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**SAN FRANCISCO UNIFIED SCHOOL DISTRICT**  
**2006 Proposition A Bond Project**  
**Marshall Elementary School**  
**1575 15<sup>th</sup> St. San Francisco, CA 94103**

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**ADDENDUM No. 1**

**PROJECT:** MARSHALL ELEMENTARY SCHOOL  
ROOF & HVAC UNITS REPLACEMENT  
1575 15<sup>th</sup> St.  
San Francisco, CA 94103

**DATE:** March 18<sup>th</sup>, 2015

**OWNER:** San Francisco Unified School District  
135 Van Ness Avenue  
San Francisco, CA 94102

**SFUSD PROJ. NO.:** 11042  
**DSA FILE NO.:** 38-1  
**DSA APP. NO.:** 01-

Notice is hereby given to all prospective bidders that plans and specifications on the subject project are modified as hereinafter set forth. This Addendum shall be attached to and form a part of the plans and specifications. All bidders must acknowledge receipt of this addendum on the Bid Form. In case of difference with previous addenda or communications, this addendum takes precedence.

It is the responsibility of all bidders to notify all subcontractors from whom they request bids and from whom they accept bids of all changes contained in this addendum.

**PROJECT MANUAL**

**1. Item No. PM 1-1**

**Reference:** 07530 – SINGLE PLY MEMBRANE ROOFING

**Description:** a. Replace Section 07530 with the attached Section 07530 with footer, Addendum 1, 3-18-15.

**PROJECT DRAWINGS**

**ARCHITECTURAL**

**1. Item No. AD 1-1**

**Reference:** DRAWING D2.1 – ROOF PLAN - DEMOLITION

**Description:** a. Replace Key Note 2 with "LOW ROOF: N.I.C. (E) BUILT-UP ROOFING TO REMAIN. KEY NOTE TAGS AT LOW ROOF ARE N.I.C."  
b. Add the following to Key Note 14 "REMOVE AND STORE OR OTHERWISE PROTECT THE (E) ELECTRICAL DISCONNECT/ SUBPANEL AND (E) CONDUIT."

**2. Item No. AD 1-2**

**Reference:** DRAWING A2.01 – ROOF PLAN - NEW

- Description:**
- a. Replace Key Note 2 with "LOW ROOF: N.I.C. (E) BUILT-UP ROOFING TO REMAIN. KEY NOTE TAGS AT LOW ROOF ARE N.I.C."
  - b. Add the following to Key Note 14, "REINSTALL (E) ELECTRICAL DISCONNECT/SUBPANEL AND PROVIDE NEW WATERPROOF CONDUIT AND CODUCTORS TO THE HVAC UNIT FROM THE SUBPANEL. MOUNT (E) SUBPANEL AT FORMER LOCATION, USE STAINLESS STEEL HARDWARE."

**3. Item No. AD 1-3 (SK-1)**

**Reference:** DRAWING A8.01 – ROOF DETAILS

- Description:**
- a. At details 8, 9, 10, and 12, add "N.I.C." to the detail title.
  - b. Replace details 5 and 6 with details 5 and 6 on attached SK-1.

**MECHANICAL**

**4. Item No. MD 1-1**

**Reference:** DRAWING M0.01 – MECHANICAL LEGEND, NOTES, AND SCHEDULE

- Description:**
- a. At SPECIFICATION AND NOTES, note 25, add the following: "BASE BID: INSTALL PROGRAMABLE THERMOSTAT AT FORMER (E) THERMOSTAT LOCATIONS. REUSE (E) WIRING AND CONDUITS".
  - b. At the EQUIPMENT SCHEDULE, in the REMARKS COLUMN. Replace ", PROGRAMABLE THERMOSTAT.", with "PROGRAMABLE THERMOSTAT-BASE BID ONLY".

**5. Item No. MD 1-2**

**Reference:** DRAWINGS M6.01, M6.02, and M6.03 – MECHANICAL EMCS CONTROL DIAGRAMS, POINTS LISTS & SEQUENCES.

- Description:**
- a. Add, "ALTERNATE NO. 1.", to each DRAWING TITLE.

**ATTACHMENTS:**

**Specifications:**

Section 07530 – SINGLE PLY MEMBRANE ROOFING – 6 Pages

**Drawings:**

SK-1 OF 1            1 Page (8 ½"x11") – A8.01 – ROOF DETAILS

END OF ADDENDUM ITEMS

**2006 BOND PROGRAM**

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SECTION 07530  
SINGLE PLY MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Thermoplastic-polyolefin membrane roofing system, including all components specified.
- B. Comply with the published recommendations and instructions of the roofing membrane manufacturer.
- C. Commencement of work by Contractor shall constitute acknowledgement by Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

1.02 RELATED SECTIONS

- A. Section 07600 – Flashing and Sheet Metal
- B. Section 07900 – Sealants and Control Joints

1.03 REFERENCE STANDARDS

- A. ASTM C1177/c1177M - Standard Specification for Glass Mat Gypsum Substrate for use as sheathing; 2008.
- B. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; Current Edition.
- C. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2003. (ANSI/SPRI ES-1)

1.04 SUBMITTALS

- A. See Section 01330 – Submittal Procedures, for submittal procedures.
- B. Product Data:
  - 1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
- C. Samples: Submit samples of each product to be used.
- D. Executed Warranty.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Roofing installer shall have the following:
  - 1. Current approval, license, or authorization as applicator by the manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

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### 1.07 WARRANTY

- A. See Section 01770 – Cleaning and Closeout Procedures, for additional warranty requirements.
- B. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- C. Warranty: Limited Warranty covering membrane, roof insulation, and other indicated components of the system, for the term indicated.
  - 1. Limit of Liability: No dollar limitation.
  - 2. Scope of Coverage: Repair leaks in the roofing system caused by:
    - a. Ordinary wear and tear of the elements.
    - b. Manufacturing defect in materials.
    - c. Defective workmanship used to install these materials.
    - d. Damage due to winds up to 55 mph (88 km/h).
  - 3. Not Covered:
    - a. Damage due to winds in excess of 55 mph (88 km/h).
    - b. Damage due hurricanes or tornadoes.
    - c. Hail.
    - d. Intentional damage.
    - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Acceptable Roofing System Manufacturers:
  - 1. Carlisle Syn Tec, Carlisle, PA.
  - 2. Firestone Building Products LLC, Carmel, IN.
  - 3. GAF Materials Corp, Parsipanny, NJ.
  - 4. Johns Manville, Denver CO.
- B. Manufacturer of Insulation and Cover Boards: As approved by roofing membrane manufacturer and in compliance with UL: testing.

### 2.02 ROOFING SYSTEM DESCRIPTION

- A. Roofing System: Thermoplastic olefin (TPO) single-ply membrane.
  - 1. Membrane Attachment: Mechanically fastened in accordance with ANSI/FM 4474(D) for assembly #1.
  - 2. Warranty: Full system NDL (no dollar limit) 20 year warranty. Covering membrane, roof insulation, gypsum sheathing, and membrane accessories.
  - 3. Comply with applicable local building code requirements.
- B. Roofing System Components: Listed in order from the top of the roof down:
  - 1. Membrane: Thickness, 80 mil.
  - 2. Insulation Cover Board: Gypsum-based board, 1/4 inch (6 mm) thick; mechanically fastened in accordance with ANSI/FM 4474(D) for assembly #1.

### 2.03 MEMBRANE MATERIALS

- A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D6878, with polyester weft inserted reinforcement and the following additional characteristics:
  - 1. Color: White.
  - 2. Thickness: 80 mil minimum.

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- B. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
- C. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches (457 mm) wide.
- D. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber. In conformance with the manufacturer's published data for 20 year NDL approved systems.
  - 1. Color: White.
- F. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing.
- G. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
- H. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick.
- K. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.
- L. Roof Walkway Pads: Non-reinforced TPO patterned traffic bearing surface walkway pads, 30 inches (760 mm) min. width.

### 2.04 ROOF INSULATION AND COVER BOARDS

- A. Gypsum-Based Cover Board: Non-combustible, water resistant gypsum core with embedded glass mat facers, complying with ASTM C1177/C1177M, and with the following additional characteristics:
  - 1. Size: 48 inches (1220 mm) by 96 inches (2440 mm), nominal.
    - a. Exception: Board to be attached using adhesive or asphalt may be no larger than 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
  - 2. Thickness: ¼" min. to meet UL Class A.
  - 3. Acceptable Products: Georgia-Pacific Dens Deck Roof Board and USG SECUROCK Glass Mat Roof Board.
- B. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

## PART 3 INSTALLATION

### 3.01 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system and warranty. Where manufacturer provides no instructions or recommendations submit a request for information along with a proposed detail. Follow good roofing practices and industry standards. Comply with state building code, federal, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.

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- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).
- G. Install walkway pads adjacent HVAC unit access door; minimum 4 pads per unit.
- H. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
  - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
  - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
  - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- I. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- J. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

**3.02 EXAMINATION**

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

**3.03 PREPARATION**

- A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch (6 mm) wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.

**3.04 INSULATION AND COVER BOARD INSTALLATION**

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.

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- C. Lay roof insulation in courses parallel to roof edges.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch (6 mm).

### **3.05 SINGLE-PLY MEMBRANE INSTALLATION**

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane mechanically attached to the substrate using seam battens, fasteners, and edge securement as specified and as required by membrane manufacturers.
- E. Mechanical Attachment: Install fasteners in the seams, covered by membrane.
  - 1. Lay out fasteners in compliance membrane manufacturer, and as indicated, whichever is most stringent.
  - 2. Properly engage fasteners in the deck with head flush with the countersunk portion of seam plate.
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6 ) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
  - 1. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.
  - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

### **3.06 FLASHING AND ACCESSORIES INSTALLATION**

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
  - 1. Follow roofing manufacturer's instructions.
  - 2. Remove protective plastic surface film immediately before installation.
  - 3. Install water block sealant under the membrane anchorage leg.
  - 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
  - 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
  - 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
  - 7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.

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**3.07 FINISHING AND WALKWAY INSTALLATION**

- A. Install walkways: Leading from roof access points to all HVAC units. Along side of HVAC units with service access panel and or electrical disconnect, extend 12 inch minimum beyond the edge of the unit. And where indicated on the drawings.
- B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 2.0 inch (25 mm) and maximum of 3.0 inches (75 mm) from each other to allow for drainage.
  - 1. If installation of walkway pads over field fabricated splices or within 6 inches (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches (150 mm) on either side.
  - 2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

**3.08 FIELD QUALITY CONTROL**

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

**3.09 CLEANING**

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover ma, trash, debris, equipment from project site and surrounding areas.

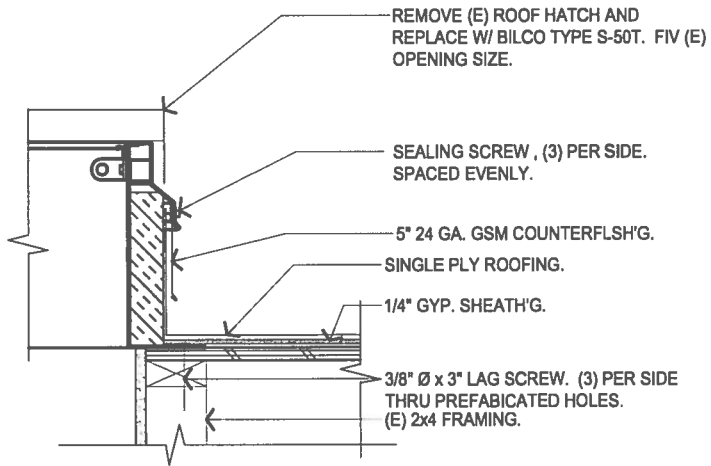
**3.10 PROTECTION**

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

END OF SECTION

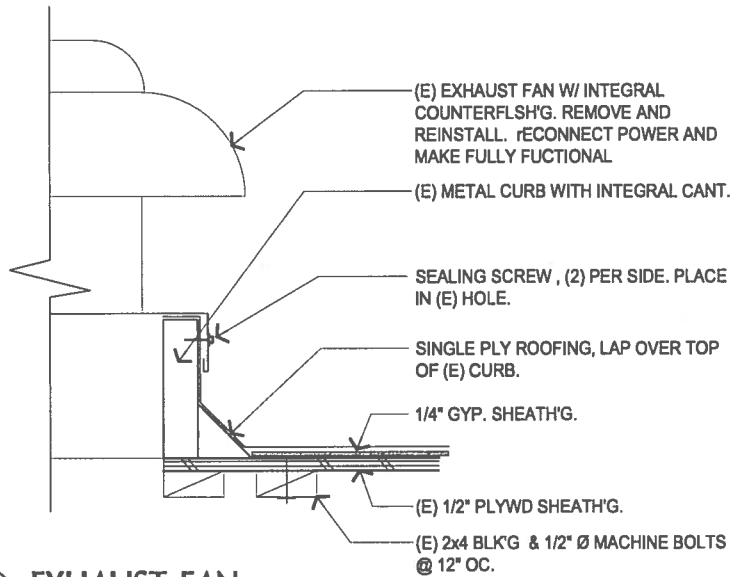
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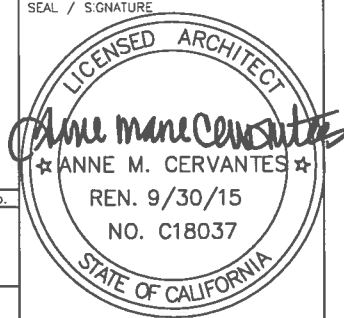
**6 ROOF HATCH**

SCALE 1 1/2" = 1'-0"



**5 EXHAUST FAN**

SCALE 1 1/2" = 1'-0"

PROJECT TITLE: 2011 PROPOSITION A SCHOOL BOND PROGRAM  MARSHALL ELEMENTARY SCHOOL ROOF & HVAC REPLACEMENT		AS No.: <b>ADDENDUM 1</b>	SHEET TITLE: <b>ROOF DETAILS</b>					SEAL / SIGNATURE 
		REFERENCE DWG No.: <b>A8.01</b>						
DSA FILE & APPLICATION No.:	SFUSD PROJECT:	SKETCH No.:	SCALE:	DATE ISSUED:	DRAWN BY:	DATE MODIFIED:	CDA JOB No.:	
38-1/01-	11042	<b>SK- 1 OF 1</b>	N.T.S	3-18-15	RN		14-16	
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