DEFENSE INNOVATION UNIT

DISTRIBUTION STATEMENT A

CONSTRUCTION SCALE ADDITIVE MANUFACTURING

3D Printing for the Battlefield & Beyond

THE PROBLEM:

Military construction projects at home and abroad are time consuming, costly, and dangerous. Expeditionary construction is even more challenging, as it strains limited supply lines and puts lives at risk. Many DoD structures are aging and are not built for a 21st century climate.

THE COMMERCIAL SOLUTION:

Icon enables safer, faster, and cost-effective construction using 3D-printing technology. This capability will reduce the risk to troops, save millions of dollars, and empower time-sensitive operations with rapid logistical support.

3D printing technology (Icon)

- **Rapidly deployable:** 1,000 sq. ft. expeditionary structures can be printed in less than 48 hours
- **Survivable:** concrete is blast, shock, and heat resistant
- **Easy to transport:** the 3D printer can be transported in a flatbed truck or packed into shipping containers
- **Easy to operate:** the 3D printer is autonomous and requires minimal monitoring through mobile devices
- **Affordable:** primary construction material, cement, is globally available and affordable
- **Efficiency:** Wall structures provide an air gap for enhanced energy efficiency
- **Agile:** structures can be built on demand

KEY FACTS

- Additive Concrete Construction has applications to both expeditionary and conventional construction
- Prototyping local material based mixes can reduce dependence on long supply chains
- 3D printed wall systems offer increased energy efficiency, durability and speed of construction advantages over traditional wall systems

DoD/USG PARTNERS

- U.S. Marine Corps Systems Command
- U.S. Army Installation Management Command
- U.S. Army Engineer Research and Development Center - Construction Engineering Research Laboratory

COMMERCIAL PARTNER

- ICON

HIGHLIGHTS

- Built largest 3D-printed structure in North America at Camp Swift, TX and 3 larger barracks are underway at Ft Bliss, TX.
- Barracks built for Texas National Guard reduced timeline by 33% and cost by 50%
- Homes built by ICON in Mexico survived a 7.4 magnitude earthquake that destroyed surrounding buildings
- 3D printing reduces manpower by a factor of 5 and required only days of training when compared with existing expeditionary solutions

DIU FOCUS AREA

- Autonomy Portfolio

CONTACT DIU

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