

## **U.S. Department of Energy: American-Made Buildings Envelope Retrofit Opportunities for Building Optimization Technologies (E-ROBOT)**

### **Title: Novel Thermal Retrofitting for the Exterior of Windows**

**SUMMARY FOR PUBLIC RELEASE** In this project the research group proposes to develop a robotic system to provide a novel insulating system to exterior windows. In the United States, buildings consume approximately 13.6 quadrillion BTUs of energy in a year. A huge amount of energy is consumed every year to maintain comfortable room temperatures in buildings; up to 60% of the building's total energy demand may be consumed by heating (European Commission 2002). This process of maintaining comfortable room temperatures in buildings is energy intensive and therefore, carbon intensive. Furthermore, windows are typically the poorest insulators within the building envelope. Glass windowpanes have significantly lower R values than other parts of the building envelope like exterior walls. In fact, according to most studies, buildings lose 30% of their energy through glass windows. Therefore, our robotic solution provides better energy efficiency to building windows.

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Organization Type: Academic Institution

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