

## Prefunctional Checklist

Project \_\_\_\_\_

### PC-\_\_\_\_\_ HEATING WATER PIPING \_\_\_\_\_

**Components included:** All valves, except coil valves

**Associated checklists:** Boiler, HW 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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#### 2. Requested documentation submitted

Notes:

HEATING WATER PIPING PREFUNCTIONAL CHECKLIST  
PC-\_\_\_\_\_

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

Check	Y / N	Contr.
Manufacturer's cut sheets		
Performance data		
Flushing and cleaning plan, including staging of multiple floors		
O&M manuals		

- **Documentation complete as per contract documents for given trade .....\_\_ YES \_\_ NO**

**3. Physical Installation Checks**

Check	Y / N	Contr.	Note
<b>Piping</b>			
Pipe fittings complete and pipes properly supported			
Seismic anchoring installed			
Pipes properly labeled			
Pipes properly insulated			
Strainers in place and clean			
Isolation valves and balancing valves installed			
Test ports (P/T) installed near all control sensors and as per spec			
Flushing and cleaning plan submitted and approved (Minimum flushing velocity in all pipe sections is the greater of 4 ft. per second, or 1.5 times the velocity at design flow)			
Piping system properly flushed and cleaned and temporary piping removed (report attached)			
10% of strainers and Owner-selected low-point drains opened and witnessed by Owner to be clean. (List points checked below).			
Piping pressure tested according to contract documents (report attached)			
Chemical treatment system or plan installed			
Water treatment report submitted according to contract documents			
No leaking apparent around fittings			
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 completely purged of all air.			
Air vents and bleeds at high points of systems functional			
<b>Valves</b> (except coil valve checklists are with the unit checklist)			
Valve labels permanently affixed			
Valves installed in proper direction			
No leaks			

Notes:

Check	Y / N	Contr.	Note
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 per "Calibration and Leak-by Test Procedures" document. List: _____			
<b>Sensors and Gages</b>			
Temperature, pressure and flow gages and sensors installed			
Piping gages, BAS and chiller panel temperature and pressure readouts match (see calibration section below)			
<b>TAB</b>			
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents			

- **The checklist items of Part 3 are all successfully completed for given trade.** \_\_\_ YES \_\_\_ NO

**4. Sensor and Actuator Calibration [                      ]**

All field-installed temperature, relative humidity, CO, CO<sub>2</sub> 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: