

## Indiana Prison Uses Solar Hot Water Spring 2011

**Project:**

Solar Hot Water for Inmate Showers  
Wabash Valley Correctional Institute

**Place:**

Carlisle, Indiana

**Design:**

Caleffi Solar Flat Plate Collectors,  
iSolar™ BX Controller, Heat Storage Tank,  
Rotary Pulse Flow Meter

**Purchaser:**

Contractor: Mann Plumbing & Solar  
Bloomington, Indiana  
Wholesaler: FEI  
Indianapolis, Indiana  
Manufacturer's Rep: Battersby Danielson  
Westfield, Indiana



The Wabash Valley Correctional Facility is the first prison in the mid-west to utilize solar hot water to augment their heavy domestic water demands. Located in Carlisle, Indiana the facility installed a drain-back type solar hot water heating system early in 2011. The system is projected to save the prison about 40% of the cost to heat water amounting to \$6,000/year based on current fuel costs.

The building unit where the system was installed houses 200 inmates. According to David Mann, owner of installing contractor Mann Plumbing & Solar, "the Department of Corrections intends to monitor the system performance and if the fuel savings meet design expectations, the prison will consider installing solar systems on other units throughout the prison complex".

The system is comprised of 15 Caleffi 10 foot flat plate solar collectors mounted on the roof and secured using concrete ballasts. The collectors are arranged in 3 arrays of 5 collectors each. According to Mann, a drainback design was chosen because he prefers using water as the heat exchange medium whenever possible. "With water, we don't have to be concerned with over-production of heat energy in the event of time-of-use variations, or extended periods of interrupted hot water demand". The collectors were pitched to provide proper gravity drainage of the collectors whenever the pump is de-energized. To perform as a drainback tank, a Caleffi 80 gallon heat storage tank was selected. A Caleffi iSolar BX™ Controller featuring built-in heat metering capability was used with a Caleffi rotary pulse flow meter "in order to accurately measure how much heat was produced from the solar system" according to Mann. "This energy can be directly translated into fuel savings".

The prison uses natural gas fired boilers to provide back-up heat whenever there is not enough solar energy available to meet the hot water demand. According to the Wabash facility's Physical Plant Director Roger Dagley; "As the prices go up, the cost of just maintaining these boilers in operation is getting extremely high. So this system here is really going to be a cost savings and it's going to be saving a lot of natural gas".

