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Rigney Digital Systems helps West Virginia DEP achieve LEED-NC Green Building Certification

"The Agency is earning the most LEED points in the energy and atmosphere category.... The building runs off minimum energy... Our electric and gas costs are expected to go down 40 percent" [WV-DEP InDEPth newsletter, January, 2005 edition, p. 7.](#)

Paul Rigney of ASI Authorized reseller Rigney Digital Systems in Charleston, WV, completed work in 2005 on the first USGBC LEED-certified Green Building in West Virginia. Paul got involved early in the project, and was involved with specifying, designing, configuring and installing the complete HVAC control system for the new West Virginia Department of Environmental Protection (DEP) headquarters building.

The building showcases new technologies, construction methods and control strategies. Integrating these new technologies and sub-systems together in the context of LEED-NC v2.0 added complexities and challenges.

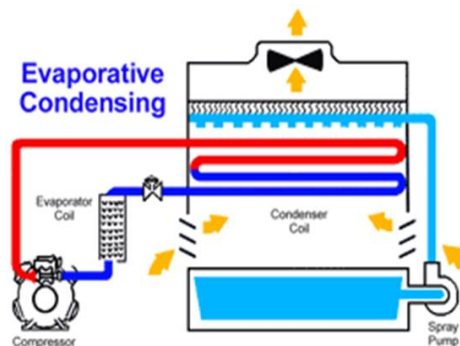
Paul began working with engineering consultant Nadeem Khan P.E., of Advanced Facility Design, on the mechanical specifications back in 2003, at the start of the project. The West Virginia DEP set a goal of attaining Green Building certification; the challenge was to get the LEED rating within the constraints of the budget. Relying on his extensive experience, Paul helped specify an HVAC system that received a high LEED credit score while also performing from a cost, maintenance and management perspective.

The Mammoth, Inc. custom-built air conditioning system generates over 400 tons of cooling. Two ASIC-2/7040 controllers were pre-installed in each of the two custom penthouse air conditioning units at the Mammoth factory. An additional ASIC-2/8040 is used to control the boilers, and to modulate the hot water pumps. Six additional ASIC/2-8040 controllers were deployed to control lighting. Demand-based ventilation is based on CO₂ monitoring.

Each of the dual supply and return fans has a capacity of 72,300 CFM at 4" wc. Thirteen ASIC-2/8040's were used in the facility to manage sub-networks of terminal controllers. A total of 520 ASIC-1/8055's, each with accompanying WS-031 wall sensors, were installed to control individual VAV boxes.



Relative humidity is adjusted using ultrasonic technology rather than traditional energy-intensive electric or mechanical heating. A small piezoelectric ceramic disc is modulated at ultra-high frequencies to produce water vapor that is added to the ventilation stream.



Within the cooling system, the control system modulates the three screw compressors, and monitors the evaporative condensers. Head pressure control is achieved through the use of VFD's controlling the condenser fans by maintaining sump water temperature to setpoint.

An ASI WebLink user interface was installed to display building control system information for authorized personnel. WebLink enables local or remote monitoring of system status, electrical demand, CO₂ concentrations and other metrics, and supports graphing and reporting on any trended data.

March, 2007. In recent news the WV-DEP building is now an [EnergyStar-rated building](#). Buildings that rate in the top 25% of energy efficient

buildings in the USA and are professionally verified to meet current indoor environment standards are eligible to be labeled as Energy Star buildings.

ASI adds its congratulations to Paul Rigney on a job well done. The WV-DEP LEED-NC Certified Green Building delivers occupant comfort in a high-value, low-maintenance facility that is a working example of sustainable, cost-effective building climate control.

