Building Technologies Research and Integration Center

Science Research Seminar Series

Effects of Improved Building Envelope Air Sealing on Energy, Moisture Durability and Indoor Air Quality

Syracuse Natural Exposure Test Facility

Tuesday
August 12, 2014
10:30–11:30 a.m.

Building 4500N, Room 250
Wigner Auditorium

Abstract

Air infiltration through building envelopes is responsible for 4 quads of energy use per year and constitutes 44% of the heating loads in buildings. Air barrier technologies are readily available to help decrease this energy penalty; however, their performance is highly dependent on workmanship. New air barrier technologies are being developed to simplify installation steps that will ensure the expected energy savings. Although improvements in the airtightness of buildings lead to a decrease in energy consumption, these measures also lessen the drying potential of the building envelope and reduce the passive supply of fresh air indoors. This presentation focuses on the evaluation of typically used as well as recently developed air barrier technologies, and provides insight on moisture durability and indoor air quality problems that could emerge from increases in airtightness.

Dr. Diana Hun

is an R&D staff member in the Building Envelope Research Group at ORNL. Her research areas include improving the airtightness of buildings while minimizing risks from potential building material deterioration and indoor air quality problems. She is currently assessing the performance of air barrier technologies, studying the optimization of building energy demands and indoor air quality, and evaluating the durability of energy-efficient walls. To this end, she is collaborating with the Department of Energy's Building America program, the US-China Clean Energy Research Center Building Energy Efficiency consortium, the Air Barrier Association of America and its participating research members, and various universities. Hun received her PhD in Civil Engineering from the University of Texas at Austin where, with support from the National Science Foundation, she studied human exposure to hazardous air pollutants in homes.

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ORNL 2014-G00825/MHR