

**UNCW HOUSING VILLAGE PHASE III
SCO PROJECT #24-29053-02D**

BID PACKAGE NUMBER: BP-23B

BID PACKAGE NAME: MECHANICAL

Intent:

In general, this Bid Package is comprehensive to specific CSI Division Work and related Work as referenced, indicated on, or implied by the Project Drawings, Specifications and Project Manual. Subcontractor acknowledges that the following Scope of Work detail is provided as a courtesy and must be used in conjunction with **all** Project Documents. Scope of Work detail listed is not intended to describe a complete and final work scope. It is provided as a summary overview only.

General Requirements

Refer to the Bid Manual for all General Requirements and Special Provisions that are included and part of this scope of work. The Subcontractor has inspected the site and confirmed the scope of work. The Subcontractor has reviewed the Subcontract and Exhibits included with the bid documents and takes **No Exceptions**. The successful bidder will execute the Subcontract in its rent form without any modification. No previous Terms or Agreements will apply to the Subcontract.

Scope of Work Summary

Furnish all labor, engineering, material, equipment, scaffolding, systems, machinery, tools, apparatus, shop drawings, samples, submittals, burden, taxes, and supervision as required to complete the **Mechanical** as outlined in **The Contract Bidding Requirements** and in accordance with the **Contract Documents** as listed in the attached document schedule. The Scope of Work shall include, but not be limited to the General Conditions, all **Division 00 Procurement and Contracting Requirements**, all **Division 01 General Requirements**, and all the work in the following Specification Section(s), as further described herein:

Primary Specification Sections:

078413 Penetration Firestopping
078443 Joint Firestopping
079200 Joint Sealants
083113 Access Doors and Frames
230517 Sleeves and Sleeve Seals for HVAC Piping
230519 Meters and Gauges for HVAC Piping
230523 General-Duty Valves for HVAC Piping
230529 Hangers and Supports for HVAC Piping and Equipment
230548 Vibration and Seismic Controls for HVAC
230553 Identification for HVAC Piping and Equipment
230593 Testing, Adjusting, and Balancing for HVAC
230713 Duct Insulation
230716 HVAC Equipment Insulation
230719 HVAC Piping Insulation
230800 Commissioning of HVAC
232113 Hydronic Piping
232114 Hydronic Specialties
232123 Hydronic Pumps
232500 HVAC Water Treatment

233100 HVAC Ducts and Casings
233300 Air Duct Accessories
233416 Centrifugal HVAC Fans
233501 Dryer-Vent Exhaust Collection Systems
233700 Air Outlets and Inlets
234000 HVAC Air Cleaning Devices
233423 HVAC Power Ventilators (Early Procurement Specification)
233600 Air Terminal Units (Early Procurement Specification)
235216 Condensing Boilers (Early Procurement Specification)
236533 Liquid Coolers (Early Procurement Specification)
237433 Dedicated Outdoor Air Units (Early Procurement Specification)
238146 Water Source Unitary Heat Pumps (Early Procurement Specification)

238183 Variable Refrigerant Flow Systems

Related Specification Sections:

230913 Instrumentation and Control Devices for HVAC
230923 Direct-Digital Control System for HVAC
230934 Variable-Frequency Motor Controllers for HVAC
283116 Multiplexed Fire Detection and Alarm System

This Bid Package is for Work in accordance with all Contract Documents as listed in Exhibit A of this Subcontract and all work to be performed. It is imperative that Subcontractor review ALL drawings and specification sections and the complete Bid Manual to provide a complete bid.

Trade Specific Scope of Work Items:

The following is a general outline of items specifically included, but not limited to, under this agreement for **HVAC, Mechanical, Test & Balance** work in accordance with the Contract Documents:

*** Subcontractor shall furnish, install, maintain, and remove the following **Temporary Utilities**.

1. Subcontractor agrees to expedite the permanent mechanical systems and final hook-ups necessary to operate the permanent system for the purpose of temporary cooling and ventilation of the building(s) in accordance with the project schedule.
 - a. The Subcontractor will include any labor required to operate the mechanical portions of this system.
 - b. During temporary operation include filter fabric over all duct and equipment openings. If mechanical system becomes soiled, subcontractor shall clean final mechanical systems and ductwork to meet Owner's approval at Project Completion.
 - c. It shall not be excusable for any dust and/or dirt to enter the system. The ductwork shall be sealed when it arrives on site, once installed all open ends shall be sealed, and once the system is operational filter media shall be installed over all diffusers, grilles, and openings.

- d. Maintain temporary conditioned air (air conditioning) through the permanent mechanical systems in accordance with project schedule (duration for start-up milestone through Owner acceptance of system).
 - e. The early start-up of the mechanical equipment shall in no way encroach upon any warranty requirements of the Specifications. Warranty period for the mechanical work and equipment will not begin until Beneficial or Final Occupancy as outlined in the specifications.
2. Subcontractor agrees to cover the top of ductwork and piping insulation with 6 mil poly to protect insulation from water and dirt damages in order to insulate ductwork and piping prior to dry-in condition of building. If this is not done, the subcontractor will be required to provide all duct and pipe cleaning.
 3. Subcontractor is responsible for temporary strainers in all pumps. Subcontractor shall monitor and clean strainers to ensure no damage occurs to permanent system.
 4. Maintain filter replacement on all mechanical equipment during construction usage as well as over all duct openings as needed (MERV 8 filter fabric on duct and MERV 13 filters on equipment).
 - a. Subcontractor shall include continuous, minimum daily, maintenance of filter media and filters. Failure to do so may result in professional cleaning of duct and AHU equipment by this subcontractor.
 - b. Temporary filters are to be replaced at a minimum of monthly or more often as needed.
 - c. Subcontractor shall furnish and install clean filters for Test and Balance and Commissioning activities.
 - d. After Test and Balance and Commissioning are complete, Subcontractor shall furnish and install final filters on all mechanical equipment. This shall be done within the week prior to turnover to the Owner as outlined in the documents and as part of the project close-out and turnover.
 5. Subcontractor is responsible for providing and maintaining temporary heating (propane heaters) at each floor level to always maintain 55-degree Fahrenheit from duration of beginning drywall installations framing on each floor level through activation of permanent HVAC system.
 - a. Temporary heating shall be 150,000 Btu propane heaters (minimum of 2 each per floor on levels 1 through 5, 1 each at Level 1 Mechanical Area). This is for installation of drywall, ceilings, and finishes.

***The following is a general outline of items included, but not limited to, under this agreement for all **HVAC and Mechanical** per all specification sections under Division 23, etc. All Mechanical related work identified on mechanical drawings as well as inclusion of those items indicated on civil, site utility, plumbing, mechanical, and electrical drawings identified to be completed by this Subcontractor:

1. Equipment Conveyance - Refer to Early Procurement Bid Manual for **BPA BP-23A.1 BPA-BP-23.2** and **BP-23A.3** Scope of Work – the following equipment will be provided as stated in that scope of work WSHP, CT-1, CT-2 (ALT) DOAS 1, DOAS 2, DOAS 3, DOAS 4. This equipment will be conveyed and assigned to this bid package for unloading, installing, starting up, testing, and commissioning as outlined in the documents. This subcontractor shall contact supplier and include any costs associated with installing and turning over this equipment in accordance with all requirements of the contract documents including start-up,

maintenance, and warranties. Reference the supplement information folder for the equipment submittals.

- b. WSHP – Point of Contact Cameron Beaird cameronb@jmpco.com
 - c. CT – Assign a value of \$248,000 in your bid to carry the equipment CT-2 ALT. Point of Contact Cameron Beaird cameronb@jmpco.com
 - d. DOAS – Point of Contact Bryce Nobel bryce.noble@coolsys.com
2. Subcontractor shall provide pricing for the work in the existing library. Reference plans and specifications for description of **Alternates** and its scope of work. All means and methods necessary to keep the fire protection system operational during renovations are included.
 3. All hydronic water systems including, but not limited to, all piping, insulation, meters, gauges, heat exchangers, air separators, pumps, expansion tanks, valves, fittings, dielectric unions, water treatment, boilers, chemical feed, commissioning, variable frequency drives, etc.
 4. All building ventilation systems including, but not limited to, all air handlers, VAV's, exhaust fans, unit heaters, heat pumps, fan coil units, dampers, ductwork, diffusers, grilles, insulation, meters, gauges, air distribution devices, starters specified with equipment, variable frequency drives, commissioning, fin tube systems, etc. Provide and installation of all fire dampers and fire/smoke dampers as required to comply with all applicable codes, the Specifications, and Drawings.
 5. Subcontractor shall install all in-line devices such as valves, dampers, air flow measuring stations, duct detectors etc. that be furnished by others.
 6. All vibration and seismic controls, etc. for HVAC piping and equipment.
 7. All disconnects, starters, switches for equipment, furnished under this scope of work, shall be furnished, and installed by the Electrical Subcontractor
 8. The Electrical Subcontractor shall furnish and install all line and load side installation and connections to the equipment.
 9. All power and control equipment and devices that are the responsibility of this subcontractor shall be provided and installed complete a minimum of 4 weeks prior to needing the power and/or controls to operate the associated equipment. This requirement is considered a minimum and may be more restrictive if the contract schedule, TAB, Controls Installation, and Commissioning are impacted in any way.
 10. All VAV, Fan Coils, Unit Heaters, etc. shall include integral disconnect switches that meet the code requirement to be "Service Disconnects", lockable in the OFF position. All voltage serving the equipment shall be disconnected by this device. If integral service disconnects are not available this subcontractor will be responsible for providing and installing complete all disconnect switches that meet this requirement
 11. All required prefabricated roof curbs and mechanical roof supports. Furnishing and installation of curbs and supports by this Subcontractor shall be in strict accordance with roofing installation procedures. Include any required counter flashing, and preservative treated wood nailers are included in this Scope. Include any required counter flashing, and preservative treated wood nailers.

- a. Provide all wood blocking for installing and shimming curb to correct height and levelness. Cut out metal roof deck as required. Coordinate curb height with Roofing Subcontractor prior to order curbs. DOAS curbs are included with pre purchase.
15. Furnish and install all secondary mechanical drain pans, and all primary and secondary p-traps and piping to nearest plumbing receptacle for condensate drains. Condensate piping shall be insulated as identified in the Specifications and Drawings.
16. Provide manual volume dampers to each air distribution device as shown on drawings, as specified, and as required for proper air balancing at no additional cost to Construction Manager. Fire Dampers, Smoke Dampers, and combination Fire/Smoke Dampers shall not be utilized for balancing purposes.
17. Subcontractor shall provide all rough-in and final hook-up of all items requiring Mechanical service that are specified in any other section of the Specifications, or Owner furnished, and/or shown on the Drawings. All equipment or materials provided under other Specification sections which are to be installed by this Subcontractor will be identified and delivered to this Subcontractor's Project office and they shall inventory, store, schedule, handle, protect, and install the mechanical equipment as indicated in the Contract Documents.
18. Subcontractor shall furnish and install dryer venting and collection system and architectural louver as shown on A210 note E13 and mechanical plans and specifications.
19. Subcontractor shall furnish and install all required supports, including seismic constraints, for this Work in accordance with the Contract Documents, all applicable codes, and standard building practices. Any bridging between structural members to provide proper support spacing is the responsibility of the Subcontractor.
20. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction.
21. Subcontractor shall flush and clean all building mechanical piping systems.
 - a. Provide and maintain construction strainers in all pumps until Owner acceptance of buildings.
 - b. This subcontractor is responsible to flush and clean all site piping systems which are new to project to service new building at no cost to contractor as part of the building start-up/flushing activity even if the site piping was installed by another subcontractor.
 - c. This subcontractor is responsible for all costs to chemically balance the HVAC water systems to meet Owner requirements.
22. All flushing, pressure testing, disinfection/bacteriological (chlorination) chemical flushing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction is included. Subcontractor shall dilute and properly dispose of heavily chlorinated water with Owner permission.
23. Provide all sheaves, belts, and other miscellaneous parts as necessary to accomplish the balancing requirements.
24. Subcontractor shall furnish and install all necessary items required for concrete work related to the systems installed under this agreement including, but not limited to, the following per Division 03 specification sections including furnishing and installation of reinforcing steel:

- a. All concrete pads shown on the drawings will be installed by ~~BPA-BP-03A~~. ~~BPC-BP-23A~~ will assist with final dimensions and layout of pads. Any pads required that are not shown on the drawings shall be the responsibility of this subcontractor.
 - b. All concrete backfill for piping systems location under building footings, etc.
 - c. All grouting for equipment, inertia pads, wall sleeves to building structure, etc.
25. Subcontractor shall furnish and install Electrical heat trace, as required, for all piping installed under this Agreement. Final Electrical connection by others.
26. Subcontractor is responsible for total coordination of all mechanical installations and for providing complete mechanical system. There will be no cost or time considerations given for adjustments of equipment or pipe runs due to conflicts arising from lack of coordination with adjacent other existing MEP installations, new or existing structures, or other Subcontractors.
- a. Coordinate all elevated deck opening sizes and locations for ductwork/dampers with Steel Subcontractor and Concrete Subcontractor,
 - b. Coordinate floor drain locations associated with mechanical equipment and footing/foundation locations with Concrete Subcontractor
 - c. Coordinate electric stub ups with electrical subcontractor, etc.
 - d. Subcontractor is responsible to coordinate work under this agreement with Fire Protection Subcontractor, Electrical Subcontractor, and Site Mechanical Utility Subcontractor since existing and/or future utilities exist on-site.
 - e. Subcontractor is responsible for identifying all potential conflicts with building footing and foundation systems to ensure sleeving, stepping, phasing, etc. of foundations is achieved without undermining footing installations.
 - f. Coordinate with the Temperature Controls contractor and install pipe and duct mounted devices provided by the Temperature Controls contractor
27. Subcontractors shall layout and install all required sleeves within elements of the structure for the installation of Subcontractor's work. Subcontractor shall seal, pack, fire safe, water seal, weather caulk, aesthetic caulk, etc. all its sleeves/penetrations as required by the Contract Documents and as to maintain required ratings. Subcontractor to refer to Specification section 078413 and Mechanical specs for Firestopping requirements. Formed openings in masonry and concrete walls are herein included.
- a. Core drilling, cutting, and sleeving new penetrations at existing construction walls, foundations walls, and slab's locations is herein included. Subcontractor is responsible to clean-up all core drill slurry from walls and slabs as well as removing and patching all core drill machine anchors. Hammering of walls causing a blow-out or sprawling is not permitted and will be corrected at expense of Subcontractor. Subcontractor will provide barricade and a watch at floors below to avoid damage due to falling cores.
 - b. Concrete saw cuts, removal, and concrete replacement as required to install Work within this Scope is included in this Scope of Work. No saw cuts or core drills are to be performed without written approval from Construction Manager and Architect/Engineer.
28. All access panels and covers specified, shown, or required for this scope of work are furnished and installed by this Subcontractor. This Subcontractor is responsible for coordinating the locations and sizes of required framed openings with respective trades during the construction of walls, ceilings, and floors. Including the following, but not limited to:

- a. All fire dampers, smoke/fire dampers, etc.
 - b. All volume or control dampers for ductwork
 - c. All valves, gauges, circuit setters, strainers, PRV's, and filters
 - d. All water valves
 - e. All control valves
29. Subcontractor shall furnish required starters, fuses, heaters (thermal overloads), and combination starter/disconnects as indicated to be provided for specific equipment by the specifications.
30. Verify site utility piping inverts prior to preparing for installation work under this agreement. Inverts indicated on the document are for information purposes only. All information shall be field verified, and all invert elevations shall be coordinated with other trades, etc.
31. Subcontractor shall provide all necessary and required materials, management and field labor, ladders, lifts, radios, safety devices (PPE) for all commissioning activities.
- a. Commissioning documentation to include but not limited to, all complete and correct pre-function test reports, all training records-audio, video, and written, coordination meetings, all assistance necessary to accomplish a complete and Final Commissioning Activity per the contract documents. Be advised that should for any reason this activity require premium time and or night/weekend/holiday scheduling this requirement shall be met without any additional cost to the project.
 - b. Be advised that pre-function and or final Commissioning Activities that are confirmed to be deficient and or delinquent by cause of this subcontractor will be subject to responsibility assessment and subsequent cost to be paid by this subcontractor.
32. Surfaces of equipment and materials are to be thoroughly cleansed and left ready for painting in accordance with Architectural Painting Specifications. All damage to paint primers or applied factory finishes which has incurred during installation shall be repaired by this Subcontractor. All dents or surface damages shall also be repaired.
33. Subcontractor shall allow walls to be primed and finish painted prior to installation of surface mounted piping and setting of equipment within six (6) inches of a painted surface. This Subcontractor will be responsible for repaint costs if damages occur while installing work under this agreement.
34. All rough-in work included in this Scope of Work is to be concealed within wall cavity unless approved otherwise by Owner and Architect.
35. Subcontractor understands ceiling grid is to be protected by this Subcontractor and this Subcontractor shall be responsible for costs to make any repairs or a portion thereof of unidentifiable damage caused jointly with other MEP trades.
36. Cost for expediting shop drawings and material to the site is included to avoid delays. All material dates shall meet or exceed the project schedule. Subcontractor shall include all overnight shipping costs, "quick ship" fabrication, alternate manufacturer(s), etc. This shall include, but not limited to, all fixtures, valves, equipment, dampers, grilles, pipes, and fittings, etc.
37. Subcontractor is responsible to verify all equipment furnished under this agreement can be installed without leaving building architectural and structural elements out specifically at the

lower-level mechanical room. This Subcontractor will be responsible for all costs to expedite equipment or breakdown equipment to access building in its finish state.

38. Subcontractor is responsible to expedite all vertical shaft work to complete enclosure of shafts on each floor level. Shaft work shall proceed from ground level to roof level non-stop as structure progress and shall not be construed to follow each floor level. All vertical shaft work shall be completed, tested, and insulated prior to progressing with floor level work. Failure to provide priority to this work will make this Subcontractor responsible for all costs to re-mobilize
39. Subcontractor shall coordinate and comply with all requirements of Specification Section 283116 Multiplexed Fire Detection and Alarm System.

***The following is a general outline of items included, but not limited to, under this agreement for all **HVAC Instrumentation and Controls** per all specification sections under Division 23, etc.:

1. ~~BPG-BP-23C~~ Controls includes all controls work on the project – refer to that scope of work for details. ~~BPG-BP-23A~~ shall coordinate with Controls subcontractor as required for all mechanical work and equipment to function properly.
2. ~~BPG-BP-23C~~ shall provide a complete installation of all control devices that are shipped and delivered separate from the equipment requiring the device. Any in-line devices such as valves, dampers, air flow measuring stations, etc. will be installed by the Mechanical Contractor.

***The following is a general outline of items included, but not limited to, under this agreement for all **Test and Balance (TAB)** per specification sections 230594 and 230596 and in accordance with the contract documents:

1. Subcontractor shall perform all testing, adjusting, and balancing of HVAC hot water and air systems.
2. Subcontractor shall perform all testing, adjusting, and balancing of Domestic Hot Water System.
3. Subcontractor shall perform duct air leakage test on OA system for attic mains and all shafts or as specified (if more stringent).
4. Coordinate all testing, inspections, and punch list with commissioning agent hired by the Owner for this Project at no additional cost to Contractor.
5. Coordination with HVAC and HVAC Controls subcontractors is included in this Agreement. Prior to commencing of this work, this subcontractor shall inspect all equipment to be tested and advise Contractor of any deficiencies.
6. Cutting, patching, and sealing of insulation, ductwork and piping required for the installation of test probes is included in this Agreement.
7. Subcontractor understands ceiling grid and tiles are to be protected by this Subcontractor and this Subcontractor shall be responsible for costs to make any repairs or a portion thereof of unidentifiable damage caused jointly with other MEP trades.
8. Subcontractor shall advise Construction Manager in writing of any problems they encounter with the system that causes a delay in the work of this agreement. Direct contact with engineer and subcontractor without the Construction Manager's written approval will not be allowed.
9. Subcontractor shall provide all ladders, manlifts, scaffolds etc., as per OSHA safety standards, to allow for completion of subcontractor's scope of work.

10. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction.
11. Subcontractor will coordinate their work with the other subcontractors providing equipment and services that are part of the systems to be tested and balanced. Construction Manager shall provide Subcontractor with approved submittals from the other trades. This Subcontractor shall review and advise Construction Manger that the submittals provided are compatible with the TAB process and the building design. Failure to identify any coordination issues may result in this Subcontractor having to perform additional work at no cost to the Construction Manager or Owner to redo any testing and balancing once corrections have been made as necessary by others.
12. Included in this Subcontract is all required to assist the Owners Commissioning Agent, the Building Automation and Controls Subcontractor and the HVAC Subcontractor as required by the Contract Documents on the commissioning process as required by the Contract Documents. This includes providing all personnel required during the Commissioning process to verify the TAB report and demonstrate the equipment performs as the TAB report indicates.
13. This subcontractor shall make no less than 4 visits to the jobsite at the Construction Managers request to inspect the progress of the work to ensure that adequate installation practices are being adhered to and that the work will have no adverse effects on the subcontractor's ability to perform his work. Each visit will be documented by the subcontractor with a written report for each system detailing any deficiencies in the work.
14. Attendance of weekly progress meeting to monitor job progress at least 5 weeks prior to initial mobilization.
15. Subcontractor shall start his work after receipt of the manufacture's startup reports for all equipment on a system that is to be tested under this agreement.
16. Subcontractor will need to pre-balance the system based on design information during start-up and provide Engineer with preliminary report.
17. Subcontractor will then provide final balancing report upon 100% completion of the project which will need to occur prior to scheduled Beneficial Occupancy inspection.
18. Subcontractor may need to return during seasonal changes if full loading of a system operational cannot be simulated during final TAB season at no cost to Contractor.
19. Subcontractor understands that the need to work other than normal work hours and overtime may be needed to meet project schedule. This will not constitute a change order for the Subcontractor. Subcontractor shall verify prior to bid that the included Project Schedule incorporates enough days to complete Test and Balance work. Include as part of the Subcontractors bid a manpower loading calculation that shows how many work crews and technicians will be needed to complete the work within the Project Schedule.

General Scope of Work Items:

The following is an outline of general scope of work items that are expected of this subcontractor during execution of this work and are specifically included under this agreement:

1. **Special provisions:** Subcontractor has included all material, labor, supervision, and administration for requirements outlined in the Exhibit C – Special Provisions. These are the standard expectations for all Balfour Beatty Construction projects.

2. **Composite Clean Up:** Per Article IV paragraph 5 of the Special Provisions, each subcontractor is required to provide manpower for participation in a composite clean-up crew. CM has determined that the value of this requirement is equal to **1% of your subcontract amount** which shall be included in your lump sum bid amount. At our discretion, the CM has the right to reduce your contract via a deductive change order prior to the subcontractor beginning work and will provide said composite clean-up on behalf of the subcontractor(s). This will and does not eliminate your subcontract requirement to provide daily clean-up of your own trash as outlined in Article V paragraphs 1, 2, 3 and 4 and any other requirements of the Subcontract.
3. **BIM:** Subcontractor will be required to participate in all coordination meetings and the coordination process outlined in the Special Provisions and Subcontract Exhibit Q.
4. **Schedule / Material Expediting / Work Schedule:** Reference all exhibits for these requirements. Subcontractor is reminded of the following requirements – a) All costs for expediting materials to the site to avoid schedule delays are herein included; b) Work areas will become available on a phased basis. Multiple mobilizations are included. c) This subcontract will staff the project from commencement to completion with a crew and project site lead knowledgeable of the scope of work for which this Subcontractor will be performing. The size of this crew may vary throughout the duration of the project. However, at no time throughout the duration of the project will this Subcontractor understaff this project so as not to be able to meet the Project Schedule. The CM reserves the right at any time throughout the duration of this Subcontractor's installation to direct this Subcontractor to increase the crew size to maintain and meet the Project Schedule. This Subcontractor shall adhere to this direction within 24 hours of the CM's request without fail; d) This Subcontractor agrees to actively participate in scheduled pull planning, coordination, and scheduling meetings as part of the Pre-Construction and Pre-Installation process. A senior, knowledgeable, decision-making representative will be designated by this Subcontractor's organization to be engaged and participate on the behalf of this Subcontractor for these meetings.
5. **Submittals, Closeout, Attic Stock, Owner Training, Warranties, etc.:** Subcontract is responsible for these items as specified as it pertains to your scope of work.
 - a. Submittals: Provide all samples, drawings, details, product data, care and maintenance data, etc. as specified by Contract Documents.
 - b. Attic Stock: Provide all extra materials, attic tock, spare parts, maintenance tools, etc. to CM in unopened and clearly labeled containers/packages. All items shall be turned over no later than 90 days prior to project completion. All items shall be transmitted to CM and delivered and distributed to a location on campus as determined by Owner.
 - c. Owner Training: All owner training requirements shall be completed 90 days prior to project completion. CM will video all training and turn over video to Owner.
 - d. Warranties: Submit sample warranties as specified. All warranties begin on the date of SCO acceptance of the project as required by the contract documents.
6. **Scope of Work Cleaning:** This Subcontractor shall provide an initial cleaning of their product upon completion of their scope of work. At a designated time, Subcontractor will return to remove protection board or other protective products and completely clean their scope prior to punch list, including but not limited to, sweeping, mopping, and wiping for dust removal, etc. All materials will be cleaned in a manner to return them to a like new condition as they were originally installed.

7. **Mock-Ups:** Subcontractor is responsible for all mock-ups as required by the contract documents. Refer to specification section 014339 Mockups and all other related specification sections for requirements. Reference sheet A-010 for exterior mock-up.
8. **Commissioning:** Subcontractor is to provide all coordination drawings, testing, documentation, and participation in all commissioning activities as required by the documents through final acceptance. Refer to specification section 019113 General Commissioning Requirements and 019119 Exterior Enclosure Commissioning. Subcontractor is to provide all necessary materials, management and field labor, lifts, communication devices and safety equipment. Provide accurate and complete test reports for all systems prior to functional testing by the commissioning agent and all final documentation. Provide compliance/third party inspections as required by the specifications. Be advised that some of the commissioning activities may need to be performed after hours or on weekends.

02 EXCLUSIONS

1. Controls by ~~BPG-BP-23C~~

03 ALLOWANCES

1. Any other allowances referenced in the above Scope of Work shall be included in the Base Bid amount.

04 ALTERNATES

05 UNIT PRICES
