|  |  |
| --- | --- |
| FT: | **23 54 16** |
| **ITEM:** | **Fuel Fired Heaters** |
| **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** |
| Unit startup completed | XX |  | XX | XX | XX |  |  |  |
| Start-up report submitted | XX |  | XX | XX | XX |  |  |  |
| Test and Balance (TAB) completed | XX |  | XX |  | XX |  |  |  |
| SOO programmed | XX |  | XX | XX |  |  |  |  |
| Prefuctional Checklist completed | XX |  | XX | XX | XX |  |  |  |

# SENSOR CALIBRATION VERIFICATIONS (if applicable)

* 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 building automation system (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 (if applicable)

* Check a representative sample of actuators and devices for calibration and adequate operation.
  + "In calibration" means observing a 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:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sequence of Operations Checks:** | |  |  |  |  |  |
| The following is a step by step test to verify the system follows the design sequence of operation. The test procedure column indicates what adjustments are needed for testing. Each step is either pass or fail. | | | | | | |
| **Step** | **Test Procedure** | | | | | **Pass/Fail** |
| **Functional Test** | | | | | | |
| 1 | Record the following initial test conditions while the unit is enabled by schedule. | | | | |  |
| 2 | Record outside air temperature: \_\_\_\_\_\_\_\_if not already above 65 deg. F override to 77 deg f | | | | |  |
| 3 | Override space temperature setpoint () to call for heat. \_\_\_\_\_\_\_\_° | | | | |  |
| 4 | Unit heaters are locked out by RMCS preventing operation | | | | |  |
| 5 | Override Outside air temp to 59 deg f. Override space temp to 50deg f | | | | |  |
| 6 | A unit heater energizes and begins to heat the room. Measure LAT from Each unit GUH-1\_\_\_\_\_\_\_\_ GUH-2\_\_\_\_\_\_\_\_\_\_\_ GUH-3\_\_\_\_\_\_\_\_\_\_compare to ambient to insure unit is working properly Delta T = \_\_\_\_\_\_\_\_\_ | | | | |  |
| 7 | power a unit down via the local disconnect to simulate a fan or gas stage failure | | | | |  |
| 8 | Unit heater de-energizes | | | | |  |
| 9 | Alarm reported at RMCS specific to unit heater | | | | |  |
| 10 | Other Unit Heaters remain in operation | | | | |  |
| 11 | Restore power to the heater | | | | |  |
| 12 | Unit heater energizes | | | | |  |
| 13 | Alarm clears at RMCS | | | | |  |
| 14 | release overrides | | | | |  |
| 15 | All heaters de-energize | | | | |  |
| 16 | End of Unit Heater Test | | | | |  |

# 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