

## SPECIFICATIONS

For

### UPGRADE 3.1+-TON LEIBERT AC UNIT LOCATED AT HALE AUHAU'S SECOND FLOOR

Existing systems are based on existing design drawings and limited field observation. The Contractor shall be responsible to verify and coordinate all existing conditions and make necessary adjustments for a complete installation. The indoor AC unit's DDC controls will be replaced and a new DDC system will be installed and connected to the existing system. The new DDC system will be connected to the DAGS central DDC system. The Contractor shall notify the Contract Administrator (CA) of any discrepancies found on the job site before the commencement of work.

The entire installation shall comply with all applicable requirements of the building code of the City & County of Honolulu, State Department of health regulations, State of Hawaii, Title 12, Subtitle 8, Part 10, 2018 International Energy Conservation Code (IECC). The applicable version of the Uniform Plumbing Code, Uniform Fire Code, NFPA 13, NFPA 70, National Electrical Safety Code, OSHA, and all agencies having jurisdiction.

The Contractor shall inspect the project site before proceeding with the work and shall notify and coordinate with the CA any major discrepancies from the plans due to unforeseen or varying field conditions.

The drawings and specifications are intended to cover the complete installation of systems to function as described. The omission of reference to any necessary item of labor or material shall not relieve the Contractor from providing such labor and material. Drawings do not attempt to show exact details of piping. Arrange and locate piping to maintain adequate clearance to service equipment. Provide offsets as necessary to avoid local obstructions or interferences with other trades. Should project conditions require rearrangement of work.

The Contractor shall mark such changes on the record drawings. If these changes require alternate methods to those approved by the contract documents, the Contractor shall submit drawings showing the proposed alternate methods to the CA. The Contractor shall not proceed until approval is obtained.

The Contractor shall make all provisions to protect all existing equipment from damage. The Contractor shall restore any existing construction damaged by his work to their original condition at the Contractor's expense.

Refer to manufacturer's specification sheet for equipment dimensions and maintain manufacturer's recommended clearances. The Contractor shall provide the system in accordance with all manufacturer's recommendation.

When working in and around the existing building, extreme care shall be exercised about protection of the existing structure and mechanical, and electrical services which will

remain. Repair, replace, or restore to the satisfaction of the State all existing work damage in the performance of demolition and/or new work.

Installation shall be according to manufacturer's recommended procedure using factory trained or certified installers. All replaced equipment, refrigerant, and accessories shall be removed and properly disposed by the Contractor and included in the bid amount.

#### Air conditioning equipment -

Install new AC equipment, Liebert, model number, 30RAP080, Air Cooled, Scroll Compressor (Exhibit B), or approved equal. The new AC unit will be energized and the necessary AC equipment testing will be performed to insure the new AC equipment is operating properly.

Refrigerant piping (all) shall be designed and installed per the manufacturer's recommendation.

Piping shall be supported by galvanized steel hangers, channels, and piping clamps at intervals/spacing recommended by manufacturer's recommendations. The types of hangers used shall be suitable for site conditions.

#### Testing and Balancing (TAB) –

Perform operational tests on all air conditioning and ventilation equipment and devices to determine proper compliance with specifications and manufacturer's design. Balance and adjust system using procedures referenced in Associated Air Balance Council (AABC), American National Standards Institute (ANSI), ASHRAE, National Environmental Balancing Bureau (NEBB), and Sheet Metal and Air Conditioning Contractors' National Association (SMACNA). Provide TAB report to CA prior to the inspection. Test system in actual operation and adjust/correct to operate smoothly and quietly. Testing and balancing test/report shall be prepared by an independent NEBB and/or AABC certified company.

#### Electrical -

Entire installation to conform to the provisions of the National Electrical Code, City & County of Honolulu electric code, and local utility companies. Obtain and pay for permits and deliver certificates of completion and inspection to the CA.

Materials and workmanship to be very best quality of its kind.

Substitute materials to be equal in quality to specified item. If substitute materials are proposed, submit copies of the shop drawings to the CA for approval prior to ordering. Provide samples of the substitute materials. If requested to evaluate equality to the satisfaction of the State.

Guarantee – The entire installation shall be guaranteed for one year after acceptance by the State against defective materials and workmanship. When notified by the State of failure of any part of the installation during the guarantee period. Contractor shall repair or replace the defective part at his own expense to the satisfaction of the State.

Testing: An operational test shall be performed after the completion of the installation, to assure proper operation of all items of the work.

Before any wiring is cut, contractor shall verify usage of wiring to be cut to assure that services required are not discontinued. Provide additional wiring devices and other accessories to ensure continuity of service to other parts of the installation to remain.

Installation and workmanship –

1. All work shall be neatly executed, workmanlike in appearance, symmetrical, plumb, uniform, properly aligned and secured in place.
2. Wiring methods –
3. Use EMT, IMC, or conduit in dry interior locations.
4. Use Sealtite Flex for connections to equipment.
5. Attach to concrete and masonry with expansion anchors and to wood with wood screws.
6. Support raceways per NEC.
7. Do not support raceways and boxes from and on mechanical system.

Conductors -

1. Crimp connect all wires.
2. Tape all splices with Scotch No. 33 vinyl tape or equal.
3. Form wire neatly in enclosures.
4. Identify conductors by color code – neutral wire to be white and ground wire to be green. Cut, drill, and patch as required. Repair any surfaces damaged or marred-cutting, repairs, refinishing shall be subject to approval by the CA.

Clean all surfaces to receive paint. Paint any surface damaged during installation.

Coordinate wiring requirements of equipment furnished by others prior to rough-in work. Provide proper size wiring and connections for all equipment as required. Provide disconnects for all motorized equipment for which starters are not provided by other trades.

As-built drawings and manufacturer's equipment information to provided and approved and inspected by the CA.