SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes testing, adjusting, and balancing (TAB) to produce design objectives for the following:

1. Constant-volume air systems.
2. HVAC equipment quantitative-performance settings.
3. Existing systems TAB.
4. Verifying that automatic control devices are functioning properly.

B. Testing, adjusting and balancing firm (OTF) to be provided by Owner. OTF is to test, adjust and balance HVAC systems to meet or exceed the specified performance requirements.

1.2 QUALITY ASSURANCE

A. OTF Qualifications: Either AABC, “Associated Air Balance Council” or NEBB, “National Environmental Balancing Bureau” certified.

1.3 PROJECT CONDITIONS

A. The OTF will not proceed with testing, adjusting and balancing until work has been completed and is operable. Ensure that there is not latent residual work still to be completed.

1. Field mounted accessories shall be assembled and economizer/OA dampers installed and wired (when required). Units shall be properly tagged per design drawings.
2. Gas piping shall be completed and gas turned on.
3. Power wiring shall be completed, disconnects mounted, and power turned on, fan rotation checked.
4. Control wiring shall be completed including thermostats and smoke detectors.
5. Doors and windows shall be installed and ceiling tiles in place.
6. Duct work is to be installed completely; clean and sealed tightly against leaks.
7. Balancing dampers, diffusers, and controls shall be fully installed and operational.
8. One day prior to starting of testing, adjusting, and balancing, clean filters of the type specified for permanent installation must be installed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Patching Materials:

1. Except as otherwise indicated, use same products as used for the original installation for patching holes in insulation, ductwork and housing which have been cut or drilled for test purposes, including access for test instruments, attaching jigs and similar purposes.
2. Provide plastic plugs with retainers to patch drilled holes in ductwork and housings.

PART 3 - EXECUTION

3.1 COORDINATION

A. Provide a minimum of two weeks notice in writing to OTF that system will be ready for testing, adjusting and balancing. TAB work to be completed prior to fixture date and scheduled accordingly by Contractor.

B. If, for any reason, the HVAC system is not operational in time for the OTF to schedule the work prior to fixture date, the contractor shall be responsible for additional costs incurred by rescheduling the OTF.

C. Provide lifts, ladders and other means of access to HVAC systems for OTF.

D. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment and make available to support and assist TAB activities.

E. Schedule systems testing after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

3.2 CONTRACTOR'S REQUIREMENTS TO ASSIST OTF

A. Furnish OTF with Contract Documents so that they may become familiar with Project requirements and are able to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

B. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective testing, adjusting and balancing and for efficient system and equipment operation.

C. Contractor shall be responsible for any adjustments to equipment, such as motor change-out or sheave changes, at the OTF's direction to achieve proper TAB of HVAC systems.

D. OTF shall notify the Owner of any deficiencies needing immediate attention. Contractor shall be available during TAB to promptly correct any such problems (i.e. replace burned out motors, failed thermostats, incorrect wiring, bad circuit breakers and starters, dirty filters, missing dampers, undersized outside air intakes, etc.).

E. The contractor shall be responsible for any additional cost incurred, including travel, as a result of rescheduling a follow up visit to test and balance any equipment not ready on the originally scheduled TAB date.

END OF SECTION 23 05 93