

Prefunctional Checklist

Project _____

PC-_____ CHILLER #'s _____

Associated checklists: Cooling Tower, Chilled & Condenser Water Piping, CHW and CDW Pumps

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
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Notes:

CHILLER PREFUNCTIONAL CHECKLIST

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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** 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-->								
Manuf.	1							
	2							
	3							
Model	1							
	2							
	3							
Serial #	3							
Capacity	1							
	2							
	3							
Volts/Ph/A	1							
	2							
	3							
Refrigerant	1							
	2							
	3							
Starter Model	1							
	2							
	3							
	1							
	2							
	3							

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

4. Installation Checks

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

Check	Equip Tag->							Contr.
General Installation								
General appearance good, no apparent damage								
Proper vibration isolaters installed and adjusted								
Seismic restraints in place								
Isolation valves and balancing valves installed								
Pipe fittings and accessories complete								

Notes:

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

Check	Equip Tag->						Contr.
Pipes not supported on chiller							
Hydronic system flushing complete and strainers cleaned							
Cooling tower or condenser system checked out							
Evaporator air vent provided							
Water cooled condenser air vent provided							
Refrigerant relief pipe extended to outside							
Thermometers installed							
Pressure gages installed							
Test plugs installed near all control sensors and as per spec							
Flow switch installed as required							
Flow meters installed							
Proper refrigerant level							
No refrigerant leakage							
Proper oil types							
Proper oil level							
Purge unit installed, if specified							
Piping type and flow direction labeled on piping							
Equipment labels affixed							
Oil heater installed properly							
Size of overcurrent heater in motor starter correct							
Oil filter clean							
Electrical and Controls							
Power wiring installed properly							
All electrical components grounded properly							
Control wiring and control system hooked up							
Sensors calibrated (see calibration section below)							
Control system interlocks hooked up and functional							
Smoke detectors in place							
All control devices, pneumatic tubing and wiring complete							
Safeties installed and safe operating ranges for this equipment provided to the commissioning agent							
Chilled water piping and pumps prefunctional checklists completed							

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

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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.

Notes:

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Check	Equip Tag->						Contr.
Measure line to line voltage phase imbalance for compressor: (%Imbalance = 100 x (avg. - lowest) / avg.) Record imbalance of compressor. Imbalance less than 2%?							
Record full load running amps for compressor. _____ rated FL amps x _____ svc factor = _____ (Max amps). Running less than max?							
No unusual noise and vibration when running							
Compressor interlocking with oil pressure							
Adequate oil pressure when compressure shaft is turning							
Prerotation vane closed before compressor reaches full speed							
Prerotation vane steady when load changes							
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							
Startup report completed with this checklist attached. (Includes full listing of all internal settings with notes as to which settings are BAS controlled or monitored and which are integral.							
Startup report includes written certification from chiller manufacturer that all specified features, controls and safeties have been installed and are functioning properly and that the installation and application comply with the manufacturer's recommendations.							
Piping gages, BAS and chiller panel temperature and pressure readouts match (see calibration section below)							

Notes:

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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?

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: