

# KEYNOTE 3: WHEN THE RUBBER MEETS THE ROOF: BUILDING ENCLOSURE RESEARCH METHODS



## Abstract

Through the vehicle of two building enclosure research projects conducted by the author and student assistants at Virginia Tech, the process of research in general and the implementation of methodology in particular will be explored. The first project investigated the rainfall retention capacity of three different depths of modular vegetated roofing systems. Results of this study demonstrated significant reductions in runoff in all the vegetated roof samples. The effect of weather variables, including average temperature, relative humidity, wind speed, solar radiation, and time between storms, on runoff reduction at the treatment platforms was identified. Statistical analysis of the data yielded equations relating these weather variables, with predictive capacity for future implementation of modular vegetated roofing systems. Armed with tools such as these, architects and roof consultants can better design buildings prepared to accommodate the evolving global climate. The second study tested the relationship between roof color and resulting temperatures on roof surfaces, in the air above roof surfaces, on electrical metallic tubing (EMT) above roof surfaces, and at adjacent opaque and glazed wall surfaces. This study contributes to the literature by offering experimental data useful to researchers and practitioners seeking to anticipate the thermal effects of different roof systems.

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