

ADDENDUM NO. 1

Date April 4, 2023

City of Springfield

Springfield Justice Center Roof Replacement

This addendum is being issued for clarification and / or revision of the Contract Documents as noted. This document is hereby made a part of the Contract Documents to the extent as though it was originally included herein.

Bidder shall notify all sub-bidders of this addendum, and shall acknowledge receipt of this addendum by inserting the above addendum number in the space provided on the bid response form prior to submitting bids. Failure to acknowledge receipt of any addendum may subject the bidder to disqualification.

The following are clarifications to the Contract Documents:

Item	Reference	Description
1.01	<i>Bid Closing Date Change</i>	Date of Bid Closing has been adjusted from April 11 th to April 13 th . New bid closing: April 13 th , 2023 at 2:00 pm.
1.02	<i>Deadline for Submitting Questions Change</i>	The deadline for submitting questions has been adjusted from April 3 rd to April 6 th . New deadline for questions: April 6 th , 2023 at 12:00 pm.
1.03	<i>Approved Substitution Request</i> <i>- Specification Section 075419 "Polyvinyl-Chloride (PVC) Roofing"</i>	A substitution request has been reviewed and deemed equal to the specified products for the following product: <ul style="list-style-type: none">• VersiFlex FRS PVC Membrane, by Versico• This manufacturer and product are to be added to the list of acceptable manufacturers as indicated in 075419.2.2.B.4
1.04	<i>Rejected Substitution Request(s)</i>	Aside from the substitution request outlined in Item 1.03, no other previously submitted substitution request have been found to be equal to the specified products.
1.05	<i>Alternate No. 1</i>	Alternate No. 1 has been added to the project as a potential alternative scope of work. <ul style="list-style-type: none">• Alternate No. 1 is the same Scope as outlined in the base bid except that Alternate No. 1 utilizes 80-mil TPO roof membrane in lieu of 80-mil PVC roof membrane.
1.06	<i>Clarification: Staging</i>	Available staging locations in the immediate vicinity of the project site have been established. See attached aerial image indicating potential staging locations. <ul style="list-style-type: none">• In addition to the five street-level staging locations indicated on the aerial, staging is also permitted on the roof.• Staged materials on the roof shall be adequately distributed to minimize point-loading.

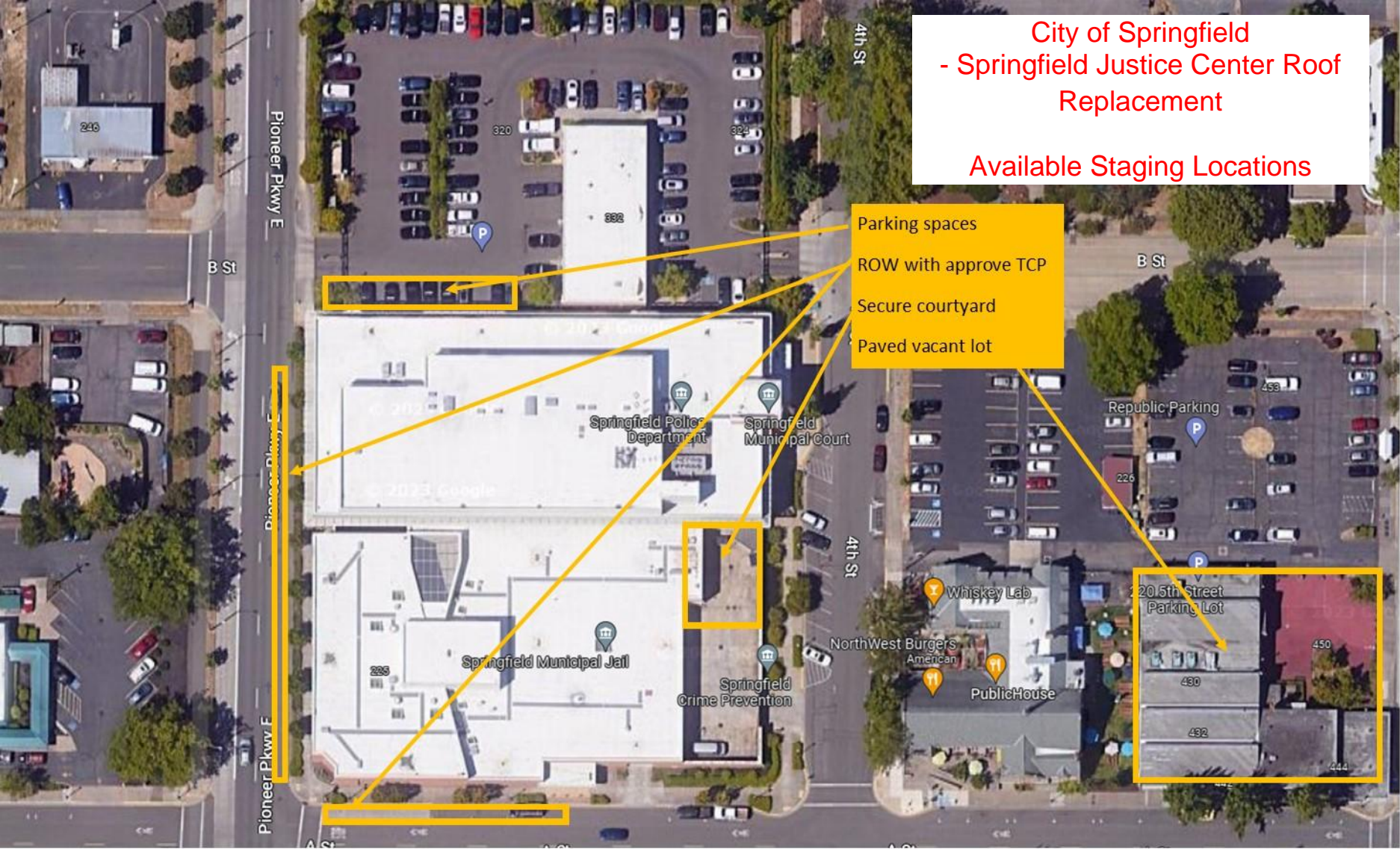
PROFESSIONAL ROOF CONSULTANTS, INC.

1.07	<i>Clarification: Means of Accessing the Roof</i>	Means of accessing the roof shall be as follows: <ul style="list-style-type: none"> • Primary and general roof access shall be via exterior ladder, scaffold, or other exterior means. • Limited interior access is permitted from the north parking lot to the elevator. However, only cleared staff will be allowed interior access, and this method of access is to be minimally utilized.
1.08	<i>Clarification: Mandatory Badging Requirements</i>	All construction personnel scheduled to be working on site shall pass a background check and be badged through the City of Springfield prior to beginning any work on site.
1.09	<i>Clarification: Vehicle Access/Parking</i>	Vehicle parking is allowed as follows: <ul style="list-style-type: none"> • Necessary work trucks will be permitted to park on site within the allowable staging areas. • All personal and optional vehicles shall park on the public streets. Street parking is 2-hours in the immediate vicinity of the project site except north of B Street which is free parking.
1.10	<i>Clarification: Mechanical Attachment Fastener Length for Bidding Purposes</i>	All bidders shall assume that the mechanical fasteners used for installation of the cover board will be 7-inches long at roof areas with tapered insulation. <ul style="list-style-type: none"> • After notice of intent to award, the selected bidder shall conduct a survey of the roof to confirm insulation depths of the tapered insulation and patch their roof cores. • Contractor will adjust their fastener lengths after completion of the contractor's survey to meet industry standards for fastener lengths given the actual surveyed conditions.
1.11	<i>Project Manual "Bid Submittal, Terms and Declarations"</i>	Replace section with attached revised document. Note the following changes: <ul style="list-style-type: none"> • Includes a line item to record a bid value for the Alternate No. 1 Scope of Work
1.12	<i>Specification Section 075423 "Thermoplastic-Polyolefin (TPO Roofing"</i>	Add Section 075423 to the project manual to be used on conjunction with Alternate No. 1.

END OF ADDENDUM No. 1

City of Springfield - Springfield Justice Center Roof Replacement

Available Staging Locations



- Parking spaces
- ROW with approve TCP
- Secure courtyard
- Paved vacant lot

Pioneer Pkwy E

B St

Pioneer Pkwy E

Pioneer Pkwy F

4th St

B St

4th St

20.5th Street Parking Lot

Springfield Police Department

Springfield Municipal Court

Springfield Municipal Jail

Springfield Crime Prevention

Whiskey Lab

NorthWest Burgers American

PublicHouse

Republic Parking

246

320

324

382

458

285

430

482

450

444

Specifications, 1994 Edition and all subsequent modifications, Parts 00200 through 03000 of the 2015 Oregon Standard Specifications for Construction the, Special Provisions, and all other Contractual Documents at the prices and on the terms herein contained.

Bid Guarantee

As required by ORS 279C.365(5) each Bid shall be accompanied by a Bid Bond, cash, or a certified or cashier’s check written upon a bank in good standing and in a form acceptable to the City, payable to the Finance Director of the City of Springfield, Oregon, in an amount equal to at least 10 percent of the total amount of the Bid. Bid Bonds shall be issued by a surety company registered to issue bonds in the State of Oregon, and utilizing a bond form acceptable to the City. The City will accept AIA Document A310-2010. The Bid Bond may not be altered.

Such Bid Guarantee shall be forfeited and become the property of the City in case the Bidder shall fail or neglect to furnish a satisfactory Performance and/or Payment Bond issued by a viable bond company acceptable to the City as required by ORS 279C.380 and to execute the Contract within ten (10) days (Saturday, Sunday, and holidays excepted) after receiving Contract from the City for execution. For information regarding Performance and Payment Bond requirements see City of Springfield Contract document, Section 5. City Bonding.

Bid Acceptance Period

This Bid will remain subject to acceptance for a period of 60 days after the bid opening, or for such longer period of time that the Bidder may agree to in writing upon request of the City.

Contract Award

Bids will be accepted and awarded in accordance with Oregon Public Contracting Law and Section 103.01 of the City’s most recent version of the Standard Construction Specifications.

Prior to awarding the Contract, the City may, at its sole discretion, require Contractors and/or Subcontractors to demonstrate to the City’s satisfaction that they have a complete and clear understanding of all requirements of the Prevailing Wage Rate Laws contained in ORS 279C.800 through 279C.870 and possess the expertise necessary for fulfilling their obligations pertaining to these requirements throughout the administration of the Contract. In determining competency, the City may consider Certified Payroll Reports submitted by the Contractor and/or Subcontractor for projects previously performed for the City, copies of Certified Payroll Reports submitted to other public entities, references from other public entities attesting to the Contractor’s expertise, or an interview with the Contractor regarding their personnel resources and expertise or their ability to obtain the resources and expertise necessary to meet all contractual responsibilities in accordance with ORS 279C.375.

Contract Time of Completion

The contractor shall not begin work under this Bid until written Notice to Proceed has been received.

a. Construction Timeframe

The contractor shall complete the work under this Bid between May 4th, 2023 and November 30th, 2023.

b. Construction Delays

The Contractor shall apply for any extensions of time as specified in Subsection 108.06 of the Standard Construction Specifications.

Time is of the Essence

Time is of the essence in the Contractor’s performance of the Contract. Delays in the Contractor’s performance of the work may inconvenience the public, interfere with business and commerce, result in moisture-related damage to critical building components, and increase cost to the City. It is essential and in the public interest that the Contractor prosecute the work vigorously to Contract completion. The City does not waive any rights under the Contract by permitting the Contractor to continue to perform the Contract, or any part of it, after the Contract Time of Completion shown below, or as adjusted by Contract Change Order, has expired.

Liquidated Damages

The City of Springfield and the Contractor agree that; (a) the amounts so fixed are reasonable forecasts of just compensation for the harm that is caused by the breach; (b) the harm that is caused by the breach is one that is incapable of or very difficult of accurate estimation; and, (c) the amount so fixed is not fixed as a penalty to coerce performance of the Contract but is rather intended to be a genuine pre-estimation of injury to the City of Springfield in lieu of performance within the contract time by the Contractor.

c. Delay

It is agreed by the City of Springfield and by the Contractor that the need exists for a damage provision in the event the Contractor fails to complete the work within the Contract time specified, or any extension thereof, by the City of Springfield. The City of Springfield and the Contractor further agree that the Contractor shall be liable to the City of Springfield for fixed, agreed and liquidated damages for each and every calendar day of delay in the amount of \$500 per day in accordance with Subsection 108.07 of the Standard Construction Specifications.

d. Failure to Report Spills

The contractor also agrees to liquidated damages in the amount of \$500.00 per incident for failure to report sewage spills plus an amount sufficient to reimburse the City for any civil and administrative penalties paid by the City as a result of the contractor's failure to report. Failure to report sewage spills may subject the City to (1) civil penalties of up to \$32,500.00 per day of violation pursuant to Section 309(d) of the Clean Water Act, 33 U.S.C. § 1319(d); (2) administrative penalties of up to \$11,000.00 per day for each violation, pursuant to Section 309(g) of the Clean Water Act, 33 U.S.C. § 1319(g); or (3) civil action in federal court for injunctive relief pursuant to Section 309(b) of the Clean Water Act, 33 U.S.C. § 1319(b).

Certifications

The undersigned hereby certifies that:

- 1.) If awarded the Contract, that they shall fully comply with all provisions regarding the prevailing wage rates as required by ORS 279C.800 to 279C.870 and/or 40 U.S.C. 2762 as applicable.
- 2.) The Contractor, Subcontractor, suppliers of materials or services, and others engaged by the Contractors, shall comply at all times with and observe all such laws, ordinances, regulations, orders, and decrees; and shall hold harmless and indemnify the City of Springfield and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree.
- 3.) The Contractor, Subcontractor or other person doing, or contracting to do, or contracting for the whole or any part of the work on the Contract shall comply with all applicable requirements of Federal and State civil rights and rehabilitation statutes, rules and regulations.
- 4.) In conformance with OAR 137-049-0440(3) and ORS 279A.110(4) the Contractor has not, and will not, discriminate against a Subcontractor in the awarding of a subcontract because the Subcontractor is a minority, women or emerging small business enterprise certified under ORS 200.055 or a business enterprise that is owned or controlled by or that employs a disabled veteran, as defined in ORS 408.225.
- 5.) In accordance with ORS 279C.505, the Contractor will;
 - a) Make payment promptly, as due, to all persons supplying to the Contractor labor or material for the performance of the work provided for in the Contract.
 - b) Promptly pay all contributions or amounts due the State Industrial Accident Fund, or private carrier of accident insurance, from such Contractor or Subcontractor incurred in the performance of the Contract. If a private carrier is used, the Contractor shall notify the Engineer as to the carrier's name and address before commencement of work.

- c) Not permit any lien or claim to be filed or prosecuted against the state or a county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.
 - d) Pay to the Department of Revenue all sums withheld from employees under ORS 316.167.
 - e) Have an employee drug testing program in place at the time of signing the contract and will maintain such drug testing program in place over the life of the Contract. Upon request, the Contractor shall furnish a copy of the employee drug testing program to the City.
- 6.) In accordance with ORS 279C.510, If demolition is involved, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective as required by ORS 279C.510(1). If lawn or landscaping maintenance is involved, the Contractor shall compost or mulch yard waste in an approved site, if feasible and cost-effective as required by ORS 279C.510(2).
- 7.) In accordance with ORS 279C.520, no person will be employed by the Contractor or Subcontractor for more than 10 hours in any one day, or 40 hours in any one week except in cases of necessity, emergency, or where the public policy absolutely requires it, and in such cases the person so employed shall be paid at least time and one-half the regular rate of pay for all times worked in excess of eight hours a day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or in excess of 10 hours a day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and for all work performed on a Saturday, Sunday and on any legal holiday specified in ORS 279C.540.
- 8.) In compliance with ORS 279C.525 the Contractor has received and reviewed Federal, State and local agencies that may have enacted ordinances, rules or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that may affect the performance of this Contract as identified under Section 13 of the Contract. Accordingly, if the Contractor is delayed or must undertake additional work by reason of ordinances, rules, or regulations relating to the prevention of environmental pollution and the protection of natural resources subsequent to the date of submission or the successful quote, the City may:
- a.) Terminate the Contract,
 - b.) Complete the work itself,
 - c.) Use non-owner forces already under contract with the City of Springfield,
 - d.) Solicit bids for a new contractor to provide the necessary services under competitive bid requirements 279C,
 - e.) Issue the Contractor a change-order setting forth additional work that must be undertaken.
- 9.) In accordance with ORS 279C.530, the Contractor will;
- a.) Promptly, as due, make payments to any person, co-partnership, association or corporation, furnishing medical, surgical, and hospital care or other needed care and attention, incidental to sickness or injury, to the employees of such Contractor, of all sums which the Contractor agrees to pay for such services and all monies and sums which the Contractor:
 1. May or shall have deducted from the wages of his employees for such services pursuant to the terms of Oregon Revised Statutes and any contract entered in pursuant thereto; or
 2. Collected or deducted from the wages of his employees pursuant to any law, contract, or agreement for the purpose of providing or paying for such service; and
 3. All employers working under the Contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126. The Contractor shall ensure that each of its Subcontractors complies with these requirements.
- 10.) No Contractor, Subcontractor or any firm, corporation, partnership or association in which the Contractor or Subcontractor has a financial interest who appears on the *List of Contractors Ineligible to*

Receive Public Works Contracts, as established by the Bureau of Labor and Industries, will perform work under this Contract, as specified in ORS 279C.860.

- 11.) No Contractor, Subcontractor or any firm, corporation, partnership or association in which the Contractor or Subcontractor has a financial interest who appears on the Construction Contractor's Board *Not Qualified to Hold Public Contracts* list, will perform work under this Contract, as specified in ORS 701.227(4).
- 12.) The Contractor performing work on this project shall have a current, valid certificate of licensure issued by the Construction Contractor's Board in accordance with ORS 701 and, if performing work described in ORS 671.520, a current, valid certificate of licensure from the State Landscape Contractor's Board in accordance with ORS 671.560 as applicable in place at the time the quote is presented.
- 13.) Prior to performing any work under the Contract all Subcontractors shall have a current, valid certificate of licensure issued by the Construction Contractor's Board in accordance with ORS 701 and, if performing work described in ORS 671.520, a current, valid certificate of licensure from the State Landscape Contractor's Board in accordance with ORS 671.520 as applicable.
- 14.) If the Contract specifies that the project includes Asbestos Abatement, the Contractor and all Subcontractors performing work on the project shall be licensed in accordance with ORS 467A.720 prior to performing any work on the project. Certification of compliance shall be presented to the City upon request.
- 15.) The Contractor shall function as an independent contractor for the purposes of this Contract and shall not be considered an employee of the City of Springfield for any purpose. The Contractor shall assume sole responsibility for any debts or liabilities that may be incurred by the Contractor in fulfilling the terms of this Contract and shall be solely responsible for the payment of all federal, state, and local taxes which may accrue because of this Contract.
- 16.) The Contractor and all Subcontractors shall comply with all applicable provisions of the Americans With Disabilities Act of 1990, 42 USC Section 12101 et seq. and Section 504 of the Rehabilitation Act of 1973.

Bid Addenda

All Addenda issued are considered to be part of the specifications of the Invitation to Bid and, as such, are as incorporated into the Contract as specified in Section 104.02 of the Standard Construction Specifications.

By signing below, I acknowledge the receipt of the following Addenda documents and certify that the specifications contained in each have been considered and incorporated into the Bid as presented. All Addenda must be included with the Bid submitted.

Addenda Number	Addenda Date

Declarations

As required by ORS 305.385(6), under penalty of perjury, by signing below the Contractor represents that, to the best of their knowledge, neither they nor any applicable Subcontractors performing work under the Contract are in violation of any tax laws as described in ORS 305.380(4) and have complied with the tax laws of this state or a political subdivision thereof including, but not limited to, ORS 305.620 and ORS Chapters 316, 317 and 318. The Contractor shall also covenant to continue to comply with the tax laws of this state or a political subdivision thereof during the term of the Contract and that Contractor's failure to comply with such laws prior to execution of the Contract or during the term thereof is a default for which the City may

terminate the Contract and seek damages and other relief available under the terms of the Contract or under applicable law.

The undersigned Bidder declares that the only persons or parties interested in the Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the City, and that the Bid is made without any connection or collusion with any person submitting another Bid on this project.

I have read, fully understand, and agree that as Bidder I, and all Subcontractors, will comply with all of the terms and conditions of the contract for which this Bid is presented. By signing below I attest that I am an officer or a duly authorized representative of the business listed below and that I possess the legal authority to submit this Bid for consideration.

If the Bid is submitted by a joint venture and is in the name of the joint venture, by signing below I certify that all parties have examined this Bid, including all requirements and the Contract terms and conditions and, if successful, the joint venture shall execute a Contract which incorporates the stated requirements, terms and conditions.

Bidder's Signature _____

Bidder's Name *(Please Print)* _____

Title _____

Business Name _____

Business Address _____

City _____ State _____ Zip _____

Phone Number _____ Cell Phone _____

E-mail Address _____ Fax Number _____

Date _____

SECTION 075423 – THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Single-ply thermoplastic TPO membrane roofing system complete with all preparation and accessories.
2. Mechanically attached cover board over existing roof assembly.
3. Mechanically attached substrate board at base flashing applications.
4. Rigid board flat stock insulation at base flashing applications.
5. Walkpads.

B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers and blocking.
2. Section 070150 "Preparation for Re-Roofing" for methods of existing roof tear-off procedures and requirements.
3. Section 076200 "Sheet Metal Flashing and Trim" for coping, counter flashing, and other sheet metal components and accessories.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 SUBMITTALS

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

- B. Shop Drawings: For single-ply roofing. Include plans, details, and attachments to other work, including:

1. Base flashings and built-up terminations.
2. Crickets, saddles, and tapered edge strips, including slopes.

- C. Samples for Verification: For the following products:

1. Sheet roofing, of colors indicated for Owner selection.
2. Walkway pads or rolls, of color required.

- D. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.

- E. Qualification Data: For qualified Installer and manufacturer.
- F. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of compliance with performance requirements.
- G. Field quality-control reports.
- H. Warranties: Sample of special warranties.
- I. Maintenance Data: For roofing system to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications and Requirements:

1. A qualified manufacturer that has UL listing for roofing system identical to that used for this Project.
2. Technical representative of materials manufacturer shall periodically observe provide written documentation of the work in progress.
3. The technical representative, as a minimum, shall be present to observe existing membrane preparation, general installation procedures, and final completion; submit documentation of manufacturer's final acceptance.
4. Work shall not proceed until such observations have been made and conditions have been approved in writing by the manufacturer.
5. Technical representative shall perform a punch list inspection upon substantial completion of the project indicating all items in need of attention, including conformance to manufacturer's published installation instructions and these contract documents; provide documentation.

B. Installer Qualifications and Requirements:

1. A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
2. In continuous business under same name for past ten (10) years.
3. Completed at least five (5) successful installations of specified materials and systems on projects of similar scope.
4. Contractor shall provide all personnel trained in application of materials and systems and shall maintain supervision as specified elsewhere.
5. Installer Field Supervision: Require Installer to maintain a full-time supervisor / foreman on the job site during times that roofing system installation is in progress, and who is experienced in installation of the specified roofing systems.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading:

- B. 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, approval or listing agency markings, and directions for storing and mixing with other components.

1. Do not leave unused rigid insulation and other sheet materials on the roof overnight or when roofing work is not in progress unless protected and elevated from weather or other moisture sources.
- C. Storage and Protection:
1. Store and handle roofing sheets in a dry, well-ventilated, weathertight place to ensure no possibility of significant moisture pickup.
- D. Control temperature of storage areas in accordance with the manufacturer's instructions.
- E. Store materials on pallets, blocking, or other means to keep materials from coming into contact with moisture, dirt, debris, and other contaminants.
- F. 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.
- G. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- H. Protect roof level rigid insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with rigid insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- I. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed in accordance with manufacturer's written recommendations and warranty requirements.
- B. Have necessary waterproof canvas or plastic sheeting readily available in case of emergency. The Contractor will be held liable for any damage to building interior due to Contractor's negligence.
- C. Protect open roofs and flashings to prevent the entrance of moisture or rain water into the existing structure until new materials have been applied and roof is in a watertight condition.
- D. Roofing materials shall not be applied when water in any form (i.e., rain, dew, ice, frost, snow, etc.) is present on the deck.
- E. Adhesive applied roofing materials shall not be applied when dirt, dust, debris, oil, etc. is present on the deck.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of the new membrane roofing system that fail in materials or workmanship within specified warranty period.

1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, and other components of the new membrane roofing system.
 2. Warranty Period: Twenty (20) years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:
1. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 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 2000 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 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: The completed membrane roof system shall meet or exceed the uplift criteria as shown on the structural drawings.
- D. Solar Reflectance Index: Not less than 47 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.
- E. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- F. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING SYSTEM

- A. TPO Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, TPO sheet.
1. Thickness: 80 mils, nominal.
 2. Exposed Face Color: Tan or Gray – to be selected by the Owner
 3. Attachment Method: Adhered
 4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Holcim Elevate (formerly Firestone Building Products): UltraPly TPO.
 - b. Carlisle – Syntec: TPO – Sure-Weld
 - c. Or approved equal.
- B. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.3 ACCESSORY ROOFING MATERIALS

- A. General: Accessory materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
- 1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as thermoplastic membrane field sheet.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Bonding Adhesive: Manufacturer's standard.
- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- F. Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.
- G. Membrane-Coated Sheet Metal: Furnish zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation with roof membrane manufacturer's standard thermoplastic membrane coating, suitable for hot air welding thermoplastic roof membrane to sheet metal flashing.
- H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 COVER BOARD

- A. General: Provide preformed roof insulation cover boards that comply with the requirements and referenced standards and selected from manufacturer's standard size and of thickness indicated.
- B. Cover Board: 1/2-inch thick, closed-cell polyisocyanurate foam core bonded to high performance coated glass fiber facers on both sides; conforming to ASTM C 1289, Type II, Class 4, (80 psi minimum) with square edges.
- 1. Attachment Method: Mechanically Attached.
 - 2. Products: Subject to compliance with requirements, provide the following:
 - a. Atlas: AC Foam. HS Cover Board.
 - b. Hunter Panel: H-Shield. HD Cover Board.
 - c. Or pre-bid approved equal.

2.5 SUBSTRATE BOARD

- A. General: Provide preformed substrate boards that comply with the requirements and referenced standards and selected from manufacturer's standard size and of thickness indicated.
- B. Substrate Board: At Contractors Option, provide one of the following products:
 - 1. Option 1: 1/2-inch thick, closed-cell polyisocyanurate foam core bonded to high performance coated glass fiber facers on both sides; conforming to ASTM C 1289, Type II, Class 4, (80 psi minimum) with square edges.
 - a. Attachment Method: Mechanically Attached.
 - b. Products: Subject to compliance with requirements, provide the following:
 - 1) Atlas: AC Foam. HS Cover Board.
 - 2) Hunter Panel: H-Shield. HD Cover Board.
 - 3) Or pre-bid approved equal.
 - 2. Option 2: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2-inch-thick, factory primed.
 - a. Attachment Method: Mechanically Attached.
 - b. Products: Subject to compliance with requirements, provide the following:
 - 1) Georgia Pacific, Dens Deck Prime.
 - 2) USG; SECUROCK, UltraLight Coated Glass-Mat Roof Board.
 - 3) Dexcell, FA Glass Mat Roof Board.
 - 4) Or approved.

2.6 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Insulation Performance Requirements:
 - 1. Thermal Resistance: 5.7 per inch minimum R-value per manufacturer's data.
- C. Rigid Board Flat Stock Insulation: ASTM C 1289, Type II, rigid closed-cell polyisocyanurate foam board, felt or glass-fiber mat facer on both major surfaces.
 - 1. Produced using HC blowing agents in lieu of HCFCs, in accordance with standards mandated by the Environmental Protection Agency.
 - 2. Compressive strength: Nominal 20 psi per ASTM D 1621.
 - 3. Flame spread: 35 or less per ASTM E 84.
 - 4. Panel Thickness: 1.5-inch.
 - 5. Attachment method: Mechanically Attached.
- D. Insulation Unit Fasteners: Fasteners shall be utilized to secure the insulation units to the substrate.
 - 1. Meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by Manufacturer for required pullout strength, and acceptable to roofing system Manufacturer.

2. Provide fastener lengths as required to penetrate wood sheathing a minimum of 3/4-inch, and maximum 1-1/4-inch. Fasteners shall not protrude through deck materials where deck is exposed to interiors.

2.7 WALKPADS

- A. Flexible Walkpads: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, manufactured by roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations, and that nailers match thicknesses of insulation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare existing roof system in accordance with requirements of 070150 Preparation for Reroofing.
- 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 and protrusions.
- 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.
- D. Verify that the existing drainage system is free flowing prior to beginning work.
- E. Prepare all surfaces and details in accordance with the manufacturer's written installation instructions and these Contract Documents.

3.3 ROOFING INSTALLATION, GENERAL

- A. Demolish existing membrane base flashings, penetration field wraps, penetration boot flashings and other existing roof membrane components that will prevent installation of new membrane base flashings and detailing in direct contact with the existing non-membrane substrates.
 1. Remove only as much of the existing roof in one day as can be made watertight in the same day.

- B. Vent (cut membrane in grid pattern) existing membrane in the field of the roof as recommended by manufacturer.
- C. Install roofing system according to roofing system manufacturer's written instructions, provided they do not conflict with the requirements herein.
 - 1. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of each workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.4 INFILL INSULATION INSTALLATION

- A. Coordinate installing roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install insulation under area of roofing where indicated on Drawings to achieve required thickness to match elevation of existing insulation assembly. Install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- 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.

3.5 COVER BOARD INSTALLATION

- A. Install cover board over prepared existing roof membrane.
- B. Install cover board under area of roofing to be completed by end of each work day.
- C. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- D. Install cover boards over prepared substrate with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 12-inches in each direction. Loosely butt cover boards together adhere to insulation assembly.
 - 1. Mechanically attach cover boards to resist uplift pressure at corners, perimeter, and field of roof as shown on the Structural Drawings.

3.6 SUBSTRATE BOARD INSTALLATION AT BASE FLASHINGS

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof with end joints tightly butted substrate boards together.
 - 1. Secure substrate board according to current code requirements.

2. Gaps in joints shall not exceed 3/16". All gaps must be filled flush with the surface of the board with membrane manufacturer approved all-purpose sealant.
- B. Thoroughly clean the substrate board in compliance with the membrane manufacturer's recommendations prior to membrane installation.

3.7 ADHERED ROOFING INSTALLATION

- A. Adhere roofing over cover board or substrate board at areas to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing and allow to relax before retaining.
1. Install sheet according to manufacturer's written installation instructions for the specified warranty term limits.
- B. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- C. Accurately align roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer.
- D. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by manufacturer and follow the roofing manufacturer's adhesive installation recommendation. Do not apply to splice area of roofing membrane.
- E. In addition to adhering, mechanically fasten roofing membrane securely at terminations, penetrations over 18-inches wide, and perimeter of roof in accordance with manufacturer requirements.
- F. Apply roofing with side laps shingled with slope of roof deck where possible.
- G. Seams: Overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's written instructions, to ensure a watertight seam installation. Clean seam areas prior to welding when soiled or contaminated.
1. Test lap edges with probe to verify seam weld continuity. Apply cut-edge sealant to seal cut edges of sheet when required or recommended by the manufacturer's written installation instructions.
 2. Verify field strength of seams a minimum of twice daily, take samples from membrane overages to be trimmed for fit and finish.
 - a. Submit tests to Owner / Consultant daily with time and location of test clearly identified upon request.
 - b. Do not tack weld test samples to finished product.
 3. Repair tears, voids, and lapped seams in roofing that do not comply with requirements.
- H. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.
- I. Spread sealant over field membrane at roof edges to receive integrated membrane clad metal flashing. Embed and mechanically attach membrane clad metal flashing and strip into roofing for watertight performance in accordance with the manufacturer's installation recommendations.

3.8 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates in a fashion acceptable to the manufacturer.
 - 1. Apply bonding adhesive to substrate and underside of sheet flashing at required rate. Do not apply to seam area of flashing.
 - 2. Overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
 - 3. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.
 - 4. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

3.9 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.
 - 1. Trim walkway pads away from drainage valleys to establish a minimum clear drainage area of 3-inches to each side of the centerlines of all drainage valleys.
 - 2. Locate walkway directly adjacent to and full length of curbed mechanical equipment on serviceable sides of equipment.
 - 3. At low sides of walkways allow weeps in continuous weld 4-inches long every four feet minimum one per walkway.

3.10 SPLASH PADS:

- A. Splash Pads: Install 16-inch by 24-inch walkway products at locations of downspout outlets where drainage evacuates to roof level. Heat weld to adhere walkway products to roof membrane according to roofing system manufacturer's written instructions.

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to the Consultant.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- D. 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 roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Consultant and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075423