

Novel Thermal Retrofitting for the Exterior of Windows

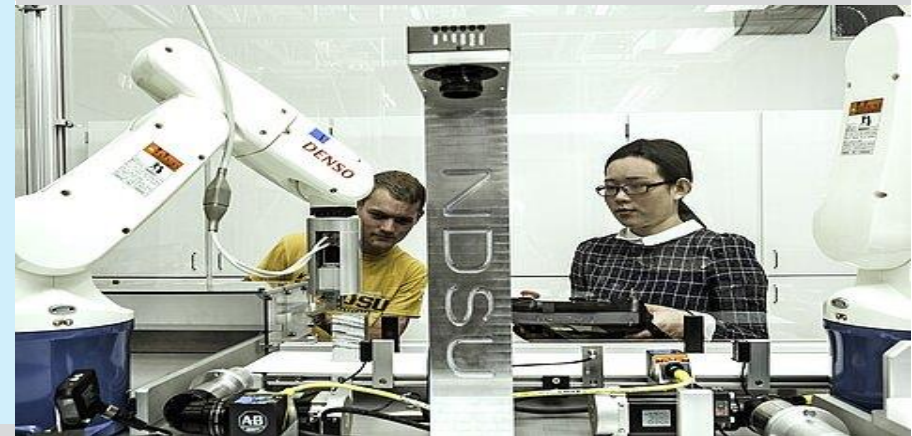
North Dakota State University

DOE American-Made

E-ROBOT: \$200,000

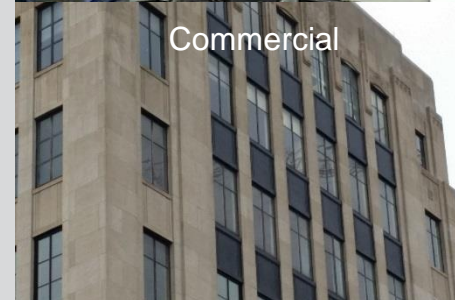
Technology Summary

- *Novel robotic system providing an improved insulating system to exterior windows*
- *Significantly lower cost than current window replacement*
- *Negligible occupant interference*
- *Safer and faster than current window retrofitting*



Technology Impact

- *Improved installer and occupant benefits*
- *Improvements in thermal properties*
- *Lowering of CO₂ emissions*
- *New opportunities and markets in building efficiency*



Proposed Targets

Metric	State of the Art	Proposed
Cost	\$1,000+	~\$250
Occupancy Interference	High	Negligible
Installation Time	weeks	days



Safer, faster, and cost effective robotic window retrofitting