

Harrison County

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PROJECT COST \$771,943
TYPE Guaranteed Performance Contract
TERM 10 Year Term
ANNUAL ENERGY / O&M SAVINGS \$86,158



The top photo shows the new windows after the renovation project. The window air conditioning units were eliminated with the HVAC improvements restoring the architectural integrity of the 1939 structure. The retrofits greatly improve occupant comfort and energy efficiency.

Project Background

Organized in 1845, Harrison County, located in northwestern Missouri, is 722 square miles and serves approximately 9,000 residents. In 1938 the county applied for and received a grant from the Work Projects Administration to build a new courthouse. County officials occupied the building for the first time in 1940. While well maintained and structurally sound, the facility had issues of comfort and energy inefficiency.

The single pane windows were original to the building and were leaking significant quantities of outdoor air. Temperatures in perimeter offices were very difficult to control with the glazing deficiencies. Heat was provided through a low pressure steam boiler and perimeter radiation. The building originally had an extensive pneumatic thermostat and radiator valve system to control heating temperatures. Unfortunately, at some point the pneumatics were converted to thermostatic radiator valves. The existing radiator valves were beyond their expected life. A lack of control caused overheating and uncomfortable conditions throughout the Courthouse. Window air conditioners were being utilized. The courthouse, as well as the Law Enforcement Center and Bridge Building, all needed lighting upgrades for proper lighting levels and energy efficiency.

Solution

CTS developed a project that addressed the comfort issues, provides proper lighting levels and reduces energy expenditures with the following Energy Conservation Measures:

ECM #1 - Lighting retrofit and replacement with T8 lamps and electronic ballasts with changeout of incandescent lamps with high efficiency compact fluorescent lamps with occupancy sensors.

ECM #2-Window and door replacement for improved thermal resistance and better seals to reduce infiltration and improved solar heat gain coefficient.

ECM #3 -Building automation system which affords reduced run time when equipment is scheduled to setback during unoccupied hours.

ECM #4 -New thermostatic radiator valves results in energy savings due to better regulation of steam to maintain space temperature.

ECM #5 -New high efficiency equipment - replacing the existing room air conditioners will result in energy savings due to higher efficiency of the new equipment most notably in the cooling mode.

