



### FLORIDA SOLAR ENERGY CENTER

Energy Efficient Portable Classroom at  
Chapel Hill Middle School, Chapel Hill, NC

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#### The Challenge

Portable classrooms have become a common and acceptable low-cost solution for school districts dealing with shrinking school budgets and expanding enrollments. In many instances, this short-term fix often becomes a permanent classroom. While initial costs of portable classrooms are low, their on-going operating costs are high. Portable classrooms usually have minimal insulation. Other major problems with portables include poor indoor air quality, inadequate natural light, and an unstable room temperature.

#### Technology Demonstration

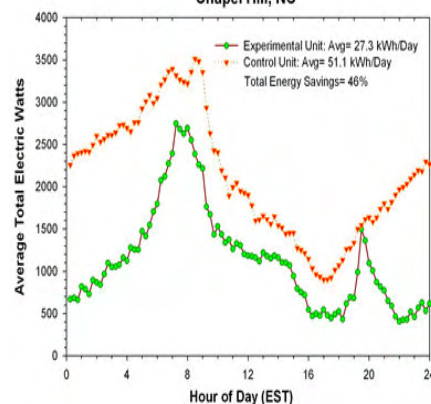
Standard baseline and energy efficient portable classrooms were monitored and evaluated at Chapel Hill Middle School in Chapel Hill, NC. The improved modular built classroom, Performance Enhanced Relocatable Classroom-PERC) was tested to determine the benefits of enhanced system and construction practices of relocatable classrooms in a mixed climate.

The NC PERC, sited in November 2002, consisted of (2) end-to-end 24'-0" x 36'-0" classrooms sharing a common wall, corridor and bathroom, totaling 1,724 sq feet. Each classroom was occupied during testing. Energy performance data was downloaded daily to FSEC via modem.

#### Project Results

- 50% overall energy savings
- 32.3 kWh/day HVAC savings
- Enhanced natural lighting
- Improved indoor air quality

Total Electric Energy Demand Profile  
November 1, 2003- May 12, 2004  
Experimental vs. Control Portable Classrooms  
Chapel Hill, NC



Chapel Hill Middle School  
(Performance Enhanced Relocatable Classroom)

May 2006