Construction Management

University of Missouri-Columbia

Planning, Design & Construction
Campus Facilities

117 General Services Building
Columbia, MO 65211-3200

PHONE (573) 882-1133
FAX (573) 882-1175

PROJECT:

Date:

Chiller Construction Checklist

Project:	

Date:	
Chiller Tag:	
Building:	
Location:	

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 construction 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

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

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- 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.

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

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Commissioning Authority	Date	Owner's Representative	Date

Chiller 1 Information							
Make				**Model Number**			
Serial Number				**Capacity**		**GPM**	
Volts/Phase		**Refrigerant**		**Charge**			
Comments:							

Chiller 2 Information							
Make				**Model Number**			
Serial Number				**Capacity**		**GPM**	
Volts/Phase		**Refrigerant**		**Charge**			
Comments:							

Associated Checklists					
Condenser Water Pump	☐	**Chilled Water Piping**	☐	**Cooling Tower**	☐
Condenser Water Piping	☐	**Chilled Water Pump**	☐	**BAS**	☐
Comments:					

Requested documentation submitted	**Rec'd**	**Comments**
Manufacturer's cut sheets	☐	
Performance data (pump curves, coil data, etc.)	☐	
Installation and startup manual and plan	☐	
O&M manuals	☐	
Factory test results	☐	
Sequences and control strategies	☐	
Warranty Certificate	☐	
Comments:		

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Installation Checks			
Check if Acceptable; Provide comment if unacceptable		**NA**	**Comment**
General			
General appearance good, no apparent damage	☐	☐	
Proper vibration isolators installed and adjusted	☐	☐	
Seismic restraints in place	☐	☐	
Pipe fittings and accessories complete	☐	☐	
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	☐	☐	
Test plugs (P/T) installed near all control sensors and as per spec	☐	☐	
Flow switch installed as required	☐	☐	
Proper refrigerant level	☐	☐	
Proper oil level	☐	☐	
Purge unit installed, if specified	☐	☐	
Equipment labels affixed	☐	☐	
Oil heater installed properly	☐	☐	
Oil filter clean	☐	☐	
No leaking apparent	☐	☐	
Piping			
Piping installation checked against the drawings and all devices gages and appurtenances are in place	☐	☐	
Piping supported independently of the chiller	☐	☐	
Piping type and flow direction labeled on piping	☐	☐	
Isolation valves, balancing valves and piping specialties installed	☐	☐	
System flushing complete and strainers cleaned	☐	☐	
Hydronic system flushing complete and strainers cleaned	☐	☐	
Electrical and Controls			
Power disconnect is located within site of the unit it controls and labeled	☐	☐	
All electric connections tight	☐	☐	

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Installation Checks			
Check if Acceptable; Provide comment if unacceptable		**NA**	**Comment**
Grounding installed for components and unit	☐	☐	
Safeties installed and operational	☐	☐	
Starter overload breakers installed and correct size	☐	☐	
All control devices and wiring complete	☐	☐	
Control system interlocks connected and functional	☐	☐	
Size of overcurrent heater in motor starter correct (where applicable)	☐	☐	
HOA Switch installed per manufacturer's instructions (if applicable)	☐	☐	
Operation of HOA switch checked in all positions	☐	☐	
Proper safeties in control when HOA switch in Hand position	☐	☐	
Sensors and Gages			
Temperature, pressure and flow gages and sensors installed	☐	☐	
Piping gages, BAS and associated panel temperature and pressure readouts match	☐	☐	
TAB			
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents	☐	☐	

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%?	☐	☐	
Record full load running amps for compressor. _____rated FL amps x _____srvc factor = _____ (Max amps). Running less than max?	☐	☐	
No unusual noise and vibration when running	☐	☐	
Compressor interlocking with oil pressure	☐	☐	
Adequate oil pressure when compressor shaft is turning	☐	☐	
Pre-rotation vane closed before compressor reaches full speed	☐	☐	
Pre-rotation 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	☐	☐	

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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)	☐	☐	

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**	***1st* Gage or BAS Value**	**Instrument Measured Value**	***Final* Gage or BAS Value**	**Pass Y / N**

Comments:

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***Fill out all form fields before signing!**

Name	Organization	Title	Signature

University of Missouri Commissioning Authority

(Place Digital Locking Stamp Here)