

CARROLL COUNTY JAIL HUNTINGDON, TENNESSEE

KEY PARAMETERS

- Type of Facility –Government (NC)
- Function – Correctional Facility
- Area – 22,335 square feet
- Cost - \$8.2 million
- Project Completed – 2014

Challenge: Energy savings and code compliance. Carroll County officials wanted the new facility, designed for 176 low and medium security inmates, to be cost effective with both construction and ongoing operating costs. With that in mind, designers sought an alternate compliance path for ASHRAE Standard 62 ventilation air requirements. Because jail cells include toilets, correctional facilities are often required to size systems for extremely high exhaust air rates; those typically required for bathrooms. With exhaust air of 1 cfm per square foot, the outdoor air required to offset the exhaust air is significant. Equipment costs and energy costs can be immense, often calling for 100% outside air units and/or energy recovery systems.



Solution: Dynamic V8 Air Cleaning Systems and Dynamic Activated Carbon Matrix (ACM) Systems allowed designers to fine tune the HVAC system and outdoor air levels. Using the Dynamic AirQ™



Program, designers were able to predict CO₂ and contaminant levels, reduce ventilation rates, and size HVAC systems accordingly.

Results: The Dynamic V8 and Activated Carbon Matrix systems helped meet design standard compliance while lowering future operating costs. The energy savings alone are projected to pay for

the cost of the high efficiency air cleaning units. Right-sizing ventilation air requirements allowed designers to use smaller, more conventional rooftop heating and cooling equipment. In addition to lowering upfront costs, there were other positive results:

1. The Dynamic V8 provides MERV13-15+ performance and the activated carbon matrix removes gas phase contaminants to meet new standards for smoke removal.
2. The Dynamic V8 offers maintenance intervals measured in years which provides savings in filter service and maintenance.
3. The Carroll County Jail scores high on sustainable design. In addition to skylights for natural lighting and high efficiency HVAC systems, the facility will see the benefits of low operating costs for years to come.



TEAM

- Architects – TLM Associates, Inc.
- Engineers – TLM Associates, Inc.
- Mechanical – Broadway Electric, LLC
- Construction Mgmt – Lashlee-Rich

MECHANICAL SYSTEMS

- HVAC – Trane

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