Addendum 2

Project: Lathrop Fire Station 31
Rehabilitation
Project No: 757-01-20
Date: 12/10/2020

From Architect: LDA Partners, Inc.
222 Central Court
Stockton, CA 95204

Phone: 209.943.0405
FAX: 209.943.0415
E-mail: ewohle@LDAPartners.com

This Addendum forms a part of the Contract Documents and modifies the original issued ***November 16, 2020*** as noted below. Acknowledge receipt of this addendum in submittal of bid.

PROJECT SPECIFICATIONS:

1. Project Specification Sections are ADDED.

SECTION 07 54 19 – POLYVINYL CHLORIDE (PVC) MEMBRANE ROOFING

End of Addendum

SECTION 07 54 19 – POLYVINYL CHLORIDE (PVC) MEMBRANE ROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. PVC Adhered membrane roofing system.

B. Cover board.

C. Roofing expansion joints and accessories.

1.02 RELATED SECTIONS:

A. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.

1.03 REFERENCES

A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms used in this Section:
   1. ASTM D 1079 “Terminology Relating to Roofing and Waterproofing.”
   2. Glossary of NRCA's "The NRCA Roofing and Waterproofing Manual."
   3. Roof Consultants Institute “Glossary of Roofing Terms.”

B. Sheet Metal Terminology and Techniques: SMACNA Architectural Sheet Metal Manual.

1.04 DESIGN CRITERIA

A. General: Installed roofing membrane and base flashing systems shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

C. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE-7.

D. EPA Energy Star:
   1. Roofing membrane shall achieve an initial reflectance of greater than 0.65 and a three year aged reflectance of greater than 0.50.

E. T24/CRRC-1:
   1. Roofing system shall comply with the requirements of Title 24.
   2. Roofing membrane shall be tested by CRRC-1.

1.05 SUBMITTALS

A. Product Data: Manufacturer's product data sheets for each product to be provided.

B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details of attachment to other Work, including:
   1. Base flashings, cants, and membrane terminations.
   2. Crickets, saddles, and tapered edge strips, including slopes.
   3. Accessory locations

C. Verification Samples: Provide for each product specified.

D. Provide warranty in accordance with this specification section, in addition to the warranty and/or guarantee requirements stated elsewhere in Contract Documents including, but not limited to, Part III: Contract Documents Contract, Part IV: General Conditions, and Division 1 of technical specifications.

E. Provide proof of meeting uplift pressures for Field, Perimeter, Corner conditions per ASCE-7.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and is eligible to receive the specified manufacturer's guarantee.

B. Manufacturer Qualifications: Qualified manufacturer that has UL listing for roofing system identical to that used for this Project.

C. Testing Agency Qualifications: Independent testing agency with the experience and capability to conduct the testing indicated, as documented in accordance with ASTM E 548.

D. Test Reports:
   1. Roof drain and leader test or submit plumber's verification.
   2. Core cut (if requested).

E. Moisture Survey:
   1. Submit prior to installation, results of a non-destructive moisture test of roof system completed by approved third party. Utilize one of the approved methods:
      a) Infrared Thermography
      b) Nuclear Backscatter

F. Source Limitations: Obtain all components from the single source roofing system manufacturer guaranteeing the roofing system. All products used in the system shall be labeled by the single source roofing system manufacturer issuing the guarantee.

G. Fire-Test-Response Characteristics: Roofing materials shall comply with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, [FMG], or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire-Test Exposure: Class A ASTM E 108, for application and roof slopes indicated.
   2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

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.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.08 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

1.09 WARRANTY

A. Provide warranty in accordance with this specification section, in addition to the warranty and/or guarantee requirements stated elsewhere in Contract Documents including, but not limited to, Part III: Contract Documents Contract, Part IV: General Conditions, and Division 1 of technical specifications.

B. Warranty: Provide manufacturer's written warranty in which manufacturer agrees to repair or replace equal to Johns Manville’s Peak Advantage No Dollar Limit Roofing System Guarantee that fail in materials or workmanship within specified warranty period twenty (20) years. Manufacturer may not disclaim any implied warranty such as merchantability or fitness for a particular purpose. Both the expressed and implied terms of the warranty shall be read together for the benefit of the District.

C. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.

1. Single-Source warranty includes roofing plies, base flashings, liquid applied flashing, roofing membrane accessories, fasteners, cover board, vapor retarder, walkway products, manufacturer’s expansion joints, manufacturer’s edge metal products, and other single-source components of roofing system marketed by the manufacturer.
2. Warranty Period: 20 years from date of Project Acceptance.
3. Warranty shall not exclude coverage for wind events up to 75 mph.
4. Warranty shall have no exclusions for hail events up to 2 inches
5. Warranty shall provide coverage for accidental puncture for up to 16 billed repair hours per year for the life of the guarantee.

D. Warranty: Provide manufacturer's written warranty in which manufacturer agrees to repair or replace equal to Johns Manville’s Peak Advantage No Dollar Limit Installer’s Guarantee that fail in materials or workmanship within specified warranty period twenty (20) years. Manufacturer may not disclaim any implied warranty such as merchantability

or fitness for a particular purpose. Both the expressed and implied terms of the warranty shall be read together for the benefit of the District.

E. Submit roofing Installer's guarantee signed by Installer, covering Work of this Section, including all components of roofing system, for the following guarantee period:
   1. Guarantee Period: 20 Years from date of Project Acceptance.

PART 2 - PRODUCTS

2.01 PVC ROOFING MEMBRANE

A. PVC Fleeceback Membrane, Type III, fabric reinforced.

   1. Manufacturers:

      a) Carlisle Syntec, Inc.
      b) Flex Membrane International, Inc.
      c) Johns Manville International, Inc.
      d) Approved equal

   2. Thickness: 80 mils, nominal.
   3. Exposed Face Color: White.

2.02 AUXILIARY ROOFING MATERIALS – SINGLE PLY

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: Manufacturer's sheet flashing of same material, type, reinforcement, thickness, and color as sheet membrane. Basis of Design: JM PVC, or architect pre approved equal.

C. Sheet Flashing: Manufacturer's unreinforced sheet flashing of same material as sheet membrane. Basis of Design: JM PVC Detail Membrane, or approved equal.

D. Bonding Adhesive: Manufacturer's standard solvent -based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings. Basis of Design: JM PVC Membrane Adhesive, or approved equal. Product shall be approved for use in the State of California.

E. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

F. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, with anchors. Basis of Design: JM Termination Systems, or architect approved equal.

G. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, prepunched. Basis of Design: Membrane Battens [or architect pre approved equal]

H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips, sealants, and other accessories. Basis of Design: JM PVC Pourable Sealer, JM PVC Pipe Boots, JM PVC Penetration Pan, JM PVC Reversible Corners, JM PVC Inside Corners, JM PVC T-Joint Patch, JM PVC Membrane Cleaner, JM PVC-Coated Metal, JM PVC Sealantand JM Single Ply Caulk, or approved equals.

2.03 AUXILIARY ROOFING SYSTEM COMPONENTS

A. Expansion Joints: Provide factory fabricated weatherproof, exterior covers for expansion joint openings consisting of flexible rubber membrane, supported by a closed cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to the bellows by a bifurcation process. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Expand-O-Flash, Expand-O-Guard, or approved equal.

B. Coping System: Manufacturer’s factory fabricated coping consisting of a base piece and a snap-on cap. Provide product manufactured and marketed by single-source membrane supplier that is included in the Warranty. Basis of Design: Presto-Lock Coping, or architect pre approved equal.

C. Fascia System: Manufacturer’s factory fabricated fascia consisting of a base piece and a snap-on cover. Provide product manufactured and marketed by single-source membrane supplier that is included in the Warranty. Basis of Design: Presto Lock Fascia, or approved equal.

D. Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."

2.04 WALKWAYS

A. Flexible Walkways: Provide Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacture around all mech. units and leading to the roof access hatch, 3’ wide. Basis of Design: JM PVC Walkpad, or approved equal.

2.05 SUBSTRATE BOARDS

A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, Type X, 1/4” inch thick, or per manufacturers requierments.

1. Product: Subject to compliance with requirements, provide "Dens-Deck" by Georgia-Pacific Corporation, or approved equal.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening substrate panel to roof deck.

2.06 INSULATION ACCESSORIES

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

B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated. Basis of Design: Tapered Pre-Cut Cricket, Tapered Pre-Cut Miter, Tapered Fesco Edge Strip, or approved equal.

C. Urethane Adhesive: Manufacturer's two component urethane adhesive formulated to adhere insulation to substrate. Basis of Design: JM Two-Part Urethane Insulation Adhesive, or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements affecting performance of roofing system.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

C. Prime surface of concrete deck with asphalt primer at a rate recommended by roofing manufacturer and allow primer to dry.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.03 RE-ROOF PREPARATION

A. Remove all roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, or similar items.
   1. Remove an area no larger than can be re-roofed in one day.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations.
   1. Install decking to match existing as directed by the District.

D. Raise (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:
   1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
   2. Nail top of flashing and install new metal counterflashing prior to re-installation of unit.
   3. Perimeter nailers must be elevated to match elevation of new roof insulation.

E. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.04 RECOVER PREPARATION

A. Prepare existing roof according to roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer, and requirements in this Section.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Disable existing roof membrane by cutting a minimum 5 foot x 5 foot grid pattern.

D. “Skin” existing membrane at substrate.

E. Remove existing membrane.

F. Remove and replace wet, deteriorated or damaged roof insulation and decking as identified in moisture survey.

G. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations. Install decking to match existing as directed by the District.

H. Raise, (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:
   1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
   2. Nail top of flashing and install new metal counterflashing prior to re-installation of unit.
   3. Perimeter nailers must be elevated to match elevation of new roof insulation.

I. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

J. Prime existing cap sheet to prepare for recover application.

K. Proceed with installation only after unsatisfactory conditions have been corrected.

3.05 COVER BOARD INSTALLATION

A. Coordinate installing membrane roofing system components so cover board is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover board.

C. Install cover board with long joints of cover board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with cover board.

1. Cut and fit cover board within 1/4 inch (6 mm) of nailers, projections, and penetrations.

D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.
   1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

E. Adhered Cover Board: Adhere cover board to substrate as follows:
   1. Install in a two-part urethane adhesive according to roofing system manufacturer's instruction.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.06 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Where roof slope exceeds 1/2 inch per 12 inches (1:24, contact the membrane manufacturer for installation instructions regarding installation direction and backnailing

D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
   1. Provide tie-offs at end of each day's Work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning Work on adjoining roofing.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.07 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing in accordance with membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
   1. Install sheet in accordance with ASTM D 5036 and roofing system manufacturer's written instructions.

B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical representative.

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 solvent-based 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.

E. Bonding Adhesive: Apply water-based bonding adhesive to substrate at rate required by manufacturer and immediately install roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

F. Urethane Membrane Adhesive: Apply 2-Part Urethane Adhesive substrate at rate required by manufacturer and install fleece-backed roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

G. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

H. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, 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 continuous bead of in-seam sealant before closing splice if required by membrane roofing system manufacturer.

I. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
   1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
      a) Remove and repair any unsatisfactory sections before proceeding with Work.
   3. Repair tears, voids, and lapped seams in roofing membrane that do 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. Install roofing membrane and auxiliary materials to tie in to existing roofing.

L. Proceed with installation only after unsatisfactory conditions have been corrected.

3.08 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates in accordance with membrane roofing system manufacturer's written instructions.

B. Apply solvent-based 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 sheet flashing.

D. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

E. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.09 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Adhere with compatible adhesive and heat weld walkway products to substrate according to roofing system manufacturer's written instructions. – PVC

B. Roof-Paver Walkways: Install walkway roof pavers according to manufacturer's written instructions in locations indicated, to form walkways. Leave 3 inches (75 mm) of space between adjacent roof pavers.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: District will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.

C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.11 PROTECTION AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION