

Prefunctional Checklist

Project _____

PC-___ COMPUTER ROOM AC UNIT (Inside Section) ID#'s _____

Components included: ___ Coils ___ Valves (CHW)

Associated Checklists: ___ Outdoor condenser/compressor

1. Submittal / Approvals

Submittal. The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This prefunctional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed. ___ List attached.

| | | | |
|-----------------------|------|------------------------|------|
| Mechanical Contractor | Date | Controls Contractor | Date |
| Electrical Contractor | Date | Sheet Metal Contractor | Date |
| TAB Contractor | Date | General Contractor | Date |

Prefunctional checklist items are to be completed as part of startup & initial checkout, preparatory to functional testing.

- This checklist does not take the place of the manufacturer’s recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- If this form is not used for documenting, one of similar rigor shall be used.
- Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.
- “Contr.” column or abbreviations in brackets to the right of an item refer to the contractor responsible to verify completion of this item. A/E = architect/engineer, All = all contractors, CA = commissioning agent, CC = controls contractor, EC = electrical contractor, GC = general contractor, MC = mechanical contractor, SC = sheet metal contractor, TAB = test and balance contractor, ___ = _____.

Approvals. This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

| | | | |
|---------------------|------|------------------------|------|
| Commissioning Agent | Date | Owner’s Representative | Date |
|---------------------|------|------------------------|------|

Notes:

2. Requested documentation submitted

Check if Okay. Enter comment or note number if deficient.

| Check | Equip Tag-> | | | | | | | Contr. |
|--|-------------|--|--|--|--|--|--|--------|
| Manufacturer's cut sheets | | | | | | | | |
| Performance data (fan curves, coil data, etc.) | | | | | | | | |
| Installation and startup manual and plan | | | | | | | | |
| Sequences and control strategies | | | | | | | | |
| O&M manuals | | | | | | | | |

- **Documentation complete as per contract documents for given trade** YES ___ NO

3. Model verification

[Contr = _____]

1 = as specified, 2 = as submitted, 3 = as installed. Check if Okay. Enter note number if deficient.

| Equip Tag--> | | | | | | | |
|--------------|--|--|--|--|--|--|--|
| 1 | | | | | | | |
| Manuf. 2 | | | | | | | |
| 3 | | | | | | | |
| 1 | | | | | | | |
| Model 2 | | | | | | | |
| 3 | | | | | | | |
| Serial # 3 | | | | | | | |
| 1 | | | | | | | |
| Capacity 2 | | | | | | | |
| 3 | | | | | | | |
| 1 | | | | | | | |
| Volts/Ph/A 2 | | | | | | | |
| 3 | | | | | | | |
| 1 | | | | | | | |
| Humidifier 2 | | | | | | | |
| 3 | | | | | | | |
| 1 | | | | | | | |
| Reheat 2 | | | | | | | |
| 3 | | | | | | | |

- **The equipment installed matches the specifications for given trade** YES ___ NO

4. Physical Installation Checks

Check if Okay. Enter comment or note number if deficient.

| Check | Equip Tag-> | | | | | | | Contr. |
|--|-------------|--|--|--|--|--|--|--------|
| Cabinet and General Installation | | | | | | | | |
| Permanent labels affixed, including for fans | | | | | | | | |
| Casing condition good: no dents, leaks, door gaskets installed | | | | | | | | |
| Boot between duct and unit tight and in good condition | | | | | | | | |
| Vibration isolation equipment installed & released from shipping locks | | | | | | | | |
| Maintenance access acceptable for unit and components | | | | | | | | |

Notes:

COMPUTER ROOM AIR CONDITIONING UNIT PREFUNCTIONAL CHECKLIST
PC-_____

Check if Okay. Enter comment or note number if deficient.

| Check | Equip Tag-> | | | | | | Contr. |
|--|-------------|--|--|--|--|--|--------|
| Thermal insulation properly installed and according to specification | | | | | | | |
| Instrumentation installed according to specification (thermometers, pressure gages, flow meters, etc.) | | | | | | | |
| Clean up of equipment completed per contract documents | | | | | | | |
| Filters installed and replacement type and efficiency permanently affixed to housing | | | | | | | |
| Reheat coil installed, if specified | | | | | | | |
| Humidifier coil installed, if specified | | | | | | | |
| | | | | | | | |
| Valves, Piping and Coils | | | | | | | |
| Pipe fittings complete and pipes properly supported | | | | | | | |
| Pipes properly labeled | | | | | | | |
| Pipes properly insulated | | | | | | | |
| Piping system properly flushed | | | | | | | |
| No leaking apparent around fittings | | | | | | | |
| All coils are clean and fins are in good condition | | | | | | | |
| All condensate drain pans clean and slope to drain, per spec | | | | | | | |
| Specified valves installed and properly labeled | | | | | | | |
| Valves installed in proper direction | | | | | | | |
| Valves stroke fully and easily and spanning is calibrated (see calibration section below) | | | | | | | |
| OSAT, MAT, SAT, RAT, chilled water supply sensors properly located and secure (related OSAT sensor shielded) | | | | | | | |
| Sensors calibrated (See calibration section below) | | | | | | | |
| P/T plugs and isolation valves installed per drawings | | | | | | | |
| Fans and Dampers | | | | | | | |
| Supply fan belt tension & condition good | | | | | | | |
| Supply fan protective shrouds for belts in place and secure | | | | | | | |
| Supply fan area clean | | | | | | | |
| Supply fan and motor properly lubricated | | | | | | | |
| Filters clean and tight fitting | | | | | | | |
| No unusual noise or vibration | | | | | | | |
| Smoke and fire dampers installed properly per contract docs (proper location, access doors, appropriate ratings verified) | | | | | | | |
| All dampers (OSA, RA, EA, etc.) stroke fully without binding and spans calibrated (follow procedure similar to valves Section 7.3 below) | | | | | | | |
| All dampers close tightly | | | | | | | |
| All damper linkages have minimum play | | | | | | | |
| Outside air capability to space installed | | | | | | | |

Notes:

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Check if Okay. Enter comment or note number if deficient.

| Check | Equip Tag-> | | | | | | Contr. |
|--|-------------|--|--|--|--|--|--------|
| Ducts (preliminary check) | | | | | | | |
| Sound attenuators installed | | | | | | | |
| Duct joint sealant properly installed | | | | | | | |
| No apparent severe duct restrictions | | | | | | | |
| Turning vanes in square elbows as per drawings | | | | | | | |
| OSA intakes located away from pollutant sources & exhaust outlets | | | | | | | |
| Pressure leakage tests completed | | | | | | | |
| Branch duct control dampers operable | | | | | | | |
| | | | | | | | |
| Electrical and Controls | | | | | | | |
| Pilot lights are functioning | | | | | | | |
| Power disconnects in place and labeled | | | | | | | |
| All electric connections tight | | | | | | | |
| Proper grounding installed for components and unit | | | | | | | |
| Safeties in place and operable | | | | | | | |
| Current overload heaters installed and correct size | | | | | | | |
| Sensors calibrated (see section below) | | | | | | | |
| Control system interlocks hooked up and functional | | | | | | | |
| Smoke detectors in place | | | | | | | |
| Enthalpy control and sensor properly installed (if applicable) | | | | | | | |
| Related thermostats are installed | | | | | | | |
| Related building automation system points are installed, including high temperature alarm and emergency power | | | | | | | |
| All control devices, pneumatic tubing and wiring complete | | | | | | | |
| | | | | | | | |
| TAB | | | | | | | |
| Installation of system and balancing devices allowed balancing to be completed per specified NEBB or AABC procedures & contract docs | | | | | | | |
| | | | | | | | |
| Final | | | | | | | |
| Startup report completed with this checklist attached | | | | | | | |
| Safeties installed and safe operating ranges for this equipment provided to the commissioning agent | | | | | | | |
| Functional test procedures for this equipment reviewed and approved by installing contractor | | | | | | | |
| | | | | | | | |

• **The checklist items of Part 4 are all successfully completed for given trade.** ___ YES ___ NO

Notes:

COMPUTER ROOM AIR CONDITIONING UNIT PREFUNCTIONAL CHECKLIST
PC-_____

5. Operational Checks (These augment mfr's list. This is not the functional performance testing.)

Check if Okay. Enter comment or note number if deficient.

| Check | Equip Tag-> | | | | | | | Contr. |
|--|-------------|--|--|--|--|--|--|--------|
| Supply fan rotation correct | | | | | | | | |
| Fans > 5 Hp Phase Checks: (%Imbalance = 100 x (avg. - lowest) / avg.) Record all 3 voltages in cell. Imbalance less than 2%? | | | | | | | | |
| Record full load running amps for each fan. _____rated FL amps x _____srvc factor = _____ (Max amps). Running less than max? | | | | | | | | |
| Supply fan has no unusual noise or vibration | | | | | | | | |
| All dampers (OSA, RA, EA, etc.) stroke fully without binding and spans calibrated (follow procedure similar to valves Section 7 below). List each actuated damper here when spanned: | | | | | | | | |
| Valves stroke fully and easily and spanning is calibrated (see calibration section). List each actuated valve here when spanned: | | | | | | | | |
| Valves that require a positive shut-off are verified to not be leaking when closed at normal operating pressure per "Calibration and Leak-by Test Procedures" document. Valves tested: _____ | | | | | | | | |
| The HOA switch properly activates and deactivates the unit | | | | | | | | |
| Specified sequences of operation and operating schedules have been implemented with all variations documented | | | | | | | | |
| Specified point-to-point checks have been completed and documentation record submitted for this system | | | | | | | | |

• **The checklist items of Part 5 are all successfully completed for given trade.** ___ YES ___ NO

6. Sensor and Actuator Calibration []

All field-installed temperature, relative humidity, CO, CO₂ and pressure sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document. All test instruments shall have had a certified calibration within the last 12 months: Y/N_____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

| Sensor or Actuator & Location | Location OK | 1st Gage or BAS Value | Instr. Meas'd Value | Final Gage or BAS Value | Pass Y/N? |
|-------------------------------|-------------|-----------------------|---------------------|-------------------------|-----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Sensor & Location | Location OK | 1st Gage or BAS Value | Instr. Meas'd Value | Final Gage or BAS Value | Pass Y/N? |
|-------------------|-------------|-----------------------|---------------------|-------------------------|-----------|
| | | | | | |
| | | | | | |
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PC-_____

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

- **All sensors are calibrated within required tolerances.....**___ YES ___ NO

-- END OF CHECKLIST--

Notes: