ADDENDUM NO. 2

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

Rebuild Kitchen & Stabilize Structure
Tavern, Arrow Rock State Historic Site
Arrow Rock, Missouri
PROJECT NO. X2001-01

Bid Opening Date: 1:30 PM, Thursday, August 13, 2020

Bidders are hereby informed that the Construction Plans and/or Specifications are modified as follows:

**SPECIFICATION CHANGES:**

1. **SECTION 075213 – ATACTIC-POLYPROPYLENE (APP) MODIFIED BIT ROOFING**
   a. **REMOVE** entire section and **REPLACE** with revised Section 075213 HYBRID MODIFIED BITUMINOUS MEMBRANE ROOFING, dated July 30, 2020. – Note both APP and SBS hot- and cold-applied are approved roofing products.

2. **Section 096720 – SEAMLESS EPOXY QUARTZ AND MARBLE-CHIP FLOORING:**
   a. **ADD** the following acceptable manufacturer to Paragraph 2.1-A:
      
      d) Florock 1-800-356-7625

3. **Section 096400 – WOOD FLOORING:**
   a. **REPLACE** Paragraph 2.2-B with the following:

      B. Urethane Finish System: Water-based OR Oil-Modified system of compatible components that is recommended by finish manufacturer for application indicated.

4. **Section 237413 – PACKAGED OUTDOOR CENTRAL STATION AIR HANDLING UNITS:**
   a. **ADD** the following acceptable manufacturer to Paragraph 2.1-A:

      5. CaptiveAire

**DRAWING CHANGES:**

1. **Sheet C101:**

2. **Sheet C301:**

3. **Sheet C401:**
4. **Sheet C501:**

5. **Sheet A305:**
a. **ADD** the following general notes:
   1. Treads and solid risers shall be Redwood or Cedar, smooth all sides. Treads shall be 1 ½” thick (2X12 material) and risers shall be ¾” thick.
   2. Interior Steps shall be sealed/treated with Woodlife CopperCoat Green Wood Preservative, insecticidal preservative and fungal inhibitor
   3. All stair wood framing shall be pressure-treated lumber.

6. **Sheet A302:**
a. **ADD** the following general notes:
   1. Treads and solid risers shall be Redwood or Cedar, smooth all sides. Treads shall be 1 ½” thick (2X12 material) and risers shall be ¾” thick.
   2. Exterior steps and visible framing shall be treated (360 degrees) with exterior-grade, low-gloss, oil-based paint. (Color to be selected by Architect from full range of manufacturer’s colors).
   3. All stair wood framing shall be pressure-treated lumber. Any cut surfaces of wood framing on the exterior stair (sky-ward facing under the treads and bottom of framing in contact with concrete) shall be covered with a butyl-based, Joist Protection Tape to prevent water infiltration.

7. **Sheet A502:**
a. **OMIT** Detail 6 – DOOR 106B THRESHOLD DETAIL. Detail is not used.

8. **Sheet M103**
a. **REPLACE** the following duct sizes noted at the kitchen hood grease ducts:
   1. The 20x10 grease duct shall be 22x9.
   2. The 18x10 grease duct shall be 20x9.

9. **Sheet PES100:**
a. **REMOVE** entire sheet and **REPLACE** with revised Drawing PES100, dated August 3, 2020.

10. **Sheet ED101:**

11. **Sheet E101:**

12. **Sheet E301:**

13. **Sheet Q-DT-01:**
14. **Sheet Q-DT-02:**

15. **Sheet Q-DT-03:**

**GENERAL COMMENTS:**

1. Please contact Mandy Roberson, Contract Specialist, at 573-522-0074 or mandy.roberson@oa.mo.gov for questions regarding bidding procedures and MBE/WBE/SDVE goals and submittal requirements.
2. The deadline for technical questions was Tuesday, August 4, 2020 at noon.

**ATTACHMENTS:**

1. Specification Section 075213 – Hybrid Modified Bituminous Membrane Roofing
2. Drawings: C101, C301, C401, C501, PES100, ED101, E101, E301, Q-DT-01, Q-DT-02, Q-DT-03

**August 4, 2020**

**END ADDENDUM NO. 2**
SECTION 075213 – HYBRID MODIFIED BITUMINOUS MEMBRANE 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.


C. All installation shall be consistent with the 2013 NRCA Roofing and Waterproofing Manual.

1.2 SUMMARY

A. Section Includes:
   1. Hybrid modified bitumen membrane roofing.
   2. Roof insulation.
   3. Cover board.

B. Related Requirements:
   1. Section 076200 “Sheet Metal Flashing and Trim” for metal roof flashings and counterflashings.
   2. Section 079200 “Joint Sealants” for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA’s "The NRCA Roofing and Waterproofing Manual" apply to Work of this Section.

B. Hot Roofing Asphalt: Roofing asphalt heated to its equiviscous temperature, the temperature at which its viscosity is 125 centipoise for mop-applied roofing asphalt and 75 centipoise for mechanical spreader-applied roofing asphalt, within a range of plus or minus 25 deg F (14 deg C), measured at the mop cart or mechanical spreader immediately before application.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including, but not limited to:
   1. Sheathing Paper
   2. Coated Heavy-Weight Base
   3. Primer
   4. Fasteners
   5. Asphalt
   6. Cold-Applied low-rise foam Adhesive (insulation attachment)
   7. Asphalt Roofing Cement
8. Insulation
9. Coverboard
10. SBS Cap Sheet (Hot-applied)
11. SBS Cap Sheet (Cold-applied)
12. SBS Cap Sheet Adhesive
13. APP Cap Sheet
12. Modified Flashing Plies
13. Sealants and Mastic

B. System Spec Plate: Submit a manufacturer’s assembly spec plate depicting the ordering and attachment of the materials in the system.
   1. Included with the spec plate, provide a narrative of the assembly including the application and attachment methods.
   2. Narrative must include all system components from the deck up through the cap sheet.
   3. Include manufacturer’s system spec number for roof system.

C. Schedule: Contractor shall provide a complete schedule for all roofing work indicating the sequence of removal and replacement of the roof. Show phasing on a roof plan defining each day’s proposed work.

D. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
   1. Manufacturer’s approved, but project specific, installation details of roofing and flashings, including roof slopes and insulation lay-outs, penetration details, curbs, and accessories.
   2. Base flashings and membrane terminations.
   3. Crickets, saddles, and tapered edge strips.
   4. Insulation fastening patterns.

E. Samples for Verification: For the following products:
   1. Cap sheet, of color required.
   2. Flashing sheet, of color required.
   3. 12" X 12" sample of roof membrane from actual material used in project.
   4. Manufacturer’s roof warranty.

1.5 INFORMATIONAL SUBMITTALS

A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

B. 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.

C. Product Test Reports: For components of roofing system, for tests performed by manufacturer and witnessed by a qualified testing agency.

D. Qualification Data: For the firm and persons completing the work.
   1. Include lists of completed projects with the project names and addresses, names and addressed of architects and owners.

E. Maintenance Data: For roofing system to include in maintenance manuals.
F. A “systems” letter from the manufacturer agreeing “That all roofing components exclusive of the
deck, contained in the system proposed are approved and compatible with the warranty
requirements of the roof system as specified, and that the warranty specified will be issued at
completion of project if system is installed as designed.

G. Sample Warranties: For manufacturer's special warranties.

H. Inspection Report: Copy of roofing system manufacturer's inspection report of completed
roofing installation.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

B. Manufacturer's roof warranty.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed and FM Global approved
for membrane roofing system identical to that used for this Project.

B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing
system manufacturer to install manufacturer's product and that is eligible to receive
manufacturer's special warranty.
   1. Installer must have a minimum of three (3) years experience installing the roof system
      specified.
   2. Job Site Superintendent must have a minimum of five (5) years experience in roofing.

C. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for
a roofing system identical to the system specified for this Project.

D. Source Limitations: Obtain components for roofing system from or approved by the roofing
system manufacturer.

E. Fire-Test-Response Characteristics: Provide roofing materials 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.

1.8 Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes
indicated.

1.9 PRE-INSTALLATION CONFERENCE

A. A Pre-installation Conference shall be held no earlier than two weeks before the start of the roof
work. This Conference shall not be scheduled until all submittals have been received and
approved by the project A/E.
   1. Meet with Owner, Architect, Roofing Installer, roofing system manufacturer's
      representative, deck installer, and installers whose work interfaces with or affects roofing
      including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations on roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.
9. Review governing regulations and State of Missouri FMDC regulations and requirements for roofing system during and after installation.

1.10 DELIVERY, STORAGE, AND HANDLING
A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
C. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
D. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.11 FIELD CONDITIONS
A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
B. No delay in the installation of the cap sheeting is allowable.

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

1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories roof insulation fasteners cover boards walkway products and other components of roofing system.
2. Warranties that allow for arbitration are not acceptable.

3. Warranty must allow for litigation in the State of Missouri and be subject to Missouri law per Chapter 506, Section 506.500 of the Missouri Statutes.

4. Indicate by letter that "All roofing components exclusive of the deck are approved and compatible with the warranty requirements of the roof system as specified, and that the warranty specified will be issued at completion of the project if system is installed as designed."

5. Warranty Period Requested: Fifteen (15) years from date of Substantial Completion.

6. Owner reserves the right to purchase a Twenty (20) year warranty for all of the roofs covered under the scope of work, up through the substantial completion of the project.

B. Installers Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, ply sheets, base sheets, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:

1. The liability of the Surety Company under the installer warranty provisions of this contract is limited to correcting defective workmanship and materials for a period of two years from the substantial completion date of the project. Any warranty beyond the first two years is an agreement between the owner and the contractor and falls outside the performance bond obligation.

2. Warranty Period: Five (5) years from date of Substantial Completion.

1.13 ROOF SYSTEM DESCRIPTION

A. Hybrid Modified Roofing System on Wood Deck or Wood Fiber Deck.

1. Fastened Sheathing Paper, Fastened Heavy-Weight base sheet, asphalt, insulation, asphalt, cover board, asphalt, base sheet, asphalt, ply sheet, asphalt, ply sheet, asphalt, SBS Modified Cap Sheet.

2. Fastened Sheathing Paper, Fastened Heavy-Weight base sheet, asphalt, insulation, asphalt, cover board, asphalt, base sheet, asphalt, ply sheet, asphalt, ply sheet, cold-applied adhesive, SBS Modified Cap Sheet.


PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products by the following:

1. Approved Manufacturers include, but are not limited to:
   a. CertainTeed
   b. Firestone Building Projects
   c. Johns Manville
   d. GAF Materials Corporation
   e. Performance Roofing Systems, Inc.
f. TAMKO Roofing Products, Inc.
g. Tremco

B. Source Limitations: Obtain components including fasteners for roofing system from same manufacturer as membrane roofing.

C. Substitutions: Any proposed substitution to the list of Manufacturer’s above must be approved a minimum of 10 days in advance of the bid date by submitting the “SUBSTITUTION REQUEST” from enclosed with the bidding documents.
   1. No substitutions will be accepted for roof systems after the bid date.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Provide 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 D4272.

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. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be listed in FM Global "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
   1. Fire/Windstorm Classification: Class 1A-90, 72 MPH peak wind speed.
   2. Hail-Resistance Rating: SH.

D. Energy Star Listing: Roofing system shall be listed on the DOE’s ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

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.

2.3 BASE SHEET MATERIALS

A. Sheathing Paper (Wood Deck): Red-rosin type, minimum 3 lb/100 sq. ft.
   1. To be tacked to any wood deck below the insulation and Heavy-Weight base sheet as a slip sheet.

B. Base Sheet: ASTM D 4601, Type II, nonperforated, asphalt-impregnated and -coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides.
1. To be fastened to the wood deck through the cover board, insulation and sheathing paper to stop asphalt bleed-through.
2. Weight: 25 lb/100 sq ft. minimum.

C. Roofing Membrane Sheet: ASTM D 6222/D 6222M, Grade S, Type I or II, APP-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.

D. SBS Modified Base Sheet: ASTM D 6163, Type II, Grade S, SBS modified Bitumen, glass-fiber reinforced base sheet as a base layer in a modified Bitumen roof assembly.
1. To be adhered between the coverboard and Type IV plies in a mopping of hot asphalt.

2.4 PLY SHEET MATERIALS

A. Glass-Fiber Sheet: ASTM D 2178, Type IV, asphalt-impregnated, glass-fiber felt.
1. Type IV interplies to be adhered in hot asphalt between the base sheet and cap sheet.
2. Acceptable Manufacturer's Products
   a. Firestone: PLY IV (4) M
   b. Certainteed: Flintglas Type IV Plysheet
   c. GAF: GAFGLAS PLY 4
   d. Johns Manville: Glas Ply IV
   e. Performance Roofing: PRS Glass Ply IV
   f. TAMKO: TAM PLY IV
   g. TREMCO: Thermglass Type IV

2.5 BASE FLASHING SHEET MATERIALS

A. SBS Flashing Sheet (Hot Asphalt Application): ASTM D 6164, Grade G, Type II, polyester-reinforced, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:
   1. Thickness: 160 mil
   3. Fire Resistant Sheet
   4. Acceptable Manufacturer’s Products
      a. Firestone: SBS PREM FR
      b. Certainteed: Flintlastic FR-P
      c. GAF: Ruberoid Mop FR
      d. Johns Manville: Dynalastic 180 S
      e. Performance Roofing: NA
      f. TAMKO: Awaplan Premium
      g. TREMCO: POWERply HE FR

B. SBS Flashing Sheet (Cold-Applied Application): ASTM D 6164, Grade G, Type II, polyester-reinforced, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:
   1. Thickness: 160 mil
   3. Fire Resistant Sheet
   4. Acceptable Manufacturer’s Products
      a. Firestone: _SBS PREM FR
      b. Certainteed: Flintlastic FR-P
      c. GAF: Ruberoid Mop FR
      d. Johns Manville: Dynalastic 250 FR
      e. Performance Roofing: NA
2.6 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.

B. Asphalt Primer: ASTM D 41/D 41M.

C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application.

D. Roofing Asphalt: ASTM D 6152, SEBS modified.

E. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

G. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.

H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

I. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing.

J. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.
2.7 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer’s standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, glass-fiber mat facer on both major surfaces.
   1. Preformed units to fit applications indicated, selected from the manufacturer’s standard thicknesses, widths, and lengths.
   2. Manufacturers:
      a. Atlas Roofing Corp.
      b. Firestone Building Products Company
      c. GAF Materials Corporation
      e. Certainteed Corp

C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated or needed for sloping to drain. Fabricate to slopes indicated.

2.8 INSULATION ACCESSORIES

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

B. Mechanical Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane and insulation components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

C. Cold Fluid-Applied Low-Rise Foam Adhesive: Manufacturer’s standard cold fluid-applied low-rise foam formulated to adhere roof insulation to substrate.

D. Insulation Cant Strips: ASTM C278, perlite insulation board or cellulosic-fiber insulation board ASTM C208, Type II, Grade I. Approved for use in a Class A roof system and by roofing manufacturer.

E. Provide tapered edge strips in the same material as the cant strips.

F. Provide exterior grade wood nailer strips, as recommended by roofing manufacturer.

G. Cover Board: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board, ½-inch thick. Approved for use in Class A roof system and by the roof 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 cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 053100 "Steel Decking."
4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.

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

C. The Contractor shall not remove any more roofs during the day than they can completely replace with new roofing materials including night seal-off and flashing of perimeter and accessories.

D. Re-roofing shall not begin from November 1 through March 1, without specific approval from Deputy Director, Operations.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. 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.

3.3 INSTALLATION, GENERAL

A. Comply with roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."

B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel when required by the manufacturer or when requested by the designer or owner's representative.

C. Where roof slope exceeds 1/2 inch per 12 inches, install roofing sheets parallel with slope.

1. Backnail roofing sheets to substrate according to roofing system manufacturer's written instructions.

D. Cooperate with the construction administrator and allow for inspection of the roof system as it is being installed.

E. Coordinate installing roofing system so insulation and other components of the roofing membrane system are not permanently exposed and are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecasted.

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 the roofing system.

3. Remove and discard temporary seals before beginning work on adjoining roofing.
F. Asphalt Heating: Heat asphalt to its equiviscous temperature, measured at the mop cart or mechanical spreader immediately before application. Circulate asphalt during heating. Do not raise asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed asphalt manufacturer’s recommended temperature limits during asphalt heating. Do not heat asphalt within 25 deg F of flash point. Discard asphalt maintained at a temperature exceeding finished blowing temperature for more than four hours.

1. Apply hot roofing asphalt within plus or minus 25 deg F of equiviscous temperature.

G. Absolutely No Torching of the membrane, flashing plies or any other components will be allowed.

1. Do not torch to dry any substrate unless pre-approved and as directed by the owner’s representative with approval from the designer.

H. Heat Welding of seams will be permitted on cold-applied membrane cap sheets and flashing plies as required by the manufacturer.

I. Coordinate installing roofing accessories, blocking, and nailers that are integral with the roof system.

1. Temporarily flash until permanent flashing or similar measures can be put into place to prevent water from entering the roof system or building below.

J. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.4 SLIP SHEET INSTALLATION

A. Loosely lay one course of sheathing paper, lapping edges and ends a minimum of 2 inches and 6 inches, respectively. Minimally tack to deck to hold in place.

3.5 HEAVY WEIGHT BASE SHEET INSTALLATION

A. Install one lapped coated heavy-weight base sheet course on top of the slip sheet and mechanically fasten to substrate according to roofing system manufacturer’s written instructions and in accordance with the FMG requirements for this project.

3.6 INSULATION INSTALLATION

A. Comply with roofing system manufacturer’s written instructions for installing roof insulation.

B. Nailer Strips: Mechanically fasten 4-inch nominal-width wood nailer strips as required by the manufacturer and for all penetrations.

C. 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.

D. Adhered insulation: Install each layer of insulation and adhere to substrate as follows:

1. Set each layer of insulation in solid mopping of hot roofing asphalt.
2. Set each layer of insulation in a cold fluid-applied low-rise foam adhesive.
E. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and secure to roof deck.
   1. Install a mopping of hot roofing asphalt and immediately bond to previous layer of insulation.
   2. Install a cold fluid-applied low-rise foam adhesive to the top of the previous layer of insulation as recommended by the roof system manufacturer.

F. Preformed Saddles and Crickets: Install and secure preformed saddles and crickets where indicated and secure with hot asphalt or cold fluid-applied low-rise foam adhesive, as recommended by the roofing system manufacturer.

G. Insulation Cant Strips at vertical surfaces and Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces: Install an secure, 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees. Install in mopping of hot roofing asphalt or cold fluid-applied low-rise foam adhesive, as recommended by the roofing system manufacturer.

3.7 SBS BASE-SHEET INSTALLATION

A. Install lapped SBS base sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
   1. Adhere to substrate in solid mopping of hot roofing asphalt.

3.8 TYPE IV PLY SHEET INSTALLATION

A. Install two (2) glass-fiber TYPE IV ply sheets according to roofing manufacturer's written instructions starting a low point of roofing system. Align glass-fiber base-ply sheets without stretching. Shingle side laps of glass-fiber base-ply sheets uniformly to ensure required number of glass-fiber base-ply sheets covers substrate at any point. Shingle in direction to shed water. Extend glass-fiber base ply0sheets over and terminate beyond cants.
   1. Embed each glass-fiber ply sheet in a continuous mopping of hot asphalt, to form a uniform membrane without glass-fiber ply sheets touching.

3.9 SBS-MODIFIED BITUMINOUS MEMBRANE CAP SHEET INSTALLATION (HOT ASPHALT OR COLD-APPLIED)

A. Install SBS modified Bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing cap sheet over and terminate beyond cants, installing as follows:
   1. Unroll roofing cap sheets and allow them to relax for time period required by manufacturer.
   2. Adhere to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F.
   3. Adhere to preceding plies in cold-applied adhesive.
   4. Prepare and seal seams per the manufacturer's written instructions.

B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
   1. Repair teams and voice in laps and lapped seams and not completely sealed.
   2. Apply roofing granules to cover bleed-out at laps while material is hot.

C. Install roofing membrane sheets so side and end laps shed water.
3.10 APP-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

A. Install modified bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing sheets over and terminate beyond cants, installing as follows:

1. Adhere to substrate in cold-applied adhesive.
2. Torch apply to substrate.
3. Unroll roofing sheets and allow them to relax for minimum time period required by manufacturer.

B. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

1. Repair tears and voids in laps and lapped seams not completely sealed.
2. Apply roofing granules to cover exuded bead at laps while bead is hot.

C. Install roofing sheets so side and end laps shed water.

3.11 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions and as follows:

1. Prime substrates with asphalt primer if required by roofing system manufacturer.
2. Backer-Sheet Application: Adhere backer sheet to substrate in a solid mopping of hot roofing asphalt.
3. Flashing-Sheet Application: Adhere flashing sheet to substrate in asphalt roofing cement at rate required by roofing system manufacturer.

B. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 4 inches onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.


D. Install roofing cap-sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.

3.12 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

1. Notify Architect and Owner 48 hours in advance of date and time of inspection.

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

C. Repair or replace items damaged caused by the contractor or subcontractors.
D. Roofing system will be considered defective if it does not pass tests and inspections.
   1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.13 FINAL INSPECTION
A. Roofing Contractor shall notify Construction Administrator when Manufacturer’s final Warranty inspection is to occur. Furnish a copy of the warranty inspection report to Construction Administrator.
B. The Contractor must provide copies of all disposal receipts for any hazardous materials removed from roof.

3.14 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 Architect 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.
D. Protect other roof and building areas adjacent to the work from damage due to construction operations.
E. Do not store materials on or traffic roofs that are not part of the scope of work without approval.

3.15 ROOFING INSTALLER’S WARRANTY
A. WHEREAS _______________________________ of _________________________, herein called the "Roofing Installer," has performed roofing and associated work on the following project:
   1. Owner: State of Missouri
   2. Address: P.O. Box 809, 301 West High Street Jefferson City, Missouri 65102
   3. Building Name/Type: 
   4. Address: 
   5. Area of Work: 
   6. Acceptance Date: 
   7. Warranty Period: Five (5) Years from the date of substantial completion.
   8. Expiration Date: 
B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.
C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be
made such repairs to or replacements of said work as are necessary to correct faulty and
defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following in terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the
   building, and to building contents, caused by:
   a. Lightning;
   b. Peak gust wind speed exceeding 72 mph;
   c. Fire;
   d. Failure of roofing system substrate, including cracking, settlement, excessive
      deflection, deterioration, and decomposition;
   e. Faulty construction of parapet walls, copings, chimneys, skylights, vents,
      equipment supports, and other edge conditions and penetrations of the work;
   f. Vapor condensation on bottom of roofing; and
   g. activity on roofing by others, including construction contractors, maintenance
      personnel, other persons, and animals, whether authorized or unauthorized by
      Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and
   void until such damage has been repaired by Roofing Installer and until cost and expense
   thereof have been paid by Owner or by another responsible party so designated.

3. Roofing Installer is responsible for damage to work covered by this Warranty
   but is not liable for consequential damages to building or building contents re-
   sulting from leaks or faults or defects of work.

4. During Warranty Period, if Owner allows alteration of work by anyone oth-
   er than Roofing Installer, including cutting, patching, and maintenance in
   connection with penetrations, attachment of other work, and positioning of
   anything on roof, this Warranty shall become null and void on date of said
   alterations, but only to the extent said alterations affect work covered by
   this Warranty. If Owner engages Roofing Installer to perform said altera-
   tions, Warranty shall not become null and void unless Roofing Installer,
   before starting said work, shall have notified Owner in writing, showing
   reasonable cause for claim, that said alterations would likely damage or
deteriorate work, thereby reasonably justifying a limitation or termination of
this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes
   used for, but was not originally specified for, a promenade, work deck, spray-
cooled surface, flooded basin, or other use or service more severe than origi-
nally specified, this Warranty shall become null and void on date of said
change, but only to the extent said change affects work covered by this War-
ranty.

6. Owner shall promptly notify Roofing Installer of observed, known, or suspect-
ed leaks, defects, or deterioration and shall afford reasonable opportunity for
   Roofing Installer to inspect work and to examine evidence of such leaks, de-
   fects, or deterioration.

7. The liability of the Surety Company under the installer warranty provisions of
   this contract is limited to correcting defective workmanship and materials for a
   period of two years from the substantial completion date of the project. Any
   warranty beyond the first two years is an agreement between the owner and
   the contractor and falls outside the performance bond obligation.

8. This Warranty is recognized to be the only warranty of Roofing Installer on
   said work and shall not operate to restrict or cut off Owner from other reme-
dies and resources lawfully available to Owner in cases of roofing failure.
   Specifically, this Warranty shall not operate to relieve Roofing Installer of re-
responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____________day of ______________, 20__________.

1. Authorized Signature: ____________________________________________
2. Name: __________________________________________________________
3. Title: ____________________________________________________________

END OF SECTION 075213
**Demolition Notes:**

1. The scope of demolition is not limited exclusively to the work indicated on the demolition plan. The construction documents are provided as a guide for demolition. The contractor is responsible for verifying additional demolition that may be required for proper installation of new work. See all construction documents for additional information and requirements.

2. Contractor shall direct barricades, fences, barricades, and other devices, or other means necessary to protect personnel, structures, and utilities remaining intact.

3. Unless noted for demolition, protect all trees and plants from damage.

4. All utilities not specifically marked for demolition shall be protected throughout construction. Special supports, bracing, etc., shall be provided to protect existing utilities to remain.

5. The contractor shall schedule and coordinate all utility demolition, shut-offs and switch overs with the respective utility company.

6. The contractor shall protect all items, not specifically noted for demolition, if items are damaged by construction activities, the contractor shall repair the items damaged by construction activities.

7. The contractor shall repair all surrounding pavements, sidewalks and curbs damaged by construction activities.

8. All utility boxes, manholes, valves, poles and other appurtenances to remain, shall be adjusted to match the finished grade.

9. All construction debris shall be disposed of offsite.

**Utility Contacts:**

**Water - Village of Arrow Rock, San McDaniel**

505-837-3808

Provided by Slater Water District

**Electric - Evergy - Tony Bachtel**

660-546-3144

**Telephone/Data - Otelco - Bobby Brownfield**

660-621-2512

**Sewer - Village of Arrow Rock, San McDaniel**

505-837-3808

**Controlled Point Table**

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**Denotes:**

- Asphalt Pavement Removal
- Wood Deck/Ramp Removal
- Brick Pavement Removal
- Concrete Removal
- Curbs Removal
- Full Depth Bay Cut
- Sidewalk Removal
- Fence Removal
- Tree Removal
- Waterline Removal

**Temporary Kitchen, Glasses, Service, See MEP Plans.**

**Demolition:**

- Protect Existing Septic Tank
- Clear Trees as Needed to Handwater, Water Services and Install New Services
- Remove Railroad Tie
- Remove AC Unit
- Remove/Replace Electrical Service
- Remove/Replace Propane Tank & Service
- Remove/Replace Data Service
- Remove/Replace Secondary Electrical Service
- Protect Existing Wooden Ramp
- Protect Existing Stairs Located in Temp. Ramped
- Remove Brick Pavers
- Alternate #1 - Contractor to Remove Concrete Pad
- Remove if in Conflict
- X
- Remove A/C Unit
- Locates in Temp. Walkway
- Protect Existing Stairs
- Remove/Replace A/C Units
- Grease Trap
- Electrical - Evergy - Tony Bachtel 660-546-3144
- Telephone/DATA - Otelco - Bobby Brownfield 660-621-2512
- Water - Village of Arrow Rock - Susan McDaniel 660-837-3608
- Sewer - Village of Arrow Rock - Susan McDaniel 660-837-3608
- Missouri State Certificate of Authority: #2009024884

**State of Missouri**

Michael L. Parson, Governor

**Office of Administration**

Division of Facilities Management, Design, and Construction

**Project Title:**

J HUSTON TAVERN KITCHEN REBUILD

**Arrow Rock State Historic Site Arrow Rock, Missouri**

**Project #:**

C101

**Asset #:**

7918200288

**Issue Date:**

May 12, 2020

**Sheets:**

104 of 76 Sheets

**Control Points Table:**

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Site grading general notes:

1. All elevations shown are to finished grade.
2. All grading operations, excavation, fill, compaction testing, and backfill shall be observed and tested by a qualified geotechnical engineer.
3. The upper 36" of material below the building slab shall be low volume change material (LL<45 & PI<25).
4. No pavements shall be placed prior to approval of the subgrade by the geotechnical engineer.
5. All fill material shall be in compliance with the project specifications.
6. All grading operations shall be staked by a registered civil engineer or a licensed land surveyor.
7. All sidewalks shall have a cross slope of 1.5% (2.0% max).
8. All building entrances shall have a minimum 5' landing with a 1.0% slope away from the building (2% max).

Legend:
- Existing 1' Contour
- Existing 5' Contour
- Proposed 1' Contour
- Proposed 5' Contour
- TC - Top of Curb
- SW - Sidewalk Elevation

Base Bid

Alternate #1

Grading Plan

Sheet title: Grading Plan

Project title: J Huston Tavern Kitchen Rebuild

Project #:

Asset #: X2001-01

Sheet number: C401
2. The electrical contractor shall remove all unused conduit and wire in Basement 001 and Basement 001A not in use and as needed for rough-in for the new kitchen that will be in the area above the basement.

3. Plug all unused openings in all existing panelboards. Install covers on same. Provide screws where required. Update all existing panelboards schedules.