

## AIR HANDLING UNITS - VARIABLE-VOLUME

### 1. INTRODUCTION

This sample pre-functional checklist is for hypothetical variable-volume air handling units.

### 2. APPLICATION

Checklist items are to be completed as part of installation, start-up, and initial quality control inspection. This checklist does not take the place of the manufacturer's recommended checkout and start-up procedures or reports.

Line items shall be complete and shall be checked off only by parties having direct knowledge of that line item being completed.

Inapplicable line items shall be identified as such by:

- "N/A" for non-applicable line items.
- "BO" for line items by others.

Contractors assigned responsibility for checklist line items shall be responsible for those line items, even if line item is sub-contracted.

Identify line item status by:

- Indicating line item is complete by checking respective box.
- Indicating line item is incomplete by recording a remark number in respective box and providing associated comment below table.

"Contr." column or abbreviations in brackets to the right of an item identifies responsible contractor.

### 3. APPROVALS

Contractor signature signifies equipment identified herein and systems integral to them are complete and ready for functional performance testing with the exception of consequential items.

_____ (General Contractor Signature)	_____ (Company)	_____ (Date)
_____ (Mechanical Contractor Signature)	_____ (Company)	_____ (Date)
_____ (Controls Contractor Signature)	_____ (Company)	_____ (Date)
_____ (Test & Balance Contractor Signature)	_____ (Company)	_____ (Date)
_____ (Electrical Contractor Signature)	_____ (Company)	_____ (Date)
_____ (Sheet Metal Contractor Signature)	_____ (Company)	_____ (Date)

#### 4. CHECK-OFF ITEMS

CHECKED ITEM	EQUIPMENT IDENTIFICATION										CONTR.
<b>General Installation</b>											
Permanent equipment label has been affixed.											
Flexible connection between duct and unit has been installed.											
Vibration isolation equipment has been installed and released from shipping locks.											
Seismic anchoring has been installed.											
Adequate maintenance access has been provided for unit and components.											
Instrumentation devices have been installed.											
Unit has been cleaned.											
Construction filters have been removed and new filters have been installed.											
Filter replacement type and efficiency has been permanently affixed to housing.											
Filter pressure differential measuring device has been installed and has been verified to be functioning correctly.											
Coil pull space is clear.											
Coils have been verified to be clean with fins verified to be straight.											
Casing has been verified to not have dents or leaks and door gaskets have been installed.											
Access doors have been verified to close tightly.											
Thermal insulation has been installed.											
Instrumentation devices have been installed.											
Multiple/manifolded unities have been interlocked.											

CHECKED ITEM	EQUIPMENT IDENTIFICATION										CONTR.
<b>Fans and Dampers</b>											
Fan and motor alignment have been verified to be correct.											
Fan belt tension and condition have been checked.											
Fan belt protective shrouds have been verified to be in place and secure.											
Fan and motor have been properly lubricated.											
Smoke damper and fire damper correct location and rating have been verified.											
All dampers have been verified to close tightly with minimal linkage play.											
<b>Piping System</b>											
Pipe fittings and accessory installation has been completed.											
Strainers have been installed and cleaned.											
Pipe fittings have been installed and pipes have been properly supported.											
Pipe labeling has been completed and flow direction has been indicated.											
Isolation and balancing valves have been installed.											
Valves have been installed in correct direction.											
Temperature and pressure sensors have been installed.											
Air vents and bleeds have been installed at system high points and have been verified to be functioning properly.											
System flushing has been completed and strainers have been cleaned.											
System has been filled with working fluid.											
Pressure/temperature plugs have been installed at each control sensor and in accordance with drawings.											

CHECKED ITEM	EQUIPMENT IDENTIFICATION										CONTR.
Makeup water shut-off valve has been installed.											
Chemical treatment system installation has been completed.											
Pipe insulation installation has been completed.											
Pipes verified to not be supported by equipment.											
<b>Ductwork</b>											
Sound attenuators have been installed.											
Duct joint sealant has been properly installed.											
Duct has been verified to have no abrupt constrictions.											
Turning vanes have been verified to be installed in elbows where specified.											
Duct leakage testing has been completed.											
Ductwork has been cleaned.											
Balancing dampers have been installed.											
<b>Electrical and Controls</b>											
Power has been provided to unit and disconnect has been installed.											
All electric connections have been verified to be tight.											
All electrical components have been grounded.											
Sensors have been calibrated.											
Control system interlocks have been made and have been verified to be functioning properly.											
All control devices, pneumatic tubing, and wiring installations have been completed.											
Overcurrent heater sizes have been verified to correct.											
Motorized valves have been verified to be operating correctly.											
Smoke detectors have been installed and tested.											

CHECKED ITEM	EQUIPMENT IDENTIFICATION										CONTR.
Motor efficiency has been verified.											
Outside air temperature and humidity sensors verified to comply with type specified.											
Return air temperature and humidity sensors verified to comply with type and location specified.											
Mixed air temperature and humidity sensors verified to comply with type and location specified.											
Supply air temperature and humidity sensors verified to comply with type and location specified.											
Preheating coil leaving air temperature sensor verified to comply with type and location specified.											
Cooling coil leaving air temperature sensor verified to comply with type and location specified.											
Reheating coil leaving air temperature sensor verified to comply with type and location specified.											
<b>Test and Balance</b>											
System and balancing devices have been verified to allow balancing to be completed in accordance with NEBB or AABC procedures.											
<b>Operation</b>											
Safeties have been energized and tested.											
Equipment has been verified to start and operate correctly.											
Equipment has been verified to not produce unusual noise or vibration.											
Fan rotation has been verified to be correct.											
Dampers have been verified to stroke fully without binding.											
Damper spans have been calibrated.											
Hand-Off-Auto switch has been verified to properly activate and deactivate equipment.											

CHECKED ITEM	EQUIPMENT IDENTIFICATION										CONTR.
Line-to-line voltage phase imbalance has been verified to be less than 2% according to: %Imbalance = 100 x (avg. - lowest)/avg.). Record actual value below:											
Actual imbalance (%):											
Full load running amps has been measured. Record measured value below:											
Actual full load amps:											
Rated full load running amps and service factor have been recorded. Record measured values below:											
Actual rated full load amps:											
Actual service factor:											
As-built operation sequences and schedules have been completed with all variations documented and submitted to CxC.											
Specified point-to-point checks have been completed and documentation record has been submitted to CxC.											
<b>Final</b>											
Startup report has been submitted to CxC which includes: <ul style="list-style-type: none"> <li>• Manufacturer's written certification that all specified features, controls, and safeties have been installed and are functioning properly.</li> <li>• Manufacturer's written certification that installation and application comply with manufacturer's recommendations.</li> </ul>											
Safeties have been installed and safe operating ranges have been submitted to CxC.											
<b>NOTES:</b>											
01											
02											

-- End of Checklist --