

SAMPLE CONSTRUCTION CHECKLIST

Construction Checklist

Air Handling Unit AHU-1, 2, 3, 4

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.

_____ Mechanical Contractor	_____ Date	_____ Controls Contractor	_____ Date
_____ Electrical Contractor	_____ Date	_____ Plumbing 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 authority, 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.

Owner's Representative _____
Date

Air Handling Unit AHU-1, 2, 3, 4

1. *Specification Verification / Physical Check*

The following items need to be verified upon receiving equipment. Fill in blanks with check, specific information, or circle 'yes' or 'no'. For any negative responses, complete the Issues/Comments section.

1a. Specification Verification	Specified	Submitted	Installed
Model Verification			
AHU-1			
Manufacturer	York	York	
Model	XTI – 36x30	XTI – 36x30	
Location	Mechanical Rm. B202	Mechanical Rm. B202	
Cooling Capacity, gpm / MBH	11.6 / 57.8	11.6 / 57.8	
Number of cooling coil rows	6	6	
Heating Capacity, gpm / MBH	4.2 / 81.6	4.2 / 81.6	
Number of heating coil rows	3	3	
Supply Fan			
Air Flow, CFM Design	1250	1250	
E.S.P	1.00"	1.00"	
Hp/ RPM	1.5 / 1470	1.5 / 1459	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	
AHU-2			
Manufacturer	York	York	
Model	XTI – 36x54	XTI – 36x54	
Location	Mechanical Rm. B202	Mechanical Rm. B202	
Cooling Capacity, gpm / MBH	26.1 / 130.5	26.7 / 134.7	
Number of cooling coil rows	5	4	
Heating Capacity, gpm / MBH	8.6 / 167.9	8.6 / 167.9	
Number of heating coil rows	3	3	
Supply Fan			
Air Flow, CFM Design	2950	2950	
E.S.P	1.5"	1.50"	
Hp/ RPM	3 / 1500	3 / 1500	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	
Return Fan			
Air Flow, CFM Design	2950	2950	
E.S.P	1.00"	1.00"	
Hp/ RPM	2 / 1188	1.5 / 1926	
Volts / Phase / Hz	460 / 3 / 60		

1a. Specification Verification	Specified	Submitted	Installed
AHU-3			
Manufacturer	York	York	
Model	XTI – 36x42	XTI – 36x42	
Location	Mechanical Rm. A208	Mechanical Rm. A208	
Cooling Capacity, gpm / MBH	20.8 / 104.9	20.8 / 104.9	
Number of cooling coil rows	5	5	
Heating Capacity, gpm / MBH	1.9 / 36.7	1.9 / 36.7	
Number of heating coil rows	1	1	
Supply Fan			
Air Flow, CFM Design	2850	2850	
E.S.P	1.5”	1.50”	
Hp/ RPM	3 / 1548	3 / 1548	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	
Return Fan			
Air Flow, CFM Design	2850	2850	
E.S.P	1.00”	1.00”	
Hp/ RPM	2 / 1169	2 / 1169	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	
AHU-4			
Manufacturer	York	York	
Model	XTI – 36x42	XTI – 36x42	
Location	Mechanical Rm. B202	Mechanical Rm. B202	
Cooling Capacity, gpm / MBH	20.6 / 103.3	20.6 / 103.3	
Number of cooling coil rows	5	5	
Heating Capacity, gpm / MBH	5.0 / 98.2	5.0 / 98.2	
Number of heating coil rows	2	2	
Supply Fan			
Air Flow, CFM Design	2400	2400	
E.S.P	1.50”	1.50”	
Hp/ RPM	3 / 1531	3 / 1531	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	
Return Fan			
Air Flow, CFM Design	2400	2400	
E.S.P	1.00”	1.00”	
Hp/ RPM	1.5 / 1120	1.5 / 1078	
Volts / Phase / Hz	460 / 3 / 60	460 / 3 / 60	

Requested Documentation Submitted	Date Provided
Manufacturer's Cut Sheet	
Performance Data (fan curves, coil data, etc.)	
Installation and Startup Manuals and Plans	
Sequences and Control Strategies	
O&M Manual	
Approved Shop Drawings	

The following must be completed upon delivery of equipment to work site. Prior to Installation, an Owner's Representative must verify the information.

1b. Physical Check	Results	AHU-1	AHU-2	AHU-3	AHU-4
Casing condition good: no dents, leaks, door gaskets installed	Y / N				
The air openings to the AHU are sealed with durable plastic	Y / N				
The water openings are sealed with plastic plugs	Y / N				
Access doors close tightly - no leaks	Y / N				
Each access door is full height and removable	Y / N				
All components (mixing boxes, coils, access fans, etc.) are present and in the proper order	Y / N				
Installation and startup manual in checklist envelope	Y / N				
Permanent labels affixed, including for fans	Y / N				
Component Verification					
Number of rows in heating coil, design/actual	/				
Heating coil surface area is free of damage	Y / N				
Number of rows in cooling coils, design/actual	/				
Cooling coil surface area is free of damage	Y / N				
Return and outdoor air damper properly sized and seals aligned	Y / N				
Manufacturer's rating are readable and accurate	Y / N				

2. Installation

The following items need to be verified during installation. Fill in blanks with check, specific information, or circle 'yes' or 'no'. For any negative responses, complete the Issues/Comments section.

2a. Installation	Results	AHU-1	AHU-2	AHU-3	AHU-4
Cooling coil drain pan properly draining / positive pitch	Y / N				
Internal vibration isolations in good condition	Y / N				
Boot between duct and unit tight and in good condition	Y / N				
Vibration isolation equipment installed & released from shipping locks	Y / N				
Sound attenuation installed	Y / N				
Each fan motor has a minimum of 2 drive belts	Y / N				
Metal to Metal connections eliminated to prevent noise/vibration problems	Y / N				
Gaskets installed on all four edges of each access door	Y / N				
Filters installed and replacement type and efficiency permanently affixed to housing--construction filters installed	Y / N				
Permanent labels affixed, including for fans (easy to see)	Y / N				
All shipping and installation materials are removed	Y / N				
Thermal insulation properly installed and according to specification	Y / N				

2b. Coils and Piping	Results	AHU-1	AHU-2	AHU-3	AHU-4
Air vents for each coil are installed	Y / N				
Coil drain valves installed on each coil	Y / N				
¾" capped drain valves on each coil drain	Y / N				
Check Supply shutoff valve on each coil are installed	Y / N				
Check Return balancing valve installed	Y / N				
Control valves installed	Y / N				
Valves properly labeled	Y / N				
Concentric reducers used in and out of control valve	Y / N				
Strainer installed ahead of control valve	Y / N				
Valve tags affixed	Y / N				
Piping is adequately supported	Y / N				
Pipe fittings completed	Y / N				
Pipe labeling is affixed, with correct flow directions indicated	Y / N				
Insulation is installed and free of defects	Y / N				
Insulation at strainer is removable at blow-off	Y / N				
Piping system properly flushed	Y / N				
Fins are combed out on each coil	Y / N				
No leaking apparent around fittings	Y / N				
All components easily accessible	Y / N				
Thermometer and pressure gauges on supply and return	Y / N				
Chilled water condensate piping properly installed (secured, trapped to a drain) (Trap Depth _____)	Y / N				
Valves installed in proper direction	Y / N				
Sensors calibrated (See calibration section below)	Y / N				
OSAT, MAT, SAT, RAT, chilled water supply sensors properly located and secure (related OSAT sensor shielded)	Y / N				
P/T plugs and isolation valves installed per drawings	Y / N				

2c. Electrical	Results	AHU-1	AHU-2	AHU-3	AHU-4
Local disconnect installed in accessible location	Y / N				
Electrical connections completed & tight	Y / N				
Electrical components properly grounded	Y / N				
Voltage checked	Y / N				
Safeties in place and operable	Y / N				
Starter overloads in Place (Sized Correctly)	Y / N				

2d. Duct connections & Filters	Results	AHU-1	AHU-2	AHU-3	AHU-4
Are supply air connections made with flex connections	Y / N				
Are return air connections made with flex connections	Y / N				
Are filters installed correctly	Y / N				
Is fresh air duct connected to return air side.	Y / N				
Have all joints been sealed	Y / N				
Are ducts supported at end before flexible connection	Y / N				
Is duct detector installed	Y / N				
Sound attenuators installed	Y / N				
No apparent severe duct restrictions	Y / N				
Ductwork Completed	Y / N				

2e. Fans & Dampers	Results	AHU-1	AHU-2	AHU-3	AHU-4
Return/exhaust fan and motor aligned	Y / N	NA			
Return/exhaust fan belt tension & condition good	Y / N	NA			
Return/exhaust fan protective shrouds for belts in place and secure	Y / N	NA			
Return/exhaust fan area clean	Y / N	NA			
All dampers/sensors are accessible	Y / N				
Return/exhaust fan and motor lube lines installed and lubed	Y / N	NA			
Record drawings adequate	Y / N				
Outdoor/return air arrangement will prevent frozen coil	Y / N				
Filters clean and tight fitting	Y / N				
Supply fan and motor alignment correct	Y / N				
Supply fan belt tension & condition good	Y / N				
Supply fan protective shrouds for belts in place and secure	Y / N				
Supply fan area clean	Y / N				
Supply fan and motor properly lubricated	Y / N				
Filter pressure differential measuring device installed and functional (magnehelic, inclined manometer, etc.)	Y / N				
Smoke and fire dampers installed properly per contract docs (proper location, access doors, appropriate ratings verified)	Y / N				
All dampers close tightly	Y / N				
All damper linkages have minimum play	Y / N				
Low limit freeze stat sensor located to deal with stratification & bypass	Y / N				

2f. Variable Frequency Drives	Results	AHU-1	AHU-2	AHU-3	AHU-4
VFD powered (wired to controlled equipment)	Y / N				
VFD interlocked to control system	Y / N				
Static pressure or other controlling sensor properly located and per drawings and calibrated	Y / N				
Drive location not subject to excessive temperatures	Y / N				
Drive location not subject to excessive moisture or dirt	Y / N				
Drive size matches motor size	Y / N				
Internal setting designating the model is correct	Y / N				
Input of motor FLA represents 100% to 105% of motor FLA rating	Y / N				
Appropriate Volts vs Hz curve is being used	Y / N				
Accel and decel times are around 10-50 seconds, except for special applications. Actual decel = _____ Actual accel = _____	Y / N				
Upper frequency limit set at 100%, unless explained otherwise	Y / N				
Unit is programmed with full written programming record on site	Y / N				

2g. Controls - Installation	Results	AHU-1	AHU-2	AHU-3	AHU-4
Control panel accessible and labeled properly	Y / N				
Temperature sensors installed (RA, OA, SA, CC, HC) and calibrated	Y / N				
Pressure drop gauges are installed across each filter and calibrated	Y / N				
Flow meters are installed	Y / N				
Fan DP sensor installed and calibrated	Y / N				
Smoke detectors installed in proper location and functioning	Y / N				
Dampers installed and calibrated	Y / N				
Hot/chilled water actuators installed and calibrated	Y / N				
Duct static pressure sensor installed and calibrated	Y / N				
Safety items installed (freeze, high pressure, motor overload)	Y / N				
Communications with central system functioning	Y / N				
Pilot lights are functioning	Y / N				
All control devices, pneumatic tubing and wiring complete	Y / N				

3 Startup

The following items need to be verified upon receiving equipment. Fill in blanks with check, specific information, or circle 'yes' or 'no'. For any negative responses, complete the Issues/Comments section.

3a. Physical Checks	Results	AHU-1	AHU-2	AHU-3	AHU-4
Supply fan rotation correct	Y / N				
Return/exhaust fan rotation correct	Y / N	NA			
Return /exhaust fan acceptable noise & vibration	Y / N	NA			
Supply fan has no unusual noise or vibration	Y / N				
Inlet vanes aligned in housing, actuator spanned, modulate smoothly and proportional to input signal and BAS readout	Y / N				

3a. Physical Checks	Results	AHU-1	AHU-2	AHU-3	AHU-4
All dampers (OSA, RA, EA, etc.) stroke fully without binding and spans calibrated and BAS reading site verified	Y / N				
Valves stroke fully and easily and spanning is calibrated	Y / N				
Valves verified to not be leaking through coils when closed at normal operating pressure	Y / N				
The HOA switch properly activates and deactivates the unit	Y / N				
Specified sequences of operation and operating schedules have been implemented with all variations documented	Y / N				
Specified point-to-point checks have been completed and documentation record submitted for this system	Y / N				
Startup – all items to be completed at time of startup					
Clean up of equipment completed per contract documents	Y / N				
Internal isolators free to move	Y / N				
Manufacturer's stamp checklist complete and attached	Y / N				
Vibration isolation inspection report complete (attach)	Y / N				
VFD verification checklist completed	Y / N				
Fan lubricated and aligned	Y / N				
All filters installed properly and are clean	Y / N				
VAV box dampers manually opened or are controllable	Y / N				
Supply Fan motor amps, actual					
Return Fan motor amps, actual		NA			
System discharge static pressure, design/actual	/				
Supply Fan rpm, actual					
Return Fan rpm, actual		NA			

3c. Controls -Startup	Controls	AHU-1	AHU-2	AHU-3	AHU-4
Cooling sequence of control correct (should be attached)	Y / N				
Heating sequence of control correct (should be attached)	Y / N				
Warm-up sequence of control correct (should be attached)	Y / N				
Cool-down sequence of control correct (should be attached)	Y / N				
Economizer sequence of control correct (should be attached)	Y / N				
IAQ sequence of control correct (should be attached)	Y / N				
Unoccupied sequence of control correct (should be attached)	Y / N				
Safety Items	Y / N				
Physically tested (freeze, high pressure, motor overload)	Y / N				

END OF CHECKLIST