



EXHIBIT A SCOPE OF WORK

Part 1 SCOPE OF SERVICES

1.01 Scope of Work

Provide all materials and labor required to deliver, remove and dispose, in accordance with EPA guidelines, any existing material designated for removal and install new designated in Scope of Work below, to all requirements per local, state and federal accordance. Work to include:

1.02 Equipment & Material Specifications

1) Approved manufacturers are:

CARRIER

Note: The attached Carrier equipment is the minimum level of performance requirement. We will favor alternative equipment selections from other vendors that deliver higher efficiency, especially if it does not impact the cost. Substitutions are to be approved by Marriott's representative

2) Unit shall be built in accordance with UL/CSA Standard 1995. The contractors are required to comply with Title 24 for motor efficiencies.

3) Materials:

- a. Ductwork shall be of sheet metal construction steel in accordance with SMACNA's HVAC Duct Construction Standard. Ductwork design and fabrication shall be of the highest efficiency. Radius elbows with turning vanes, mitered elbows with vanes. Duct fabrication drawings are to be submitted for review and comment prior to building the duct. All duct work must be approved by a Marriott representative
- b. Insulation required on all surfaces to retard undesirable heat transfer and prevent condensation
- c. Insulation shall be applied to pipe lines, ductwork and equipment only after they have been tested, inspected and all surfaces cleaned of all moisture, foreign material, grease and rust.
- d. Insulation shall be continuous through walls, floor, partitions, sleeves, etc.
- e. All insulation adhesives, sealers and coatings shall have a Fire Hazard rating not to exceed 25/50/50 Flame Spread in accordance with UL 725 and ASTM-E84
- f. Provide insulation for hot and cold water piping, horizontal waste piping in ceiling space, supply air and exhaust air sheet metal ductwork
- g. Supply air ductwork shall be externally insulated with 1" thick Owens/Corning Glass Fiber Duct Liner, or approved equal

4) Controls shall be programmable-digital type and capable of adjusting and monitoring and shall be Automated Logic Corporation. This project will be used to establish a new ALC network in the facility. Furnish and install all required hardware and software to create the network in addition to the hardware and software required for the proposed sequences and AHU controls.

5) Site Survey:

- a. Visit site for survey of existing conditions and equipment
- b. Review original or most current As Built mechanical drawings

6) Shop Drawings/O&M Manuals:

- a. Contractor will provide Marriott with 3 copies of final shop and equipment drawings and O&M manuals

7) Air Distribution System:

- a. The air distribution system shall be fabricated as recommended in the most recent edition of the SMACNA Low
- b. Contractor responsibility for furnishing and installing all required dampers, transitions and connections to
- c. Document any recommended changes to the Air Distribution system based upon load calculations/CFM requirements and price separately

8) System Balance

- a. Contractor shall hire a certified air balance contractor to accurately balance the air and water systems as applicable
- b. Contractor shall submit 2 copies of final balance reports to Marriott upon completion

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9) Materials and Methods:

- a. All workmanship and materials shall be of the highest quality
- b. All material and equipment shall be new, of the latest design and free of defects
- c. All piping and ductwork shall be installed with neat and uniform appearance
- d. Keep all piping and ductwork free from contact with structure or equipment to prevent noise transmission, allowing clearance for expansion and contraction
- e. AHU external isolator to be removed. (AHU fan sleds are internally isolated)
- f. Provide vibration isolation devices for all moving machinery
- g. Exterior Outdoor Air Louvers Ducted to AHU Mixing Boxes for both AHU2A and AHU4
AHU AC-2A (Lobby)
Outdoor Air Louver 72" X 42" Transition Duct to Rear
Mixing Box Opening
Ducted Return Air to Top Mixing Box Opening
- h. AHU AC-4 (Pool)
Outdoor Air Louver 60" X 24" Transition Duct to Rear
Mixing Box Opening
Ducted Return Air to Top Mixing Box Opening
Inline exhaust fan ducted to return and outdoor air mixing box of AHU AC-4 to be removed and ducted directly to the return air.
- i. Contractor responsible for installation of any repaired electrical services and shall make final connections to all electricity energized equipment
- j. All electrical work shall be performed in accordance with the most current approved National Electrical Code (NEC) and any local code requirements
- k. Contractor shall comply with OSHA's fault protection standard on the construction site
- l. All conduit shall be concealed in walls, above ceiling, under slab or under ground. Any exposed conduit must be approved by Marriott's representative
- m. Plastic electrical non-metallic tubing (ENT) shall not be accepted for any electrical work. All conduit in walls or above ceiling shall be electrical metallic tubing (EMT) or rigid galvanized steel (RGS), 3/4" minimum.
- n. Contractor responsible for reconnection of existing drainage lines
- o. Contractor responsible for reconnection of existing smoke/heat detectors
- p. Contractor will provide protection required ensuring no damage is incurred to building structure and systems, landscaping, concrete or asphalt. Contractor shall be held liable for any damages to these systems.
- q. Contractor is responsible for any crane or devices for reaching space for equipment or work areas
- r. Contractor is responsible for providing access for insulations on these unit. (Cutting a hole in the outside of the building) We are proposing we replace the outside wall with architectural louvers that have insulated blank-off panels over the portions of them that are not active elements. Contractor is responsible for moving all electrical components associated with provided access for removal and installation of these units
- S. Contractor is responsible for evaluating the appropriately sized, structurally sound pad that the units will be sitting on. Contractor is responsible for making sure all AHU equipment is mounted and secured.
- T. Contractor is responsible for providing isolation valves in all lines where they enter the mechanical room. (Freezing of line may be needed to prevent draining the entire water loop). Must be approved by a Marriott representative
- U. Contractor responsible for ensuring the access doors can be fully opened. Contractor responsible for verifying all dimensions, and details associated with the proposed arrangement we have shown.
- W. Contractor is responsible for providing full access to the hot water coil being install in discharge ductwork.
- Contractor is responsible for providing proper drainage that may need. (Drain pan, plumbing to the drain)

10) System Start-up and Acceptance:

- a. Contractor shall perform start up on equipment in accordance with manufacturers procedure and provide written report to Marriott's representative
- b. Contractor shall demonstrate complete and correct system operation to Marriott's representative
- c. Contractor or Manufacturer's representative shall provide Operations and Maintenance training to hotel personnel at time of start-up

1.03 Insurance and Warranties

- 1. Insurance:
 - a. Contractor must comply with Insurance requirements stated in contract and provide a copy of a certificate of insurance naming Marriott International as Additional Insured
- 2. Warranty:
 - a. Provide 1 year written warranty for all materials and workmanship

- b. Provide 5 year written warranty for all components

1.04 Supporting Information

1. Files that are too large to attach to an e-mail can be found at the following link.

<http://tinyurl.com/SFOMarriottAHURFPsupport>

- a. Spreadsheets with point lists for each system.
- b. A system diagram for the lobby and Atrium (the area served by AHU-2 and AHU-2A)
- c. Proposed sequence of operation for AHU-2A; AHU-2 and AHU-4 shall be similar and the details will be developed and provided during the submittal review and approval process
- d. Preliminary Carrier equipment selections that were worked out with the vendor during project development
- d. A Sketchup model that was used as a schematic design tool to evaluate how equipment would fit into the equipment room. The contractor is responsible for all of the details required to make sure the

- equipment supplied will fit, but the model may be useful as a tool for working this out and is being provided as a courtesy.
- e. Relevant drawings from the original mechanical and temperature control drawing sets.

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(Additional Comments)

Contractor is responsible for pick-up and delivery of Air handling Units to the property

Contractor is responsible for disposal of old air handling units

Proper insurance documents are needed prior to work commencing

Bid should be broken down by parts and labor.

Contract should be delivered to property.

Existing Unit Dimensions AHU AC-2A Lobby LXWXH: 76" X 91" X 93"

External Isolators: ~3" (To be removed)

Approx. Housekeeping Pad Dimensions LXW: 86" X 101

Existing Unit Dimensions AHU AC-4 Pool & Spa LXWXH: 64" X 71" X 71"

External Isolators: ~3" (To be removed)

Approx. Housekeeping Pad Dimensions LXW: 74" X 81"

Chilled and Hot Water Valves and Piping on the Right Hand Side of both AHU's

Condensate Drains Right Hand Side of both AHU's to Mechanical Room Drain

Fan and Motor Access on Right Hand Side of both AHU's

NEW AIR HANDLING UNIT FEATURES

Double Wall Unit Casing with Agion Anti Microbial Paint in Airway

External Paint

Access Doors Both Sides

Access Doors for Hot Water Coil, Chilled Water Coil, & Fan Section

4" Flat Filter with 2" Pre Filter

Differential Pressure Transmitters - 1 Per Filter Bank - Left Hand

4" Pleated MERV 13. 2" Carbon Pleated MERV 8

Low Leak Dampers

Parallel Blades (Outdoor Air) Rear, Rotate towards RA dampers as they close to promote mixing

Parallel Blades (Return Air) Top, Rotate towards OA dampers as they close to promote mixing

Galvanized Coil Casing (Lobby AHU AC-2A)

Aluminum Fins/Copper Tube Coils (Lobby AHU AC-2A)

Stainless Steel Coil Casing (Pool AHU AC-4)

Epoxy Coated Coils (Pool AHU AC-4)

Stainless steel Drain Pan

END OF SECTION