HARRIMAN

ADDENDUM

Date November 19, 2014

To Prospective Bidders

Re Addendum No. 3 to the Bidding Documents for:

USM
Central Heat Plant Upgrades
Portland, ME
Project No. 14411

This Addendum forms a part of the Contract Documents and modifies the original Bidding documents dated October 31, 2014, Addendum 1 dated November 12, 2014 and Addendum 2 dated November 14, 2014. Acknowledge receipt of this Addendum in the space provided in the Bid Form.

This Addendum consists of three pages and Specification Section 072726.

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CLARIFICATION TO BID DOCUMENTS

1. SECTION 004113 – BID FORM
    a. Change Filed Subcontract Bids "Electrical: Division 24" to read "Electrical: Division 26"

CHANGES TO SPECIFICATIONS

1. SECTION 072110 – SPRAY-IN-PLACE RIGID URETHANE FOAM INSULATION
    a. Article 2.1, A, 7, add product: Icynene ProSeal (MD-C-200- v3); Icynene Inc.

2. SECTION 072726 - FLUID-APPLIED AIR/VAPOR BARRIER SYSTEM
    a. Issued with this Addendum.

3. SECTION 076200 – SHEET METAL FLASHING AND TRIM
    a. Article 1.4, D, delete in its entirety
    b. Article 2.2, B, 2, a, 2) Change to read: "Colors: As selected by Architect from Range of Standard Finishes."

4. SECTION 84113 – ALUMINIUM FRAMED ENTRANCES AND STOREFRONTS
    a. Article 2.2, A, 1, B, replace with the following:
        "b. Operable Vents: GLASSvent Series (C-HC40 – C-HC70) Outswing Casement Window."

5. SECTION 081113 – HOLLOW METAL DOORS AND FRAMES
    a. Article 2.1, A, add manufacturer: Republic Door and Frames

6. SECTION 08000 – GLAZING
    a. Article 2.9, K, delete in its entirety.

7. SECTION 083323 – OVERHEAD COILING DOORS
    a. Article 2.5, A, change "Electrically Operated, Service Door, Door A122:" to read: "Electrically Operated, Service Door, Door 101C:"

8. SECTION 039300 – CONCRETE SEALER
    a. Delete in its entirety.

CHANGES TO DRAWINGS

1. DRAWING A40.1 – CONSTRUCTION SYSTEMS AND DETAILS
    a. Partition type W01
        1) Change note that reads "Weather Barrier Membrane" to read "Air/Vapor Barrier Membrane"
    b. Details C1, C5, D2, D3:
        1) Change note that reads "Pre-Finished Metal Enclosure" to read "Aluminum Break Metal By Storefront Manufacturer"
    c. Details E1, E2, E3, D1:
        1) Change note that reads "Pre-Finished Metal Enclosure" to read "Pre-Finished Metal Trim"

2. DRAWING A55.1 – DOOR AND WINDOW SCHEDULES
    a. Detail D1:
        1) Door type S, graphically remove horizontal lines indicating an overhead door.

3. DRAWING A81.1 – INTERIOR ELEVATIONS
    a. Paint Schedule:

1) Remove “Duration Ext. Acrylic Coat” from description of paints labeled P1, P2, P3, P4, P5, P6
2) Add general note: “See specifications for product requirements.”

SECTION 072726 - FLUID-APPLIED AIR/VAPOR BARRIER SYSTEM

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. This Section includes the following:
   1. A fluid-applied air/vapor barrier system.

B. Related Sections include the following:
   1. Division 04 Section "Unit Masonry Assemblies" for masonry flashing tying into air/vapor barrier system.
   2. Division 07 Section "Joint Sealants" for joint-sealant materials and installation.

1.3 PERFORMANCE REQUIREMENTS

A. Air/Vapor Barrier: Shall be designed and constructed as a continuous air barrier to control air leakage into, or out of the conditioned space, and to act as a watertight barrier to discharge to the outside any incidental condensation or water penetration. Air/vapor barrier membrane shall accommodate movements of building materials by providing expansion and control joints as required, with appropriate air seal materials at such locations, changes in substrate and perimeter conditions. Barrier shall be continuous with all joints made air-tight and shall have the following characteristics:
   1. Tensile Strength: ASTME D 412, 119 psi.
   2. Elongation: ASTM D 412, not less than 800 percent.
   3. Air Permeability: ASTM E 2178 & ASTM E 283: Shall not exceed 0.0012 cfm/sq.ft. at 1.57lbs/sq.ft.
   4. Water Vapor Permeance: ASTM E 96, Method B, not more than 0.08 perms.
   5. Surface Burning: ASTM E 84, flame spread index not more than 25 and smoke generation index not more than 450.
   6. Peel Strength, to Dry Concrete: ASTM C 836, 3319 lbf/ft.
   7. Long Term Flexibility: Pass to CGSB 71-GP-24M.
   8. Resistance to Mold, Mildew & Fungal Growth: ASTM D 5590, no growth.
   9. Fire Testing: Shall comply with NFPA 285 in various wall assemblies.
   10. Shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on envelope without damage or displacement; shall transfer load to structure; and shall not displace adjacent materials under full load.
   11. Shall be joined in an airtight, flexible manner to the air barrier surface/material of adjacent systems, allowing for relative movement of systems due to thermal and moisture variations or creep. Air/vapor barrier shall be connected to the following system components:
      a. Foundation and walls.
      b. Doors penetrating exterior walls.
      c. Aluminum-framed entrances, storefronts and curtain walls.
      d. Different wall systems.
      e. Wall and roof intersections.

f. Wall and floor assemblies spanning control joints.
g. Wall penetrations by masonry ties, screws, bolts and similar items.
h. Wall, floor and roof penetrations by pipes, ducts and conduits.

B. Air/Vapor Barrier Penetrations: All penetrations of the air/vapor barrier and paths of air infiltration or exfiltration shall be made airtight to not less than the rating of the air/vapor barrier.

1.4 SUBMITTALS

A. General: Submit in accordance with Division 01 Section "Submittal Procedures."

B. Complete Shop Drawings and Product Data shall be submitted to the Architect at least 21 days before the Preinstallation Conference. No Preinstallation Conference will be held and no material shall be applied until submittals are complete and released for construction.

C. Product Data: For each type of product indicated. Include technical data; certified test results; manufacturer's printed instructions for evaluating, preparing and treating substrate; and installation instructions, including temperature and other limitations of installation.
1. Include manufacturer's list and description of wall assemblies, incorporating product, approved per NFPA 285.

D. Shop Drawings: Show locations and extent of air/vapor barrier and details of intersections with other envelope systems and materials; details of membrane counter-flashings; details for construction of inside and outside corners; and details showing how expansion and control joints will be bridged. Identify materials, primers, sealers, support materials and other items detailed, including manufacturer's product names. Show relationship to adjacent materials, sequence of installation and materials, and methods for sealing penetrations. Shop drawing shall include connection details between the air/vapor barrier and for the following exterior envelope components as applicable to the project:
1. Foundations and walls.
2. Doors.
3. Aluminum-framed entrances, storefronts and curtain walls.
4. Wall and roof assemblies.
5. Wall penetrations by pipes, ducts and conduits.
6. Square tube, steel angle, channels, knife plates, structural WF beam and tube shape penetration sealing as applicable.
7. Masonry through-wall flashing attachment to sprayed surfaces. Proper surface prep and installation requirements.
8. Masonry through-wall flashing with proper support across cavity, including what is acceptable gap width. Typical at lintel angles.
9. Horizontal deflection joint and vertical control joint details in gypsum based sheathing, CMU, and plywood substrates, as applicable.
10. Hollow metal door frames, mechanical louvers and vent penetrations.

E. Product Certificates: For air/vapor barrier system, certifying compatibility of air/vapor barrier system and accessory materials with Project materials that connect to or that come in contact with the air/vapor barrier system; signed by product manufacturer.

F. Qualification Data: For Installer signed by manufacturer certifying that Installers comply with requirements.

G. Product Test Reports: From a qualified independent testing agency indicating and interpreting test results of air/vapor barrier system for compliance with requirements, based on comprehensive testing of current air/vapor barrier system in accordance with ASTM E 2178.

H. Daily Reports: Installer shall maintain daily reports at the Project site. Copies of reports shall be submitted weekly.

I. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Shall meet the following requirements:
   1. Shall be factory trained and approved in writing by air/vapor barrier membrane manufacturer.

B. Mockups: Provide mockups of the air/vapor barrier system applied to both gypsum sheathing substrates and CMU substrates.
   1. Air/Vapor Barrier Mockup Panel: Apply air/vapor barrier membrane mockup to exterior wall assembly. Mockup panel will be left exposed to show connections between wall and foundation, and through-wall flashings, showing relationship of materials with air/vapor barrier membrane and quality of workmanship. Mockup shall also demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air/vapor barrier membrane.
   2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
   3. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air/vapor barrier until mockups are approved.
   4. Complete mockup for review at preinstallation conference.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver 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.

B. Protect materials from damage from sunlight, weather, freezing, excessive temperatures, and construction operations. Store liquid materials at temperatures of not less than 40 deg F. Remove damaged material from site and replace at no additional cost to Owner.

C. Remove and replace liquid materials that cannot be applied within their stated shelf life.

D. Comply with the manufacturer's written instructions for proper material storage and handling.

E. Protect stored materials from direct sunlight.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted temperature and humidity conditions permit air/vapor barrier membrane to be installed according to manufacturers' written instructions and requirements.
   1. Do not apply air/vapor barrier system in snow, rain, fog, or mist.

B. Environmental Conditions: Apply air/vapor barrier materials within the range of ambient and substrate temperatures recommended by air/vapor barrier manufacturer. Do not apply air/vapor barrier system to a damp or wet substrate.

C. Maintain adequate ventilation during preparation and application of air/vapor barrier materials.

1.8 DAILY REPORTS

A. Installer shall maintain daily reports of all air/vapor barrier installation activity. As a minimum, report shall contain the following:
   1. Weather conditions, temperature.
   2. Substrate condition, defects and corrective action.
   3. Identify area of building where application took place.
   4. List of certified installers at the site.
   5. Identify applicators operating the spray gun.
   6. Temperature at time of application and cure time of primers before application of membrane.
   7. Temperature at time of spray application of air/vapor membrane.
   8. Measurements of film thickness. Provide measurement for not less than one measurement per 1000 square feet.
   9. Photos of installed areas.

1.9 CONTRACTOR FIELD TESTING

A. Membrane Thickness: Applicator shall continually monitor application thickness with wet film gage.

1.10 COORDINATION

A. Coordinate installation of air/vapor barrier system with the schedule of temporary heating of the building. Air/vapor barrier system shall be fully covered by exterior insulation before heat is turned on within building.

1.11 WARRANTY

A. General: Special warranties specified in this Section shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract Documents.

B. Manufacturer's System Warranty: Written system warranty, signed by air/vapor barrier manufacturer agreeing to replace air/vapor barrier system materials and accessories which fail to achieve specified air tightness and vapor seal, exhibit loss of adhesion or cohesion, or do not cure within specified warranty period.
   1. Warranty Period: Manufacturer's standard warranty, not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FLUID-APPLIED AIR/VAPOR BARRIER SYSTEM MATERIALS

A. Single Source Responsibility: Obtain air/vapor barrier materials, including transition taps, sealant, primers, mastics and adhesives, from a single manufacturer for a complete assembly.

B. Fluid-Applied Air/Vapor Barrier Membrane: Provide fluid-applied membrane and accessory products of inherent, fire-resistant composition complying with NFPA 285 for use as an air/vapor barrier in exterior walls.
   1. Basis-of-Design: Subject to compliance with requirements, provide Air-Bloc 32MR manufactured by Henry Company, Contact - Scott Walker 978-317-9521, or the following product:
      a. Carlisle Coatings and Waterproofing, Inc.; Fire Resist Barritech NP.

C. Detail Flashing Strip/Transition Strip: Self-adhering, membrane strip, not less than 3 inches wide, approved for use with fire-resistant air barrier membrane in NFPA 285 wall assemblies and as recommended by air barrier manufacturer.

D. Primer: Water-based liquid primer for concrete, masonry, gypsum sheathing, wood, metal, and painted substrates as recommended by air/vapor barrier system manufacturer for application indicated.

E. Transition Strip Primer: Water-based liquid primer for application indicated.

F. Mastic, Adhesives, and Tape: Liquid mastics, adhesives, and tapes as recommended by air/vapor barrier manufacturer for indicated applications.

G. Concrete Conditioner: Latex-based, water-dispersible liquid for concrete substrate preparation applied before application of self-adhered membranes and tapes.

H. Termination Mastic: Two part, elastomeric, cold-applied, trowel grade material designed for use with self-adhered membranes and tapes; 100 g/l maximum VOC content.

I. Sealants: Provide in accordance with Division 07 Section "Joint Sealants" and ASTM C 920 classifications for type, grade, class, and uses.
   1. Silicone Sealant: Single component, neutral curing, low modulus.
      a. Location: To seal sheet membrane flashing to polyethylene face of sheet rubberized-asphalt barrier and to seal between and to non-bituminous sheet systems.
      b. Products:
         1) Dow Corning Corporation; Dow 790.
         2) GE Advanced Materials - Silicones; SilPruf or SilPruf LM.
         3) Pecora Corporation; 890, 891 or 895 Silicone Sealant.
   2. SPF (Sprayed Polyurethane Foam) Sealant: Provide one- or two-component, foamed-in-place, polyurethane foam sealant with the following characteristics:
      a. Density: 1.5 to 2.0 PCF.
      b. Flame Spread (ASTM E162): 25 or less.
      c. Initial R-Value (at 1 inch): Not less than 7.
      d. Products:
         1) Dow Chemical Co.; Great Stuff PRO Window & Door.
         2) Fomo Products Inc.; Handi-Seal Window and Door Sealant.
         3) Convenience Products; No-Warp Foam Window & Door Insulating Sealant.

J. Detailing Metal: 0.032 inch thick aluminum sheet.

2.2 EQUIPMENT

A. Sprayer: Airless spray equipment approved by air/vapor barrier manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions as each area is completed for air/vapor barrier system application, with Installer present, to verify that surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants that are detrimental to the adhesion of air/vapor barrier system materials.
   1. Concrete Substrates: Verify that concrete has cured and aged for minimum time period recommended by air/vapor barrier system manufacturer; that concrete is visibly dry and free of moisture; and that concrete surfaces are smooth without large voids, spalled areas or sharp protrusions.
      a. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
   2. Masonry Surfaces: Verify that masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
   3. If unacceptable conditions are encountered, prepare written report, endorsed by Applicator, listing conditions detrimental to performance of work.

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

3.2 SURFACE PREPARATION

A. Clean, prepare, and treat substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air/vapor barrier membrane application.

B. Mask off adjoining surfaces not covered by air/vapor barrier system to prevent spillage and overspray affecting other construction.

C. Concrete Substrates:
   1. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.
   2. Prime with conditioning primer when installing modified asphalt membrane transition membranes. Apply primer at required rate and allow to dry. Limit priming to areas that will be covered by air/vapor barrier in same day. Reprime areas exposed for more than 24 hours.

D. Concrete and Masonry Joint Treatment: Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C 1193 and air/vapor barrier manufacturer's written instructions. Remove dust and dirt from joints and cracks complying with ASTM D 4258 before coating surfaces.
   1. Seal cracks over 1/16 inches in masonry and concrete with a strip of self-adhering transition membrane lapped a minimum of 1-1/2 inches on both sides of the crack.
      a. Prime surfaces as per manufacturers’ instructions and allow to dry.

b. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane.
c. Roll all laps and membrane with a counter top roller to ensure seal.

2. Prime substrate and apply a single thickness of preparation coat strip extending a minimum of 3 inches along each side of joints and cracks. Apply a double thickness of air barrier membrane and embed a joint reinforcing strip in preparation coat.

E. Prime wood, metal, and painted substrates with primer recommended by membrane manufacturer.

F. Fill gaps between different substrate systems to form a smooth transition from one plane to another; fill gaps between substrates and storefront systems, and curtain wall systems; and fill miscellaneous penetrations in substrates with sealant.
1. Apply foam sealant in gaps up to 2 inches wide.
2. Apply insulation foam sealant in gaps greater than 2 inches wide.
3. Cover sealants with aluminum sheet metal or other substrate material approved by the air/vapor barrier manufacturer, providing a permanent air/vapor barrier transition attachment.
4. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Bridge and cover control joints, and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips.
1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through air/vapor barrier system and at protrusions according to air/vapor barrier system manufacturer's written instructions.

3.3 INSTALLATION, GENERAL

A. Strictly comply with air/vapor barrier membrane manufacturer's printed instructions, approved submittals and the following:
1. Apply materials within manufacturer's requirements for temperature and weather conditions.
2. Do not apply to wet or frozen substrates.
3. Do not allow contamination with dust or dirt.
4. Seal completely at edges, perimeter and penetrations.
5. Wrap membrane around perimeter of openings for storefront and curtain wall systems, so the storefront and curtain wall systems can be caulked around the interior perimeter of the opening, sealing between edge of storefront/curtain wall system and air/vapor barrier membrane.
6. Dry film thickness shall be not less than specified.

B. Spray apply air/vapor membrane using airless spray equipment. Use cross-hatching technique (alternating horizontal and vertical passes) to ensure complete coverage of substrate and transition strips and even thickness of air/vapor barrier. Seal to penetrations to achieve an airtight envelope.

C. Treat construction joints and install flashings as recommended by manufacturer.

3.4 FLUID-APPLIED AIR/VAPOR BARRIER SYSTEM INSTALLATION

A. Apply air/vapor barrier in a continuous, uniform film using multiple, overlapping passes to achieve a dry film thickness not less than 60 mils thickness.

B. Inspect sprayed surfaces and fill any remaining gaps.

C. Application of Transition Membrane:
   1. Allow spray-applied membrane to cure to tack-free. Apply transition membrane with an overlap of not less than 3 inches onto each surface at all beams, columns and joints as indicated in detail drawings and on approved Shop Drawings.
   2. Tie in to storefront framing, curtain wall systems, spandrel panels, roof and floor intersections and changes in substrate.
   3. Use pre-cut, easily handled lengths for each location.
   4. Remove release paper and position flashing carefully before placing it against the surface. Install membrane in tight intimate contact with substrate without stretching. Bend membrane to fit tightly into inside corners, without gaps and without stretching membrane.
   5. When properly positioned, place against surface by pressing firmly into place with a hand roller.
   6. Overlap adjacent pieces not less than 2 inches and roll all seams with a hand roller.
   7. Seal top edge of transition membranes and flashing with termination mastic.
   8. Apply liquid membrane to all fastener heads, overlapping board not less than 1 inch.

D. Transition Strip Flashing to Door Frames, Storefront and Windows: Prime all surfaces in accordance with recommendations of air/vapor barrier manufacturer. Lap transition strip from wall substrate with not less than 3 inches of full contact over firm bearing to penetration frame with not less than 1 inch of full contact.
   1. Apply primer to substrates at required rate and allow to dry thoroughly. Adjust time for drying, based upon ambient temperature, humidity and weather conditions. Limit priming to areas that will be covered by air/vapor barrier sheet in same day. Reprime areas exposed for more than 24 hours.
   2. Secure rubberized asphalt membrane flashings to substrates, membrane, and frames using roller to assure proper adhesion. Seal head, jamb and sill flashing at door perimeters, and aluminum storefront and curtain wall perimeters, making permanently weather tight.
   3. Set extruded preformed silicone flashings in full bed of low modulus silicone sealant.

E. Transition Areas: Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials as indicated in approved shop drawings with self-adhering air barrier transition membrane.
   1. Prime surfaces as per manufacturer's instructions and allow to dry.
   2. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap to all substrates.
   3. Ensure minimum 2 inch overlap at all end and side laps of membrane.
   4. Roll all laps and membrane with a counter top roller to ensure seal.

F. At base of walls, apply air/vapor barrier to seal transition between top of foundation and wall. Apply air/vapor to back and bottom of brick shelves, stopping barrier 1 inch back from outside face of foundation wall.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

3.5 APPLICATION OF TERMINATION SEALANT

A. Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, around penetrations, duct work, electrical and other apparatus extending through the primary water resistive air barrier membrane and around the perimeter edge of membrane terminations at window and door frames with specified termination sealant.

3.6 CLEANING, PROTECTING, AND REPAIR

A. Cleaning: Immediately after completing spraying operations, remove material overspray and fallout from surfaces of other construction not to be coated and clean exposed surfaces to remove evidence of soiling.
   1. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

B. Repair damage to air/vapor barrier membrane caused by construction activities or subsequent work prior to covering membrane.

C. Schedule work to ensure that the air/vapor barrier system is covered as soon as possible after application and inspection. Protect air/vapor barrier system from damage during subsequent operations. If the air/vapor barrier system cannot be covered within 30 days after installation, apply temporary UV protection such as dark plastic sheet or tarpaulins.

END OF SECTION 072726