

Energy Wall™:
A Passive Heat And Moisture Transfer Membrane For Ventilation Air Recovery

Impact: Commercial and residential buildings consume over 39% of the energy used in the U.S. For large building airflow applications, energy wheels are the current method of achieving total energy ventilation recovery. However, energy wheels result in poor indoor air quality, consume excess energy with their high rotation speeds, and have unacceptable rates of exhaust air cross-contamination from leaky seals. There have been numerous cases where energy wheels have been turned off or even removed from a system due to poor indoor air quality.



Energy Wall products will save the average commercial building over 15% of annual energy costs, with a return on the initial equipment investment within three years. Energy Wall's main advantage is a membrane that allows heat and water vapor to pass through while blocking exhaust air. Energy Wall is low maintenance, has no moving parts, and actively cleans the air of bacteria and mold growth, resulting in superior indoor air quality for healthy buildings.

Project Overview: For this project, the team will install, test, and demonstrate a ventilation total energy recovery unit in an elementary school. The team will monitor the effectiveness of both the energy recovery of the system and the building air quality, as well as the system's ability to eliminate contaminants that might be harmful to building occupants. Pennsylvania State University's Indoor Environment Center will provide assistance in researching and monitoring building energy use and indoor air quality. The project has the potential to save a public school 15% in yearly energy costs, contribute to it achieving up to three additional LEED® (Leadership in Energy and Environmental Design) credits, lower maintenance costs, reduce air conditioning equipment size by up to 40%, and provide better indoor air quality for students. If accepted nationwide, Energy Wall could positively impact all residential, commercial, industrial, and transportation end-use sectors.

GBA Product Innovation Grant Amount: \$100,000

Leadership Team: Energy Wall's team is lead by Dustin Eplee, Energy Wall President and Burt Hill employee. The University partner is Dr. William Bahnfleth, Professor of Architectural Engineering and Director of the Indoor Environment Center at Pennsylvania State University. Energy Wall is the manufacturer of an innovative patent-pending membrane technology for high efficiency ventilation air recovery equipment.

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