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Community Foundation of Greater Muscatine Rural Housing Project Continues

MUSCATINE, IA - The Community Foundation of Greater Muscatine announces the continuation of the Rural Housing Project to prototype cutting-edge housing methods to compare completion time, cost, and energy efficiency.

With rising housing development costs and constrained construction schedules from seasonal pressures, traditional methods of housing creation have often proven costly, slow, and inefficient to build and maintain in rural communities. Thus, the Community Foundation plans to focus on additive on-site manufacturing using affordable readily available materials, technology, and manufacturing techniques to build at the job site and eliminate transportation logistics and labor concerns.

Building methods are planned to initially incorporate four concrete-based technologies: 3D printing, insulated cast-poured concrete forms (ICF), cast-in-place, and cement-board composite. These methods offer anticipated cost decreases, speed-to-market increases, extended lives, and extreme weather resistance, reducing utility costs, maintenance, and waste.

As you may remember, the Community Foundation of Greater Muscatine built the first 3D-printed home in Iowa in the fall of 2023 before uncompromisingly removing it when it was discovered that the material selected by the subcontractor, Alquist 3D, underperformed in the field. The Community Foundation has since discontinued its relationship with the subcontractor while continuing plans to utilize 3D home printing technology.

The Community Foundation received a grant from an anonymous funder outside of Muscatine County to purchase a 3D home printer and continue deploying 3D home printing technology. The local project lead and general contractor continue to gain expertise, have had field visits with successful 3D home printing in Arizona, and continue to work closely with partners Muscatine Community College and Iowa State University.

Muscatine Community College will assist in the fabrication and software development of the printer involving students in the design and construction in partnership with a local contractor, leveraging learnings from Iowa State University and a visit to Yavapai College in Arizona where a working model has been fabricated.

It is anticipated that the cost of a 3D home printer will be reduced by up to 75% by fabricating it locally rather than purchasing it from an out-of-town developer. This reduces the financial barrier for rural entrepreneurs and start-ups, which would typically prevent entry into this construction type. The 3D home printer will be built from readily available materials to ensure timeliness of build and to facilitate ease of replacement parts. More information is expected to be released in late 2024 on the fabrication of a 3D printer.

As the Community Foundation awaits the completion of the 3D printer, it will focus on other concrete-based homebuilding models that are replicable, reduce building costs, improve speed-to-market, offer extreme weather resistance, and reduce utility and maintenance costs, while supporting local horizontal entrepreneurialism for the construction, supply, and material needs of housing.

Using these varied alternative technologies on the homes' exterior envelopes, four mid-market homes in the Arbor Commons neighborhood and six homes subsidized through grants in the Ignite Vitality: Mulberry revitalization area are targeted for construction to begin in the fall of 2024 and completed in the spring of 2025.

The Community Foundation is uniquely positioned to lead this modeling work to fluidly report building cost and efficiency across the alternative building method models. The work is not proprietary, and the developed playbook can be leveraged across local small businesses and entrepreneurs. In time, it is anticipated these efforts will increase affordability for homeowners at purchase and lower ongoing maintenance costs while enabling local businesses and entrepreneurs to engage and expand their market share.

To learn more about the Rural Housing Project, contact Ron Monahan at rmonahan@givinggreater.org or 563-264-3863.

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The Community Foundation of Greater Muscatine is a county-wide charitable organization actively working to improve the quality of life in Muscatine County through philanthropy. For more information, call the Community Foundation at 563-264-3863 or visit the website at www.givinggreater.org.



Pictured above: Rendering of home using cast-in-place technology.