Solar System Controller

The building pictured is part of Bethany College, an 800-student liberal arts institution located in Bethany, West Virginia. The college has a solar heating and cooling system whose control design is based largely on NASA technology. Designed by Apollo Energy Control, Inc., Gainesville, Virginia, the system includes 5,000 square feet of flat plate solar collectors and an 7,500 gallon water storage tank; it supplies 78 percent of the college's domestic hot water, 68 percent of its space heating and 80 percent of the air conditioning.

The control design evolved from a computerized programmable controller developed at Marshall Space Flight Center for measuring differential temperatures in solar heating systems and for turning on and off pumps and backup systems. The pumps, fans and control valves are operated by a series of relay outputs.

The president of Apollo Energy Control learned of the controller through a magazine article and requested detailed technical information from Marshall. He attributes about 90 percent of the Bethany College control design to the information provided. It helped the company design a highly reliable, simply operated system and allowed substantial savings in engineering time. Apollo Energy Control is now using the information as part of a training course for mechanics.

