PART 1 - GENERAL

1.01 Intent of Document

The information included in this section is intended to identify the **SPECIFIC ITEMS** required by Oklahoma State University in the design and construction of facilities on the campus. Items of "normal, code, industry or standard construction practice" are not included in this section.

1.02 Design Criteria

A. Summer - 100° F. dry bulb, 75° F. wet bulb.

B. Winter - 0° F. dry bulb.

C. Chilled water coils are to be designed for a 16°F temperature rise with 42° F. entering water temperature.

D. Heating water coils are to be designed for a maximum 40°F temperature rise per row with 160° F. entering water temperature.

E. Maximum coil face velocity shall be 475 feet per minute.

F. Louver maximum air velocity is 800 fpm.

G. Coil tubes and fins

1. Fins are to be mechanically bonded to tubes.
2. Fin thickness shall be 0.01 inches minimum.
3. Primary tube wall thickness shall be 0.035 inches minimum.
4. Primary tube shall be seamless with nominal 0.625 inches minimum diameter.
5. Cooling coil casing to be stainless steel.
6. Headers for water coils to be copper or brass with drain and vent connections.
7. Coil circuiting to be counterflow to air flow.

H. Drain Pans

1. Shall be stainless steel double bottom with insulation between layers.
2. Units with multiple cooling coils are to be provided with secondary drain pans under each upper coil section with downspouts to the primary drain pan.
3. Each coil shall be supported independent of all other coils.

I. Fans

1. Blower assembly to be mounted on structural steel base. Formed steel not exceptable.
2. Blower to have internal spring isolators.
3. Blower assembly to be statically and dynamically balanced at design RPM with actual motor and accessories in place.
4. VFD speed control with a disconnect and bypass to be provided for each fan.
5. Certified fan performance curves to be provided.
6. Shaft to be solid, ground, and polished.
7. Wheel and sheaves to be keyed to the shaft.
8. To be AMCA 300 sound tested.
9. Shall conform to AMCA 210 fan performance.
10. Belt drive fans shaft bearings to be pillow-block type with ball or roller bearings.
11. Belt drive fan bearings to be lubricated externally.

J. Cabinets

1. Walls, floor, and ceiling to have welded tubular steel frame.
2. Welded tubular steel base and frame to extend around the full perimeter and structurally support all internal components.
3. Floor material formed and reinforced minimum 16 gauge outer and 20 gauge inner steel panels.
4. Structural integrity not affected by panel removal.
5. Walls, floor and ceiling to have 4-inch double wall with complete thermal break.
6. Filter, coil, and blower sections to have door access and vapor proof lights.
7. Doors to have a 10 x 10 inch double pane window.
8. Instrument test holes (Ventlok or equal) to be factory installed in each section requiring test.
9. Doors to have 3 plane adjustment hinges and multi point latches.
10. For completely installed unit, maximum air leakage rate is 1% at 8 inches of water gauge differential.
11. Painted and weather tight for exterior service, galvanized finish for interior service.
12. Fan section to have a perforated inner liner with 4-inch thick acoustical fill.
13. Upper-stacked coil supported independent of bottom coil.
14. To have factory installed lift lugs.
15. Doors to open against pressure to prevent injury, and promote a full perimeter seal.
16. Insulation - Two layers of 2 inch thick coated, glass fiber insulation with a density of 3 pounds per cubic foot in walls, floor and ceiling.

K. Filters

1. To comply with ASHRAE Standard 52 for method of testing and rating air filter units.
2. Media to be fibrous material formed into deep V-shaped pleats and held individually by self-supporting wire frames. Pleat depth to be 4" minimum for 2000 cfm or greater, and 2"minimum for less than 2000 cfm.
3. Media frame to be minimum nonflammable cardboard, with spring-loaded fasteners and gaskets.
4. Minimum filter efficiency to be MERV 7 as tested by ASHRAE.
5. Filter gauges to be diaphragm type with dial and pointer in a metal case, vent valves, black figures on a white background, and front recalibration adjustment.
6. AHU shipped with 2 sets of filters. Second set to be installed at Substantial Completion.
7. Provide dial-type draft gauges for all filter banks, with scale range to suit static conditions anticipated. Provide shutoff cocks at all gauges to allow calibration. To assure proper operation and accurate draft readings, show the location of Pilot heads on the plans.

L. Dampers

1. Damper leakage is not to exceed 2% of air quantity at 2000 fpm face velocity through air foil damper and 4 inches of water gauge pressure differential.

M. Motors

1. To include manufacturer's wiring diagrams for power and control systems, differentiating field and factory installed wiring.
2. To be large enough so that driven load will not require motor to operate above 90% of service factor.
3. To have a maximum temperature rise of 50° C. at 40° C. ambient.
4. To have minimum service factor of 1.15 for polyphase and 1.35 for single phase.
5. To have built-in automatic reset, thermal overload protection.

PART 2 – PRODUCTS

2.01 Acceptable Manufacturers

A. Industrial Air

B. Recaan Mfg.

C. Temtrol

D. Webco

END OF SECTION 15725