



Pre-Functional Checklist CHILLER CH-00

PROJECT:

PROJECT NUMBER:

REPORT ID:

EQUIPMENT DESCRIPTION: Chiller

TAG NO: CH-00

LOCATION:

AREA SERVED:

This Pre-Functional Checklist is used during the Performance Assurance Process to insure the correct equipment is delivered, installed and properly started in preparation for Functional Testing of related building systems. This checklist does not take the place of the Manufacturer's recommended checkout and startup procedures.

This Checklist is divided into 4 Sections and is to be completed by the Contractor in 4 separate steps. When completing each Section, be sure to check and initial EACH line item as being completed. Each Section's items must ALL be checked complete and initialed before the form is submitted to the PAC Authority. Any item which does not apply can be marked as "N/A" in the initial section. **If this form is not used for documenting, one approved by NMPSFA of similar rigor shall be used.**

This filled-out checklist has been reviewed with the exceptions noted below.

COMMENTS:

SECTION 1 – EQUIPMENT DELIVERY:

Project:
Building Commissioning Association Standard

Pre-Functional Checklist
Chiller CH-00 Chiller



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Chiller Information					
Make		Model Number			
Serial Number		Capacity		GPM	
Volts/Phase		Refrigerant		Charge	
Comments:					

Associated Checklists					
Condenser Water Pump	<input type="checkbox"/>	Chilled Water Piping	<input type="checkbox"/>	Cooling Tower	<input type="checkbox"/>
Condenser Water Piping	<input type="checkbox"/>	Chilled Water Pump	<input type="checkbox"/>	BAS	<input type="checkbox"/>
Comments:					

Requested documentation submitted	Rec'd	Comments
Manufacturer's cut sheets	<input type="checkbox"/>	
Performance data (pump curves, coil data, etc.)	<input type="checkbox"/>	
Installation and startup manual and plan	<input type="checkbox"/>	
O&M manuals	<input type="checkbox"/>	
Factory test results	<input type="checkbox"/>	
Sequences and control strategies	<input type="checkbox"/>	
Warranty Certificate	<input type="checkbox"/>	
Comments:		

The checklist items of SECTION 1 are all successfully completed..... **YES** **NO**



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SECTION 2 – INSTALLATION CHECKS:

Installation Checks			
Check if Acceptable; Provide comment if unacceptable	NA	Comment	
General			
General appearance good, no apparent damage	<input type="checkbox"/>	<input type="checkbox"/>	
Proper vibration isolators installed and adjusted	<input type="checkbox"/>	<input type="checkbox"/>	
Seismic restraints in place	<input type="checkbox"/>	<input type="checkbox"/>	
Pipe fittings and accessories complete	<input type="checkbox"/>	<input type="checkbox"/>	
Hydronic system flushing complete and strainers cleaned	<input type="checkbox"/>	<input type="checkbox"/>	
Cooling tower or condenser system checked out	<input type="checkbox"/>	<input type="checkbox"/>	
Evaporator air vent provided	<input type="checkbox"/>	<input type="checkbox"/>	
Water cooled condenser air vent provided	<input type="checkbox"/>	<input type="checkbox"/>	
Refrigerant relief pipe extended to outside	<input type="checkbox"/>	<input type="checkbox"/>	
Test plugs (P/T) installed near all control sensors and as per spec	<input type="checkbox"/>	<input type="checkbox"/>	
Flow switch installed as required	<input type="checkbox"/>	<input type="checkbox"/>	
Proper refrigerant level	<input type="checkbox"/>	<input type="checkbox"/>	
Proper oil level	<input type="checkbox"/>	<input type="checkbox"/>	
Purge unit installed, if specified	<input type="checkbox"/>	<input type="checkbox"/>	
Equipment labels affixed	<input type="checkbox"/>	<input type="checkbox"/>	
Oil heater installed properly	<input type="checkbox"/>	<input type="checkbox"/>	
Oil filter clean	<input type="checkbox"/>	<input type="checkbox"/>	
No leaking apparent	<input type="checkbox"/>	<input type="checkbox"/>	
Piping			
Piping installation checked against the drawings and all devices gages and appurtenances are in place	<input type="checkbox"/>	<input type="checkbox"/>	
Piping supported independently of the chiller	<input type="checkbox"/>	<input type="checkbox"/>	
Piping type and flow direction labeled on piping	<input type="checkbox"/>	<input type="checkbox"/>	
Isolation valves, balancing valves and piping specialties installed	<input type="checkbox"/>	<input type="checkbox"/>	
System flushing complete and strainers cleaned	<input type="checkbox"/>	<input type="checkbox"/>	
Hydronic system flushing complete and strainers cleaned	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical and Controls			
Power disconnect is located within site of the unit it controls and labeled	<input type="checkbox"/>	<input type="checkbox"/>	
All electric connections tight	<input type="checkbox"/>	<input type="checkbox"/>	
Grounding installed for components and unit	<input type="checkbox"/>	<input type="checkbox"/>	
Safeties installed and operational	<input type="checkbox"/>	<input type="checkbox"/>	
Starter overload breakers installed and correct size	<input type="checkbox"/>	<input type="checkbox"/>	
All control devices and wiring complete	<input type="checkbox"/>	<input type="checkbox"/>	
Control system interlocks connected and functional	<input type="checkbox"/>	<input type="checkbox"/>	
Size of overcurrent heater in motor starter correct (where applicable)	<input type="checkbox"/>	<input type="checkbox"/>	



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Installation Checks			
Check if Acceptable; Provide comment if unacceptable		NA	Comment
HOA Switch installed per manufacturer's instructions (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>	
Operation of HOA switch checked in all positions	<input type="checkbox"/>	<input type="checkbox"/>	
Proper safeties in control when HOA switch in Hand position	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical Verified: Source Panel, Panel Location, Circuit (List in Comments)	<input type="checkbox"/>	<input type="checkbox"/>	
Sensors and Gages			
Temperature, pressure and flow gages and sensors installed	<input type="checkbox"/>	<input type="checkbox"/>	
Piping gages, BAS and associated panel temperature and pressure readouts match	<input type="checkbox"/>	<input type="checkbox"/>	
TAB			
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents	<input type="checkbox"/>	<input type="checkbox"/>	

Operational Checks			
Check if Acceptable; Provide comment if unacceptable		NA	Comment
Measure line to line voltage phase imbalance for compressor: (%Imbalance = 100 x (avg. - lowest) / avg.) Record imbalance of compressor. Imbalance less than 2%?	<input type="checkbox"/>	<input type="checkbox"/>	
Record full load running amps for compressor. _____rated FL amps x _____srcv factor = _____ (Max amps). Running less than max?	<input type="checkbox"/>	<input type="checkbox"/>	
No unusual noise and vibration when running	<input type="checkbox"/>	<input type="checkbox"/>	
Compressor interlocking with oil pressure	<input type="checkbox"/>	<input type="checkbox"/>	
Adequate oil pressure when compressor shaft is turning	<input type="checkbox"/>	<input type="checkbox"/>	
Pre-rotation vane closed before compressor reaches full speed	<input type="checkbox"/>	<input type="checkbox"/>	
Pre-rotation vane steady when load changes	<input type="checkbox"/>	<input type="checkbox"/>	
Specified sequences of operation and operating schedules have been implemented with all variations documented	<input type="checkbox"/>	<input type="checkbox"/>	
Specified point-to-point checks have been completed and documentation record submitted for this system	<input type="checkbox"/>	<input type="checkbox"/>	
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	<input type="checkbox"/>	<input type="checkbox"/>	
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	<input type="checkbox"/>	<input type="checkbox"/>	
Piping gages, BAS and chiller panel temperature and pressure readouts match (see calibration section below)	<input type="checkbox"/>	<input type="checkbox"/>	

The checklist items of SECTION 2 are all successfully completed..... **YES** **NO**



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SECTION 3 – SENSOR and ACTUATOR CALIBRATION:

Sensor and Actuator Calibration

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated in accordance with Specification Section 01810. 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 Tag & Location	Location OK	1 st Gage or BAS Value	Instrument Measured Value	Final Gage or BAS Value	Pass Y / N

Comments:

The checklist items of SECTION 3 are all successfully completed..... YES ___ NO



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SECTION 4 – EQUIPMENT START-UP:

The Contractor shall complete Section 3 of this form during the Start-up procedures for the equipment. The purpose of this Section is to document that proper start-up and check-out procedures were completed and documented per the Manufacturer’s Start-Up Procedure. **Start-Up is to be by the Factory Representative, or a designated, Factory Trained Technician.**

CHECKLIST ITEMS:

Initial	Complete	Description
_____	Yes / No	Cx Authority has been notified of start-up
_____	Yes / No	Startup report completed with this checklist attached

COMMENTS:

The checklist items of SECTION 3 are all successfully completed..... YES
 NO

SECTION 4 – NOTIFICATION FOR TESTING:

This piece of equipment is properly installed, has been properly started up and is operational and ready for performance testing.

ALL FIELDS MUST BE ENTERED. NO BLANKS. IF NOT INVOLVED, N/A.

RESPONSIBLE PARTY	VERIFIED BY (Name)	COMPANY	DATE
Mechanical Contractor			
Plumbing Contractor			
General Contractor			
Controls Contractor			
Electrical Contractor			



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PAC Consultant			
NMPSFA RFM			
Manufacturer Rep.			