

University of Missouri-Columbia

**PROJECT:** 

### Planning, Design & Construction Campus Facilities

117 General Services Building Columbia, MO 65211-3200

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

# Heating Hot Water Piping Construction Checklist

Project:	
Date:	
Building:	
Location:	

### Submittal / Approvals

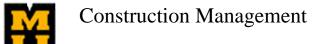
**Submittal.** The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off <u>only by parties having direct</u> <u>knowledge of the event</u>, as marked below, respective to each responsible contractor. This 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		
TAB Contractor	Date	General Contractor	Date

Construction checklist items are to be completed as part of startup & initial checkout, preparatory to performing test procedures.

- 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

Associated Checklists					
Boiler		Heat Exchanger		BAS	
Heating Hot Water Pump(s)		Other		Other	
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		
Sequences and control strategies		
Flushing and cleaning plan		
Leak test reports		
Water treatment report		
Welder Certification		
Comments:		

Installation Checks					
Check if acceptable, provide comment if unacceptable		NA	Comment		
Piping					
Piping installed per the drawings and details					
Piping, fittings, valves and equipment properly supported and seismically anchored per the details					
Piping, fittings and valves insulated per specification					
In-line equipment insulated per specification					
Piping labeled per specification with flows indicated in the correct direction					
Strainers and low-point drains opened and verified to be clean					

## **Construction Management**



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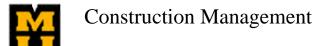
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Installation Checks						
Check if acceptable, provide comment if unacceptable		NA	Comment			
Construction strainers removed						
Test plugs (P/T) installed near all control sensors and as per spec						
Flushing and cleaning plan submitted and approved						
Piping system properly flushed and cleaned and temporary piping removed						
Piping pressure tested according to contract documents						
Chemical treatment system or plan installed						
No leaking apparent						
ASME pressure vessel data sheet or certification tag posted and inspection complete for each expansion tank						
Expansion tanks verified to not be air bound and system completely full of water. System completed purged of air.						
Air vents and bleeds at high points of systems functional						
Provisions in place for expansion compensation						
Record drawings updated to reflect the actual installation						
Valves						
Isolation valves provided at all branches and main takeoffs to facilitate isolation (as required by contract)						
Valve installation per manufacturer's instructions						
Valve manufacturer labels permanently affixed						
Manual isolation valves checked for proper seal and found to travel freely						
Valves installed in proper direction						
Valves stroke fully and easily and spanning is calibrated (see calibration section below)						
Valves that require a positive shut-off are verified to not be leaking when closed at normal operating pressure						
No leaking apparent						
Valves tagged and valve schedule submitted and displayed as required						
Adequate maintenance clearance in provided and valve is accessible						
Unions installed to allow for easy removal of control valves						
Sensors and Gages						
Temperature, pressure and flow gages and sensors installed						
Piping gages, BAS and associated panel temperature and pressure readouts match.						



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Installation Che	cks		
Check if acceptable, provide comment if unacceptable		NA	Comment
ТАВ			
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents			

#### **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 <sup>st</sup> Gage or BAS Value	Instrument Measured Value	<i>Final</i> Gage or BAS Value	Pass Y / N

Comments:

\*Fill out all form fields before signing!

Name	Organization	Title	Signature
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University of Missouri Commissioning Authority

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