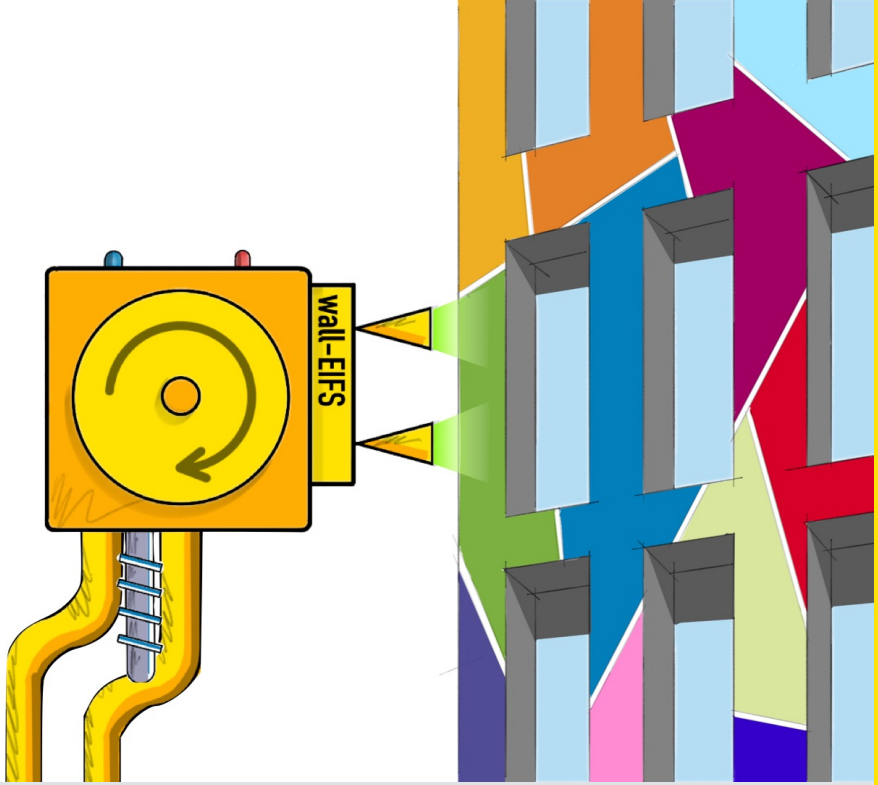
Robotically applied, 3D-sprayable Exterior Insulation and Finish Systems (EIFS) for Building Envelope Retrofits



The Problem: Exterior Insulation Retrofits

- Existing masonry and wood frame buildings are difficult and expensive to retrofit with continuous exterior insulation
- Idiosyncrasy of existing buildings makes it difficult to integrate control layers
- Shortage of skilled manual labor
- Unsafe/difficult to access
- Hard to match aesthetics
- Bad installation results in building decay and threatens occupant health

The Solution: wall-EIFS

+ **Spray-applied using existing or novel bio-based sprayable insulation and finish materials**
+ **Operated from an x-y-z stage track or scissor lift with telescopic head**
+ **Sensing, spraying, and shaping performed by multipurpose robotic turret head**
+ **Evaluates existing conditions and quality of application with multiple sensing technologies mounted to turret head**
+ **Replicate or upgrade building appearance**
+ **Saves >50% in time, labor, and materials**
+ **Test & validate on 1-3 story solid masonry or wood framed buildings**

The Team: Building Science + Robotics

Principals

- **Dr. Wolfgang Fink (UArizona), FSPIE, FPHMS, FAIMBE**:
- Director, Visual & Autonomous Exploration Systems Research Laboratory, expert in autonomous robotic exploration systems
- **Dr. Jonathan Bean (UArizona)**: PHIUS CPHC, expert in building science, market transformation, consumer taste
- **Dewey Benson (Energy Quest Tech)**: Expert in robotically applied coatings for US Air Force & aerospace applications

Support

- **Dr. Brian Adair**:, Research Development Services, UArizona
- **Doug Hockstad**: Assistant VP, Tech Launch Arizona

Endorsements

- **Gord Cooke**: Building Knowledge Canada & Construction Instruction

Power Connector

- **Diana Fisler**: ADL Ventures