

State of Missouri: Higginsville Habilitation Center

Two TRICOIL dedicated outdoor air units for a Department of Mental Health residential cottage (Cottage E), specified by the State's engineer as the basis of design and built in modules small enough to carry through a 30-inch door and down a stairwell.

Higginsville, MO

State of Missouri, Dept. of
Mental Health

2 × 2,000 cfm

TRICOIL dedicated outdoor air
units

\$87,000

Contract value, bonded

2015–2016

Sept 2015 to June 2016



The modular TRICOIL air handlers, reassembled in the Cottage E basement mechanical room.



Factory-built TRICOIL pump pack on a 36 × 48 in. wall panel: loop and heating pumps, control valves and prewired controls.

THE CHALLENGE

At the Higginsville Habilitation Center, occupied around the clock, Cottage E needed dry, comfortable ventilation air through a Missouri summer, with design outdoor air as humid as 86.6°F DB / 79.3°F WB, and freeze protection through 2°F winters. The new units had to go into an existing basement mechanical room reachable only by a stairwell and a 30-inch door, so no module could be longer than 28 inches.

THE SOLUTION

The State's engineer, Crowley, Wade, Milstead, Inc., named **Sensible Equipment Company as the basis of design**, with Desert Aire, AAON and Greenheck as equivalents. Each unit is a vertical, two-deck Daikin Vision air handler: precool and cooling coils on the bottom deck, reheat coil and fan on the top, with stainless steel drain pans and a glycol loop. A factory-built, wall-mounted pump pack carries heat from the precool coil to the reheat coil. It holds the loop and heating pumps, Siemens control valves, automatic balancing valves and a prewired control panel. Furnished to James Burton Mechanical under general contractor Bartels-Missey, Inc., for the State's Division of Facilities Management, Design and Construction.

THE RESULT: PER UNIT AT DESIGN

Dehumidification · outdoor air 86.6°F DB / 79.3°F WB

TRICOIL precool coil, 86.6°F to 75.3°F **3.1 tons cooling**

TRICOIL reheat, 53°F to 70°F, no new energy **10.8 kW heating**

Chilled water coil 12.6 tons, not 15.8

Both units together

Precooling recovered **6.2 tons**

Reheat with no new energy **21.7 kW**

Unit data

Supply air / fan **2,000 cfm · 5 hp with VFD**

Each unit **Daikin Vision, 128 in., 3,003 lb**

Shipped as 11 sections, max 28 in. / 571 lb

From the equipment submittal (SEC 15-101, August 2015), selected to the State's sealed schedule (sheet M-201). The chilled water coil is about 20% smaller than without TRICOIL.

Why it carries over to government work. A state engineer specified TRICOIL by name for a 24-hour residential facility. Barracks, dormitories, care facilities and correctional housing face the same humidity, and the same tight existing mechanical rooms.