

Air Handling Unit System Checklist

**As air handling units can incorporate different components, depending on the configuration within the project, the check list will cover each section.*

This checklist should be used and completed throughout the project and its different stages, delivery, storage, installation & pre-commissioning, prior to the functional testing taking place.

Project Name:	
Date:	
Equipment ID.	

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Delivery Inspection

Once the Air Handling Unit arrives at site, usually delivered by a transport company, and before being accepted into storage, the following should be checked with the driver.

Any damage that is noted should be reported to the manufacturer/supplier within 3 days in writing supported with photographs.

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Supplier's consolidated delivery ticket is available, showing all equipment and ancillaries for inspection and being used to check against.		
2	A copy of the order that was sent to the supplier is available for reference and is being used to check against		
3	Equipment is packaged and crated in separate boxes, for maximum protection		
4	The unit nameplate and details match the purchase order		
5	Delivery protection is dry		
6	Unit/s are dry internally		
7	The external casing of the unit/s are undamaged		
8	All frames, if ordered are included		
9	All pipework connections are the correct size		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
10	Pipework connections are undamaged		
11	All pipework handing's are correct		
12	All ducting connections are correct size		
13	All ducting connections are correct size		
14	All ancillaries [valves, actuators, dampers, filters] are included in delivery as per the order and delivery note		
15	Spin the fan to ensure not damaged and out of line		
16	Check all coils for damage externally and internally		
17	Replace and protection that has been removed		

Storage Inspection

Storage Area

If the equipment is to be placed into storage on site prior to installation there will be an inspection completed checking the following.

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	The area is internal and will not be affected by weather. [if the unit is not rated for external use]		
2	The surface where the equipment is to be placed is flat.		
3	The equipment will be raised from the floor to allow airflow and stop risk of water ingress.		
4	The area is well covered and protected.		
5	The area is well ventilated and no risk of high humidity.		
6	The area is clean & dust free.		

Storage of Air Handling Unit

Prior to the units being placed into storage the following should be checked.

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Units will not be stacked.		
2	Units will not have materials stacked on them.		
3	All ancillaries will be placed in a safe and secure location so items do not go missing or get damaged.		
4	All original packaging is intact and not removed.		
5	Pipework caps are not removed.		
6	Unit and all components placed on a flat surface.		

Pre-Installation Inspection

Prior to the units being installed the following should be checked.

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	The plinth/base is ready, flat and level & can bare the weight of the installation.		
2	The room/area is dry and watertight.		
3	Area being installed is not prone to flooding or ponding of water.		
4	The room/area the unit will be installed into is clean and dust free. If there is dust/construction work, then the unit should be protected.		
5	If the unit is installed externally then ensure it can be fixed to the floor, check for internal mounting requirements with the manufacturer.		
6	If there is a buildup of snow it will not affect the unit's operation of maintenance requirements.		
7	The installation of the unit will not impede the installation of the condensate trap/pipework.		
8	All connections, pipework/ductwork etc., can be independently supported and not supported by the unit.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
	Best practice is to install self-supporting brackets prior to the connection of the unit		
9	Ensure that all access doors are clear and not blocked from brackets or other services.		
10	Check to ensure that all connections kits containing - gaskets, bolts, cleats, screws are available to allow bolting up of the equipment.		
11	Remove all transport feet and bolts.		
12	Check that all required cabling can be run through the unit and on appropriate containment.		

Maintenance/Access

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	<p>There is enough space allowed around and above the unit once installed to perform maintenance and remove components.</p> <p>[check the manufacturers maintenance instructions for requirements]</p>		
2	<p>All doors can be fully opened to gain access to the unit.</p>		
3	<p>Check that there is enough space for coils and fans to be removed and replaced.</p> <p>[Do not forget that if the unit is mounted outside the surface will need to be hard and flat]</p>		
4	<p>If the unit is mounted at high level, confirm that there is a safe manner to remove the parts and components and that there is enough space at high level and at the floor level to allow this.</p>		

Pre-Commissioning Inspection

Once the equipment has been installed and prior to functional testing and commissioning phase taking place the following will be checked.

General

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Document the information of the unit from its name plates and cross reference with the specified information to ensure correct.		
2	Ensure unit is level.		
3	Ensure all gaskets are installed and sealed.		
4	Ensure that all cleats are installed as per manufacturer's instructions.		
5	All access doors can be open and closed with no gaps or leakage.		
6	Check that all transport bolts and feet are removed.		
7	Roof canopy, if being used, is installed and fixed.		
8	All vibration mounts installed		
9	Seismic restraints, where required, installed.		
10	Unit and all components including valves and controls are labeled in line with the project naming convention.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
11	Operation and startup manual for the AHU available.		

Electrical General

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Unit and components are fully earthed in line with the manufacturer's instructions.		
2	Earthing has been tested		
3	Emergency disconnect installed for each component in line with NFPA/local code requirements		
4	Electrical voltage from site matches the unit required voltages.		
5	All cabling is installed and connected on the correct containment/raceways and not damaged.		
6	All cabling has been tested/torque tested.		
7	Local motor control panel [LMCP] has been installed		
8	Local motor control panel has been electrically tested		

Ref	Inspection/Task	Yes/No/[n/a]	Notes
9	All electrical cabling is labelled inline with project naming convention.		

Variable Speed Drive

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Variable speed drive has been installed.		
2	Variable Speed Drive [VSD] has been electrically tested		
3	Variable speed drive has been functionally tested		

Controls System/Motorized Dampers & Interlocks

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Motorised dampers installed as per the drawings and open/close freely.		
2	All controls and panels have been installed to operate the motorized dampers		
3	Fire trip has been installed and operating/interlocked with ventilation system.		
4	Freezing safety interlocks installed as per the design.		

Ref	Inspection/Task	Yes/No/[n/a]	Notes
5	Pressure differential measuring devices are installed across all filters		

Fresh Air Intake

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Position of intake louvre is inline with the design requirements and positioned so as will not be affected by any exhaust air.		
2	Weather louvre/roof cowl installed and weather tight with relevant mesh and is unobstructed.		
3	Weather louvre installed with correct mesh.		
4	Weather louvre mesh free area meets the design requirements		
5	Plenum installed connecting the louvre to the ducting.		
6	Plenum has drain installed with trap to remove any unwanted ingress of water		
7	Plenum has access hatch/s installed to allow future maintenance and inspections		
8	All fresh air ductwork is installed, correct size and connected to the unit with correct fixings		
9	All attenuators are installed as shown on the drawings.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
10	All non-return dampers are installed as per construction drawings.		
11	All volume control dampers are installed as per construction drawings.		
12	Ductwork insulated and vapor seal in line with specification.		
13	Test holes available in duct to allow air readings		

System Fire Dampers

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	If fire dampers were installed as per the drawings, ensure they have been tested in line with the project requirements.		

Filters

Panel Filters

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Filter mounting frames are clean and dust free.		
2	Panel filters installed, clean and are the correct grade.		
3	Filters have the correct sealing gaskets installed.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
4	The filters are not jammed in the rails		
5	All components upstream of the filter are clean and dust free		
6	Panel filters are locked in place		
7	Differential pressure sensors are installed and calibrated.		

Bag Filters

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Filter mounting frames are clean and dust free.		
2	Bag filters installed, clean and are the correct grade.		
3	Filters have the correct sealing gaskets installed.		
4	The filters are not jammed in the rails		
5	All components upstream of the filter are clean and dust free		
6	Bag filters are locked in place		
7	Differential pressure sensors are installed and calibrated.		

Supply Air Fan

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Electrical connections and cables are complete, fully tested and torqued in line with project/manufacture requirements		
2	Motor protections installed and operating [Overload]		
3	Motor protections calibrated		
4	Voltage from electrical systems is correct for the unit requirements [within +/-10%]		
5	Fan housing clean and dust free		
6	Fan, blades, and motors are clean and dust free.		
7	Fan belt tension is correct		
8	Fan belt condition is good		
9	Ensure the fan wheel is centered on the intake section		
10	Check tightness of fixings [torque]		
11	Check flexible connections between the motor/impeller and unit to ensure are in good condition and leak free.		
12	Impeller is balanced		
13	Fan/motor rotates in correct direction with no obstructions [by hand]		
14	Fan/motor rotates in correct direction with no obstructions [electrically bump unit on]		

Cooling Coil

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Cooling coil is clean, in good condition and fins undamaged.		
2	Ensure that the pipework is connected and correct size		
3	Ensure that the flow and return pipework handing's are correct. [Water Inlet – downstream of the air flow direction Water Outlet – upstream of the air flow direction]		
4	The installation of the pipework will not put stress on the equipment connections or create vibrations.		
5	The materials used between the equipment and the chilled water system will not cause Electrolysis.		
6	Pipework that is to connect to the unit has been weld tested.		
7	Pipework that is to connect to the unit has been pressure tested.		
8	Pipework that is to connect to the unit has been cleaned and flushed.		
9	Equipment has been back flushed.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
10	System has been bled and air removed.		
11	Chilled water system has been hydraulically balanced.		
12	Pipework is insulated and vapor sealed		
13	Insulation is labelled		
14	All pressure gauges installed, and display scale as per design requirements.		
15	All valves/control valves are installed and in correct direction		
16	All commissioning devices are installed		

Heating Coil

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Heating coil is clean, in good condition and fins undamaged		
2	Ensure that the pipework is connected and correct size		
3	<p>Ensure that the flow and return pipework handing's are correct.</p> <p>[Water Inlet – downstream of the air flow direction</p> <p>Water Outlet – upstream of the air flow direction]</p>		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
4	The installation of the pipework will not put stress on the equipment connections or create vibrations.		
5	The materials used between the equipment and the heating water system will not cause Electrolysis.		
6	Pipework that is to connect to the unit has been weld tested.		
7	Pipework that is to connect to the unit has been pressure tested.		
8	Pipework that is to connect to the unit has been cleaned and flushed.		
9	Equipment has been back flushed.		
10	System has been bled and air removed.		
11	Heating water system has been hydraulically balanced.		
12	Pipework is insulated and vapor sealed		
13	Insulation is labelled		
14	All pressure gauges installed, and display scale as per design requirements.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
15	All valves/control valves are installed and in correct direction		
16	All commissioning devices are installed		

Refrigerant Dx Coil System

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Refrigerant coil is clean, in good condition and fins undamaged		
2	External condenser installed		
3	Ensure that the gas and suction pipework is connected and correct size		
4	Ensure that the gas and suction pipework handing's are correct.		
5	The installation of the pipework will not put stress on the equipment connections or create vibrations.		
6	The materials used between the equipment and the refrigeration pipework system will not cause Electrolysis.		
7	Pipework that is to connect to the unit has been pressure/vacuum tested.		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
8	System is charged with correct amount of refrigerant.		
9	Pipework is insulated and vapor sealed		
10	Insulation is labelled		
11	All solenoids installed and operating		
12	All sight glasses installed		
13	All valves/control valves are installed and in correct direction		

Droplet Eliminator

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Ensure is unobstructed and can be removed for maintenance/cleaning.		
2	All pipework/condensate is connected to drain [see condensate section]		

Steam Humidifier

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Unit is electrically connected with testing completed to electrical components.		

Ref	Inspection/Task	Yes/No/[n/a]	Notes
2	Humidifier internals clean and clear of debris.		
3	Condensate pipework is installed [see condensate section].		
4	Cold water feed is connected to the humidifier standalone unit.		
5	Connections between the standalone unit and the humidifier are using the specific manufacturers hoses		
6	The hoses and pipework that is connected is installed in line with the manufacturer's requirements. No tight bends, or kinks.		
7	Metal clamps are used to connect the pipework between the humidifier and the standalone unit.		
8	Controls valves fitted and operating to allow cold water into system.		
9	Check that the humidity sensor is calibrated.		

Cold Water Feed

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Pipework pressure tested		
2	Pipework insulated and vapor sealed		

Ref	Inspection/Task	Yes/No/[n/a]	Notes
3	All valves fitted and operating [isolation, non-return]		

Condensate drain/siphon

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	The condensate is installed to the correct fall.		
2	Ensure is protected from any frost with insulation and/or heating cable.		
3	There is a trap installed and is installed in line with manufacturers requirements. [Check manufacturer's instructions for calculation/requirements]		
4	If there are multiple coils installed on a unit, ensure the condensate pipework configuration is installed in line with the manufacturer's requirements.		
5	Check that the size of the condensate is correct.		
6	Ensure the trap is filled to the correct level.		
7	Ensure the drain pan is clean and free of debris		

Electric Heater

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Operation of the heating coil is fan controlled/interlocked		
2	Fan delay incorporated into the control's logic, allowing the fan to run [15 mins] after the heater has deactivated/switched off.		
3	Heater elements are clean and not obstructed by debris		
4	All electrical testing completed including torque tests of connections.		
5	All safety components are connected and operational including all thermostats to cut power to heater if needed.		
6	All controls cabling is connected and installed in line with the manufacturers/design drawings.		
7	Power is available to the electric heater/control panel for operation.		

Supply Air Ductwork

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	All supply air ductwork is installed, correct size and connected to the unit with correct fixings		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
2	All attenuators are installed as shown on the drawings.		
3	All volume control dampers are installed as per construction drawings.		
4	Ductwork insulated and vapor seal in line with specification.		
5	Test holes available in duct to allow air readings		

Return Air Ductwork

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Position of extract louvre is in line with the design requirements and positioned so as will not affect the fresh air intake.		
2	Weather louvre/roof cowl installed and weather tight with relevant mesh and is unobstructed.		
3	Weather louvre installed with correct mesh.		
4	Weather louvre mesh free area meets the design requirements		
5	Plenum installed connecting the louvre to the ducting.		
6	Plenum has access hatch/s installed to allow future maintenance and inspections		
7	All extract air ductwork is installed, correct size and connected to the unit with correct fixings		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
8	All attenuators are installed as shown on the drawings.		
9	All non-return dampers are installed as per construction drawings.		
10	All volume control dampers are installed as per construction drawings.		
11	Ductwork insulated and vapor seal in line with specification.		
12	Test holes available in duct to allow air readings		

Return Air Fan

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Electrical connections and cables are complete, fully tested and torqued in line with project/manufacture requirements		
2	Motor protections installed and operating [Overload]		
3	Motor protections calibrated		
4	Voltage from electrical systems is correct for the unit requirements [within +/-10%]		
5	Fan housing clean and dust free		
6	Fan, blades, and motors are clean and dust free.		
7	Fan belt tension is correct		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
8	Fan belt condition is good		
9	Ensure the fan wheel is centered on the intake section		
10	Check tightness of fixings [torque]		
11	Check flexible connections between the motor/impeller and unit to ensure are in good condition and leak free.		
12	Impeller is balanced		
13	Fan/motor rotates in correct direction with no obstructions [by hand]		
14	Fan/motor rotates in correct direction with no obstructions [electrically bump unit on]		

Heat Recovery Unit

Plate Heat Exchanger

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Electrical connections and cables are complete, fully tested and torqued in line with project/manufacture requirements		
2	Condensate is connected where required.		
3	Components are clean and undamaged		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
4	Ensure any bypass dampers can operate correctly and not obstructed.		
5	Ensure any pressure and temperature sensors are calibrated.		

Thermal Wheel

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	Electrical connections and cables are complete, fully tested and torqued in line with project/manufacture requirements		
2	Condensate is connected where required.		
3	Components are clean and undamaged		
4	Wheel can turn without being obstructed		
5	Belts are tight		
6	Motor alignment is correct		
7	Ensure any pressure and temperature sensors are calibrated.		

Extract Air Ductwork

Ref	Inspection/Task	Yes/No /[n/a]	Notes
1	All return air ductwork is installed, correct size and		

Ref	Inspection/Task	Yes/No /[n/a]	Notes
	connected to the unit with correct fixings		
2	All attenuators are installed as shown on the drawings.		
3	All non-return dampers are installed as per construction drawings.		
4	All volume control dampers are installed as per construction drawings.		
5	Ductwork insulated and vapor seal in line with specification.		
6	Test holes available in duct to allow air readings		

Controls

Ref	Inspection/Task	Yes/No/[n/a]	Notes
1	Ensure all sensors and instruments are installed as per the control logic/manufacturers wiring drawings		
2	All sensors are calibrated		