

PART 1 GENERAL

1.1 General

- .1 TAB means to test, adjust and balance to perform in accordance with requirements of Contract Documents and to do other Work as specified in this section.

1.2 Qualifications Of Tab Personnel

- .1 Names of personnel it is proposed to perform TAB to be submitted to and approved by Contract Administrator .
- .2 Provide documentation confirming qualifications, successful experience.

1.3 Purpose Of Tab

- .1 Test to verify proper and safe operation, determine actual point of performance, evaluate qualitative and quantitative performance of equipment, systems and controls at design, average and low loads using actual or simulated loads
- .2 Adjust and regulate equipment and systems so as to meet specified performance requirements and to achieve specified interaction with other related systems under normal and emergency loads and operating conditions.
- .3 Balance systems and equipment to regulate flow rates to match load requirements over full operating ranges.

1.4 Co-ordination

- .1 Schedule time required for TAB (including repairs, re-testing) into project construction and completion schedule so as to ensure completion before acceptance of project.
- .2 Do TAB of each system independently and subsequently, where interlocked with other systems, in unison with those systems.

1.5 Pre-tab Review

- .1 Review contract documents before project construction is started and confirm in writing to Contract Administrator adequacy of provisions for TAB and other aspects of design and installation pertinent to success of TAB.
- .2 Review specified standards and report to Contract Administrator in writing all proposed procedures which vary from standard.
- .3 During construction, co-ordinate location and installation of TAB devices, equipment, accessories, measurement ports and fittings.

1.6 Start-up

- .1 Follow start-up procedures as recommended by equipment manufacturer unless specified otherwise

1.7 Operation Of Systems During Tab

- .1 Operate systems for length of time required for TAB and as required by Contract Administrator for verification of TAB reports.

1.8 Start Of Tab

- .1 Notify Contract Administrator 7 days prior to start of TAB.
- .2 Start TAB when HVAC System is essentially completed.
- .3 All provisions for TAB installed and operational including:
 - .1 Start-up, verification for proper, normal and safe operation of mechanical and associated electrical and control systems affecting TAB including but not limited to:
 - .1 Proper thermal overload protection in place for electrical equipment.
 - .2 Air systems:
 - .1 Duct systems clean.
 - .2 Ducts, air shafts, ceiling plenums are airtight to within specified tolerances.
 - .3 Correct fan rotation.
 - .4 Fire, smoke, volume control dampers installed and open.
 - .5 Access doors, installed, closed.
 - .6 Outlets installed, volume control dampers open.

1.9 Application Tolerances

- .1 Do TAB to following tolerances of design values:
 - .1 HVAC systems: plus 10 %, minus 0 %.

1.10 Accuracy Tolerances

- .1 Measured values to be accurate to within plus or minus 2 % of actual values.

1.11 Instruments

- .1 Prior to TAB, submit to Contract Administrator list of instruments to be used together with serial numbers.
- .2 Calibrate in accordance with requirements of most stringent of referenced standard for either applicable system or HVAC system.
- .3 Calibrate within 3 months of TAB. Provide certificate of calibration to Contract Administrator .

1.12 Preliminary Tab Report

- .1 Submit for checking and approval of Contract Administrator, prior to submission of formal TAB report, sample of rough TAB sheets. Include:

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- .1 Details of instruments used.
- .2 Details of TAB procedures employed.
- .3 Calculations procedures.
- .4 Summaries.

1.13 Tab Report

- .1 Format to be in accordance with referenced standard.
- .2 TAB report to show results in SI units and to include:
 - .1 Project record drawings.
 - .2 System schematics.
- .3 Submit 6 copies of TAB Report to Contract Administrator for verification and approval, in English in D-ring binders, complete with index tabs.

1.14 Verification

- .1 Reported results subject to verification by Contract Administrator.
- .2 Provide manpower and instrumentation to verify up to 30 % of reported results.
- .3 Number and location of verified results to be at discretion of Contract Administrator.
- .4 Bear costs to repeat TAB as required to satisfaction of Contract Administrator

1.15 Settings

- .1 After TAB is completed to satisfaction of Contract Administrator , replace drive guards, close access doors, lock devices in set positions, ensure sensors are at required settings.
- .2 Permanently mark settings to allow restoration at any time during life of facility. Markings not to be eradicated or covered in any way.

1.16 Completion Of Tab

- .1 TAB to be considered complete when final TAB Report received and approved by Contract Administrator .

1.17 Air Systems

- .1 Standard: TAB to be to most stringent of this section or TAB standards of AABC SMACNA ASHRAE.
- .2 Do TAB of following systems, equipment, components, controls:
 - .1 Compressor room ventilation system.
- .3 Qualifications: personnel performing TAB to be current member in good standing of AABC qualified to standards of AABC.

- .4 Quality assurance: Perform TAB under direction of supervisor qualified to standards of AABC.
- .5 Measurements: to include, but not limited to, following as appropriate for systems, equipment, components, controls: air velocity, static pressure, flow rate, pressure drop (or loss), temperatures (dry bulb, wet bulb, dewpoint), duct cross-sectional area, RPM, electrical power, voltage, noise, vibration.
- .6 Locations of equipment measurements: To include, but not be limited to, following as appropriate:
 - .1 Inlet and outlet of dampers, Filter, fan, other equipment causing changes in conditions.
 - .2 At controllers, controlled device.
- .7 Locations of systems measurements to include, but not be limited to, following as appropriate: Main ducts and main branch. Take measurements for full F.A. and minimum F.A. (150 cfm) conditions.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not used.

END OF SECTION