|  |  |
| --- | --- |
| FT: | **23 82 16** |
| **ITEM:** | **Fan Coil Units** |
| **ID:** |  |
| **AREA SERVED:** |  |

Form Filled Out By:

|  |  |  |
| --- | --- | --- |
|  | **Name & Company** | **Date** |
| GC |  |  |
| MC |  |  |
| EC |  |  |
| BC |  |  |
| CC |  |  |
| OR |  |  |
| A/E |  |  |
| CA |  |  |

GC = General Contractor; MC = Mechanical Contractor; EC = Electrical Contractor; BC = Balancing Contractor; CC = Controls Contractor; OR = Owner Representative; A/E = Architect/Engineer; CA = Commissioning Agent

XX = No Initials Required

# TEST PREREQUISITES

The following items have been completed and the equipment is ready for Functional Testing.

Check if OK. Enter note number if deficient.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item | **GC** | **MC** | **EC** | **BC** | **CC** | **OR** | **A/E** | **CA** |
| Product documentation submitted |  |  |  |  |  |  |  |  |
| Unit startup completed |  |  |  |  |  |  |  |  |
| Start-up report submitted |  |  |  |  |  |  |  |  |
| Test and Balance (TAB) completed |  |  |  |  |  |  |  |  |
| SOO programmed |  |  |  |  |  |  |  |  |
| Prefuctional Checklist completed |  |  |  |  |  |  |  |  |

# SENSOR CALIBRATION VERIFICATIONS

* Check a representative sample of sensors for calibration and adequate location.
* Test the packaged controls and BAS readings.
* Use the same test instruments as used for the original calibration, if possible.
* Verify that the sensor reading (via the permanent thermostat, gage, packaged control panel or BAS) compared to the test instrument-measured value is within the tolerances specified in the contract requirements. (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).
  + "In calibration" means making a reading with a calibrated test instrument within 6 inches of the site sensor.
  + For items out of calibration or adjustment, fix now if easy, via an offset in the BAS, calibration or replacement of sensor.

| **Sensor &**  **Location** | **Location OK1** | **1st Gage / Pkg**  **& BAS Value** | **Test Inst**  **Value** | **Final Gage / Pkg**  **& BAS Value** | **Pass**  **Y/N?** |
| --- | --- | --- | --- | --- | --- |
|  |  | Pkg:  BAS: |  | Pkg:  BAS: |  |
|  |  | Pkg:  BAS: |  | Pkg:  BAS: |  |
|  |  | Pkg:  BAS: |  | Pkg:  BAS: |  |
|  |  | Pkg:  BAS: |  | Pkg:  BAS: |  |
|  |  | Pkg:  BAS |  | Pkg:  BAS |  |

1Sensor location is appropriate and away from causes of erratic operation.

# DEVICE CALIBRATION VERIFICATIONS

* Check a representative sample of actuators and devices for calibration and adequate operation.
  + "In calibration" means observing readout in the BAS and going to the actuator or controlled device and verifying that the BAS reading is correct.
  + For items out of calibration or adjustment, fix now if easy, via an offset in the BAS, or a mechanical fix.

| **Device / Actuator &**  **Location** | **Procedure** | **1st BAS**  **Value** | **Site**  **Observation** | **Final BAS**  **Value** | **Pass**  **Y/N?** |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
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# FUNCTIONAL PERFORMANCE VERIFICATIONS

**Demonstrate operation of equipment per Contract Documents including the following:**

A. Record of All Values for Current Setpoints (SP), Control Parameters, Limits, Delays, Lockouts,   
Schedules, Etc. Changed to Accommodate Testing:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Pre-Test Values** | **Returned to Pre-Test Values √** |
| FC Cooling ON Set Point |  |  |
| FC Cooling OFF Set Point |  |  |
| FC Heating ON Set Point |  |  |
| FC Heating OFF Set Point |  |  |

B. The following testing requirements are in addition to and do not replace any testing requirements elsewhere in the Project Documents

| **No** | **Function / Mode** | **GC** | **MC** | **EC** | **BC** | **CC** | **OR** | **A/E** | **CA** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Test each sequence in the sequence of operations including startup, shutdown, unoccupied & manual modes and power failure.  Test functionality of this piece of equipment or system in all control strategies or interlocks that it is associated with. |  |  |  |  |  |  |  |  |
| 2 | Verify control strategies, schedules and setpoints to be reasonable and appropriate |  |  |  |  |  |  |  |  |
| 3 | Verify control system interlocks |  |  |  |  |  |  |  |  |
| 4 | Verify supply air, and reset temp. control functions |  |  |  |  |  |  |  |  |
| 5 | Verify minimum OSA quantity and control |  |  |  |  |  |  |  |  |
| 6 | Night low and high limit, morning warmup cycle |  |  |  |  |  |  |  |  |
| 7 | Verify damper interlocks and correct modulation in all modes, including fire and smoke dampers |  |  |  |  |  |  |  |  |
| 8 | Simulate power failure and observe AC unit response. |  |  |  |  |  |  |  |  |
| 9 | Restore power and observe AC unit response. |  |  |  |  |  |  |  |  |
| 10 | Check and report any unusual noise, vibration |  |  |  |  |  |  |  |  |

C. Record the following

All points listed below which are control system monitored points shall be trended by the controls contractor.

| Point | Time Step (min.) | Minimum Time Period of Trend | Hard Copy? (Y/N) | CSV File? (Y/N) |
| --- | --- | --- | --- | --- |
| For each Unit being tested: | |  |  |  |
| SAT | 5 | 5 days incl. weekend | Y | Y |
| Indoor dry-bulb \_\_\_ | 5 | 5 days incl. weekend | Y | Y |

FCU shall maintain the supply air temperature and the indoor dry bulb temperature within ±1 deg F of setpoint.

D. Sampling Strategy for Identical Units

Randomly test at least 50 percent of each group of identical equipment (the first sample) per the above tests. In no case test less than three units in each group. If 20 percent of the units in the first sample fail the functional performance tests, test the remaining 50 percent.

# OUTSTANDING ITEMS

Note outstanding items in table below. Use numbers referenced above.

|  |  |  |
| --- | --- | --- |
| Resolved (Initial / Date) | **Note** | Description |
|  | **1.** |  |
|  | **2.** |  |
|  | **3.** |  |
|  | **4.** |  |
|  | **5.** |  |
|  | **6.** |  |
|  | **7.** |  |
|  | **8.** |  |
|  | **9.** |  |
|  | **10.** |  |

# FIELD NOTES

Fill in as appropriate.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |

# SIGN OFF

System / Equipment has been installed in accordance with the Contract Documents and is ready for Owner acceptance.

|  |  |  |
| --- | --- | --- |
|  | **Signature** | **Date** |
| **Contractor’s Representative** |  |  |
| **A /E Representative** |  |  |
| **Commissioning Agent** |  |  |
| **Owner’s Representative** |  |  |

## END OF TEST