

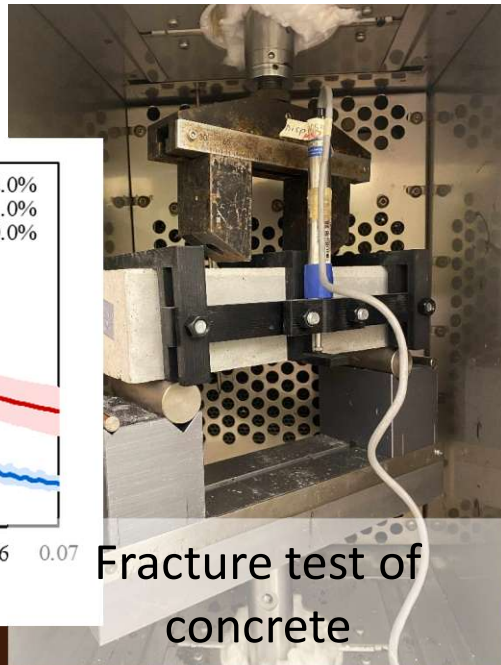
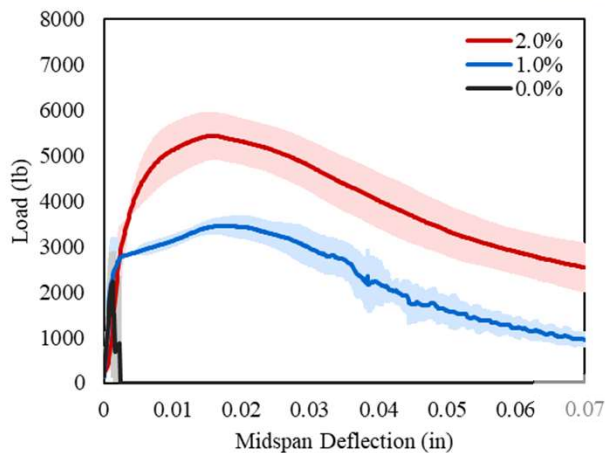
P1: Fiber-Reinforced SCC

P2: 3D Printing of Mortar

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ENGINEERING CLINIC PROJECTS – SPRING 2026

# P1: Fiber-Reinforced SCC – Lomboy, Moraña



- a) Design and test self-consolidating concrete with fibers
- b) Test flow properties and fracture properties
- c) Study the effects of temperature on concrete and fibers – steel, polypropylene, and pva fibers

# P1: Fiber-Reinforced SCC – Lomboy, Moraña

Fiber Reinforce Self-Consolidating Concrete will be designed and tested at room and freezing temperatures. The effect of cold temperatures on concrete and fibers will be studied. Three types of fibers will be used, steel, polypropylene, and pva fibers. The flowability, passing ability, and stability will be assessed in its fresh state. The fracture properties of beams will be measured for the hardened state.

If you have questions about the topic, please contact Dr. Lomboy. lomboy@rowan.edu

## WHAT YOU WILL BE DOING –

### *Activities*

- Prepare materials for testing
- Mix concrete and cast beams
- Measure the mechanical properties of concrete and beams
- Make sure work areas are clean and orderly

### *Reports and Presentations*

- Write a final report or paper and present at the end of the semester



# P2: 3D Printing of Mortar – Lomboy



<https://www.youtube.com/watch?v=gpt0ltCLr-k>

**Determine the parameters that are suitable for 3D printing of mortar**

# P2: 3D Printing of Mortar – Lomboy

3D printing in construction is a rapidly developing technology. A structure is cast by extruding a concrete mixture over layers until a defined form is built. In the present clinic research, clay and mortar will be used in 3D printing. The mortar will be printed using a 3D potter printer.

If you have questions about these requirements please contact Dr. Lomboy.

[lomboy@rowan.edu](mailto:lomboy@rowan.edu)

## WHAT YOU WILL BE DOING –

### *Laboratory Activities*

- Mix mortar mixtures
- 3D print specimens
- Test mortar buildability
- Make sure work areas are clean and orderly

### *Reports and Presentations*

- Write a final report or paper and present at the end of the semester