



TYPICAL CPA SPECIFICATIONS

4/10/2017

UNIT CONSTRUCTION:

Casing:

The exterior casing of the unit shall be constructed of 18-gauge, G235 galvanized steel (optional stainless steel or aluminum), unpainted.

The interior of the unit shall consist of a watertight, sanitary inner liner constructed of 16-gauge, G235 galvanized steel which shall completely enclose the insulation (optional 18-gauge, stainless steel liner). The interior of the unit shall be completely watertight to allow for interior cleaning and sanitizing. The interior of the unit shall be completely sealed watertight using a food grade sealant.

The interior of the unit shall be constructed so that all casing fasteners are either internal to the casing or on the exterior of the unit. Interior casing fasteners shall not be allowed.

Insulation:

Standard CPA unit: The unit shall be insulated with 2" of polyiso foam board sandwiched between the inner and outer wall panels.

*Option (Standard on *ULTRA-CPA*) – Unit walls are completely assembled and then the walls are insulated with 2.6" (optional up to 4" or more) of two part polyurethane pour foam insulation. This forms a continuous case construction with no through metal type construction.

Roof:

The roof shall be a minimum of 18-gauge, G235 galvanized steel, standing seam type construction, pitched away from the service doors for good water runoff (on CPA units size 12 through 48, units size 56 and up utilize a double-pitched roof). All exterior seams are sealed air and water tight with an FDA approved sealant.

The interior liner of the roof shall be a minimum of 16-gauge, G235 galvanized steel (optional 18-gauge, stainless steel). The interior of the unit shall be completely sealed watertight using a food grade sealant.

Drain Pans:

Each section of the unit shall be complete with drain pans, which shall be a minimum of 16 gauge, G235 galvanized steel (optional - 18 gauge, stainless steel). Each drain pan shall be fully welded and individually tested to ensure they are leak free. Pans are mechanically fastened to the unit base frame.

*Option (Standard on *Ultra-CPA*) – Drain pans shall be fully welded to the unit base frame creating a one piece pan/base construction.

On all units with a cooling coil section, the drain pan under the cooling coil shall be constructed of stainless steel.

The base of the unit shall be insulated with a minimum of 3" polyurethane foam insulated completely covering the frame and the bottom of the pans. This ensures a completely insulated base and an airtight construction.

The drain connection for the drain pans shall be designed so the pans drain out the bottom of the drain pan for full drain pan drainage with the drain connection then extending out the side of the unit. No standing water shall be allowed.

Frame:

The frame on CPA units size 56 and up shall be constructed of a double 12" channel, G235 unpainted galvanized steel all welded frame.

The frame on CPA units size 12 through 48 shall be constructed of a double 8" channel, G235 unpainted galvanized steel all welded frame.

On CPA units size 8 and smaller, the base shall have a 10-gauge, G235 galvanized steel all welded frame.

Removable lifting lugs shall be provided at the base of the corners of each section of the unit.

Access Doors:

Access doors shall be provided with an extruded aluminum full perimeter door frame. The frame extrusions shall be miter cut at the corners and assembled by mechanically staking the frame into concealed gussets made of extruded aluminum. All doors and door frames shall be thermally broke.

Each door shall be pressure injected with 2.5# of polyurethane foam per cubic foot of door.

The interior and exterior panels shall be constructed of 24-gauge, G90 hot dipped galvanized steel (optional stainless steel).

The doors shall be mounted to the frame by a minimum of two (2) stainless steel hinges.

Each door shall be complete with a minimum of two (2) 90 degree polycarbonate handles, operable from the interior and the exterior of the unit.

*Option – Doors shall be complete with an 8" x 8" plastic window in each section.

*Option – Doors shall be complete with test ports.

Outside and Return Air Dampers:

The dampers shall be parallel blade (optional opposed blade), with nylon bearings and stainless steel spring loaded side closures.

The construction shall be a minimum of 16-gauge galvanized steel blades (optional stainless steel) with a 12-gauge casing.

The dampers shall have a low leak rating of less than 6.5 CFM per square foot at 4" of differential static pressure.

Blowers:

The blowers shall consist of a centrifugal airfoil plenum type blower with an aluminum wheel.

The blower shall have a standard inlet screen.

The wheel shall be supported by two (2) self aligning outboard bearings, which shall be self-aligning, ball bearing, pillow block and shall be designed for at least 80,000 hours of average life.

The blower shaft shall be ground and polished.

The blower wheel, inlet funnel and support shall be of a steel construction, completely coated with an enamel coating.

The overload service factor used for the V-belt drive section shall not be less than 1.50.

Fixed sheaves shall be supplied and shall be of a cast iron type (optional adjustable sheaves for plus or minus 7% adjustability).

The V-belt drives shall be of a standard capacity and furnished with reinforced rubber belts.

The blower will be in the draw through position (optional blow through position depending on the application).

*Option – Blower, motor and drive shall be spring isolated and be complete with a flexible connection.

*Option – The drive shall be complete with a belt guard.

*Option – The blower shall be complete with a safety cage.

*Option – The bearings shall have plastic extended greaselines run to the outside of the unit casing.

*Option: Blower shall be direct drive with an aluminum wheel. Wheel shall be mounted directly on the motor. Blower/motor shall be mounted to the unit floor.

Motors:

The motors shall be premium efficient, TEFC, VFD-ready. Motors are mounted on an adjustable motor base for belt drive units. On unit utilizing a VFD drive, the motors shall have a grounding ring.

HEATING OPTIONS:

Steam Coils:

The steam coil shall have _____ rows and _____ fins per inch.

The steam coil shall be in the reheat position (optional pre-heat position). The steam coil shall be constructed with 0.035" wall copper tubes and 0.0095" thick aluminum fins (optional heavier copper tube and copper/aluminum fin, stainless steel tube and aluminum fin or cupro-nickel tube and aluminum fin).

The coil shall be designed for a maximum operating pressure of 25 psi (optional 100 psi steam – note operating pressures over 40 psi require cupro-nickel or stainless tubes).

The capacity of the coil shall be _____ BTUH using _____ PSIG steam at the steam coil.

The steam coil shall be designed for a _____ ° F design entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

*Option – Face and bypass dampers on the steam coil. The dampers shall be the same construction as the other dampers in the unit.

Hot Water or Glycol Heating Coils:

The hot water coil (optional glycol coil) shall have _____ rows and _____ fins per inch.

The coil shall be supplied in the reheat position (optional pre-heat position).

The coil shall be constructed with 0.027" wall stainless steel tubes and 0.014" thick aluminum fins. Headers shall be stainless steel.

The coil shall have _____ BTUH capacity using _____ ° F hot water (optional glycol).

The coil shall require _____ GPM of hot water (optional glycol).

The water (optional glycol) coil pressure drop shall be _____ feet.

The coil shall be designed for a _____ ° F design entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Hot Gas Ammonia Heating Coil:

The hot gas ammonia coil shall have _____ rows and _____ fins per inch.

The hot gas coil shall be supplied in the reheat position (optional pre-heat position).

The hot gas ammonia coil shall be constructed with stainless steel tubes and aluminum fins. Headers shall be stainless steel.

The capacity of the coil shall be _____ BTUH using _____ ° F hot gas ammonia condensing temperature.

The hot gas ammonia coil shall be designed for a _____ ° F design entering air temperature.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Direct Fired Heating Section:

The unit shall be designed with a direct fired burner located in the outside air section of the unit. The direct fired burner shall have a cast aluminum header with stainless steel baffle plates.

The burner shall have a _____ BTUH capacity.

The burner shall be designed for 1-5 PSI natural gas pressure (optional 8-14" or high pressure systems above 5 PSI) and be fully modulating with a 20 to 1 turndown ratio. Burner shall have adjustable profile plates.

The controls shall be full modulating and be designed in accordance with Factory Mutual (FM) insurance guidelines.

The gas train shall be complete with all safety devices and controls.

Indirect Fired Heating Section:

The unit shall be designed with an indirect fired heating section. The indirect fired burner shall be fully modulating. The heat exchanger, primary and secondary, shall be 400 series stainless steel and be complete with drain connection piped to the outside of the unit (Optional 304 stainless steel). **Note:** **Proper disposal of any condensate shall be by the installation contractor.**

The burner shall have a _____ BTUH input capacity and a _____ BTUH output.

The burner shall be designed for 8-14" natural gas pressure. Note: gas pressure above 14" requires a pressure reducing valve (by others).

The controls shall be fully modulating and be designed in accordance with UL.

The gas train shall be complete with all safety devices and controls. Burners are available with two-stage and fully modulating control. Turndown shall be a minimum of 8 to 1 (optional 10 to 1 and 20 to 1).

Heat exchanger shall be complete with flue stack and rain cap (shipped loose for field mounting).

COOLING OPTIONS:

Recirculating/ Direct Expansion/ Flooded Cooling Coils:

The cooling coil shall have _____ rows and _____ fins per inch.

The coil shall be designed for recirculating ammonia (minimum 1.2 to 1 feed rate) (optional direct expansion or flooded coil design).

The coil shall have a ____ ton capacity using a ____ °F saturated suction temperature.

The capacity of the coil shall be based on a mixed air entering temperature of ____ °F dry bulb/ ____ °F wet bulb.

The coil(s) for ammonia use shall be constructed using 0.025" wall stainless tubes and 0.014 thick aluminum fins (maximum of 8 FPI). Coil shall meet strength requirements of ASME/ANSI B31.5. All coils shall be charged with nitrogen prior to shipment. Coil performance shall be rated in accordance with AHRI 420.

Coil(s) for R-22, R-404a, or any of the similar refrigerants shall be constructed using 0.025" wall tubes stainless tubes and 0.014" thick aluminum fins (maximum of 8 FPI). Headers shall be stainless steel. All coils shall be charged with nitrogen prior to shipment. Coil shall meet strength requirements of ASME/ANSI B31.5. Coil performance shall be rated in accordance with AHRI 420.

The coil shall be designed for a maximum face velocity of 625 feet per minute.

Chilled Water or Glycol Cooling Coils:

The cooling coil shall have _____ rows and _____ fins per inch.

The coil shall have a ____ ton capacity using ____ GPM of ____ °F chilled water (optional ____% propylene glycol).

The water (or glycol) pressure drop through the coil shall be ____ feet.

The coil capacities are based on a ____° F dry bulb / ____° F wet bulb mixed air entering temperature.

The coil shall be constructed with stainless tubes and aluminum fins. Coil shall meet strength requirements of ASME/ANSI B31.5. Coil performance shall be rated in accordance with AHRI 420. Coil vent and drain piping and accessories by contractor.

FILTRATION:

Prefilters:

Prefilters shall have an average efficiency MERV 10, pleated filters, with synthetic media (optional aluminum or stainless steel washable filters).

The unit shall be supplied with one initial set of filters (extra sets of filters can be supplied).

Standard CPA: The prefilters shall be held in individual holding frames for upstream service. The filter frames shall be constructed of hot dipped galvanized steel (stainless steel if the interior is also of stainless steel).

*Option – Prefilter differential pressure gauge to indicate when the filters should be changed or differential pressure transducer to provide filter pressure drop indication on the PLC.

Final Filters:

The final filters shall be a MERV 15, microfibre glass wet laid paper (the same material used in HEPA, absolute filters – optional synthetic type material). The filters shall be of a cartridge type. Each filter shall have gasketing so the unit will have new gasketing with every change of final filter.

*Option – MERV 17 absolute HEPA filter. The media on the HEPA filter shall be a microfibre glass. The HEPA filter shall have a rating of 99.97% on a 0.3 micron particle size.

*Option – An intermediate 65% filter is available upstream of the final filters.

Each of the filters shall have their own individual holding frames for upstream service. The holding frame shall be constructed of galvanized steel (optional stainless steel).

The final filters are complete with a differential pressure gauge (optional filter pressure drop transducer to provide a pressure drop indication on the PLC).

The unit is supplied with one set of final filters (optional unit supplied with two or more sets of final filters).

ACCESSORIES

Outside Air Inlet Hood:

The unit includes an outside air inlet hood constructed of G235 galvanized steel.

The hood shall be complete with a bird screen (optional insect screen).

The hood shall be shipped separate from the unit.

Integral Exhaust Section:

The integral exhaust section shall be complete with (qty of fans) " diameter direct drive exhaust fans located within the casing of the CPA unit.

Each of the fans shall be constructed of with a cast aluminum hub and aluminum blades. Fans are direct drive.

Service for the integral exhaust fans shall be accomplished through full sized walk-in access doors (no internal hatches or confined spaces shall be allowed).

Each fan shall be driven by a H.P., TEAO, direct drive motor. Motors shall be VFD ready, with grounding ring, if used for pressure or economizer control.

Each fan shall have a double, low leakage, aluminum, gravity backdraft damper.

Desiccant Dehumidification Section:

The dehumidification section shall consist of a rotor (wheel) of media impregnated with a silica gel desiccant. The wheel shall consist of a process section (where the moisture is removed from the process air stream) and a regeneration section (where the moisture is removed from the wheel).

The section will include a heated regeneration section with a heat source to drive the moisture from the wheel. The heat source shall be direct fired natural gas (optional steam, electric, or indirect fired natural gas).

UVC Light Systems:

CPA units can be supplied with a UVC light system for only the cooling coil(s) and coil pan(s) or for the entire unit. Light systems are complete with individual ballasts located on the outside of the unit in a separate control panel. Bulbs are complete with a protective sleeve. The system includes an access door observation window and an access door safety switch so the light(s) will go off if the door is opened.

ELECTRIC CONTROLS:

Each unit shall be supplied with an Allen Bradley PLC control system. The following are some of the many options which are available for the control systems:

- Main control panel, control transformer and terminal blocks with UL label.
- Allen Bradley Compact Logix and Micro Logix systems. Control Logix available as an option. Systems are complete with a 6" panel view (optional larger panels available) in the door of the main panel.
- Outside air and recirculated air controls which use outside air on an economizer.
- Outside air and recirculated air controls providing a fixed amount of outside air.
- Outside air damper controls for systems with 100% makeup air.
- Room thermostats or RTD's.
- Return air thermostat or RTD's
- Outside air thermostat or RTD's
- Motorized steam valve (field mounted). Trap by others.
- Magnetic motor starters mounted in the control panel.
- Disconnect switches mounted in the control panel.
- Arc flash disconnects
- Remote stainless steel control panels which can include (just a few of the possible options):
 - blower on/off switch
 - blower indicating light
 - cleanup switch
 - cleanup indicating light
 - dirty filter light
 - burner Indicator light
 - PLC panel view
- Steam coil freeze stats.
- Hot water or glycol 3-way control valves (shipped loose for field mounting)
- Chilled water or glycol 3-way control valves (shipped loose for field mounting)
- Room humidity sensor located in the remote control panel (or return air).
- Natural gas heating controls – either direct or indirect fired.
- Discharge air ammonia detector.
- Smoke detectors.
- CO2 detectors
- O2 detectors
- Interior service lights (LED).
- Service receptacles.
- Room pressurization control.
- Heating coil face and bypass dampers and damper controls.
- VFD motor control
- Exhaust motor starters and or VFD drives
- Cleanup cycle system and controls.
- UVC coil/drain pan light systems.
- Complete unit UVC light systems.
- Blower door interlock switches (standard or CAT 3)
- Dirty filter lights/contacts.