

## SECTION 15901 - TESTING, ADJUSTING AND BALANCING (TAB)

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS

The General Provisions of the contract, including the General Provisions for Construction Projects (2016), Special Provisions, and General Requirements of the Specifications, apply to the work specified in this Section.

#### 1.02 SUMMARY

A. Procure the services of an independent Contractor qualified in TAB as defined in Chapter 34 of the 1995 ASHRAE Handbook - HVAC Application. The TAB work shall include the following:

1. Air conditioning equipment.
2. Ducts, duct outlets and duct inlets.
3. Transfer ducts, openings, grilles and registers.
4. Pipes, coils, valves.
5. Electrical measurements.
6. Controls and control components.

#### 1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 15400 - PLUMBING.
- B. Division 16 - ELECTRICAL.
- C. Section 15650 - AIR CONDITIONING AND VENTILATION.
- D. Other mechanical sections as applicable.

#### 1.04 GENERAL REQUIREMENTS

- A. It is the intent of the plans and specifications to provide a complete installation. Should there be omissions or discrepancies in the plans and specifications such as dampers, gauges, and sensors that will inhibit the proper TAB process, the Contractor shall call the attention to such omissions and discrepancies in advance of the date of bid opening so that the necessary corrections can be made. Otherwise the Contractor shall furnish and install the omissions or discrepancies as if the same were specified and provided for.

1. Standards:
  - a. All work shall be done in accordance with applicable ordinances and codes of the County of Hawaii and in accordance with State Department of Health regulations.
  - b. Work shall comply with applicable regulations of the State of Hawaii, National Fire Protection association (NFPA) Pamphlet No. 90A, and American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 111-1988.
  - c. Applicable standard published by the National Environmental Balancing Bureau (NEBB) and/or the Associated Air Balance Council (AABC).
  - d. Contractor shall obtain all permits, licenses and certificates and pay for all fees.
2. Drawings and Specifications: 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 or material. Drawings do not attempt to show exact de-tails of piping and ductwork.
  - a. Contract Drawings: Mechanical plans are essentially diagrammatic, showing locations of ducts, and other mechanical equipment. Where locations are not dimensioned, they are approximate, Contractor shall study existing conditions and plan his work in the most logical manner.
  - b. Shop Drawings: As soon as practical, obtain a set of shop drawings and data submittals including the automatic control diagrams that have been reviewed by the Contracting Office. Refer to Section 15650 – AIR CONDITIONING AND VENTILATION, Paragraph WARRANTY, and coordinate with the Contractor to obtain all pertinent information on the mechanical systems.

#### 1.05 SUBMITTALS

- A. Within 15 days after the "Notice to Proceed", the independent air balance agency shall submit 3 copies of documentation to confirm compliance with the following:
  1. The completion of five(s) project of similar size and scope of this project.
  2. The agency is a certified firm by the NEBB or the AABC and employs one or more qualified supervisor(s) as defined by the NEBB or AABC.
  3. All instruments and equipment used by the agency is accurately calibrated in accordance with the requirements of NEBB or AABC.
  4. Specimen copies of each of the report forms proposed for use on this project.

- B. At least 60 days prior to starting field work, submit 3 copies of:
1. Shop drawings clearly showing the equipment, air devices and associated apparatus related to the report forms. Limit one entry to one line of the report form.
  2. A set of report forms filled out as to the design values and the installed equipment pressure drops, the required CFM for air terminals, and design parameters to be used in the TAB process.
  3. A complete list of instruments proposed to be used organized in appropriate categories, with data sheets for each. Show:
    - a. Manufacturer and model number.
    - b. Description and use when needed to further identify the instrument.
    - c. Size or capacity range.
    - d. Latest calibration date.
  4. Contractor will review submittals for compliance with contract documents, and will return one set marked to indicate:
    - a. Discrepancies noted between data shown and contract documents.
    - b. Additional, or more accurate, instruments required.
    - c. Requests for re-calibration of specific instruments.

#### 1.06 GUARANTEE

Testing agency shall include an extended warranty of 90 days, after completion of test and balance work, during which time the Contractor at his discretion may request a re-check, or resetting of any outlet or supply air fan, as listed in test report. the testing agency shall provide technicians to assist the Contractor in making tests he may require during this period of time.

### PART 2 – PRODUCTS (NOT USED)

### PART 3 – EXECUTION

#### 3.01 JOB CONDITIONS & COORDINATION

- A. Prior to start of testing, adjusting and balancing, verify that the required "Job Conditions" are met:
1. Systems installation is complete and in full operation.
  2. Outside conditions are within a reasonable range relative to design conditions.
  3. Lights are turned "on" when lighting is included in the cooling load.

4. Special equipment such as computers, laboratory equipment, and electronic equipment are in full operation.
5. Contractor to perform a pre-tab of the existing FC-1 and all that FC-1 is serving prior to construction to confirm existing supply, return and outside air cfm and temperatures.

B. Coordination:

1. Coordinate services with the work of the various trades to ensure rapid completion of the services.
2. Promptly report to the Contractor any deficiencies noted during performance of services to allow immediate corrective action.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

- A. Work under this section will not be measured nor paid for separately but shall be considered incidental to and included in the price bid for the various items of work in this project.

END OF SECTION