per foot slope shall be placed between drains, and crickets shall be placed on the up slope side of mechanical, skylight, and other curbs to provide positive drainage. Mechanical units should not restrict flow of runoff water.

1. Refer to NRCA Roofing and Waterproofing Manual - 2011, Figure 10-7, "Guide for Cricket and Saddles" and Figure 10-8, "Guide for Crickets."

2. Tapered insulation shall be installed between the bottom and top layer of flat stock insulation. This will prevent stepped transitions from occurring at the edge of tapered insulation boards.
 3. Tapered insulation should originate at the valley line/low point of the roof in lieu of the center of the roof drains. The structure often causes the roof drains to be offset from the valley line/low point of the roof. Saddles/crickets shall provide positive slope towards drains and not allow ponding to occur in valley lines.
 4. Use tapered insulation to provide a 4 by 4 foot minimum, 8 by 8 foot square sump centered on drains is preferred, where possible.
 - a. Do not field taper insulation.
- D. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation or low-rise urethane adhesive.
1. Support the two opposite sides of each board on steel deck flanges, as close as practical to the center of the flange with a minimum bearing width of 1 inch. Trim board edges if they veer off the flange center.
 2. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
 3. Fill remaining gaps around projections, penetrations, and perimeters with low-rise urethane adhesive (foam), including but not limited to:
 - a. Between perimeter of insulation board and nailers.
 - b. Between nailers and vertical walls.
 - c. Between penetrations and insulation boards.
 - d. Between voids in insulation boards, inclusive of roof system slope transition conditions.
 4. All voids to be filled to match full thickness of insulation boards.
 5. Provide polyurethane foam sealant produced or acceptable to the roofing system/installation system manufacturer.
- E. Adhered Insulation over Metal Deck: Install each layer of insulation and/or cover boards adhere to substrate by one of the following methods as approved by membrane manufacturer:
1. Set each layer of insulation in adhesive. Provide one of the following as recommended by manufacturer:
 - a. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - b. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
 2. Size: Boards shall not exceed 4 foot by 4 foot.
 3. Location: Acoustical deck locations with substrate board and air and vapor barrier.
- F. Mechanically Fastened and Adhered Insulation over Metal Deck: Install each layer of insulation and secure 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. Where vapor-retarder is part of the roof assembly, provide a minimum of 1 fastener per 2 sq.ft.
 - a. Fasteners shall be installed in high flute of metal deck with a minimum of 1-inch penetration.
 - b. Fastener and plate setting shall be executed with an automatic setting device to ensure uniformity and correct setting torque.
 2. Install subsequent layers of insulation and/or cover boards in one of the following methods:
 - a. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - b. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
 3. Size: Restrict boards installed in adhesive to 4 foot by 4 foot.
 4. Location: All locations with standard metal deck and air and vapor barrier.

3.7 INSTALLATION OF COVER BOARDS

- A. 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.
 - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - 2. At internal roof drains, conform to slope of drain sump.
 - a. Trim cover board so that water flow is unrestricted.
 - 3. Cut and fit cover board tight to nailers, projections, and penetrations.
 - 4. Adhere cover board to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
 - a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - b. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
- B. Install slip sheet over cover board and immediately beneath roofing as required by roofing manufacturer.

3.8 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. In addition, the corner and perimeter areas shall have enhanced fastening in accordance with FM1-29.
 - 1. Unroll roofing membrane and allow to relax before installing.
 - 2. Install sheet according to ASTM D 5036.
- B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel, A/E, and testing laboratory representative, if required.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
 - 1. The membrane adhesive shall be installed per the membrane manufacturer's requirements. Note: Differing insulation facers require specific application methods and qualities of adhesives. Water-based adhesives should be utilized (unless cold conditions require the use of solvent-based adhesives); inclusive of manufacturer's required fasteners and additional fastener requirements as required meeting performance requirements.
 - a. Conversion to the solvent-based adhesive shall be only with permission from the A/E and manufacturer.
 - b. Bidder is cautioned to include the type of bonding adhesive that the membrane manufacturer will warrant based on the conditions under which the roof will be installed.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing. The roof membrane shall be secured to nailers.

1. Membrane shall be secured at the perimeter of each roof level, roof section, expansion joint curb, skylight, interior wall, penthouse, etc., at any angle change which exceeds 2 inches in one horizontal foot and at all other penetrations in accordance with manufacturer's details.
 2. Terminate membrane under a termination bar with counterflashing, metal fascia or coping, unless otherwise noted or approved as part of submittal process.
 3. Provide premolded accessories and corners, unless otherwise noted or approved as part of the submittal process.
 4. Membrane terminations shall occur vertically to wall and curb substrate at all locations where feasible. Avoid fastener penetration of roofing assembly to the greatest extent possible at all locations
- F. Apply roofing membrane with side laps shingled with slope of roof deck where possible, where not possible cover edge of sheet with a uniform fillet of sealant. Determine the direction of water drainage and the low point of the deck. The orientation of both ends and side laps shall be such that the direction of water flow (slope) changes to avoid backwater laps.
1. Allow sufficient membrane to cover parapet walls and flashing details at roof edge.
- G. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
1. Apply a 6 inch strip of sheet flashing over each seam and patch all T-seams.
- H. Factory-Applied Seam Tape Installation: Clean and prime surface to receive tape.
1. Firmly roll side and end laps of overlapping roof membrane to ensure a weathertight seam installation.
 2. Apply lap sealant and seal exposed edges of roofing terminations.
- I. Repair tears, voids, and lapped seams in roofing that does not meet requirements.
- J. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
- K. In-Splice Attachment: Secure one edge of roofing membrane using fastening plates or metal battens centered within membrane splice and mechanically fasten membrane to roof deck. Field-splice seam.
- L. Install roofing membrane and auxiliary materials to tie in to existing roofing to maintain weather tightness of transition and not void warranty of existing roof system, if applicable.
- M. Apply protection sheet directly over EPDM membrane for a minimum distance of 10 feet out from kitchen exhaust vents or clusters of vents in all directions. Comply with manufacturer's installation instructions.

3.9 BASE FLASHING INSTALLATION

- A. General: All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of A/E and membrane manufacturer. Approval shall only be for specific locations and dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Contractor/Applicator's expense. Flashing shall be adhered to compatible dry, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building.
- B. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

1. All flashing membrane should extend a minimum of 12 inches above roof level, unless otherwise noted. If in question, submit in writing (RFI) to A/E and membrane manufacturer's technical department for signed approval.
 2. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Clean and prime both faces of splice areas, apply splice tape, and roll side and end laps of overlapping roofing membranes according to manufacturers' written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
1. Apply a 6 inch strip of sheet flashing or manufactured T-joint cover at all T-seams (field splice installations).
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars, covered by counterflashing. Do not tightly butt the termination bars or cross expansion joints with a solid bar.
- F. Flashing
1. Walls, Parapets, and curbs
 - a. Reinforced Universal Securement Strip
 - 1) Splice the EPDM deck membrane to the securement strip before bonding the membrane to the vertical surface. Membrane must be fully adhered to vertical surfaces.
 2. Metal Edge Terminations approved by ANSI/SPRI ES-1
 - a. The width of the perimeter wood nailer to which the metal edge is to be secured must extend beyond the width of the metal edge deck flange.
 - b. The metal edge must be secured to the wood nailer as specified by the manufacturer.
 - c. All perimeter wood nailers must be totally concealed by extending the deck membrane to completely cover the nailers and extend past the bottom edge of the nailers a minimum of 3/4 inches. Membrane shall lap onto adjacent wall cladding a minimum of 3/4 inches.
 - d. Prior to flashing, scrub the metal edge deck flange and membrane with splice cleaner to remove field contaminants.
 3. Expansion Joints
 - a. The EPDM deck membrane must be secured on both sides of expansion joints with reinforced universal securement strip. Refer to expansion joint details for proper securement details.
 - b. Membrane junctions at expansion joint intersections, expansion joint repairs, and intersections between expansion joints to wall or edging, must be flashed using 3 layers of uncured form flashing with each layer 3 inches larger than the previous layer in all directions.
 4. Roof Drains: Roof drain flashing shall be fully adhered, without seams located in tapered sump, and installed in strict accordance with the membrane manufacturer's requirements.
 - a. During the flashing operation, drain openings shall be protected against debris, etc.
 - b. Provide a smooth transition from the roof surface to the drain-clamping ring. Prepare the substrate around each roof drain to avoid membrane bridging (Minimum 12 inch) at the sump area and possible distortion at the drain clamping ring.
 - c. The mating surfaces between the clamping ring and drain base must be clean and have a smooth finish.
 - d. Cut the membrane so it extends approximately 1/2 inch beyond the attachment points of the drain damping ring.
 - 1) Under no circumstances should the hole in the membrane restrict water flow or be smaller than the drain tube.

- e. The seal between the membrane and the drain base must be provided by Water Cut-Off Mastic under compression.
 - f. Remove all existing flashing, cement, and lead in preparation for the membrane seal (application of Water Cut-Off Mastic).
 - g. All bolts and/or clamps must be in place to provide compression on the Water Cut-Off Mastic.
 - h. Upon completion of roofing activities, check drain pipe, to ensure that drain line is free of obstruction. Any obstructions shall be removed.
5. Vent Pipes: Refer to Division 07 Section "Roof Accessories" for preformed flashing sleeves.
- a. Flash pipes with Molded Pipe Flashing where their installation is possible.
 - 1) Use stainless steel clamps to seal at top.
 - b. Molded pipe flashing cannot be cut and patched; deck flanges cannot overlap or be installed over angle changes.
 - c. Where Molded Pipe Flashing cannot be installed, apply field fabricated pipe seals using uncured flashing.
 - 1) Never use a wrap around detail or molded pipe flashing on a warm or hot penetration.
6. Mechanical Units and other Raised Curbs
- a. Sheet metal counterflashing shall be installed to cover the top edge and overlap the upper portion of membrane base flashings unless the integral flange of the curb mounted with adequately covers the top of the membrane flashing.
 - 1) Provide a 4-inch coverage of roof flashings with counterflashings.
 - b. Refer to Division 07 Section "Roof Accessories."

3.10 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.
- 1. Install walkways at all traffic concentration points such as roof hatches, access doors, and top and bottom of roof top ladders.
 - 2. Install walkway one full width of flexible walkway around serviceable rooftop equipment.
 - 3. As required by roof membrane manufacturer's warranty requirements.
 - 4. Provide 6 inch clearance between adjoining pads.
 - 5. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.11 FIELD QUALITY CONTROL

- A. Manufacturers Roof Inspections: Roofing Contractor shall notify roof manufacturer in writing of schedule for Work of this Section to allow sufficient time for inspecting. Do not modify details shown in the contract documents or shop drawings without consent of manufacturer's representative and A/E. Arrange for site inspections to verify conformance with written material manufacturer's instructions, submittals, and the Contract Documents including this section of the project specifications.
- 1. In addition to the pre-installation meeting and final roof inspection the manufacturer shall perform inspections at the following minimum rate:
 - a. Up to 10,000 sq.ft. of roof contract requires one (1) inspection.
 - b. 10,000 to 35,000 sq.ft. of roof contract requires two (2) inspections.
 - c. 35,001 to 75,000 sq.ft. of roof contract requires three (3) inspections.
 - d. 75,001 to 125,000 sq.ft. of roof contract requires four (4) inspections.
 - e. 125,001 to 200,000 sq.ft. of roof contract requires five (5) inspections.
 - f. 200,001 sq.ft. and over of roof contract requires six (6) inspections.
 - 2. Forward written reports to A/E within 10 working days of the inspection and any testing performed.

3. If the inspection reveals any defects, promptly remove and replace deflection work at no additional cost to Owner.
- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense will be performed to determine if replaced or additional work complies with specified requirements.

3.12 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to A/E and Owner.
 1. Protect existing membrane roofing system and where continued construction traffic is anticipated.
 - a. Loosely lay 1-inch minimum thick, molded expanded polystyrene (MEPS) insulation over the roofing membrane in areas indicated. Loosely lay 15/32-inch plywood or OSB panels over MEPS. Extend MEPS past edges of plywood or OSB panels a minimum of 1 inch.
 - 1) Protection sheet or mat: Provide a sacrificial layer of matching membrane sheet extending minimum 6 inches beyond insulation in all directions or a 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.
 - b. Limit traffic and material storage to areas of roofing that have been protected.
 - 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.

3.13 DEMONSTRATION

- A. Demonstration and Training: Provide instruction, including but not limited to the following items:
 1. Review warranty requirements.
 2. Review maintenance data.
 3. Review inspection procedures including:
 - a. Where to look, e.g., roof access points, walkways, rooftop mechanical units, and litter.
 - b. What to look for: cuts and punctures and compressed or crushed insulation.
 - c. Remedial actions, emergency repair procedures.
 - d. Preventative actions.

END OF SECTION 07 53 23