

## Heat Exchanger Construction Checklist

<b>Project:</b>	
<b>Date:</b>	
<b>Pump tag:</b>	
<b>Building:</b>	
<b>Location:</b>	

### 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		
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.

Project Engineer	Date	Owner’s Representative	Date

**DIVISION 1 – GENERAL REQUIREMENTS**  
**Section 01 91 00.13i – Heat Exchanger Construction Checklist**

Heat Exchanger Information					
<b>Make</b>		<b>Model Number</b>			
<b>Serial Number</b>		<b>Function</b>		<b>Service Area</b>	
<b>GPM Fluid 1</b>		<b>GPM Fluid 2</b>			
<b>MBH Fluid 1</b>		<b>MBH Fluid 2</b>			
<b>Temp In/Out Fluid 1</b>		<b>Temp In/Out Fluid 1</b>			
<b>Comments:</b>					

Associated Checklists					
<b>Chilled Water Piping</b>	<input type="checkbox"/>	<b>Heating Hot Water Piping</b>	<input type="checkbox"/>	<b>Chilled Water Pump</b>	<input type="checkbox"/>
<b>Heating Hot Water Pump</b>	<input type="checkbox"/>	<b>DDC</b>	<input type="checkbox"/>	<b>Other</b>	<input type="checkbox"/>
<b>Comments:</b>					

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"/>	
<b>Comments:</b>		

Installation Checks			
Check if acceptable, provide comment if unacceptable	NA	Comment	
<b>General</b>			
General appearance good, no apparent damage	<input type="checkbox"/>	<input type="checkbox"/>	
Installation is per manufacturers instructions	<input type="checkbox"/>	<input type="checkbox"/>	
Piping installed per the drawings and details	<input type="checkbox"/>	<input type="checkbox"/>	
Verified that valves for equipment isolation have been provided per the drawings and specs	<input type="checkbox"/>	<input type="checkbox"/>	
Record drawings updated to reflect the actual installation	<input type="checkbox"/>	<input type="checkbox"/>	

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<b>Installation Checks</b>			
<b>Check if acceptable, provide comment if unacceptable</b>	<input type="checkbox"/>	<b>NA</b>	<b>Comment</b>
Piping, fittings, valves and equipment properly supported and seismically anchored per the details	<input type="checkbox"/>	<input type="checkbox"/>	
Equipment label permanently affixed	<input type="checkbox"/>	<input type="checkbox"/>	
Pipes are supported independently of the heat exchanger	<input type="checkbox"/>	<input type="checkbox"/>	
Provisions in place for expansion compensation	<input type="checkbox"/>	<input type="checkbox"/>	
Piping, fittings and valves insulated per specification	<input type="checkbox"/>	<input type="checkbox"/>	
In-line equipment insulated per specification	<input type="checkbox"/>	<input type="checkbox"/>	
In-line equipment labeled per specification with flows indicated in the correct direction	<input type="checkbox"/>	<input type="checkbox"/>	
Heat Exchanger pressure tested per manufacturers recommendations.	<input type="checkbox"/>	<input type="checkbox"/>	
Heat Exchanger properly flushed and cleaned per manufacturers recommendations (report attached)	<input type="checkbox"/>	<input type="checkbox"/>	
Heat exchanger detail checked against the drawings and all devices gages and appurtenances are in place	<input type="checkbox"/>	<input type="checkbox"/>	
Strainers and low-point drains opened and verified to be clean	<input type="checkbox"/>	<input type="checkbox"/>	
Construction strainers removed	<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"/>	
Chemical treatment system or plan installed	<input type="checkbox"/>	<input type="checkbox"/>	
No leaking apparent	<input type="checkbox"/>	<input type="checkbox"/>	
Air vents and bleeds at high points of systems functional	<input type="checkbox"/>	<input type="checkbox"/>	
Isolation valves and balancing valves installed	<input type="checkbox"/>	<input type="checkbox"/>	
Adequate clearances provided around the unit for maintenance, removal of tubes, etc..	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Valves</b>			
Isolation valves provided at all branches and main takeoffs to facilitate isolation (as required by contract)	<input type="checkbox"/>	<input type="checkbox"/>	
Valve installation per manufacturer's instructions	<input type="checkbox"/>	<input type="checkbox"/>	
Valve manufacturer labels permanently affixed	<input type="checkbox"/>	<input type="checkbox"/>	
Manual isolation valves checked for proper seal and found to travel freely	<input type="checkbox"/>	<input type="checkbox"/>	
Valves installed in proper direction	<input type="checkbox"/>	<input type="checkbox"/>	
Valves stroke fully and easily and spanning is calibrated (see calibration section below)	<input type="checkbox"/>	<input type="checkbox"/>	
Valves that require a positive shut-off are verified to not be leaking when closed at normal operating pressure	<input type="checkbox"/>	<input type="checkbox"/>	
No leaking apparent	<input type="checkbox"/>	<input type="checkbox"/>	
Valves tagged and valve schedule submitted and displayed as required	<input type="checkbox"/>	<input type="checkbox"/>	
Adequate maintenance clearance in provided and valve is accessible	<input type="checkbox"/>	<input type="checkbox"/>	
Unions installed to allow for easy removal of control valves	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Sensors and Gages</b>			
Temperature, pressure and flow gages and sensors installed	<input type="checkbox"/>	<input type="checkbox"/>	

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Installation Checks		
Check if acceptable, provide comment if unacceptable	NA	Comment
Piping gages, DDC and associated panel temperature and pressure readouts match.	<input type="checkbox"/>	<input type="checkbox"/>
<b>TAB</b>		
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"/>

**Sensor and Actuator Calibration**

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated. 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	Final Gage or BAS Value	Pass Y / N

**Comments:**