

Mothon, B., Borglum, P., Hale, Z., Smith-Migliorie, K.

Adviser: Jon Owejan, email: owejanjp@alfredstate.edu

Investigation into the Effectiveness of a Solar-Thermal clothes dryer with Exhaust Heat Recovery

This poster will discuss an investigation being conducted to determine the feasibility of drying clothes using medium-temperature solar collectors. The prototype system includes an air-to-air heat exchanger used to preheat intake air with the humid exhaust stream and a water-to-air heat exchanger to utilize a 180°F storage system that is associated with a residential sized rooftop thermal-solar system. Overall effectiveness will be evaluated based on the drying time of 6 spin dried bath towels. The energy recovered through the exhaust heat exchanger will also be quantified to consider efficiency improvements associated with energy recovery for conventional systems. Mechanical design, control systems, cost analysis, and energy balance will be presented. This project is contributing to the Alfred State zero-energy home to be demonstrated at the 2015 US DOE Solar Decathlon in Irvine, California.