

CONTRACT DOCUMENTS  
FOR THE CONSTRUCTION OF THE

# ROOF REPLACEMENT AND REPAIR FOR WATER PRODUCTION FACILITIES



PREPARED FOR  
CITY OF COCOA  
FLORIDA  
VOLUME 1 OF 2  
SPECIFICATIONS

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**Jacobs.**

FEBRUARY 2024

BID DOCUMENTS



**CITY OF COCOA**

**COCOA, FLORIDA**

BIDDING REQUIREMENTS  
AND  
CONTRACT DOCUMENTS

for the construction of the

**ROOF REPLACEMENT AND REPAIR FOR  
WATER PRODUCTION FACILITIES**

**Contract No. \_\_\_\_\_**

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Jacobs

Orlando

February 2024

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Project No. EGXL7403

Copy No. \_\_\_\_



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**TECHNICAL  
SPECIFICATIONS**

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**SECTION 01 00 01  
GENERAL REQUIREMENTS**

**PART 1 GENERAL**

1.01 DEFINITIONS

- A. Owner: City of Cocoa Utilities Department.
- B. Engineer: Jacobs Engineering Group, Inc.
- C. Contractor: Entity under Contract to Owner to perform the Work and/or supply equipment.
- D. Vendor: Entity under Contract to a Contractor to supply equipment.
- E. Manufacturer: Entity who produces equipment supplied to the Project.
- F. Project Site: Wewahootee Water Treatment Plant and Taylor Creek Reservoir Pump Station.
- G. Project Name: Roof Replacement and Repair for Water Production Facilities.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The completed Work will provide Owner with the following modifications:
  - 1. Demolition, modification and renovation of the Wewahootee Water Treatment Plant Pump Building roof system and appurtenances as shown on the Drawings and specified herein.
  - 2. Demolition, modification and renovation of the Taylor Creek Reservoir Pump Station roof system and appurtenances as shown on the Drawings and specified herein.
- B. The Contractor shall be responsible for obtaining permits required for completion of the Work. The Contractor shall be responsible for completion of all permitting activities and for payment of all associated permitting fees.
- C. The Contractor shall propose the Work sequence for approval by the Owner and Engineer. The Work sequence shall be determined at the sole discretion of the Owner. Roof replacement and repair work may be limited to one water production facility site at a time at the sole discretion of the Owner.

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- D. Reasonably implied parts of the work shall be done though absent from the Contract Documents.
  - 1. Any part of the Work that is necessary or required to make each installation satisfactorily and operable, even though it is not specifically included in the Specifications or shown on the Drawings, shall be performed as incidental work as if described in the Specifications and shown on the Drawings. The expense of such incidental work shall be included in the Contractor's proposal.

### 1.03 QUALITY CONTROL AND ASSURANCE

- A. The Contractor shall have completed three projects in the last five years that included repair and/or replacement of roofing systems for a municipal water utility. Contractor shall provide listing of completed projects that meet this requirement and shall provide contact information for the project owner to confirm qualifications. Contractors that do not meet this requirement will not be qualified to bid on this Project or perform the work.
- B. All Work is subject to Owner's quality assurance inspection and testing at all locations and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract Documents. The presence or absence of a quality assurance inspector does not relieve Contractor from any Contract requirement. Owner's quality assurance inspections and tests are for the sole benefit of Owner and do not:
  - 1. Relieve Contractor of responsibility for providing adequate quality control measures;
  - 2. Relieve Contractor of responsibility for damage to or loss of the material before acceptance;
  - 3. Constitute or imply acceptance; or
  - 4. Affect the continuing rights of Owner after acceptance of the completed Work.

### 1.04 DESIGN REQUIREMENTS

- A. Where Contractor design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of the latest edition of the Florida Building Code.

### 1.05 PROJECT MEETINGS

- A. The Contractor shall attend a pre-construction meeting with the Owner staff to review the following subjects, at a minimum:
  - 1. Scope of work.

2. Project schedule and sequencing of critical path work items.
  3. Health and safety requirements including Contractor's safety plan and safety representative.
  4. Communication and coordination procedures.
  5. Submittal procedures.
  6. Payment procedures.
  7. Documentation procedures.
  8. Project clarifications and changes procedures.
  9. Use of site, access and security, staging areas, working hours, and temporary facilities.
  10. Product delivery.
- B. The Contractor shall attend regular progress meetings, conducted monthly, to review the Work progress, project schedule, submittal schedule, payment applications, contract modifications, and other matters needing discussion or resolution.
- C. The Contractor shall attend other meetings as may be required by the Owner. Meetings may be required prior to equipment installation and prior to equipment startup to ensure coordination of Work activities with plant operations.

#### 1.06 CONSTRUCTION PROGRESS DOCUMENTATION

- A. The Contractor shall submit a project schedule for review and approval. The project schedule must be approved by Engineer and Owner prior to commencement of work at the job site. The project schedule must show the following activities at a minimum:
1. Notice to Proceed.
  2. Submittals with review time.
  3. Early procurement activities for long lead equipment and materials.
  4. Specified work sequences and construction constraints. Submit a timeline for the specified work that provides a sequence of all construction activities.
  5. Completion and Final Completion dates.
  6. System startup summary.
  7. Project close-out summary.
  8. Demobilization summary.
- B. The Contractor shall update the project schedule as required during construction and submit an updated project schedule at each progress meeting.

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### C. Construction Photographs:

1. Photographically document all phases of the Project including preconstruction, construction progress, and post-construction.
2. Engineer shall have right to select subject matter and vantage point from which photographs are to be taken.
3. Digital Images: No post-session electronic editing of images is allowed. Stored image shall be actual image as captured without cropping or other edits.
4. Pre-construction and Post-construction: After Effective Date of the Agreement and before Work at Site is started, and again upon issuance of Substantial Completion, take a minimum of 48 photographs of Site and property adjacent to perimeter of Site. Photograph structures inside and outside of Site. Format: digital, minimum resolution of 5 Mb of color.
5. Construction Progress Photos: Photographically demonstrate progress of construction, showing every aspect of Site and adjacent properties as well as interior and exterior of new or impacted structures. Take minimum of 24 photographs weekly. Format: digital, minimum resolution of 5 Mb of color.
6. Documentation: Electronic images shall have date taken embedded into image. Archive using a commercially available photo management system that provides listing of photographs including date, keyword description and direction of photograph.
7. Contractor shall submit data electronically to a shared folder on a cloud drive or FTP site. Selection of cloud application used shall be at the sole discretion of the Owner.

### 1.07 COORDINATION

- A. The Contractor shall, at all times in performance of the work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times in the performance of the work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the Owners thereof to that end.
- B. The water treatment processes and water treatment facilities shall remain operational during construction. Any Work that requires shut down of the water treatment facilities or water treatment processes shall be coordinated with and approved by Owner before the Work can begin. Work shall be planned and coordinated with Owner to minimize interruptions to water treatment operations.

- C. The Contractor shall perform Work continuously during critical connections, changeovers, or approved shut-downs to prevent or minimize interruption of Owner's operations. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping, access and similar items to maintain continuous operations of the Owner's facility.
- D. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations.
- E. The Contractor shall develop and maintain for the duration of the work a Safety Plan. The Contractor's Safety Plan shall comply with the Owner's safety rules while on the Owner's property. The Safety Plan must address working safely around active ammonium sulfate and sodium hypochlorite process equipment.
- F. If the Contractor identifies conflicting information within the Contract Documents, the Contractor shall notify the Owner prior to further work in that area. If utility lines, or other equipment are encountered that are not indicated on the Contract Documents, the Contractor shall notify the Owner prior to further work in that area.
- G. The Contractor shall replace, at their own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in the Drawings or Technical Specifications. The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Owner.
- H. Relocation of Existing Facilities:
  - 1. During construction, it is expected that minor relocations of Work will be necessary.
  - 2. Provide complete relocation of existing equipment including piping, duct banks, electrical conduit and wiring, outlets, junction boxes, instrumentation, and other items as necessary.
  - 3. Use only new materials for relocated equipment. Match materials of existing equipment.
  - 4. Perform relocations to minimize downtime of existing facilities.
  - 5. Install new portions of existing equipment in their relocated position prior to removal of existing equipment, unless otherwise accepted by Owner.

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### 1.08 TEMPORARY FACILITIES AND UTILITIES

- A. Electric power will be available at or near the work location at no cost to the Contractor. Prior to use of electric power, the Contractor shall coordinate with and obtain approval from the Owner on the use of electric power including the type and amount required. Coordination and approval may be obtained in the pre-construction meeting.
- B. The Contractor shall complete an application with the City of Cocoa for a temporary construction water meter and backflow preventer. The Contractor shall be responsible for payment for the water meter, backflow preventer and the water usage. Prior to use of water for construction, the Contractor shall coordinate with and obtain approval from the Owner on the use of water for construction including the pressure and volume required. Furnish and install temporary piping and facilities as required to transport water to the Work. The use of water for construction shall not result in hazardous conditions such as flooding or pollution.
- C. No potable water is available at the Project Site. Make arrangements for and bear costs of providing water required for drinking by construction personnel during construction.
- D. Furnish sanitary facilities in compliance with state and local health authorities. Use of Owner's existing sanitary facilities by construction personnel will not be allowed.
- E. Furnish, maintain, and operate temporary facilities as required to control erosion and sediment releases, and to protect the Work and existing facilities from flooding during construction period.

### 1.09 DEBRIS AND WASTE DISPOSAL FACILITIES

- A. The Contractor shall provide trash and debris bins, dumpster, and containers for proper disposal of waste material. Coordinate location of waste containers and dumpsters with the Owner prior to delivery to the Project Site. Dispose of construction waste material in an authorized disposal area.

### 1.10 HANDLING AND STORAGE OF MATERIALS

- A. Materials shall be so stored as to ensure the preservation of their quality and fitness for the Work. Private property shall not be used for storage purposes without the written permission of the Owner.

- B. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at the site.
  - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
  - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of the Drawings, Technical Specifications and approved submittals; and that products are properly protected and undamaged.
- C. Provide equipment and personnel to handle products by methods that will prevent soiling or damage to products or packaging.
- D. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
  - 1. Store products subject to damage by the elements in weather tight enclosures.
  - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- E. All materials which, in the opinion of the Owner or Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the Work, and Contractor shall receive no compensation for the damaged material or its removal.

#### 1.11 SUBMITTAL REQUIREMENTS

- A. The Contractor shall submit a list of all anticipated submittals associated with the work on the Project.
- B. The submittal numbering scheme shall be "Specification Section" – "Sequential Number" for that specific section. Resubmittals shall include letters in chronological order. For example:
  - 1. The first submittal under Section 40 27 02, Process Valves and Operators would be submittal number 40 27 02-001. The second submittal would be number 40-27-002.
  - 2. The first resubmittal for submittal number 40 27 02-001 would be 40 27 02-001A. The second resubmittal would be 40 27 02-001B.
- C. Package submittal information by individual Specification section. Do not combine different Specification sections together in submittal package, unless otherwise directed in Specification.
- D. Submitted data shall be fully sufficient in detail for determination of compliance with the Drawings and Technical Specifications.

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- E. Review, acceptance, or approval of substitutions, schedules, Shop Drawings, lists of materials, and procedures submitted or requested by the Contractor shall not add to the Contract amount and all additional costs which may result therefrom shall be solely the obligation of the Contractor.
- F. The Owner is not precluded, by virtue of review, acceptance, or approval, from obtaining a shared credit for construction savings resulting from allowed concessions in the Work or materials thereof.
- G. No equipment or material for which listings, drawings, or descriptive material is required to be submitted shall be purchased or installed until the Contractor has provided a submittal and received written approval by the Engineer and Owner. The Contractor shall be responsible for and bear all costs of damages and errors which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by the Engineer of the required submittals.
- H. No “Or-equal” material or equipment shall be installed without approval by the Owner. Should the Engineer or Owner find that the proposed product and/or service is not equal to that specified, Contractor shall provide the specified product without additional cost to the Owner. “Or-equals” for process equipment are acceptable only if a written request is approved by the Engineer of Record.
- I. Submittal Procedure:
  - 1. The Contractor shall submit Drawings and other descriptive data together in a Portable Document Format (PDF) with a letter of transmittal to the Engineer for review. Submittals will be distributed to the Owner and Engineer. The letter of transmittal shall contain:
    - a. The name of the Project, project number and contract number;
    - b. Date;
    - c. Submittal number that will correspond to the Specification section.
    - d. The name of the subcontractor, vendor or manufacturer and their address;
    - e. A list of Drawings with numbers and titles;
    - f. Identify and describe any deviations or exceptions taken from the Contract Documents.
  - 2. Submitted Drawings or descriptive data will be stamped “Approved,” “Approved As Noted,” or “Revise and Resubmit” by the Engineer and returned to the Contractor.
    - a. If a Drawing or other data is stamped “Approved,” the Contractor may incorporate product(s) or implement Work covered by submittal.



- b. If a Drawing or other data is stamped “Approved As Noted,” the Contractor may incorporate product(s) or implement Work covered by submittal, in accordance with Engineer’s notations. Contractor shall make the corrections indicated and submit a corrected copy marked “For Field Use” to the Engineer.
    - c. If a Drawing or data is stamped “Revise and Resubmit,” the Contractor may not incorporate product(s) or implement Work covered by submittal. The Contractor shall make the necessary corrections and resubmit the documents as set forth in paragraph above. The letter of transmittal shall indicate that this is a resubmittal.
  3. The Contractor, subcontractor or supplier shall revise and resubmit the working Drawings or data as required by the Engineer, until approval thereof is obtained.
- J. The Engineer will act upon Contractor’s submittal and transmit response to Contractor not later than 15 working days after receipt. Time for review shall commence on Engineer’s receipt of submittal. Resubmittals will be subject to same review time. No adjustment of Contract Times or Price will be allowed as a result of delays in progress of Work caused by rejection and subsequent resubmittals.
- K. Resubmittals: Clearly identify each correction or change made.
- L. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor or supplier for resubmittal. Shop s shall be complete and detailed and shall consist of fabrication, erection, and setting drawings, manufacturer’s scaled drawings, and wiring and control diagrams. Equipment data shall include manufacturer’s catalog sheets, brochures, diagrams, illustrations and other standard descriptive data and shall be clearly marked to identify pertinent materials, products or models.
- M. The review of submittals, Shop Drawings, equipment data, schedules, and/or O&M data by the Engineer or Owner will be general, and shall not be construed:
  1. As permitting any departure from the Drawing and Technical Specification requirements.
  2. As relieving the Contractor or supplier of responsibility for any errors, including details, dimensions, and materials.
  3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.

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- N. The Contractor agrees that submittals processed by the Engineer do not become Contract Documents and are not Change Orders; that the purpose of the submittal review is to establish a reporting procedure and is intended for the Contractor's convenience in organizing his work and to permit the Engineer to monitor the Contractor's progress and understanding of the design.

### 1.12 OPERATION AND MAINTENANCE DATA

- A. Furnish one electronic version of the initial draft for review of a complete instruction manual for installation, operation, maintenance, and lubrication requirements for each component of mechanical and electrical equipment or system provided. Submit two hard copies and one electronic version of the final version. All equipment manufacturers and/or suppliers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system. Each instruction manual furnished shall be fixed in hard-back cover, which is clearly labeled to designate the system or equipment for which it is intended with reference to the building and equipment number, and the Specification section where the item is specified. Page numbers shall be included on every page of the manual.
- B. Electronic versions shall be submitted in PDF format. All PDF electronic versions must be formatted to include bookmarks, it must be searchable and setup for easy reproduction.
- C. Content for all O&M Manuals:
1. Neatly typewritten table of contents for each volume, arranged in systematic order.
    - a. Contractor or Vendor, name of responsible principal, address and telephone number.
    - b. A list of each product required to be included, indexed to content of the volume.
    - c. List, with each product, name, address and telephone number of:
      - 1) Subcontractor or installer, manufacturer and supplier name, address and telephone number.
      - 2) A list of each product required to be included, indexed to content of the volume.
      - 3) Identify area of responsibility of each.
      - 4) Local source of supply for parts and replacement name, address and telephone number.
    - d. Identify each product by product name and other identifying symbols as set forth in the Contract Documents.

2. Product Data:
  - a. Include only those sheets which are pertinent to the specific product.
  - b. Annotate each sheet to:
    - 1) Clearly identify specific product or part installed.
    - 2) Clearly identify data applicable to installation.
    - 3) Delete references to inapplicable information.
  - c. Operation and maintenance information as herein specified.
  - d. Record Shop Drawings as submitted and approved with all corrections made for each product.
3. Drawings:
  - a. Supplement product data with Drawings as necessary to clearly illustrate:
    - 1) Relations of component parts of equipment and systems.
    - 2) Control and flow diagrams.
  - b. Coordinate Drawings with information in Project Record Documents to assure correct illustration of completed installation.
  - c. Do not use Project Record Documents as maintenance Drawings.
4. Written text, as required to supplement product data for the particular installation:
  - a. Organize in consistent format under separate headings for different procedures.
  - b. Provide logical sequence of instructions of each procedure.
5. Copy of each warranty, bond and service contract issued.
  - a. Provide information sheet for Owner's personnel, give:
    - 1) Proper procedures in event of failure.
    - 2) Instances which might affect validity of warranties or bonds.

### 1.13 PROJECT CLOSEOUT

- A. Submit prior to application for final payment:
  1. Record Documents.
  2. Special bonds, Special guarantees, and Service Agreements.
  3. Releases from Agreements.
  4. Extra Materials: As required by individual Specification sections.
- B. Record Documents:
  1. Contractor shall reproduce and furnish one complete set of full size Contract Documents provided by Engineer. Label or stamp each record document with title "RECORD DOCUMENTS" in neat large printed letters.
  2. Furnish qualified and experienced person to maintain record documents.

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3. Accuracy of Records:
  - a. Coordinate changes within record documents, making legible and accurate entries on each drawing and other documents where such entry is required to show change.
  - b. The purpose of project record documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive Site measurement, investigation, and examination.
4. Make entries within 24 hours after receipt of information that a change in the Work has occurred. Do not cover or conceal Work until required information is recorded.
5. Maintain documents in a clean, dry, and legible condition and in good order. Do not use record documents for construction purposes.
6. Making entries on the Drawings:
  - a. Use an erasable colored pencil to clearly describe changes by graphic line and note as required.
    - 1) Use green to show information deleted from the Drawings.
    - 2) Use red to show information added to the Drawings.
    - 3) Use blue to show notes on the Drawings.
  - b. Date all Drawing entries.
  - c. Call attention to entries by “cloud” drawing around affected areas.
  - d. Legibly mark to record actual changes made during construction including, but not limited to:
    - 1) Horizontal and vertical locations of existing and new underground facilities and appurtenances, and other underground structures, equipment or Work. Reference to at least two measurements to permanent surface improvements.
    - 2) Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
    - 3) Locate existing facilities, piping, equipment, and items critical to the interface between existing physical conditions or construction and new construction.
    - 4) Changes made by Addenda, Change Order, and Engineer’s written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.
  - e. Dimensions on Schematic Layouts: Show on record documents, by dimensions, the centerline of each run of items such as are described in previous subparagraph above.
    - 1) Clearly identify the item by accurate note such as “cast iron drain”, “galv water”, and the like.

- 2) Show, by symbol or note, vertical location of item (“under slab”, “exposed”, and the like).
  - 3) Make identifications so descriptive that it may be related reliably to the Specifications.
- C. Substantial Completion: The time at which the Work has progressed to the point where, in the opinion of the Engineer and Owner, the Work is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the purpose for which it is intended.
1. When Contractor considers the Work ready for its intended use, Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that the Engineer issue a certificate of Substantial Completion.
  2. Promptly after Contractor’s notification, Owner, Contractor and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
  3. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a list of items to be completed or corrected before final payment. Owner shall have seven calendar days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 calendar days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner’s objections, Engineer considers the Work substantially complete, Engineer will, within said 14 calendar days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
  4. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer’s issuing the definitive certificate of Substantial Completion,

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Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

5. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

### 1.14 CLEANING

- A. At all times during the Work, Contractor shall keep the premises clean and orderly and, upon completion of the Work, repair all damage caused by equipment and leave the Project free of rubbish or excess materials of any kind.
- B. The Contractor shall proceed with construction cleanup on a daily basis, as construction progresses. Cleanup consists of removal of mud, oil, grease, trash, used forms, scrap, debris, excess materials, and any other items that are unsightly or can cause the tripping or slipping of workmen, ladders, or equipment. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.
- C. At completion of the Work or of a part thereof and immediately prior to Contractor's request for certificate of Substantial Completion; or if no certificate is issued, immediately prior to Contractor's notice of completion, clean entire Site or parts thereof, as applicable.
  1. Leave the Work and adjacent areas affected in a cleaned condition satisfactory to Owner.
  2. Remove grease, dirt, dust, paint or plaster splatter, stains, labels, fingerprints, and other foreign materials from exposed surfaces.
  3. Repair, patch, and touchup marred surfaces to specified finish and match adjacent surfaces.
  4. Broom clean exterior paved driveways and parking areas.
  5. Hose clean sidewalks, loading areas, and others contiguous with principal structures.
- D. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.

**PART 2 PRODUCTS**

2.01 GENERAL

- A. Provide manufacturer’s standard materials suitable for service conditions, unless otherwise specified in the individual Specifications.
- B. Where product specifications include a named manufacturer, with or without model number, and also include performance requirements, named manufacturer’s products must meet the performance specifications. Modify standard products as necessary to meet the performance requirements.
- C. Unless otherwise specified, two or more items of the same type shall be identical, by the same manufacturer, and interchangeable.
- D. Equipment, Components, Systems, and Subsystems: Design and manufacture with due regard for health and safety of operation, maintenance, and accessibility, durability of parts, and shall comply with applicable OSHA, state, and local health and safety regulations. Manufacture parts to U.S.A. standard sizes and gauges.
- E. Regulatory Requirement: Coating materials shall meet federal, state, and local requirements limiting the emission of volatile organic compounds and for worker exposure.
- F. Safety Guards: Provide for all belt or chain drives, fan blades, couplings, or other moving or rotary parts. Cover rotating part on all sides. Design for easy installation and removal. Use 16 gauge or heavier; galvanized steel, aluminum coated steel, or galvanized or aluminum coated 1/2-inch mesh expanded steel. Provide galvanized steel accessories and supports, including bolts. For outdoors application, prevent entrance of rain and dripping water.
- G. Authority Having Jurisdiction (AHJ):
  - 1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.
  - 2. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark.

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- H. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.
  - 1. Use or reuse of components and materials without a traceable certification is prohibited.
- I. No lead product shall be used on this Project. The use of solder or paint which contains lead is not acceptable on this Project.
- J. No asbestos, or products containing asbestos, shall be used on this Project.
- K. The Contractor shall not use toxic substances. The Contractor shall request approval from the Owner in writing if the use of toxic substances is required.

### **PART 3 EXECUTION**

#### 3.01 SITE CONDITIONS

- A. The Contractor acknowledges satisfaction as to the nature and location of the Work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, and all other matters which can in any way affect the Work or the cost thereof.
- B. The Contractor further acknowledges satisfaction as to character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records furnished by the Owner. Failure by the Contractor to become acquainted with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the Work.
- C. The Contractor warrants that, as a result of examination and investigation of all the aforesaid data, the Contractor can perform the Work in a good and workmanlike manner and to the satisfaction of the Owner.



3.02 INSTALLATION

- A. Install the Work in accordance with NECA Standard of Installation, unless otherwise specified.
- B. Repaint painted surfaces that are damaged prior to equipment acceptance.
- C. Do not cut or notch any structural member or building surface without specific approval of Owner and Engineer.
- D. Handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's instructions, and as may be specified. Retain a copy of manufacturers' instruction at Site, available for review at all times.
- E. For material and equipment specifically indicated or specified to be reused in the Work:
  - 1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
  - 2. Arrange for transportation, storage, and handling of products that require offsite storage, restoration, or renovation. Include costs for such Work in the Contract Price.

3.03 MANUFACTURER'S FIELD SERVICES

- A. When required by an individual Specification section, furnish Manufacturer's Field Services as specified herein to meet the requirements of this section.
- B. Contractor shall notify Owner and Engineer of schedule for manufacturer's field services. Field services shall be scheduled to avoid conflicts with other portions of the work. Contractor shall determine that conditions necessary to allow successful installation and testing have been met prior to scheduling manufacturer's field services. Allow for multiple sessions when several shifts are involved. Adjust schedule to ensure training of appropriate personnel as deemed necessary by Owner, and to allow full participation by manufacturers' representatives. Adjust schedule for interruptions in operability of equipment.
- C. Authorized representative of the manufacturer shall be factory trained and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystem, or system, with full authority by the equipment manufacturer to issue the certifications required of the manufacturer.

## FY23 WATER SUPPLY AND TREATMENT

- D. A person-day is defined as one person working for 8 hours within regular Contractor working hours. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, or when a minimum time is not specified, time required to perform specified services shall be considered incidental.
- E. Manufacturer's onsite services shall include:
1. Assistance during product installation to include observation, guidance, instruction of Contractor's assembly, erection, installation or application procedures.
  2. Inspection, checking, and adjustment as required for product to function as warranted by manufacturer and necessary to furnish Manufacturer's Certificate of Proper Installation.
  3. Providing, on a daily basis, copies of manufacturers' representatives field notes and data to Owner and Engineer.
  4. Revisiting the Site as required to correct problems and until installation and operation are acceptable to Owner and Engineer.
  5. Resolution of assembly or installation problems attributable to or associated with respective manufacturer's products and systems.
  6. Assistance during functional and performance testing, and facility startup and evaluation.
  7. Training of Owner's personnel in the operation and maintenance of respective product as required.
- F. Complete and sign a Manufacturer's Certificate of Proper Installation form, a copy of which is attached to this section. Such form shall certify signing party is a duly authorized representative of manufacturer, is empowered by manufacturer to inspect, approve, and operate their equipment and is authorized to make recommendations required to ensure equipment is complete and operational.

### 3.04 MANUFACTURER'S CERTIFICATE OF COMPLIANCE

- A. When so specified, a Manufacturer's Certificate of Compliance, a copy of which is attached to this section, shall be completed in full, signed by entity supplying the product, material, or service, and submitted prior to shipment of product or material or execution of the services. Such form shall certify proposed product, material, or service complies with all Specifications. Attach supporting reference data, affidavits, and certifications as appropriate.

3.05 SUPPLEMENTS

- A. The supplement listed below, following “End of Section”, is part of this specification.
1. Form: Manufacturer’s Certificate of Compliance.
  2. Form: Manufacturer’s Certificate of Proper Installation.

**END OF SECTION**



**MANUFACTURER'S CERTIFICATE OF COMPLIANCE**

OWNER: \_\_\_\_\_ PRODUCT, MATERIAL, OR SERVICE  
PROJECT NAME: \_\_\_\_\_ SUBMITTED: \_\_\_\_\_  
PROJECT NO: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I hereby certify that the above-referenced product, material, or service called for by the Contract for the named Project will be furnished in accordance with all applicable requirements. I further certify that the product, material, or service are of the quality specified and conform in all respects with the Contract requirements, and are in the quantity shown.

Date of Execution: \_\_\_\_\_, 20\_\_

Manufacturer: \_\_\_\_\_

Manufacturer's Authorized Representative (*print*): \_\_\_\_\_

\_\_\_\_\_  
(Authorized Signature)



**MANUFACTURER’S CERTIFICATE OF PROPER INSTALLATION**

OWNER \_\_\_\_\_ EQPT SERIAL NO: \_\_\_\_\_

EQPT TAG NO: \_\_\_\_\_ EQPT/SYSTEM: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_ SPEC. SECTION: \_\_\_\_\_

I hereby certify that the above-referenced equipment/system has been:

(Check Applicable)

- Installed in accordance with Manufacturer’s recommendations.
- Inspected, checked, and adjusted.
- Serviced with proper initial lubricants.
- Electrical and mechanical connections meet quality and safety standards.
- All applicable safety equipment has been properly installed.
- Functional tests.
- System has been performance tested, and meets or exceeds specified performance requirements. (When complete system of one manufacturer)

Note: Attach any performance test documentation from manufacturer.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I, the undersigned Manufacturer’s Representative, hereby certify that I am (i) a duly authorized representative of the manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate their equipment and (iii) authorized to make recommendations required to ensure equipment furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date: \_\_\_\_\_, 20\_\_\_\_

Manufacturer: \_\_\_\_\_

By Manufacturer’s Authorized Representative: \_\_\_\_\_  
(Authorized Signature)





**SECTION 02 41 00  
DEMOLITION**

**PART 1 GENERAL**

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
  - 1. Air-Conditioning, Heating, and Refrigeration Institute (AHRI): Guideline K, Containers for Recovered Non-flammable Fluorocarbon Refrigerants.
  - 2. American National Standards Institute (ANSI): A10.6, Safety Requirements for Demolition Operations.
  - 3. Occupational Safety and Health Administration (OSHA), U.S. Code of Federal Regulations (CFR) Title 29 Part 1926—Occupational Safety and Health Regulations for Construction.
  - 4. Environmental Protection Agency (EPA), U.S. Code of Federal Regulations (CFR), Title 40:
    - a. Part 61—National Emission Standards for Hazardous Air Pollutants.
    - b. Part 82—Protection of Stratospheric Ozone.
    - c. Part 273—Standards for Universal Waste Management.

1.02 DEFINITIONS

- A. ACM: Asbestos-containing material.
- B. Demolition: Dismantling, razing, destroying, or wrecking of any fixed building or structure or any part thereof. Demolition also includes removal of pipes, manholes tanks, conduit, and other underground facilities, whether as a separate activity or in conjunction with construction of new facilities.
- C. Modify: Provide all necessary material and labor to modify an existing item to the condition indicated or specified.
- D. Relocate: Remove, protect, clean and reinstall equipment, including electrical, instrumentation, and all ancillary components required to make the equipment fully functional, to the new location identified on the Drawings.
- E. Renovation: Altering a facility or one or more facility components in any way.

## FY23 WATER SUPPLY AND TREATMENT

- F. Salvage/Salvageable: Remove and deliver, to the specified location(s), the equipment, building materials, or other items so identified to be saved from destruction, damage, or waste; such property to remain that of Owner. Unless otherwise specified, title to items identified for demolition shall revert to Contractor.
- G. Universal Waste Lamp: In accordance with 40 CFR 273, the bulb or tube portion of an electric lighting device, examples of which include, but are not limited to, fluorescent, high-intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps.
- H. Universal Waste Thermostat: A temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.

### 1.03 SUBMITTALS

- A. Informational Submittals:
  - 1. Submit proposed Demolition/Renovation Plan, in accordance with requirements specified herein, for approval before such Work is started.
  - 2. Submit copies of any notifications, authorizations and permits required to perform the Work.

### 1.04 REGULATORY AND SAFETY REQUIREMENTS

- A. When applicable, demolition Work shall be accomplished in strict accordance with 29 CFR 1926-Subpart T.
- B. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the General Conditions, Contractor's safety requirements shall conform to ANSI A10.6.
- C. Furnish timely notification of this renovation project to applicable federal, state, regional, and local authorities in accordance with 40 CFR 61-Subpart M.

### 1.05 DEMOLITION/RENOVATION PLAN

- A. Demolition/Renovation Plan shall provide for safe conduct of the Work and shall include:
  - 1. Detailed description of methods and equipment to be used for each operation.
  - 2. The Contractor's planned sequence of operations, including coordination with other work in progress.

3. Procedures for removal and disposition of materials specified to be salvaged.
  4. Disconnection schedule of utility services, if any.
  5. Specific plans and proposed materials to achieve temporary weather protection as specified herein.
- B. Include statements affirming Contractor inspection of the existing roof deck, floors, walls, and framing members, and their suitability to perform as a safe working platform or, if inspection reveals a safety hazard to workers, state provisions for securing the safety of the workers throughout the performance of the Work.

1.06 SEQUENCING AND SCHEDULING

- A. The Work of this Specification shall not commence until Contractor's Demolition/Renovation Plan has been approved by Engineer.
- B. Include the Work of this Specification in the progress schedule, as specified in Section 01 00 01, General Requirements.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

3.01 EXISTING FACILITIES TO BE DEMOLISHED OR RENOVATED

- A. Facilities: Portions of buildings and other areas scheduled for selective demolition, partial demolition, and renovation Work are as shown.
- B. Utilities and Related Equipment:
  1. Notify Engineer and Owner or appropriate utilities to turn off affected services at least 48 hours before starting demolition or renovation activities.
  2. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by Engineer.
  3. When utility lines are encountered that are not indicated on the Drawings, notify Engineer and Owner prior to further work in that area.
  4. Remove meters and related equipment and deliver to a location as determined by the Owner.
  5. Provide a permanent leak-proof closure for water and gas lines.

## FY23 WATER SUPPLY AND TREATMENT

### C. Reroofing:

1. Remove existing roof systems as shown on the Drawings to roof deck.
2. Remove and replace TPO or modified bituminous roofing as required by the roofing system manufacturer to connect with new flashing or roofing and maintain existing roof warranties and watertight condition.
3. Cut existing membranes, coverboard, and insulation along straight lines.
4. Sequence Work to minimize building exposure between the time of existing roof removal and new roof material installation. Install temporary roofing and flashing as necessary to maintain a watertight condition throughout the course of the Work.
5. Remove temporary roofing and flashing prior to installation of permanent roof system materials unless otherwise approved by Engineer.
6. The existing deck and support structure has been determined to be deteriorated such that its ability to support foot traffic and construction load is unknown. Make provisions for worker safety during removal of existing materials and installation of new materials as specified in Article Regulatory and Safety Requirements. Sequence the Work to minimize hazard to workers.
7. Refer to Sections 06 10 00, Rough Carpentry; 07 52 16, SBS-Modified Bituminous Membrane Roofing; 07 54 23, Thermoplastic Membrane Roofing; 07 62 00, Sheet Metal Flashing and Trim; and 07 70 01, Roof Specialties and Accessories for details regarding new roofing materials and installation.

### D. Patching:

1. Where removals leave holes and damaged surfaces exposed in the finished Work, patch and repair to match adjacent finished surfaces as to texture and finish.
2. Where new Work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new Work. Replace damaged or deteriorated wood nailers or blocking with pressure treated wood material as specified.
3. Patching shall be as specified and indicated, and shall include:
  - a. Fill holes and depressions caused by previous physical damage or left as a result of removals in existing masonry, concrete, wood, stucco or wallboard walls with an approved patching material, applied in accordance with the manufacturer's printed instructions.

E. Electrical:

1. Cut off concealed or embedded conduit, boxes, or other materials a minimum of 3/4 inch below final finished surface.
2. When removing designated equipment, conduit and wiring may require rework to maintain service to other equipment.
3. Rework existing circuits, or provide temporary circuits as necessary during renovation to maintain service to existing lighting and equipment not scheduled to be renovated. Existing equipment and circuiting shown are based upon limited field surveys. Verify existing conditions, make all necessary adjustments, and record the Work on the Record Drawings. This shall include, but is not limited to, swapping and other adjustments to branch circuits and relocation of branch circuit breakers within panelboards as required to accomplish the finished work.
4. Reuse of existing luminaires, devices, conduits, boxes, or equipment will be permitted only where specifically indicated.
5. Raceways and cabling not scheduled for reuse.
6. Inaccessibly Concealed: Cut off and abandon in place.
7. Exposed or Concealed Above Accessible Ceilings: Remove.
8. Raceways and Cabling Scheduled for Future Use: Cap/seal and tag.
9. Relocating Equipment: Extend existing wiring or run new wiring from the source.
10. Where the existing raceway is concealed, the outlet box shall be cleaned, and a blank cover plate installed.
11. Where the concealed raceway is uncovered remove raceway (or extended to new location if appropriate).
12. Provide new typewritten panelboard circuit directory cards.

F. Universal Waste Lamps and Thermostats: Manage, contain, package, and label in strict accordance with 40 CFR 273.

3.02 PROTECTION

- A. Building Occupancy: Refer to Section 01 00 01, General Requirements, for specific requirements related to concurrent occupancy of facilities to be partially demolished.
- B. Dust and Debris Control:
1. Prevent the spread of dust and debris to occupied portions of the building and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

## FY23 WATER SUPPLY AND TREATMENT

2. Vacuum and dust the Work area daily.
  3. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.
- C. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal Work, use traffic barricades with flashing lights.
- D. Existing Work:
1. Survey the site and examine the Drawings and Specifications to determine the extent of the Work before beginning any demolition or renovation.
  2. Take necessary precautions to avoid damage to existing items scheduled to remain in place, to be reused, or to remain the property of Owner; any Contractor-damaged items shall be repaired or replaced as directed by Engineer.
  3. Provide temporary weather protection during interval between removal of existing exterior surfaces and installation of new to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
  4. Ensure that structural elements are not overloaded as a result of or during performance of the Work. Responsibility for additional structural elements or increasing the strength of existing structural elements as may be required as a result of any Work performed under this Contract shall be that of the Contractor. Repairs, reinforcement, or structural replacement must have Engineer approval.
  5. Do not overload pavements to remain.
- E. Weather Protection: For portions of the building scheduled to remain, protect building interior and materials and equipment from weather at all times. Where removal of existing roofing is necessary to accomplish the Work, have materials and workmen ready to provide adequate and temporary covering of exposed areas so as to ensure effectiveness and to prevent loss.
- F. Trees: Protect trees within the Site that might be damaged during demolition and are indicated to be left in place, by a 6-foot-high fence. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the Work shall be replaced in kind, as approved by the Engineer.

G. Facilities:

1. Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.
2. Floors, roofs, walls, columns, pilasters, and other structural elements that are designed and constructed to stand without lateral support or shoring, and are determined by Contractor to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Engineer.
3. Protect all facility elements not scheduled for demolition.
4. Provide interior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities.

H. Protection of Personnel:

1. During demolition, continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.
2. Provide temporary barricades and other forms of protection to protect Owner's personnel and the general public from injury due to demolition Work.
3. Provide protective measures as required to provide free and safe passage of Owner's personnel and the general public to occupied portions of the structure.

3.03 BURNING

- A. The use of burning at the Site for the disposal of refuse and debris will not be permitted.

3.04 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Clean all items to be relocated prior to reinstallation, to the satisfaction of Engineer. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by Engineer.

3.05 TITLE TO MATERIALS

- A. All salvaged equipment and materials will remain the property of Owner.
- B. All items designated to be removed shall become the property of Contractor.

## FY23 WATER SUPPLY AND TREATMENT

- C. Title to equipment and materials resulting from renovation is vested in the Contractor upon approval by Engineer of Contractor's Demolition/Renovation Plan, and the resulting authorization by Engineer to begin renovation.

### 3.06 DISPOSITION OF MATERIAL

- A. Do not remove equipment and materials without approval of Contractor's Demolition/Renovation Plan by Engineer.
- B. Salvage equipment to the maximum extent possible.
- C. Remove salvaged items in a manner to prevent damage, and pack or crate to protect the items from damage while in storage or during shipment. Properly identify containers as to contents.
- D. Repair or replace, at the discretion of Engineer, items damaged during removal or storage.
- E. Owner will not be responsible for the condition or loss of, or damage to, property scheduled to become Contractor's property after Engineer's authorization to begin renovation. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

### 3.07 REUSE OF MATERIALS AND EQUIPMENT

- A. Properly store and maintain equipment and materials in same condition as when removed.
- B. Store equipment and material designated to be reused in a location designated by Owner.
- C. Equipment and material designated to be reused shall be cleaned, serviced and checked for proper operability before being put back into service.
- D. Engineer will determine condition of equipment and materials prior to removal.

### 3.08 SPECIALIZED SALVAGE

- A. Ozone Depleting Substances (ODS):
  - 1. Class I and Class II ODS are defined in Section 602(a) and (b), of The Clean Air Act. Prevent discharge of Class I and Class II ODS to the atmosphere. Place recovered ODS in cylinders meeting AHRI Guideline K suitable for the type ODS (filled to no more than 80 percent capacity) and provide appropriate labeling.



2. Dispose of all Class I and Class II ODS refrigerants in accordance with the Clean Air Act Amendment of 1990.
  3. Products, equipment and appliances containing ODS in a sealed, self-contained system (e.g., residential refrigerators and window air conditioners) shall be disposed of in accordance with 40 CFR 82.
- B. Fire Suppression Containers: Fire suppression system cylinders and canisters with electrical charges or initiators shall be deactivated prior to shipment. Also, safety caps shall be used to cover exposed actuation mechanisms and discharge ports on these special cylinders.

3.09 UNSALVAGEABLE MATERIAL

- A. Combustible material shall be disposed of off the Site.
- B. Universal Waste Lamps and Thermostats: Dispose of in strict accordance with 40 CFR 273.

3.10 CLEANUP

- A. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

**END OF SECTION**



**SECTION 06 10 00  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. The following is a list of standards which may be referenced in this section:
1. American Wood Council (AWC): 2, National Design Specification for Wood Construction.
  2. American Lumber Standards Committee's Board of Review (ALSC).
  3. American Wood Preservers' Association (AWPA):
    - a. U1, User Specification for Treated Wood.
    - b. M4, Standard for the Care of Preservative-Treated Wood Products.
  4. ASTM International (ASTM):
    - a. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
    - b. A307, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
    - c. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
    - d. F1667, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
  5. International Code Council (ICC): ESR-1539, Power-Driven Staples and Nails.
  6. National Fire Protection Association (NFPA): 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.
  7. Southern Pine Inspection Bureau (SPIB): 1003, Grading Rules.
  8. UL: 723, Standard for Test for Surface Burning Characteristics of Building Materials.
  9. U.S. Department of Commerce—Voluntary Product Standard (DOC): PS 20, American Softwood Lumber Standard.
  10. Western Wood Products Association (WWPA): G5, Western Lumber Grading Rules.

**1.02 DEFINITIONS**

- A. ALSC: American Lumber Standards Committee's Board of Review.
- B. AWC: American Wood Council.
- C. CPA: Composite Panel Association.

## FY23 WATER SUPPLY AND TREATMENT

- D. DOC: Department of Commerce.
- E. SPIB: Southern Pine Inspection Bureau.

### 1.03 SUBMITTALS

#### A. Action Submittals:

1. Product Data: Indicate component materials and dimensions, and include construction and application details for the following:
  - a. Underlayment.
  - b. Sheathing.
  - c. Metal framing anchors.
  - d. Construction adhesives.
  - e. Construction panel thickness where not shown.

#### B. Informational Submittals:

1. ICC Evaluation Service Reports, including the following as a minimum:
  - a. Connections and Fasteners.
  - b. Wood Treatment.
  - c. Nails.
  - d. Wood Framing.
  - e. Structural Panels.
  - f. Shear Wall Panels.
2. Wood treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material.
3. Material Certificates: Showing species and grade selected for dimension lumber for each use.
  - a. Material certificates for dimensional lumber in compliance with allowable unit stresses. Show species and grade selected for each use as well as design values approved by the ALSC's Board of Review.
  - b. For each type of preservative-treated wood product, include certification by treatment plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  - c. For waterborne-treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to Site.
4. Material test reports from testing laboratory showing and interpreting test results in accordance with test methods UL 723, NFPA 255, and ASTM E84, relative to fire-retardant treated wood products.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Upon delivery to Site, immediately place materials in area protected from weather. Do not store seasoned materials in wet or damp areas.
- B. Protect sheet materials from breaking corners and damaging surfaces while unloading.
- C. Store materials a minimum of 6 inches above ground on framework or blocking and cover with waterproof covering, providing for adequate air circulation and ventilation. Store sheet materials flat, not on edge.
- D. Protect fire-retardant materials against high humidity and moisture during storage and erection.
- E. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.
- F. Store materials for which maximum moisture content is specified in areas where humidity can be controlled.

**PART 2 PRODUCTS**

2.01 GENERAL

- A. Lumber Standards:
  - 1. In accordance with DOC PS 20 and applicable grading rules and wood species certified by ALSC.
  - 2. Design values for wood members equal to those published in supplement to AWC 2.
  - 3. Stamp or brand each unexposed piece of lumber with grade, species, and moisture content at time of mill surfacing.
  - 4. Furnish exposed lumber pieces with grade stamps applied to ends or back of each piece. If completely exposed, and permitted by local building jurisdiction, omit grade stamps entirely.
- B. Lumber sizes shown on the Drawings are nominal, unless shown otherwise. Provide actual sizes as required by DOC PS 20 for use.
- C. Dressed lumber S4S, unless shown otherwise on the Drawings.
- D. Moisture content of lumber not to exceed 19 percent, unless otherwise specified and marked "DRY".
- E. Each plywood panel identified with designated grade trademark of APA.

FY23 WATER SUPPLY AND TREATMENT

2.02 LUMBER

- A. Framing Lumber: Douglas Fir-Larch, No. 1 or better unless indicated otherwise below:

Usage	Minimum Grade
Plates, sills, blocking, furring, braces, and nailers	Douglas Fir-Larch No. 2, Hemlock, Southern Pine Stud grade, nondense

2.03 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. Where lumber or plywood is indicated as preservative-treated wood, in accordance with AWPA U1 and AWPA M4, mark and grade each treated item in accordance with SPIB 1003 or WWPA G5.
  - 1. Kiln-dry after treatment to maximum moisture content of 19 percent.
  - 2. Treat wood in contact with roofing or flashing.
  - 3. Treat wood in contact with masonry or concrete.
  - 4. Treat wood less than 18 inches above grade.
  
- B. Aboveground Materials:
  - 1. Pressure treat items with waterborne preservatives to a minimum retention of 0.25 per cubic foot.
  - 2. Interior Use: After treatment, kiln-dry lumber and plywood to maximum moisture content of 19 percent and 15 percent respectively.
  - 3. Treat the following items:
    - a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
    - b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
    - c. Wood framing members less than 18 inches above grade.
    - d. Wood floor plates installed over concrete slabs directly in contact with earth.
  
- C. Materials in Contact with Ground or Freshwater: Pressure treat in accordance with applicable AWPA U1.
  
- D. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.04 HARDWARE

- A. Fasteners and connectors in contact with preservative-treated or fire-retardant-treated wood shall be hot-dipped zinc-coated galvanized steel or stainless steel in accordance with ASTM A153/A153M.
- B. Conform to ASTM F1667.
- C. Nails:
  - 1. Conform to ASTM F1667.
  - 2. Steel common nails or alternatives listed in rough carpentry section of General Structural Notes found on the Drawings.
  - 3. Use hot-dipped zinc-coated nails wherever exposed.
  - 4. Use deformed shank nails for fastening underlayment.
- D. Staples: Conform to ASTM F1667, galvanized where exposed.
- E. Power Driven Fasteners: Conform to ICC ESR-1539.
- F. Bolts and Screws: Conform to ASTM A307, galvanized where exposed.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify surfaces to receive rough carpentry materials are prepared to exact grades and dimensions.

3.02 GENERAL

- A. Lay out, cut, fit, and install rough carpentry items. Anchor sufficiently to ensure rigidity and permanence.
- B. Install items accurate to dimension, true to line, level, and square unless shown otherwise on the Drawings. Provide for installation and support of other Work.
- C. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- D. Countersink nailheads on exposed carpentry work and fill holes.
- E. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

## FY23 WATER SUPPLY AND TREATMENT

- F. Field treat field cuts and holes in pressure-treated lumber with preservative in accordance with AWP A M4.
- G. Holes: 1/16-inch larger than nominal bolt diameter, except provide holes for cast-in-place anchor bolts 3/16-inch larger than nominal bolt diameter.
  - 1. Enlarge tight holes requiring forcible driving of bolts by reaming.
- H. Provide washers under bolt heads and nuts bearing on wood.

### 3.03 INSTALLATION

- A. Blocking:
  - 1. Install in continuous, staggered horizontal row where shown on the Drawings or required by code.
  - 2. Locate blocking to facilitate installation of finishing materials, fixtures, specialty items, hardware, and trim.

### 3.04 PRESERVATIVE-TREATED WOOD PRODUCTS

- A. Provide preservative-treated wood for framing, blocking, furring, nailing strips built into exterior masonry walls, wood in contact with concrete or masonry and in conjunction with gravel stops, and built-up roofing.
- B. Apply two brush coats of same preservative used in original treatment to sawed or cut surfaces of treated lumber.

**END OF SECTION**



**SECTION 07 52 16**  
**SBS-MODIFIED BITUMINOUS MEMBRANE ROOFING**

**PART 1 GENERAL**

1.01 REFERENCES

- A. The following is a list of standards that may be referenced in this section:
1. American Wood Preservers' Association (AWPA): C2, Lumber, Timbers, Bridge Ties, and Mine Ties-Preservative Treatment by Pressure Processes.
  2. ASTM International (ASTM):
    - a. C552, Standard Specification for Cellular Glass Thermal Insulation.
    - b. C726, Standard Specification for Mineral Fiber Roof Insulation Board.
    - c. C728, Standard Specification for Perlite Thermal Insulation Board.
    - d. C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
    - e. D41, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
    - f. D312, Standard Specification for Asphalt Used in Roofing.
    - g. D1227, Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
    - h. D4586, Standard Specification for Asphalt Roof Cement, Asbestos Free.
    - i. D4601, Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
    - j. D6162, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
    - k. D6164, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
  3. National Roofing Contractors Association (NRCA): Handbook of Accepted Roofing Knowledge (HARK).

1.02 SUBMITTALS

- A. Action Submittals:
1. Project-specific details of roof edges and penetrations.
  2. Mechanical fastening diagram for rigid insulation, where applicable.

## FY23 WATER SUPPLY AND TREATMENT

3. Layout drawings for tapered insulation, showing slopes and thicknesses.
4. List of materials proposed for use including roofing materials, insulation, composition flashing, and fasteners.
5. Roofing materials manufacturer's specifications selected for use.
6. Description of complete system, from deck up, proposed for use.

### B. Informational Submittals:

1. Manufacturer's installation instructions.
2. A letter from roofing materials manufacturer stating roofer is approved by manufacturer to apply roof.
3. Manufacturer's Certificate of Proper Installation per Section 01 00 01, General Requirements, (or alternately, test results or calculations) that assure item's and its anchorage's design criteria meets requirements of Section 01 00 01, General Requirements, for loads provided on the Structural drawings.
4. Sample copy of special guarantee to be provided.
5. Manufacturer's Certificate of Compliance, in accordance with Section 01 00 01, General Requirements.
6. Test reports, in triplicate, of field test cuts of roofing system.
7. Written notice when roofing installation is ready for final inspection.
8. Record of Preroofing Conference.
9. Record drawings for tapered insulation.

## 1.03 QUALITY ASSURANCE

- A. Materials, including insulation, used in a roofing system shall be furnished by, or approved by, manufacturer whose roofing system is selected for use.
- B. Roofer Qualifications: Approved by roofing materials manufacturer to apply roof.
- C. Preroofing Conference:
  1. Attendees: Conduct preroofing conference with Contractor, roof deck installer, roofing system materials manufacturer's representative, roof insulation manufacturer's representative, roofer, mechanical equipment installer and other subcontractors likely to be on roof.
  2. Agenda: Follow outline in NRCA, HARK including acceptability of deck, roofing system materials manufacturer's specification selected, flashing details, roof guarantee, and protection of finished roofing system.
  3. Record: Discussions and agreements and furnish copy to each participant and entity invited.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers and rolls with labels intact and legible. Labels on bitumen shall show composition, softening point (SP) range, minimum flashpoint (FP), minimum finished blowing temperature (BT), and equiviscous temperature (EVT) range.
- B. Handle roll goods so as to prevent damage to edge or ends. Store roll goods on end.
- C. Store rigid roof insulation materials on clean, raised platforms.
- D. Protect materials against direct sunlight, wetting, moisture absorption, mud, dust, sand, oil, grease, dirt, and construction traffic.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Temperature:
  - 1. Apply roofing only in dry weather and when ambient temperature is above 40 degrees F.
  - 2. When temperature is below 45 degrees F, application must be approved by, and under supervision of, roofing materials manufacturer.

**PART 2 PRODUCTS**

2.01 MODIFIED BITUMEN SHEET ROOFING SYSTEM

- A. Description: Single-ply SBS modified bitumen sheet membrane with mineral granule surface, applied to rigid roof insulation.
- B. Membrane and Flashing Materials: Approved for use in UL Class A rated assemblies.
  - 1. Thickness: Not less than 3.5 mm.
  - 2. Weight: Not less than 100 pounds per square.
  - 3. Reinforcing: Polyester or polyester and fiberglass fabrics.
- C. Manufacturers and Products:
  - 1. Johns Manville; DynaKap System 2CID.
  - 2. GAF; Rubberoid MB Plus NN-1-1-MGFR.
  - 3. Siplast Paradiene.

## FY23 WATER SUPPLY AND TREATMENT

### 2.02 ROOFING MATERIALS

- A. Sheet Membrane: ASTM D6162 or D6164, Grade G, Type II.
- B. Primer: ASTM D41 asphalt.
- C. Bitumen: ASTM D312, Type IV, special steep asphalt.
- D. Emulsion: ASTM D1227, Type IV, emulsified asphalt.
- E. Plastic Roof Cement: ASTM D4586, Type II, asphalt plastic cement.
- F. Base Felt: ASTM D4601, Type II, asphalt-coated glass fiber mat.
- G. Vented Base Sheet:
  - 1. Manville; Vensulation.
  - 2. GAF; Stratavent.
- H. Sheathing Paper: Rosin-sized building paper weighing 5 pounds per 100 square feet, as manufactured or furnished by roofing system materials manufacturer.
- I. Composition Flashing:
  - 1. One of the following:
    - a. Mineral surfaced asphalt-coated glass fiber mat cap sheet manufactured by:
      - 1) Johns Manville; Glas Tite Flexible.
      - 2) GAF; GafGlas.
      - 3) "Or-equal."
    - b. Flashing sheet combining SBS polymer modified bitumen, glass fiber mats, and polyester core providing built-in adhesive for torch-on application as manufactured by:
      - 1) Johns Manville; DynaGlas.
      - 2) GAF; Rubberoid MB.
      - 3) "Or-equal."
    - c. Flashing sheet combining SBS polymer modified bitumen, polyester reinforcement, and mineral surfacing for application in hot asphalt as manufactured by:
      - 1) Johns Manville; Dynaflex.
      - 2) GAF; Rubberoid MB.
      - 3) "Or-equal."

J. Resin for Finish Ply Membrane Construction:

1. A multi-component, fast-curing, flexible PMMA-based resin for use in combination with fleece fabric to form a monolithic, reinforced roofing membrane. Physical and mechanical values are based on testing/evaluation of a 90-mil (2.3 mm) PMMA roof membrane reinforced with the specified fleece reinforcement.
2. Thickness (avg): 90 mils (2.3 mm) at 0.31 kg/ft<sup>2</sup> (3.3 kg/m<sup>2</sup>) coverage rate (ASTM D5147, section 5).
3. Peak Load (avg) at 73 degrees F (23 degrees C): 70 lbf/in (12.3 kN/m) (ASTM D5147 section 6).
4. Peak Load (average) at 73 degrees F (23 degrees C): 90 lbf/inch (15.8 kN/m) (ASTM D412, dumbbell).
5. Elongation at Peak Load (avg) at 73 degrees F: 35 percent (ASTM D5147, section 6).
6. Elongation at Peak Load (avg) at 73 degrees F: 35 percent (ASTM D412, dumbbell).
7. Shore A Hardness (average): 81 (ASTM D2240).
8. Water Absorption, Method I (24h at 73 degrees F): 0.8 percent (ASTM D570).
9. Water Absorption, Method II (48h at 122 degrees F): 1.2 percent (ASTM D570).
10. Low temperature flexibility at 23 degrees F (minus 5 degrees C): PASS (ASTM D5147, section 11).
11. Dimensional Stability (maximum): 0.15 percent (ASTM D5147, section 10).
12. Tear Strength (average): 90 lbf (0.4 kN) (ASTM D5147, section 7).
13. Approvals: UL Class listed, FM Approved (products shall bear seals of approval).
14. Parapro Roof Resin by Siplast, Inc., "Or-equal."

K. Fleece for Membrane Reinforcement: A non-woven, 110 g/m<sup>2</sup>, needle-punched polyester fabric reinforcement as supplied by the membrane system manufacturer.

1. Pro Fleece by Siplast, Inc., "Or-equal."

L. Fasteners:

1. Into Insulation and Fiberboard: Tube-Loc nail with 1-inch diameter cap.
  - a. Manufacturers and Products:
    - 1) Simplex Nail and Manufacturing Co.
    - 2) E. G. Building Fasteners Corp.; Insuldeck Loc-Nail.

## FY23 WATER SUPPLY AND TREATMENT

2. Into Metal Deck:
  - a. Manufacturers and Products:
    - 1) ES Products, Inc.; Standard cap Riv-Nail.
    - 2) Celotex Corp.; Insulfast Nail/Disk System.

### 2.03 ROOF WALKWAYS

- A. Slip-resistant asphalt plank, minimum size 1/2-inch thick by 1-foot by 2 feet, surfaced with ceramic granules in pastel gray color.
- B. Manufacturers and Products:
  1. Johns Manville, Denver, CO; J-Walk.
  2. GAF; Lexpad.
  3. Siplast Paratread.

### 2.04 RIGID ROOF INSULATION

- A. Average Aged R-Value for Total Thickness of Rigid Roof Insulation:  
Minimum R= 25.
- B. At Subcontractor's option, any one of the following insulation materials may be used on this Project provided roofing materials manufacturer approves insulation used and will guarantee roofing system:
  1. Fibrous Glass Board: ASTM C726, minimum size 3 feet by 4 feet, covered on one side with a factory-applied base sheet, as manufactured by Johns Manville.
  2. Cellular Glass: ASTM C552, minimum size 18 inches by 24 inches, as manufactured by Pittsburgh Corning, Foamglas.
  3. Expanded Perlite Board:
    - a. ASTM C728, minimum size 2 feet by 4 feet, as manufactured by:
      - 1) Celotex; Celo-Therm.
      - 2) GAF; Permalite.
      - 3) Johns Manville; Fesco Board.
  4. Polyisocyanurate Foam Board:
    - a. ASTM C1289, Type II, with Factory Mutual Class I approval, minimum size 2 feet by 4 feet, as manufactured by:
      - 1) Atlas Roofing Corp.; AC Foam II.
      - 2) Celotex; Hy-Therm AP.
      - 3) GAF; GAFTEMP Isotherm.
      - 4) Johns Manville; E'NRG'Y 2.

5. Composite Board:
  - a. Of polyisocyanurate or polyurethane foam core bonded to 1/2-inch perlite fiberboard minimum size 3 feet by 4 feet, as manufactured by:
    - 1) Atlas Roofing Corp.; AC Foam II.
    - 2) Apache Products Co.; Millox.
    - 3) Celotex; Hy-Therm COMPOSITE.
    - 4) Johns Manville; ISO-1.
6. Tapered Board System:
  - a. Factory precut or field tapered insulation board, minimum 1-inch thick, with top surface cut to a uniform, continuous slope of 1/4-inch per foot.
  - b. Fabricate miters and edges to match abutting blocks.
  - c. Manufacturers and Products:
    - 1) As specified for composite board.
    - 2) Apache Products Co.; Tapered Millox.
    - 3) Johns Manville; Tapered E'NRG'Y 2 Plus.
    - 4) Pittsburgh Corning Corp., Pittsburgh, PA 15239; Tapered Foamglas "PC Plusystem 1".

2.05 TAPERED EDGE, CRICKETS, AND CANT STRIPS

A. Use Preformed Shapes:

1. Bitumen-coated on all sides, expanded perlite.
2. Wood treated in accordance with AWPAC2 for waterborne salts and dried to 19 percent moisture content or less after treatment.

**PART 3 EXECUTION**

3.01 PREPARATION

- A. Notify Engineer and manufacturer's representative at least 48 hours before beginning installation of roofing system.
- B. Deck shall be firm, dry, free of foreign materials, and smooth.
  1. Differential height between adjacent roof deck members of more than 1/8-inch is not acceptable.
  2. Report immediately to the Engineer cracks, breaks, holes, or other unusual irregularities in the surface.

## FY23 WATER SUPPLY AND TREATMENT

### 3.02 APPLICATION

- A. General: Do not phase application of roofing system.
  - 1. Install all components of an assembly over that area that is covered in 1 day.
  - 2. Seal off edges of system at the end of the day with one layer of mopped-in felt.
  
- B. Bitumen:
  - 1. Maintain kettle temperature so as not to exceed the flashpoint of the bitumen.
  - 2. Apply bitumen at the equiviscous temperature, plus or minus 25 degrees F.
  - 3. Do not exceed the finish blowing temperature.
  - 4. Moppings Between Layers: 15 pounds to 20 pounds per square.
  
- C. Insulation:
  - 1. Keep insulation dry before and during application.
  - 2. Apply rigid insulation to R-value indicated, in strict accordance with the insulation and roofing materials manufacturer's specifications.
  - 3. On Steel Decks:
    - a. Apply insulation in two layers with staggered joints.
    - b. Set the first layer in ribbons of asphalt and mechanically fasten to the deck as required to resist Project wind pressure.
  - 4. Insulation Layers:
    - a. Stagger joints from layer below.
    - b. Secure second layer to previous layer with bitumen specified in quantity as recommended by insulation manufacturer.
    - c. Place insulation immediately into applied bitumen and then press into place to ensure embedment.
    - d. Lay tapered insulation, where applicable, in accordance with the insulation manufacturer's layout drawings and instructions.
  
- D. Roofing System on Decking or Insulation:
  - 1. Apply base sheet, modified bitumen sheet roofing membrane system, and flashing following with roofing materials manufacturer's specifications for roofing system selected.
  - 2. Membrane may be torched or mopped down as recommended by the manufacturer.
  - 3. Set membrane in-place with minimum 3-inch sidelaps and 4-inch endlaps.



3.03 MANUFACTURER'S SERVICES

- A. Provide manufacturer's representative at Site in accordance with Section 01 00 01, General Requirements, for installation assistance, inspection and certification of proper installation, equipment testing, startup assistance and training of Owner's personnel for maintaining specified system.

3.04 CLEANING

- A. Upon completion of the roofing installation:
  - 1. Clean up waste material and debris resulting from roofing operation.
  - 2. Dispose of waste material off the Site.
  - 3. Remove spots and smears of asphalt or other material from flashing, gravel stops, and other surfaces not intended to be coated with such material.
  - 4. During removal, ensure that no damage will be done to the surfaces.
  - 5. Use solvents, if necessary, to satisfactorily clean the materials.

**END OF SECTION**



**SECTION 07 54 23  
THERMOPLASTIC MEMBRANE ROOFING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes insulation and membrane roofing.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:

1. American Wood Protection Association (AWPA): U1, Use Category System: User Specification for Treated Wood.
2. ASTM International (ASTM):
  - a. C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  - b. D41, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
  - c. D312, Standard Specification for Asphalt Used in Roofing.
  - d. D412, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
  - e. D471, Standard Test Method for Rubber Property—Effect of Liquids.
  - f. D573, Standard Test Method for Rubber—Deterioration in an Air Oven.
  - g. D751, Standard Test Methods for Coated Fabrics.
  - h. D1149, Standard Test Methods for Rubber Deterioration-Cracking in an Ozone Controlled Environment.
  - i. D1204, Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature.
  - j. D4601, Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
3. FM Global (FM): DS 1-29, Roof Deck Securement and Above-Deck Roofing Components.
4. International Code Council (ICC): Florida Building Code (FBC).
5. National Roofing Contractors Association: NRCA Roofing and Waterproofing Manual.
6. U.S. Department of Defense Military Standard (MIL): 3010, Test Procedures for Packaging Materials.

## FY23 WATER SUPPLY AND TREATMENT

### 1.03 DESIGN REQUIREMENTS

- A. Wind Uplift Performance: Roof system shall be designed to withstand wind uplift forces as calculated using the current revision of ASCE-7 10.
- B. Thermal Performance: Roof system will achieve an average R-value not less than 25.
- C. Building Codes: Roof system will meet the requirements of all federal, state and local code bodies having jurisdiction.

### 1.04 PERFORMANCE REQUIREMENTS

- A. General Performance: Thermoplastic membrane roofing shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
- B. Structural Performance:
  - 1. Provide thermoplastic membrane roof assembly capable of withstanding the design loads specified on Structural Drawings.
  - 2. The roof assembly shall be designed to safely resist the positive and negative loads as required for the location and type of project designed according to the requirements of the Florida Building Code.

### 1.05 SUBMITTALS

- A. Action Submittals:
  - 1. Layout of tapered insulation.
  - 2. Project-specific details of roof penetrations and perimeter conditions.
  - 3. Layout and details of fully adhered system.
  - 4. List of materials proposed for use; include roofing materials, accessories, insulation, and fasteners.
  - 5. Manufacturer's specifications selected for use; include description of complete system from deck up.
  - 6. Documentation that anchoring system meets uplift requirements.
  - 7. Product/Code Certification: Provide written verification that submitted roof system assembly and installation method meet or exceed Project Design and Performance Requirements, in this section, by one, or more, of the following methods as allowed for by FBC:
    - a. Dade County Building Code Compliance Office (DCBCCO) Notice of Acceptance (NOA) or Florida Product Approval for complete roof system assembly.

- b. Rational Comparative Analysis: Testing data, calculations and verification documents signed and sealed by a professional engineer registered in the State of Florida.
- c. Local product approval by Authority Having Jurisdiction (AHJ).

B. Informational Submittals:

- 1. Manufacturer's Certificate of Compliance, in accordance with Section 01 00 01, General Requirements.
- 2. Manufacturer's installation instructions.
- 3. Letter or other documentation from roofing materials manufacturer stating that installer has been trained and approved to apply roof system.
- 4. Sample copy of guarantee to be provided.
- 5. Record of Preroofing Conference.
- 6. Inspection reports for inspections conducted by membrane manufacturer's representative; include written instructions or recommendations as conditions to special guarantee.
- 7. Operation and Maintenance Data:
  - a. As specified in Section 01 00 01, General Requirements.
  - b. Include sketches where applicable, recommendations for periodic inspection, care, and maintenance.
  - c. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.
- 8. Manufacturer's Certificate of Proper Installation per Section 01 00 01, General Requirements, (or alternately, test results or calculations) that assure item's and its anchorage's design criteria meets requirements of Section 01 00 01, General Requirements, for loads provided in Section 01 00 01, General Requirements.
- 9. Copy of punch list generated by manufacturer's Technical Field Representative during final inspection of roofing, flashing and welded seams.
- 10. Certifications for Final Close-Out:
  - a. Written report prepared by manufacturer's Technical Field Representative stating that roof has been inspected for deficiencies, a listing of all deficiencies and corrections that have been made, and roofing system has been properly installed and is warrantable for period required by the Specifications.
  - b. Final Warranty documents signed by manufacturers authorized representative.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

## FY23 WATER SUPPLY AND TREATMENT

- B. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of 15 years of experience.
- C. Manufacturer's Technical Field Representative shall have a minimum seven years of experience in field installation and applicator training and approval process.
- D. Installer Qualifications:
  - 1. All products listed in this section are to be installed by a single installer with a minimum of 5-years demonstrated experience in installing products of the same type and scope as specified.
  - 2. Installer must be capable of providing the Manufacturer's No Dollar Limit guarantee.
- E. Provide for manufacturer's Technical Field Representative time during Pre-Installation Conference, job start-up, and two minimum 4-hour Site visits during roofing application. Include all applicable costs.
- F. Manufacturer's Technical Field Representative shall inspect all roofing, flashing, and spot test welded seams at completion, generate punch list and provide copy of punch list to Engineer.
- G. On-site quality reviews of all welded seams shall be performed by Applicator prior to stopping work each day: Provide subsequent report identifying the locations of all seam failures and repairs made to that seam.

### 1.07 PREROOFING CONFERENCE

- A. Conference Requirements:
  - 1. Attendees: Engineer, roofing installer, roofing manufacturer, installers of related Work, and other entities concerned with roofing performance included, where applicable, Owner's insurer, test agencies, governing authorities, and Owner.
  - 2. Agenda: Follow outline in NRCA's Waterproofing Manual. Include acceptability of deck, roofing system, materials, manufacturer's specifications selected, flashing details, roof guarantee, and protection of furnished roofing system.
  - 3. Documentation: Record discussion and agreements. Furnish copy to each attendee invited.
- B. Membrane manufacturer's inspections as required to meet conditions of guarantee.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in their original, unopened containers, clearly labeled with manufacturer's name, brand name, and such identifying numbers as are appropriate.
- B. Storage:
  - 1. Store products in manufacturer's unopened packaging until ready for installation.
  - 2. Store materials at temperatures between 60 degrees F and 80 degrees F. Should they be exposed to lower temperatures, restore to 60 degrees F prior to use.
  - 3. Store rigid roof insulation materials on clean, raised platform.
  - 4. Do not store uncured flashing membrane on roof or at temperatures exceeding 75 degrees F.
- C. Protect materials against wetting, moisture absorption, and construction traffic.
- D. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.
- E. When loading materials onto the roof, the Manufacturer's Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Weather: Do not install roofing during precipitation or when it is probable.
- B. Temperature:
  - 1. Install roofing when ambient temperature is 50 degrees F or above.
  - 2. When temperature is below 50 degrees F, install only with approval or and under supervision of membrane manufacturer.

1.10 COORDINATION

- A. Coordinate Work with installation of associated roof penetrations and metal flashings, as Work of this section proceeds.

1.11 WARRANTY

- A. At Project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's No Dollar Limit, Total System warranty, outlining its terms, conditions, and exclusions from coverage:
  - 1. Duration: 30 years.

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Fully Adhered TPO Roofing:
  - 1. GAF; EverGuard TPO 80-mil membrane.
  - 2. Johns Manville; ST8RA-C/I, 80-mil membrane.
  - 3. GenFlex Roofing Systems; TPO.

2.02 ROOFING SYSTEM

- A. Roofing system shall meet these Specifications, and approval and warranty of membrane manufacturer to provide a fully adhered complete TPO system including the following:
  - 1. Membrane.
  - 2. Roof insulation.
  - 3. Cover board.
  - 4. Flashing.
  - 5. Adhesives.
  - 6. Fasteners.
  - 7. Accessory materials.

2.03 MEMBRANE MATERIALS

- A. Reinforced thermoplastic polyolefin sheet, 0.080-inch thick with the following properties:

<b>Properties</b>	<b>Test Method</b>	<b>Specification</b>
Thickness Tolerance	ASTM D751	Plus or minus 10%
Breaking Strength (min)	ASTM D751, Grab Method	300 pounds
Elongation at Break	ASTM D412	30 %
Tear Strength (min)	ASTM D751	70 pounds
Ozone Resistance	ASTM D1149, 70 hours at 100 degrees F	No cracks or other affect
Heat Aging	ASTM D573, 28 days at 212 degrees F retention of tensile	Maintain 100% of original breaking strength



<b>Properties</b>	<b>Test Method</b>	<b>Specification</b>
Water Absorption (change in mass)	ASTM D471, 158 degrees F for 7 days	1%
Hydrostatic Resistance (min)	ASTM D751, Method A	430 psi
Puncture Resistance	MIL Std 3010	380 pounds
Dimensional Stability (% change max.)	ASTM D1204	+ 0.4%

B. Membrane Sheet Size: Minimum width 60 inches by length of largest sheet possible, determined by project conditions.

C. Color: White.

2.04 ACCESSORY MATERIALS

A. Adhesives and Fasteners:

1. Surface Conditioner: Compatible with membrane.
2. Membrane cover board, and insulation adhesives and fasteners as recommended by membrane manufacturer.
3. Thinner and Cleaner: As recommended by adhesive manufacturer, compatible with sheet membrane.

B. Flashing:

1. 0.080-inch roofing membrane.
2. Provide unreinforced 0.070-inch-thick roofing membrane for field fabricated vent stacks, pipes, and corners.

C. Primer: ASTM D41 Asphalt.

D. Asphalt: ASTM D312, Type III steep asphalt.

E. Roofing Felt: ASTM D4601, Type IV or VI asphalt-coated glass fiber mat.

F. Nailers: Preservative treated wood as specified in Section 06 10 00, Rough Carpentry.

2.05 RIGID ROOF INSULATION BOARD

A. Average Aged R-value for Total Thickness of Rigid Insulation:  
Minimum R-25.

## FY23 WATER SUPPLY AND TREATMENT

- B. Any one of the following insulation materials may be used on this Project provided roofing materials manufacturer will guarantee roofing system.
1. Polyisocyanurate Foam Board:
    - a. ASTM C1289, Type II with FM Class 1 approval.
    - b. Minimum Size: 2 feet by 4 feet.
    - c. Manufacturers and Products:
      - 1) Atlas Roofing Corp.; ACFoam-II.
      - 2) GAF; EnergyGuard Polyiso.
      - 3) Johns Manville; ENRGY 3.
  2. Tapered Board System:
    - a. Factory precut or field tapered insulation board, minimum 1-inch thick with top surface cut to a uniform, continuous slope of 1/4 inch per foot.
    - b. Fabricate miters and edges to match abutting blocks.
    - c. Manufacturers and Products:
      - 1) Atlas Roofing Corp.; Tapered ACFoam-II.
      - 2) GAF; EnergyGuard Tapered Polyiso.
      - 3) Johns Manville; Tapered ENRGY 3.

### 2.06 COVER BOARD

- A. Manufacturers and Products:
1. Georgia-Pacific (GP); DensDeck Roof Board.
  2. Johns Manville; Invinsa Roof Board.

## **PART 3 EXECUTION**

### 3.01 PREPARATION

- A. Surfaces to be adhered shall be dry before and throughout entire application.
- B. Notify Engineer and manufacturer's representative at least 48 hours before installation of insulation, membrane, and roofing system.
- C. Inspection:
1. Verify work of other trades that penetrates roof deck or requires roof access has been completed.
  2. Ensure deck is firm, dry, free of foreign material, and reasonably smooth.
    - a. Differential height between adjacent roof deck members of more than 1/8 inch is not acceptable.
    - b. Repair joints greater than 1/4-inch wide.

3. Report immediately to Engineer cracks, breaks, holes, or other unusual irregularities in surface.
4. Cover rough surface that would cause damage to membrane with protection board.

D. Nailers:

1. Install wooden nailers at parapet walls on outside perimeter of building.
2. Anchor nailer with a suitable fastener with minimum withdrawal resistance of 100 pounds.
3. Stagger fasteners 6 inches on center within 8 feet of outside corner and 12 inches on center along other perimeter areas.
4. Nailer Thickness: Choose to match top surface of adjacent construction.

3.02 INSTALLATION

A. In accordance with membrane manufacturer's standard details for flashing and termination conditions not shown.

B. In accordance with Article Performance Requirements for uplift conditions.

C. In accordance with applicable recommendations of FM DS 1-29.

D. Insulation:

1. Keep insulation dry before and during application.
2. Install rigid insulation where and to thickness necessary for R-25 in two or more layers, staggering joints.
3. Lay insulation with longest dimension perpendicular to direction of membrane seams with joints staggered over roof area to be covered.
4. Butt boards as closely as possible with no gaps over 1/4 inch.
5. Mechanically fasten insulation to deck following roofing membrane manufacturer's instructions.
6. Do not install more insulation each day than can be covered with membrane before end of day or start of inclement weather.

E. Cover Board:

1. Apply minimum 3/4-inch cover board to concrete substrate with longest dimension perpendicular to membrane seams with joints staggered over roof area to be covered.
2. Fasten cover board with adhesive to insulation in accordance with roofing membrane manufacturer's instructions.

F. Membrane:

1. Install membrane and flashing in accordance with manufacturer's recommendations and instructions.

## FY23 WATER SUPPLY AND TREATMENT

2. Heat weld joints following manufacturer's instructions.
  3. Fully adhere membrane to substrate.
- G. Flashing: Install perimeter, scuppers, and other detail flashing as shown on manufacturer's standard detail drawings and as follows:
1. Heat weld flashing to membrane and attach to other surfaces following manufacturer's instructions.
- H. Temporary and Night Seals:
1. Provide water cutoffs under the following circumstances:
    - a. Where and when a danger exists that water caused by precipitation may get under new roofing membrane.
    - b. At end of each day.
  2. Make by securely setting end of membrane in 6-inch-wide continuous application of cement and weight adhered edge to prevent displacement of cutoff.
  3. Remove temporary water cutoffs prior to proceeding with next work period by cutting off and disposing of portion of membrane that has been in contact with cement.
- I. Walkways: Adhere to membrane with membrane manufacturer's bonding adhesive.

### 3.03 MANUFACTURER'S SERVICES

- A. Provide manufacturer's representative at Site in accordance with Section 01 00 01, General Requirements, for installation assistance, inspection and Certification of Proper Installation, equipment testing, startup assistance, and training of Owner's personnel for specified component, subsystem, equipment, or system.

### 3.04 CLEANING

- A. Remove spots and smears of asphalt or other material from flashings, gravel stops, and other surfaces not intended to be coated with such material. During removal, do not damage surfaces. Use solvents, if necessary, to clean surfaces.

### 3.05 PROTECTION

- A. Limit traffic of personnel and equipment on completed roof to that deemed essential for completion of Project.

**END OF SECTION**

**SECTION 07 62 00**  
**SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. ASTM International (ASTM):
    - a. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
    - b. A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
    - c. A924/A924M Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
    - d. C920, Standard Specification for Elastomeric Joint Sealants.
    - e. C1311, Standard Specification for Solvent Release Sealants.
    - f. D1187/D1187M, Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.
    - g. D4586/D4586M, Standard Specification for Asphalt Roof Cement, Asbestos-Free.
  2. FM Global (FM): Loss Prevention Data Sheet 1-49, Perimeter Flashing.
  3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): 1793, Architectural Sheet Metal Manual.

1.02 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Structural Performance: To meet or exceed the 2020 Florida Building Code 7<sup>th</sup> Edition maximum positive and negative for the project site location.
- C. Thermal Movements:
1. Provide sheet metal flashing and trim that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures for preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
    - a. Temperature Change (Range): 120 degrees F, ambient; 180 degrees F, material surfaces.

## FY23 WATER SUPPLY AND TREATMENT

2. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements.
3. Base engineering calculation on surface temperatures of materials as a result of both solar heat gain and nighttime-sky heat loss.

D. Water Infiltration: Provide sheet metal flashing and trim that does not allow water infiltration to building interior.

### 1.03 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA 1793. Conform to dimensions and profiles shown, unless more stringent requirements are indicated.

### 1.04 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
  - a. Show joints, types and location of fasteners, and special shapes.
  - b. Catalog data for stock manufactured items.
2. Samples: Color Samples for items to be factory finished.

### 1.05 DELIVERY, HANDLING, AND STORAGE

- A. Inspect for damage, dampness, and wet storage stains upon delivery to Site.
- B. Remove and replace damaged or permanently stained materials that cannot be restored to like-new condition.
- C. Carefully handle to avoid damage to surfaces, edges, and ends.
- D. Do not open packages until ready for use.
- E. Store materials in dry, weathertight, ventilated areas until immediately before installation.

## **PART 2 PRODUCTS**

### 2.01 METAL

A. Stainless Steel: ASTM A666, Type 304 or Type 316, soft temper; No. 2D, dull finish, 0.018-inch thick, unless otherwise shown.

2.02 PREFABRICATED METAL SYSTEMS

A. Gravel Stop and Fascia System:

1. Stainless steel, 24-gauge minimum thickness.
2. Include ancillary items, such as prefabricated spillout scupper, fascia sump, and mitered and welded corners, where shown and as required for a complete system.
3. Manufacturers and Products:
  - a. W.P. Hickman Co.; Econosnap.
  - b. IMETCO; EZ Edge.

B. Coping System:

1. Snap-on system, stainless steel, 24-gauge minimum thickness.
2. Include ancillary items, such as mitered and welded corners, and end caps, where shown and as required for complete system.
3. Manufacturers and Products:
  - a. W.P. Hickman Co.; Permasnap Coping.
  - b. IMETCO; EZ Edge.
  - c. Johns Manville; Presto Lock Coping System.

C. Finish: Match Existing.

2.03 DOWNSPOUTS, GUTTERS, SCUPPERS, AND CONDUCTOR HEADS

A. Same metal and thickness as flashing.

2.04 ANCILLARY MATERIALS

- A. Sealing Tape: Polyisobutylene sealing tape specifically manufactured for setting flanges on bituminous roofing.
- B. Isolation Paint: ASTM D1187/D1187M, asphalt.
- C. Isolation Tape: Butyl or polyisobutylene, internally reinforced, or 20-mil thick minimum polyester.
- D. Plastic Roof Cement: ASTM D4586/D4586M, Type II.
- E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

## FY23 WATER SUPPLY AND TREATMENT

### G. Fasteners:

1. Zinc or Aluminum Work: Stainless steel or aluminum.
2. Stainless Steelwork: Stainless steel.
3. Nails: Roofing nailhead, 10-gauge spiral or ring shank, lengths as required to penetrate wood at least 3/4 inch or as required in Article Performance Requirements.

## 2.05 FABRICATION OF FLASHING

- A. Field measure prior to fabrication.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
- E. Reinforcements and Supports: Provide same material as flashing, unless other material is shown. Steel, where shown or required, shall be galvanized or stainless.
- F. Rigid Joints and Seams: Make mechanically strong. Seal joints with sealant.
- G. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- H. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with butyl sealant concealed within joints.
- I. Fabricate sheet metal in 10-foot maximum lengths, unless otherwise indicated.
- J. Provide watertight closures at exposed ends of counterflashing.
- K. Fabricate corners in one-piece with legs extending 30 inches each way to field joint. Lap or rivet corner seams watertight. Apply sealant if necessary.
- L. Solvent clean sheet metal. Surfaces to be in contact with roofing or otherwise concealed shall be coated with isolation paint.



- M. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- N. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
  - 1. Thickness: As recommended by SMACNA 1793 and FM Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.

2.06 FABRICATION OF DOWNSPOUTS, GUTTERS, SCUPPERS, AND CONDUCTOR HEADS

- A. Form downspouts and gutters in maximum lengths as practicable to sizes and shapes indicated on the Drawings:
  - 1. Telescope end joints 1-1/2 inches and lock longitudinal joints of downspouts.
  - 2. Provide elbows at bottom where downspouts empty onto splash blocks.
  - 3. Fit downspouts into cast iron boots or drainpipes where indicated on the Drawings; neatly caulk or cement joints.
- B. Form scuppers and conductor heads to shapes and sizes indicated on the Drawings.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set and cant strips and reglets in place.
- B. Verify nailing strips and blocking are properly located.
- C. Verify membrane termination and base flashings are in place, sealed, and secure.

3.02 INSTALLATION

- A. Flashing:
  - 1. General:
    - a. Install sheet metal roof flashing and trim to comply with performance requirements and SMACNA 1793.
    - b. Provide concealed fasteners where possible, set units true to line, and level as indicated.

## FY23 WATER SUPPLY AND TREATMENT

- c. Install work with laps, joints, and seams that will be permanently watertight.
  2. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FM Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
    - a. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 16-inch centers.
  3. Isolate metal from wood and concrete and from dissimilar metal with isolation tape or two coats of isolation paint.
  4. Use only stainless steel fasteners to connect isolated dissimilar metals.
  5. Joints: 10-foot maximum spacing and 2-1/2 feet from corners, butted with 3/16-inch space centered over matching 8-inch-long backing plate with sealing tape in laps.
  6. Set flanges of flashings and roof accessories on continuous sealing tape or in plastic roof cement on top of envelope ply of roofing. Nail flanges through sealing tape and at 3-inch maximum spacing. Touch up isolation paint on flanges.
  7. Joints, Fastenings, Reinforcements, and Supports: Sized and located as required to preclude distortion or displacement as a result of thermal expansion and contraction.
  8. Provide continuous holddown clips at counterflashing and gravel stops.
  9. Conceal fastenings wherever possible.
  10. Set flashing and sheet metal to straight, true lines with exposed faces aligned in proper plane without bulges or waves.
- B. Prefabricated Metal Systems:
  1. Follow system manufacturer's printed instructions.
  2. Place color variations in pieces so no extremes are next to each other.
- C. Downspouts, Gutters, Scuppers, and Conductor Heads: Anchor downspouts to wall with straps of same material as downspouts. Install gutters, scuppers, and conductor heads as indicated on the Drawings.

### 3.03 FINISH

- A. Exposed Surfaces of Flashing and Sheet Metalwork: Free of dents, scratches, abrasions, or other visible defects, and clean and ready for painting where applicable.

### 3.04 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

**END OF SECTION**



**SECTION 07 70 01  
ROOF SPECIALTIES AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. The following is a list of standards which may be referenced in this section:
1. Air Movement and Control Association International (AMCA).
  2. American Architectural Manufacturers Association (AAMA).
  3. ASTM International (ASTM):
    - a. D1187, Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.
    - b. D4586, Standard Specification for Asphalt Roof Cement, Asbestos-Free.

**1.02 STATEMENT OF WORK**

- A. Existing roof specialties and accessories are to remain unless otherwise noted on the Drawings. This Specification is included for any existing roof specialties or accessories that must be replaced to obtain a new warranty in accordance with Section 07 52 16, SBS-Modified Bituminous Membrane Roofing and Section 07 54 23, Thermoplastic Membrane Roofing in these Contract Documents, or to maintain an existing warranty and watertight conditions. Contractor to notify Engineer and Owner prior to fabrication or installation or any new roof specialties and accessories.

**1.03 SUBMITTALS**

- A. Action Submittals:
1. Shop Drawings of each item specified showing materials, details, flashing, anchorage, and relation to adjacent structure.
  2. Catalog cuts of each item specified item.
- B. Informational Submittals: Manufacturer's Certificate of Compliance per Section 01 00 01, General Requirements, (or alternately, test results or calculations) that assure item's and its anchorage's design criteria meets requirements of Section 01 00 01, General Requirements, for loads provided on the Structural Drawings.

## FY23 WATER SUPPLY AND TREATMENT

### 1.04 SEQUENCING AND SCHEDULING

- A. Coordination: Schedule and coordinate work of this section with work of Section 07 52 16, SBS-Modified Bituminous Membrane Roofing, Section 07 54 23, Thermoplastic Membrane Roofing, and Section 07 62 00, Sheet Metal Flashing and Trim.

## **PART 2 PRODUCTS**

### 2.01 VENT PIPE FLASHING

- A. Prefabricated flashing with elastomeric collar and 0.032-inch aluminum base, sized to fit vent pipe.
- B. Manufacturer and Product: Oatey; No-Caulk Roof Flashing.

### 2.02 ROOF DRAINS

- A. Molded plastic drain with dome grate and flexible neoprene bellows connection to drain.
- B. Size: To match existing drain pipe.
- C. Manufacturers and Products:
  - 1. Johns Manville; Flex-I-Drain.
  - 2. Portals Plus, Inc.; Roof Drain.

### 2.03 ANCILLARY MATERIALS

- A. Sealing Tape: Polyisobutylene sealing tape specifically manufactured for setting flanges on bituminous roofing.
- B. Isolation Paint: ASTM D1187, asphalt.
- C. Coat aluminum surfaces in contact with concrete or dissimilar metals as specified.
- D. Isolation Tape: Butyl or polyisobutylene, internally reinforced, or 20-mil-thick minimum polyester.
- E. Plastic Roof Cement: ASTM D4586, Type II.
- F. Fasteners: Stainless steel of type required.

**PART 3 EXECUTION**

3.01 PREPARATION

- A. Examine surfaces and structures to receive the Work of this section.
- B. Take measurements at Site and fabricate work to suit. No changes shall be made in supporting structure to accommodate this Work.

3.02 INSTALLATION

- A. General:
  - 1. Install roof specialties and accessories as detailed in approved Shop Drawings and in conformance with manufacturer's instructions, recommendations, and standards.
  - 2. Use appropriate pipe seal, or vent pipe flashing where pipe, conduit, or cable, etc., penetrate roofing membrane.
  - 3. Factory Finished Units: Place color variations in pieces so no extremes are next to each other.
  - 4. Make Work weathertight and free of expansion and contraction noise.
  - 5. Maintain separation between aluminum surfaces and concrete or dissimilar metals with isolation paint or with isolation tape.

**END OF SECTION**





**SECTION 26 41 00  
FACILITY LIGHTNING PROTECTION**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. The following is a list of standards which may be referenced in this section:
  - 1. Lightning Protection Institute (LPI): 175, Standard of Practice.
  - 2. National Fire Protection Association (NFPA):
    - a. 70, National Electrical Code (NEC).
    - b. 780, Standard for the Installation of Lightning Protection Systems.
  - 3. UL:
    - a. 96, Standard for Lightning Protection Components.
    - b. 96A, Standard for Installation Requirements for Lightning Protection Systems.

**1.02 DESIGN REQUIREMENTS**

- A. Provide lightning protection system design for the following structures:
  - 1. Taylor Creek Pump Station: Pump Station Building.
  - 2. Wewahootee Water Treatment Plant: Pump Station Building.
- B. Design lightning protection system to comply with applicable provisions of LPI 175, UL 96, UL 96A, and NFPA 780.
- C. Design to have the following special considerations.
  - 1. Reuse existing components and only replace parts as required.
  - 2. Run down conductors along the exterior of the buildings.

**1.03 SUBMITTALS**

- A. Action Submittals:
  - 1. Signed and Sealed Drawings by a Florida Professional Engineer (PE):
    - a. Lightning protection system layout.
    - b. Component locations.
    - c. Detailed plans.
  - 2. Down conductor.
  - 3. Connecting conductor.
  - 4. Bond strap.
  - 5. Air terminals.

## FY23 WATER SUPPLY AND TREATMENT

6. Fittings.
7. Connectors.
8. Ground rods.

### B. Informational Submittals:

1. Field test report.
2. Ground Witness Certification-Form LPI-175A.
3. Post-Installation Certification-Form LPI-175B.
4. UL 96 Master Label "C" Certification.

## 1.04 QUALITY ASSURANCE

- A. Designer: Lightning protection system design shall be prepared by and signed and sealed by a professional engineer registered (PE) in the State of Florida.
- B. System components shall be the product of a manufacturer regularly engaged in the manufacturing of lightning protection components in accordance with UL 96.
- C. Lightning protection system shall be installed under direct supervision of an LPI 175 Certified Master Installer.
- D. Inspection of final installation and grounding connection shall be performed by an LPI-certified inspector.
- E. Provide the Work in accordance with NFPA 70. Where required by Authority Having Jurisdiction (AHJ), material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.
- F. Materials and equipment manufactured within the scope of standards published by UL shall conform to those standards and shall have an applied UL listing mark.

## **PART 2 PRODUCTS**

### 2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
  1. Thompson Lightning.
  2. IPC Protection.
  3. Erico Eritech Lightning Protection Systems.
  4. VFC, Inc.

2.02 GENERAL

- A. Complete system shall bear UL 96 Master Label C.
- B. System Material: Aluminum, unless otherwise specified.
- C. Material shall comply in weight, size, and composition for the class of structure to be protected as established by NFPA 780.

2.03 COMPONENTS

- A. Air Terminal:
  - 1. Material: Solid aluminum with tapered or blunt points as required for application.
  - 2. Diameter: 5/8 inch.
  - 3. Length: Sufficient to extend minimum 10 inches above object being protected.
  - 4. UL 96 Label B applied to each terminal.
- B. Conductors:
  - 1. Lightning System Conductors: Bare medium hard-drawn stranded tin-plated copper, or stranded aluminum as required for the application.
  - 2. Main Down Conductor: Smooth twist stranding.
  - 3. Connecting Conductor: Concentric stranding.
  - 4. Bonding Conductor: Flexible strap.
  - 5. Main down and connecting conductors shall bear the UL 96 Label A, applied every 10 feet.
  - 6. Grounding Conductors: Stranded bare tin-plated copper.
- C. Cable Fastener and Accessories: Capable of withstanding minimum pull of 100 pounds.
- D. Fittings:
  - 1. Heavy-duty.
  - 2. Bolts, Screws, and Related Hardware: Stainless steel.
- E. Ground Rods:
  - 1. Material: Copper-clad.
  - 2. Diameter: 5/8 inch.
  - 3. Length: minimum 10 feet.

## FY23 WATER SUPPLY AND TREATMENT

### F. Grounding Connections:

1. Welds: Exothermic process.
2. Fasteners: Bolted clamp type, corrosion-resistant copper alloy.
3. Hardware: Silicone bronze.

### G. Cable Connections and Splicers:

1. Welds: Exothermic process.
2. Fasteners: Bolted clamp type, corrosion-resistant copper alloy.
3. Through-Roof Connectors: Straight or right angle with bronze and lead seal flashing washer.

### H. Conduit: Schedule 40 PVC, as specified.

## **PART 3 EXECUTION**

### 3.01 GENERAL

- A. Workmanship to comply with all applicable provisions of LPI 175, UL 96, UL 96A, and NFPA 780.
- B. Aluminum materials shall be used where required to meet the galvanic corrosion requirements of UL 96A.
- C. Provide pitchpockets or method compatible with roofing to waterproof roof penetrations.
- D. Install system in inconspicuous manner so components blend with building aesthetics.

### 3.02 EXAMINATION

- A. Verify conditions prior to installation. Actual conditions may require adjustments in air terminal and ground rod locations.

### 3.03 INSTALLATION

#### A. Air Terminals:

1. Supports: Brackets or braces.
2. Parapet Bracket Attachment: Lag or expansion bolts.
3. Secure base to roof surface with adhesive or pitch compatible with roofing bond.
4. Provide terminal flashing at roof penetrations.

5. Perimeter Terminals:
    - a. Maximum Spacing: 20 feet.
    - b. Maximum Distance From Outside Edge of Building: 2 feet.
  6. Roof Ridge Terminals: Maximum spacing 20 feet.
  7. Mid-Roof Terminals: Maximum spacing 50 feet.
  8. Provide blunt point air terminals for applications exposed to personnel.
- B. Conductors:
1. Conceal whenever practical.
  2. Provide 1-inch PVC conduit in building walls or columns for main downloads and roof risers.
  3. Support: Maximum spacing for exposed conductors.
    - a. Vertical: 3 foot.
    - b. Horizontal: 4 foot.
  4. Maintain horizontal and vertical conductor courses free from dips or pockets.
  5. Bends: Maximum 90 degrees, with minimum 8-inch radius.
  6. Install air terminal conductors on the structural roof surface before roofing composition is applied.
- C. Bonding:
1. Bond to Main Conductor System:
    - a. Roof-mounted ventilators, fans, air handlers, masts, flues, cooling towers, handrails, and other sizeable metal objects.
    - b. Roof flashing, gravel stops, insulation vents, ridge vents, roof drains, soil pipe vents, and other small metal objects if located within 6 feet of main conductors or another grounded object.
  2. Bond each steel column or major framing members to grounding system.
  3. Bond each main down conductor to grounding system.
- D. Grounding System:
1. Grounding Conductor:
    - a. Completely encircle building structure.
    - b. Bury minimum 1 foot below finished grade.
    - c. Minimum 2 feet from foundation walls.
  2. Interconnect ground rods by direct-buried copper cables.
  3. Maximum Resistance: 5 ohms when connected to ground rods.

## FY23 WATER SUPPLY AND TREATMENT

4. Connections:
  - a. Install ground cables continuous between connections.
  - b. Exothermic welded connections to ground rods, cable trays, structural steel, handrails, and buried and nonaccessible connections.
  - c. Provide bolted clamp type mechanical connectors for all exposed secondary connections.
  - d. Use bolted offset parapet bases or through-roof concealed base assemblies for air terminal connections.
  - e. Provide interconnections with electrical and telephone systems and all underground water, and gas metal pipes.
  - f. Provide electric service arrestor ground wire to building water main.

### 3.04 FIELD QUALITY CONTROL

#### A. Field Testing:

1. Isolate lightning protection system from other ground conditions while performing tests.
2. Resistance: Test ground resistance of grounding system by the fall-of-potential method.
  - a. Test Resistance to Ground: Maximum 5 ohms.
  - b. Install additional ground rods as required to obtain maximum allowable resistance.
3. Test Report:
  - a. Description of equipment tested.
  - b. Description of test.
  - c. Test results.
  - d. Conclusions and recommendations.
  - e. Appendix, including appropriate test forms.
  - f. Identification of test equipment used.
  - g. Signature of responsible test organization authority.

**END OF SECTION**

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**DRAWINGS**

**(BOUND SEPARATELY)**

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# CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

## ROOF REPLACEMENT AND REPAIR FOR WATER PRODUCTION FACILITIES



CITY OF COCOA  
FLORIDA

VOLUME 2 OF 2  
DRAWINGS

For information regarding this project, contact:  
RICHIE ANGLE, P.E.  
200 S ORANGE AVE  
SUITE 900  
ORLANDO, FL 32801

# Jacobs

FEBRUARY 2024

BID DOCUMENTS

### INDEX OF DRAWINGS

SHEET	DRAWING	TITLE
<b>01 - GENERAL</b>		
01	COVER SHEET	
02	01-G-002	LOCATION AND VICINITY MAPS AND INDEX OF DRAWINGS
03	01-G-003	ARCHITECTURAL LEGEND AND NOTES
<b>20 - TAYLOR CREEK PS</b>		
04	20-A-101	TAYLOR CREEK SITE PLAN
05	20-A-201	TAYLOR CREEK ROOF PLAN
06	20-A-301	TAYLOR CREEK ROOF DETAILS
<b>30 - WEWAHOOTEE WTP</b>		
07	30-A-101	WEWAHOOTEE SITE PLAN
08	30-A-201	WEWAHOOTEE WM ROOF PLAN
09	30-A-301	WEWAHOOTEE ROOF DETAILS



WEWAHOOTEE WTP



DYAL WTP

TAYLOR CREEK PUMP STATION

NO.	DATE	DR	CHK	BY	APVD
					A. DOLSAK
					T. DODGE
					S. SLAYTON

643 SW 4TH AVE, SUITE 400  
GAINESVILLE, FLORIDA 32601  
EB2822  
ADAM N. DOLSAK, AR 92469  
ROOF REPLACEMENT AND REPAIR  
FOR WATER PRODUCTION FACILITIES  
CITY OF COCOA  
CITY OF COCOA, FLORIDA

**JACOBS**  
GENERAL  
LOCATION AND VICINITY MAPS  
AND INDEX OF DRAWINGS

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	FEBRUARY 2024
PROJ	EGXL7403
DWG	01-G-002
SHEET	2 of 9

BID DOCUMENTS

### ARCHITECTURAL ABBREVIATIONS

ABBREVIATION	DEFINITION
A	AWNING
AC	ACOUSTICAL CEILING
ACFL	ACCESS FLOORING
ACMU	ACOUSTICAL CMU
ACT	ACOUSTICAL TILE
AJ	ADJUSTABLE
AL	ALUMINUM
AS	AS SELECTED
BRK	BRICK
BNZ	BRONZE
BV	BLOCK VENT
C	CASEMENT
CLR	CLEAR
CLSR	CLOSER
CMU	CONCRETE MASONRY UNITS
CNTR	COUNTER
COL	COLOR
CONC	CONCRETE
CONSTR	CONSTRUCTION
CPT	CARPET
CRC	CHEMICAL-RESISTANT COATINGS
CT	CERAMIC TILE
DA	DUAL ACTION
DB	DRAINABLE
DH	DOUBLE HUNG
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EXP	EXPOSED STRUCTURE
FCTY	FACTORY
FNSH	FINISH
FRP	FIBERGLASS REINFORCED PLASTIC
FWC	FABRIC WALL COVERING
FX	FIXED
GALV	GALVANIZED STEEL
GCMU	GLAZED CONCRETE MASONRY
GH	GREENHOUSE
GLZ	GLAZING
GMU	GLASS MASONRY UNIT
GSB	GYPSTUM SOFFIT BOARD
GWB	GYPSTUM BOARD
HC	HOLLOW CORE
HDNDR	HARDENER
HGT	HEIGHT
HM	HOLLOW METAL
HS	HORIZONTAL SLIDING
J	JALOUSIE
JA	JAL-AWNING
KEY	KEY GROUP
KPL	KICK PLATE
LD	COMBINATION LOUVER/DAMPER
MATL	MATERIAL
MDO	MEDIUM DENSITY OVERLAY
MET	METAL
MO	MANUALLY OPERABLE
MS	MANUFACTURER'S STANDARD
P	PROJECTED
PAVT	PAVER TILE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLWD	PLYWOOD
PNL	PANELING
PP	PUSH-PULL
PTN	PARTITION
QT	QUARRY TILE
RESIL	RESILIENT
RFS	ROLL-UP FIRE SHUTTER
RRUB	RADIAL RUBBER FLOORING
RUB	RUBBER SHEET FLOORING
SC	SOLID CORE WOOD
SIM	SIMILAR
SMLS	SEAMLESS EPOXY
SOI	SPRAY-ON INSULATION
SP	STORMPROOF
SST	STAINLESS STEEL
STL	STEEL
SVIN	SHEET VINYL
TCTG	TRAFFIC COATING
TH	TOP HINGED
TR	TRANSOM
TSHD	THRESHOLD
TWP	TRANSLUCENT PANEL SYSTEM
VCT	VINYL COMPOSITION TILE
VINT	VINYL TILE
VNL	VINYL
VP	VERTICAL PIVOTED
VS	VERTICAL SLIDE
VWC	VINYL WALL COVERING
WD	WOOD
WHT	WHITE
WRB	WATER RESISTANT GWB
WS	WEATHERSTRIPPING
WW	WINDOW WALL
X	OPEN

### GOVERNING CODES AND STANDARDS

2020 FLORIDA BUILDING CODE, BUILDING, 7TH EDITION  
 2020 FLORIDA BUILDING CODE, ACCESSIBILITY, 7TH EDITION  
 2020 FLORIDA BUILDING CODE, ENERGY CONSERVATION, 7TH EDITION  
 2020 FLORIDA BUILDING CODE, PLUMBING, 7TH EDITION  
 2020 FLORIDA BUILDING CODE, MECHANICAL, 7TH EDITION  
 2020 FLORIDA BUILDING CODE, FUEL GAS, 7TH EDITION  
 2020 FLORIDA FIRE PREVENTION CODE, 7TH EDITION  
 2017 NATIONAL ELECTRICAL CODE (NFPA 70)

### ARCH/STRUCT MATERIAL SYMBOLS

SYMBOL	LEGEND	SYMBOL	LEGEND
	GRATING, SPAN DIRECTION INDICATED		WOOD STUD WALL (PLAN)
	CHECKERED PLATE		RIGID INSULATION
	GROUT		BATT INSULATION
	GRANULAR FILL		STEEL
	EARTH OR FINISH GRADE		ALUMINUM
	CONCRETE		PLYWOOD
	CMU WALL (PLAN)		GYPSTUM WALLBOARD
	CMU WALL (SECTION)		ACOUSTICAL TILE
	MASONRY WALL		WOOD, ROUGH CONTINUOUS
	METAL STUD WALL (PLAN)		WOOD, ROUGH NON-CONTINUOUS
			WOOD, FINISHED

### GENERAL ARCHITECTURAL NOTES

#### GENERAL ROOFING CONSTRUCTION NOTES

- NOTE: REFER TO AND COORDINATE DIRECTLY WITH PROJECT SPECIFICATIONS AND GENERAL PROVISIONS. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD. THIS SHALL INCLUDE VERIFYING THE EXACT LOCATIONS, DIMENSIONS AND QUANTITIES OF ALL ROOFTOP EQUIPMENT AND APPURTENANCES INCLUDING, BUT NOT LIMITED TO VENT PIPES, DRAINS, FLUE PIPES, HOT STACKS, CURBS, BASE FLASHING AND ALL OTHER PENETRATIONS AND WORK ASSOCIATED WITH THIS ROOFING PROJECT, (INCLUDING FACADE MTD. EQUIP., WIRING, & ELEMENTS, ETC.). THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, IN WRITING, OF ALL CONDITIONS WHICH ARE IN VARIANCE WITH THE CONDITIONS DOCUMENTED HEREIN PRIOR TO SUBMITTING A BID.
- CONTRACTOR SHALL PROTECT ALL EXISTING BUILDING & SITE ELEMENTS ROOFTOP ITEMS/EQUIPMENT AND AREAS OF ROOFING THAT ARE INDICATED TO REMAIN OR AS DIRECTED BY PROJECT ENGINEER INCLUDING, BUT NOT LIMITED TO ROOF EQUIPMENT, CONDUIT, ANTENNAE, LIGHTNING PROTECTION, BUILDING ELEMENTS, LIGHT FIXTURES, ACCESSORIES, EQUIPMENT, ETC. DURING CONSTRUCTION.
- DO NOT SCALE DRAWINGS, WRITTEN DIMENSIONS GOVERN, ROOF ELEMENT LOCATION DIMENSIONS AND TYPES SHALL BE AS SHOWN ON CONSTRUCTION PLANS. IN CASE OF CONFLICT, NOTIFY PROJECT ENGINEER IN WRITING FOR WRITTEN CLARIFICATION, PRIOR TO PROCEEDING WITH CONSTRUCTION.
- CONTRACTORS SHALL COORDINATE AND VERIFY CONDITIONS TO ENSURE PROPER FIT, PRIOR TO BID & CONSTR. OPERATIONS. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CRITICAL DIMENSIONS AND CLEARANCES.
- ALL DIMENSIONS SHOWN SHALL BE VERIFIED (VIF) BY THE CONTRACTOR IN THE FIELD UON. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER IN WRITING OF ANY DISCREPANCY IN DIMENSIONS PRIOR TO PROCEEDING WITH THE WORK IN THAT AREA.
- CONTRACTOR SHALL COORDINATE AND CONFIRM PLACEMENT OF NEW DETAILED ROOF EDGE BLOCKING, EQUIPMENT BLOCKING/CURBS, & ROOF MOUNTED EQUIPMENT WITH PROJECT ENGINEER, PRIOR TO INSTALLING NEW ROOFING MATERIALS, FLASHING, ETC.
- CONTRACTOR TO VERIFY COMPATIBILITY OF NEW ROOFING PRODUCTS WITH ANY EXISTING ROOFING SYSTEM OR ELEMENTS, SCHEDULED TO REMAIN.
- WHERE EXISTING WALL, CURB, OR ROOF EDGE MOUNTED PLUMBING, MECHANICAL, ELECTRICAL ELEMENTS AND OTHER WORK IS REMOVED, PATCH AND SUPPORT AFFECTED AREAS AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE EXISTING MATERIAL'S FIRE RATINGS & STRUCTURAL CAPACITY. PROVIDE A SMOOTH, LEVEL, FLUSH SURFACE FOR REINSTALLATION OF EXISTING OR NEW MATERIALS AND ROOF MOUNTED ELEMENTS.
- WHERE NEW ROOFING SYSTEM INSTALLATION IS TO BE PROVIDED, REPAIR/PATCH EXISTING CONC. SLAB AND / OR ROOF DESK IF DETERIORATED, BROKEN, CRUMBLING OR BREACHED BY HOLE PENETRATIONS. REPAIR AND CLEAN TO SMOOTH LEVEL SURFACE BEFORE INSTALLING NEW INSULATION AND ROOFING SYSTEM COMPONENTS (TYP.).
- ALL WOOD BLOCKING USED ON THE ROOFING PROJECT SHALL BE "PRESSURE TREATED" (TYP.) U.O.N AND SHALL BE TESTED IN ACCORDANCE WITH REFERENCE STANDARDS AND PREVAILING BUILDING CODE & AUTHORITIES HAVING JURISDICTION.
- THE INSTALLATION OF ALL NEW OR REINSTALLED ROOF MTD. EQUIPMENT IS TO PROVIDE 8" MIN. FLASHING HEIGHT OR AS INDICATED BY THE PROJECT DRAWINGS & SPECIFICATIONS (WHICHEVER IS GREATER). RAISE EQUIP. AND/OR PROVIDE NEW PRE-FAB. EQUIP. CURB TO ACHIEVE REQ'D 8" MIN. FLASHING HEIGHT (TYP).
- ALL ROOF DETAILS ARE TO BE INSTALLED PER MFR. WARRANTY REQ'TS & INDICATE MINIMUM INSTALLATION REQUIREMENTS (TYP.)
- ALL OUTSIDE FACES OF COPING EDGES TO BE CONSISTENT AND ALIGN AT EACH LEVEL (VERTICALLY AND HORIZONTALLY).
- PROVIDE TAPERED CRICKET /GUSSETS BEHIND ALL ROOF CURBS AND EQUIPMENTS (TYP.). ALL NEW CRICKETS/GUSSETS TO BE 1/4" MIN. PER FOOT (TYP.).
- NEW ROOFING SYSTEM AND ASSOCIATED COMPONENTS SHOWN IS THE PRODUCT BASIS OF DESIGN (B.O.D). PROJECT ENGINEER APPROVED SUBSTITUTION REQUEST BY CONTRACTOR OF "OR EQUAL" ALTERNATE AND / OR REQUESTED MANUFACTURER SYSTEMS & COMPONENTS SHALL PROVIDE EQUAL WARRANTY AND PERFORMANCE REQUIREMENTS PER SPECIFICATIONS.

### ARCHITECTURAL/STRUCTURAL LEGEND

SYMBOL	LEGEND
	GRID / COLUMN INDICATOR
	ROOM IDENTIFIER
	DOOR IDENTIFIER
	WINDOW IDENTIFIER
	RELIGHT IDENTIFIER
	LOUVER IDENTIFIER
	WALL TYPE INDICATOR
	SIGNAGE IDENTIFIER
	INTERIOR ELEVATION INDICATOR
	SPOT ELEVATION INDICATOR (IN FEET)
	ELEVATION DATUM (IN FEET)
	DIRECTION OF SLOPE DOWN
	HATCH SWING INDICATOR
	INDICATES PAIR OF DOORS (DOOR # ON ACTIVE)
	FIRE EXTINGUISHER "X" = NUMBER IN SPECIFICATIONS
	CONTROL JOINT
	EXPANSION JOINT "X" = DIMENSION
	RAILINGS
	PRECAST PANEL IDENTIFIER
	SLAB INDICATOR
	COLUMN INDICATOR
	WALL INDICATOR
	BEAM INDICATOR

NO.	DATE	DR	APVD	BY	APVD
		DGNS	A. DOLSAK	CHK	A. DOLSAK
				REVISION	T. DODGE
					S. SLAYTON

643 SW 4TH AVE, SUITE 400  
 GAINESVILLE, FLORIDA 32601  
 EB2822  
 ADAM N. DOLSAK, AR 92469  
 ROOF REPLACEMENT AND REPAIR  
 FOR WATER PRODUCTION FACILITIES  
 CITY OF COCOA, FLORIDA

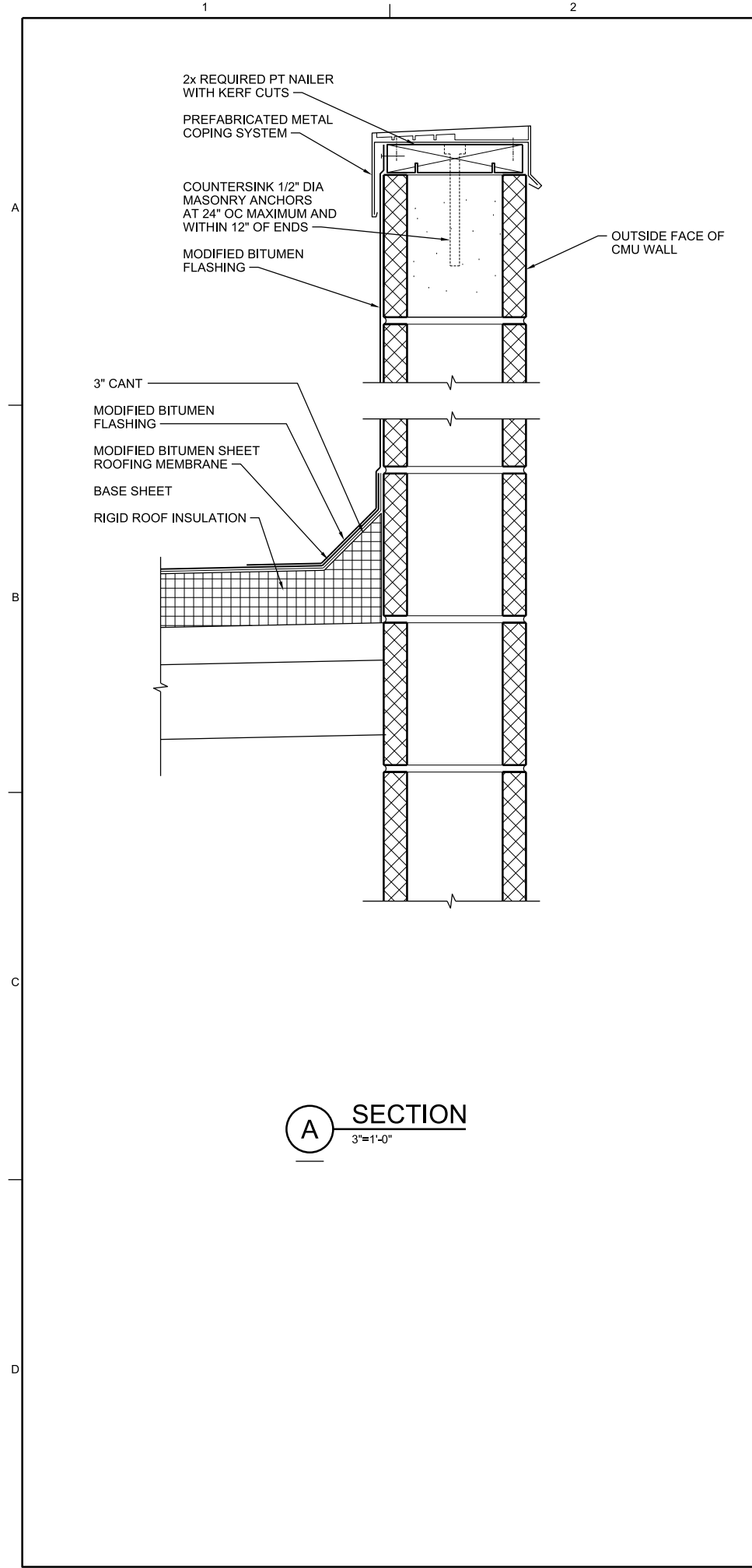
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 GENERAL  
 ARCHITECTURAL LEGEND AND NOTES

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PROJ	EGXL7403
DWG	01-G-003
SHEET	3 of 9

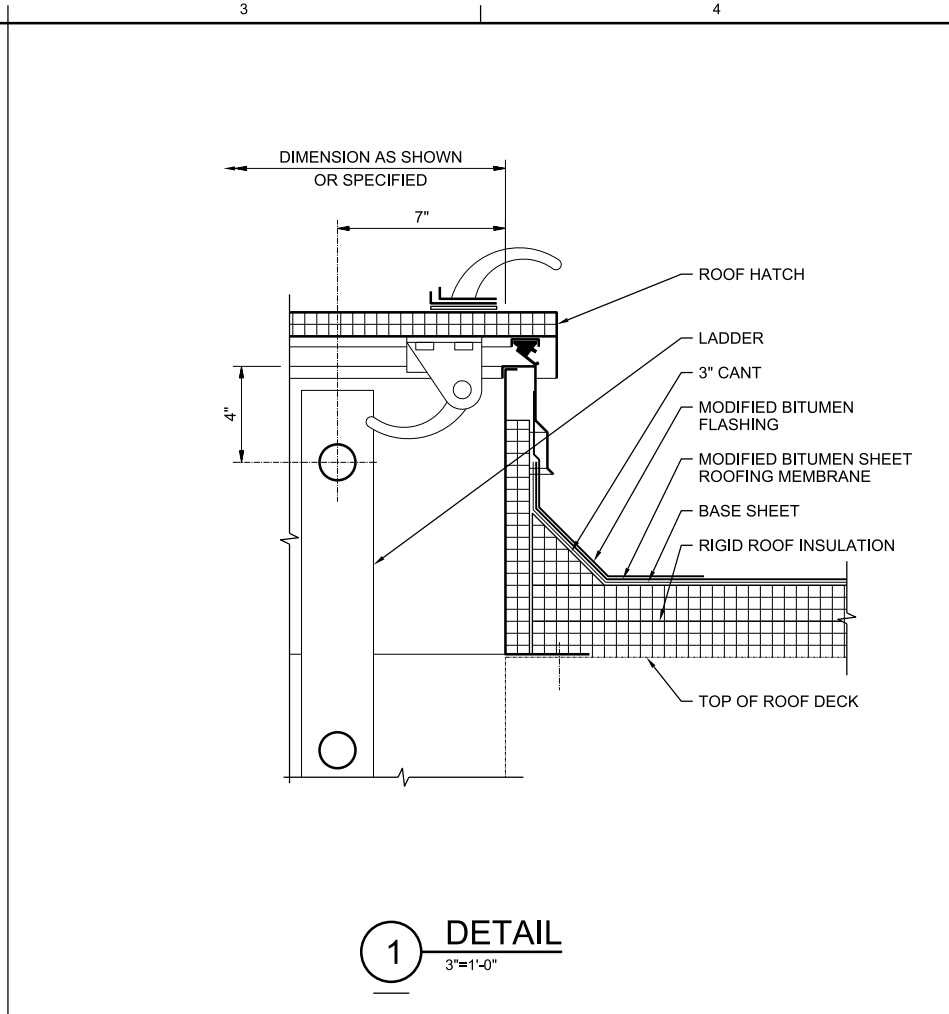
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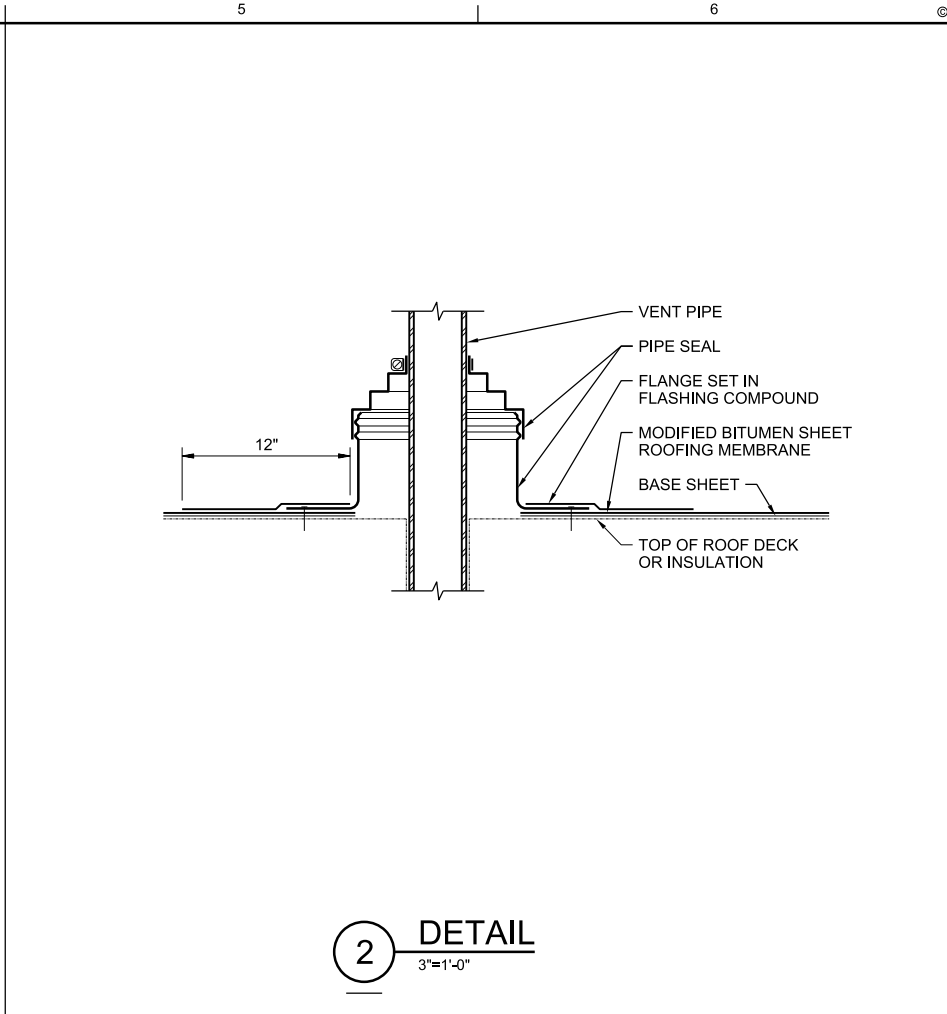




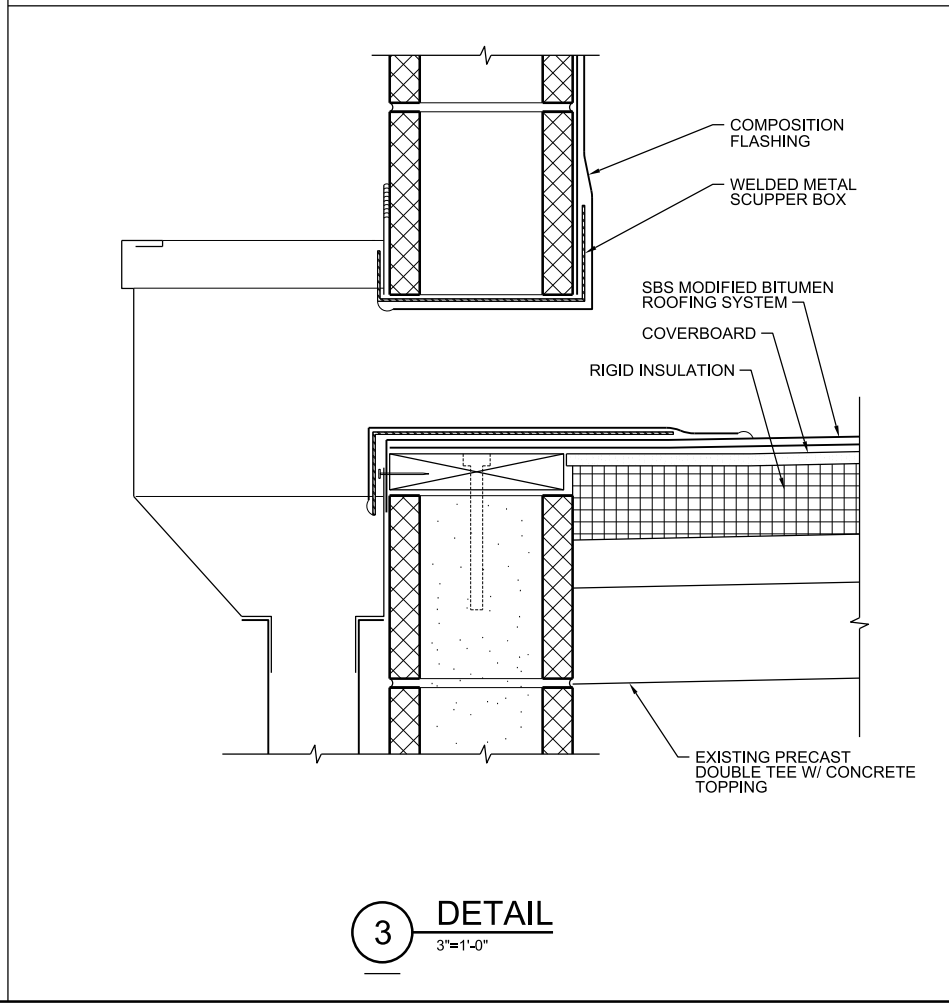
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3"=1'-0"



**1** DETAIL  
3"=1'-0"



**2** DETAIL  
3"=1'-0"



**3** DETAIL  
3"=1'-0"

NO.	DATE	DR	CHK	BY	APVD
		A. DOLSAK	S. SLAYTON	T. DODGE	A. DOLSAK

643 SW 4TH AVE, SUITE 400  
GAINESVILLE, FLORIDA 32601  
EB2822  
ADAM N. DOLSAK, AR 92489  
ROOF REPLACEMENT AND REPAIR  
FOR WATER PRODUCTION FACILITIES  
CITY OF COCOA  
CITY OF COCOA, FLORIDA

**JACOBS**  
ARCHITECTURAL  
TAYLOR CREEK  
ROOF DETAILS

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	FEBRUARY 2024
PROJ	EGXL7403
DWG	20-A-301
SHEET	6 of 9

BID DOCUMENTS



**GENERAL NOTES**

- SEE DRAWING 00-G-03 FOR GENERAL ROOFING NOTES.

**SHEET KEYNOTES**

- TEAR-OFF EXISTING ROOFING, CRICKETS INSULATION AND COVERBOARD TO EXISTING CONCRETE ROOF DECK. PREPARE CONCRETE SUBSTRATE FOR NEW ROOFING ACCORDING TO MANUFACTURERS REQUIREMENTS.
- REMOVE EXISTING CONCRETE COPING COMPLETELY.
- EXISTING CONDUCTOR HEAD AND DOWNSPOUT TO REMAIN.
- EXISTING ROOF HATCH AND CURB TO REMAIN.
- NEW TPO ROOF SYSTEM OVER COVERBOARD OVER TAPERED INSULATION.
- NEW PRE-FABRICATED METAL COPING.
- EXISTING STEEL TOWER TO REMAIN. CONTRACTOR TO REMOVE AND REPLACE CONDUIT, BRACING, FASTENERS AS REQUIRED TO INSTALL NEW ROOFING AND COPING. CONDUIT TO BE RE-INSTALLED ON EXTERIOR WALL OF BUILDING.
- NEW PREFABRICATED METAL EDGE FLASHING.
- RELOCATE EXISTING LIGHTNING PROTECTION SYSTEM TO INSIDE FACE OF PARAPET WALL.

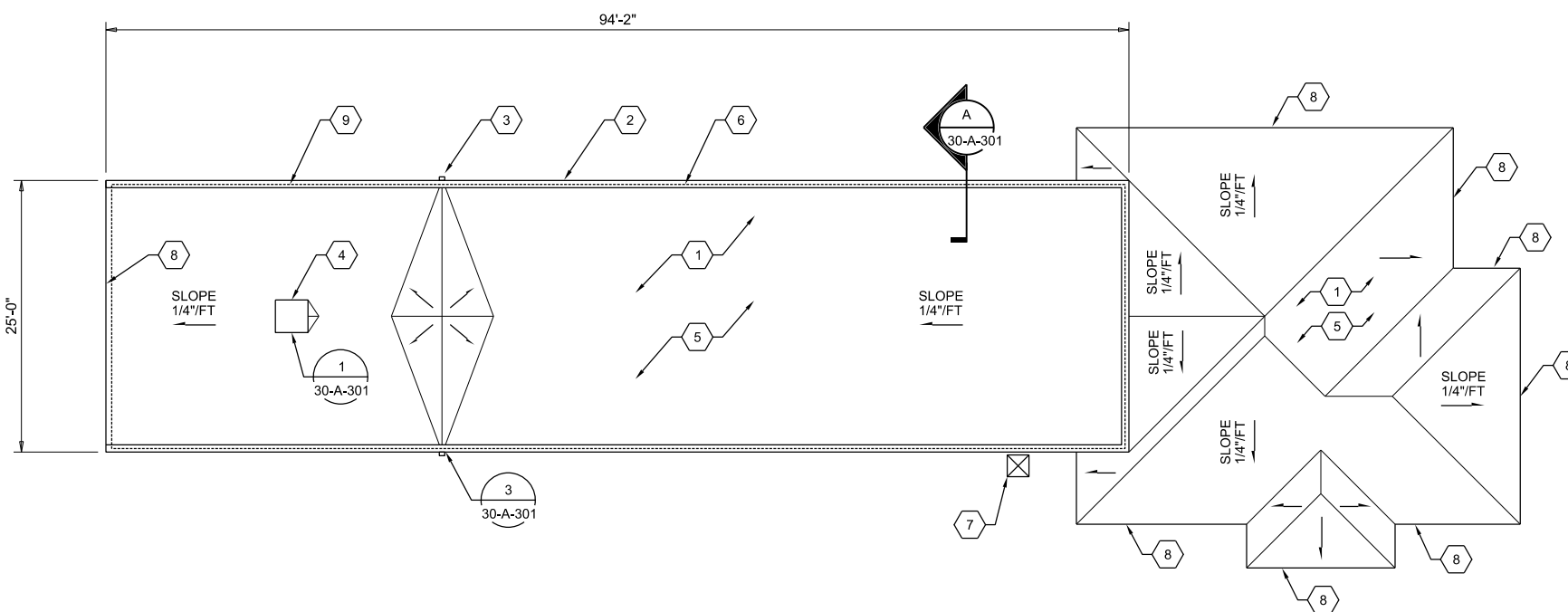
NO.	DATE	DR	CHK	REVISION	BY	APVD
		A. DOLSAK	S. SLAYTON			A. DOLSAK
			T. DODGE			

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CITY OF COCOA, FLORIDA

**JACOBS**  
ARCHITECTURAL  
**WEWAHOOTEE WM  
ROOF PLAN**

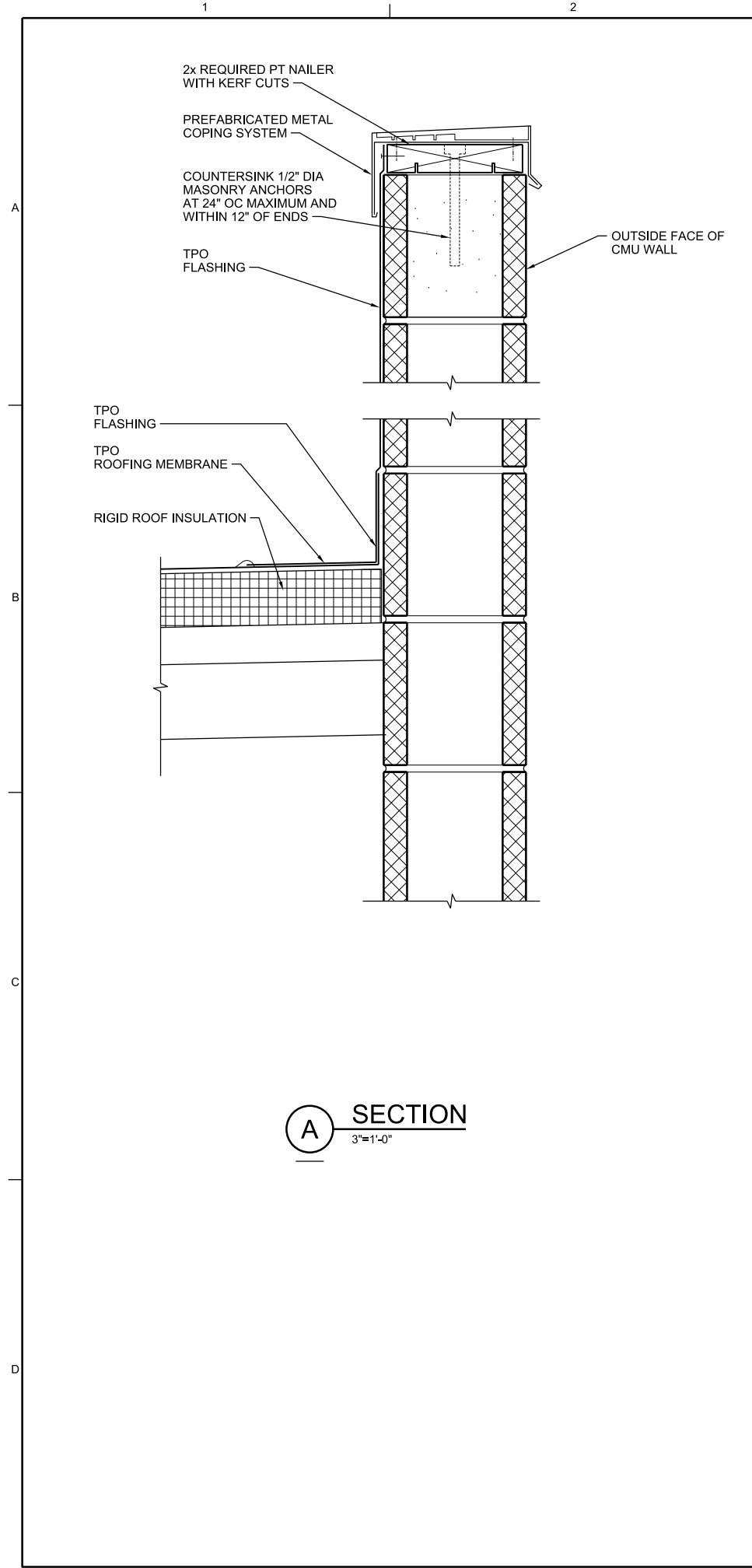
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SHEET 14 of 16

BID DOCUMENTS

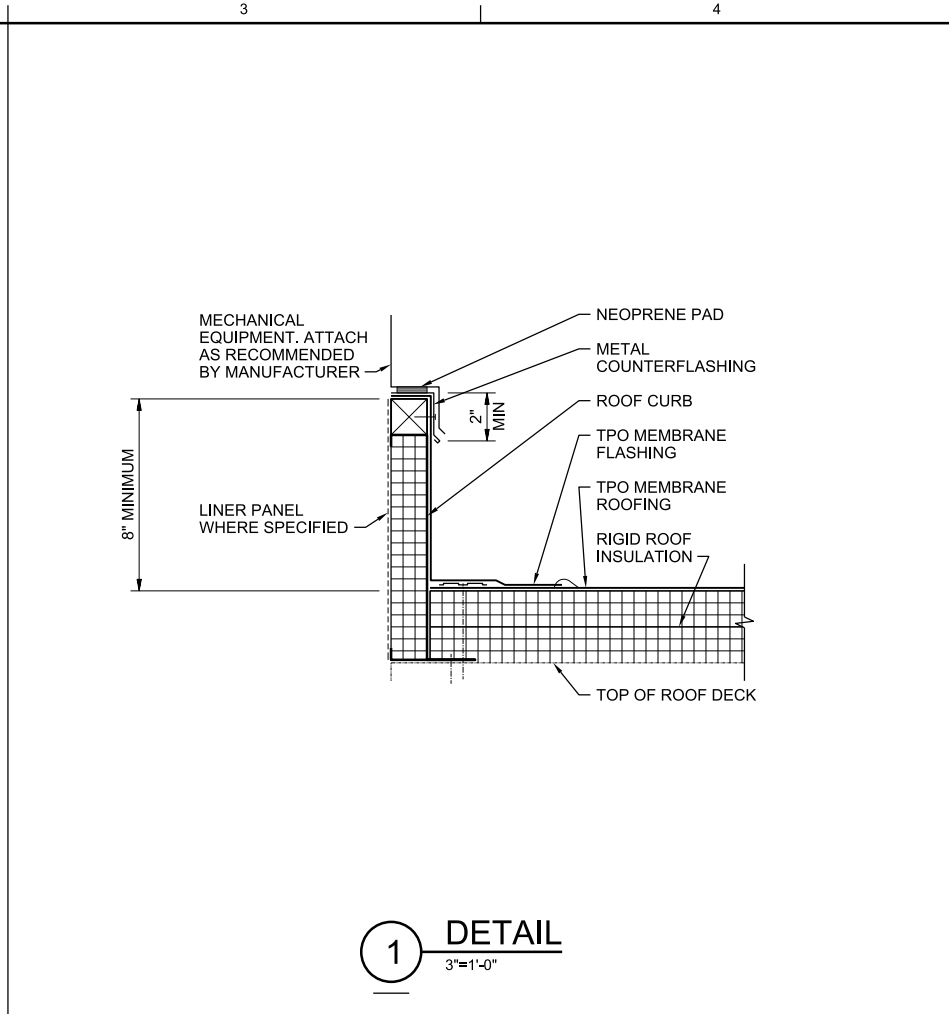


**1 ROOF PLAN**  
1/8"=1'-0"  
30-A-101

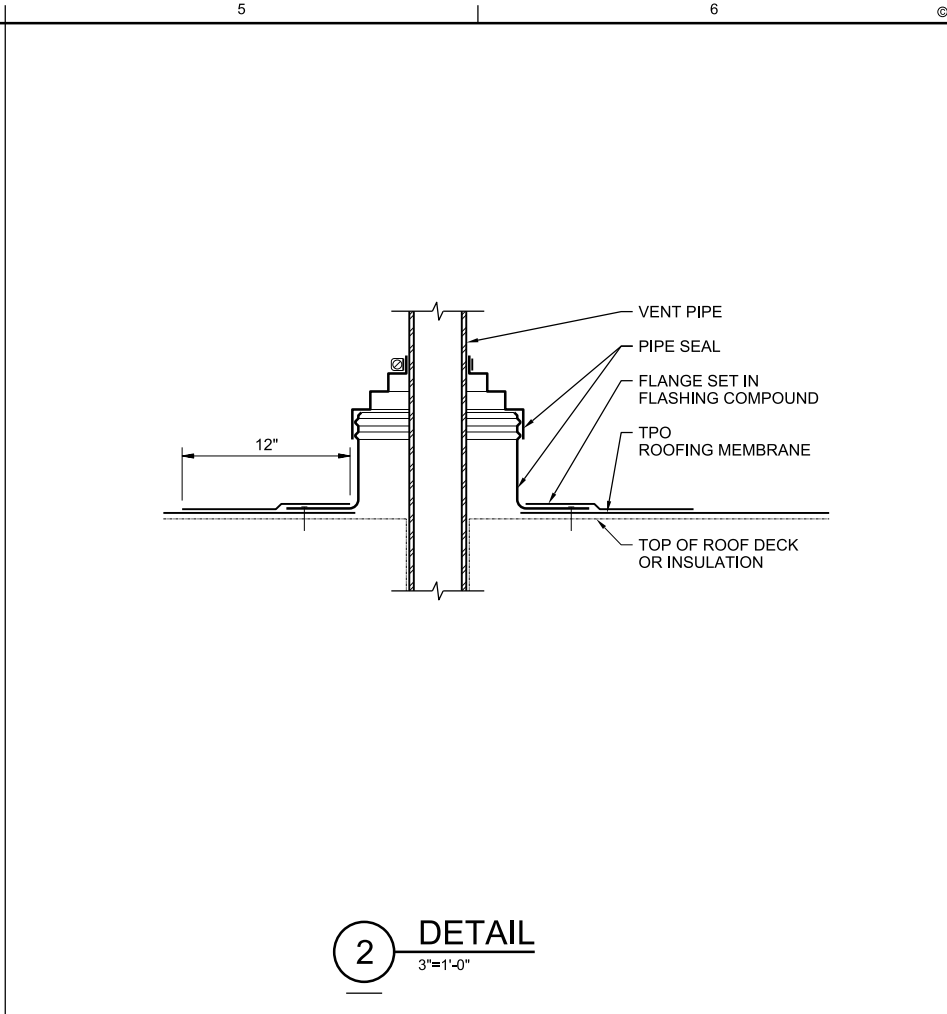




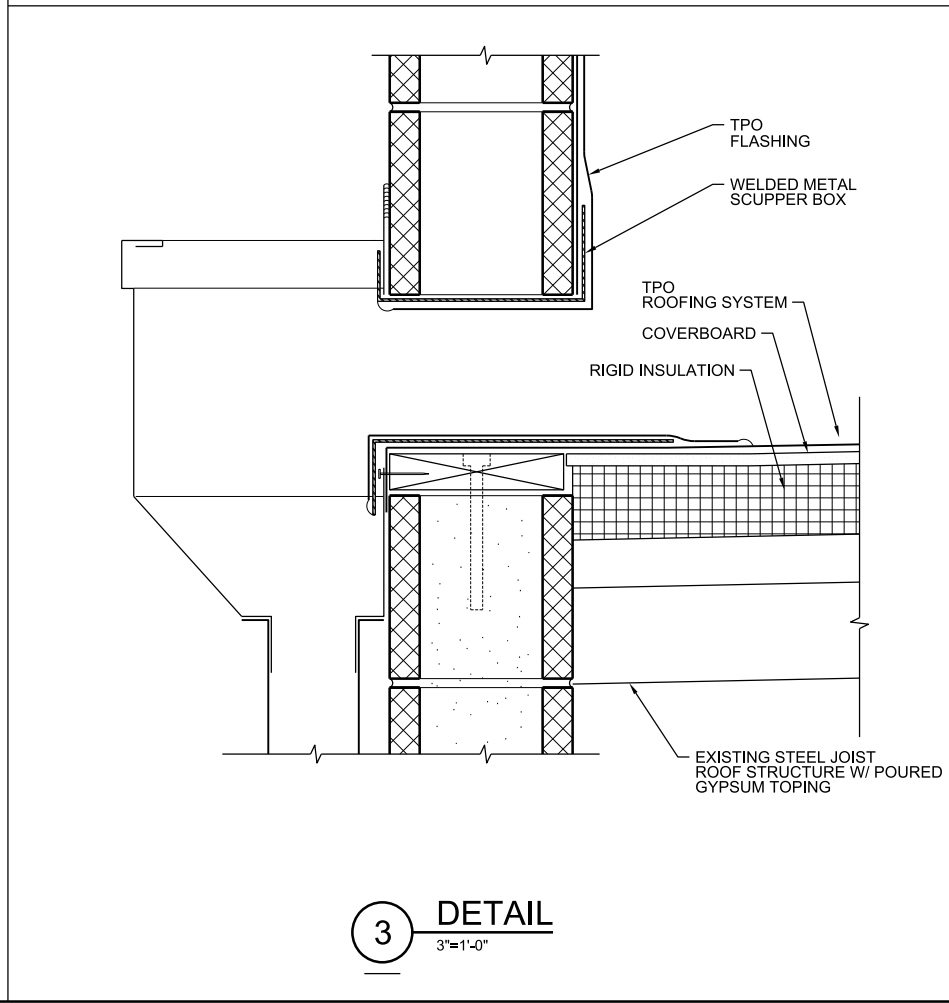
**A** SECTION  
3'-1'-0"



**1** DETAIL  
3'-1'-0"



**2** DETAIL  
3'-1'-0"



**3** DETAIL  
3'-1'-0"

NO.	DATE	DR	CHK	BY	APVD
		A. DOLSAK	S.SLAYTON	T.DODGE	A. DOLSAK

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**JACOBS**  
ARCHITECTURAL  
**WEWAHOOTEE**  
ROOF DETAILS

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DATE	FEBRUARY 2024
PROJ	EGXL7403
DWG	30-A-301
SHEET	9 of 9

BID DOCUMENTS