



3D-Printed Habitat Challenge

Objective

NASA's 3D-Printed Habitat Challenge is a Centennial Challenges Program competition that seeks to foster development of new technologies to additively manufacture a habitat using local indigenous materials with, or without, recyclable materials, in space and on Earth.

On Earth, these capabilities could be used to produce housing wherever affordable housing is needed and access to conventional building materials and skills are limited. Local indigenous materials (dirt, clay, sand, etc.) could be combined with readily available recyclable materials and used to construct semi-permanent shelters against environmental elements for human habitation.

For Phase 2 of the competition, NASA has partnered with Bradley University in Peoria, Illinois; and the program's sponsors, Caterpillar Inc., also of Peoria; Bechtel Corporation and Brick & Mortar Ventures, both of San Francisco.

Prize Purse

The total prize purse for this challenge is \$2.5 million, provided by the Centennial Challenges Program.

Description

The 3D-Printed Habitat Challenge is divided into three phases:

Phase 1 of the Challenge, a design competition, was completed in 2015, with \$40,000 awarded to the top three teams. Teams developed innovative habitat architectural concepts that take advantage of the unique capabilities that 3D printing offers.

Phase 2, the Structural Member Competition, focuses on the material technologies needed to manufacture structural components from a combination



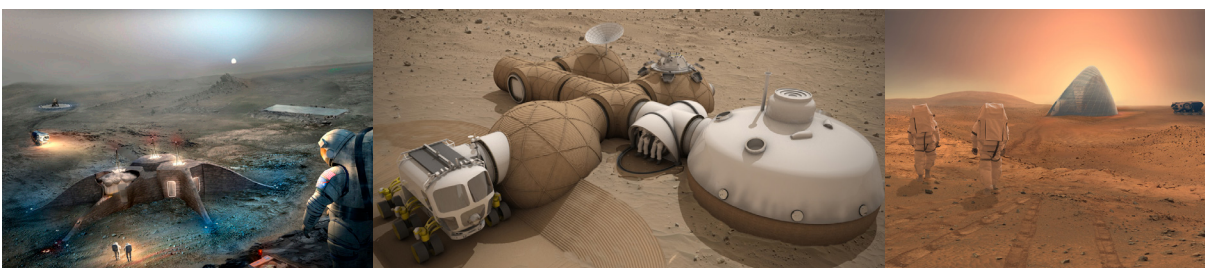
of indigenous materials and recyclables, or indigenous materials alone. NASA may use these technologies to construct shelters for future human explorers to Mars. On Earth, these same capabilities could also be used to produce affordable housing wherever it is needed or where access to conventional building materials and skills is limited. Phase 2 has a prize purse of \$1.1 million, and also serves as a qualifier for participation in Phase 3.

Phase 3, the On-Site Habitat Competition (date will be announced upon completion of Phase 2), will focus on the fabrication of a scaled habitat design, using indigenous materials combined with or without recyclables, and will have a prize purse of \$1.4 million.

For more information on the 3D-Printed Habitat Challenge, visit www.nasa.gov/3DPHab.

NASA's Marshall Space Flight Center in Huntsville, Alabama, manages the Centennial Challenges program for the Space Technology Mission Directorate in Washington. For information on the program, visit www.nasa.gov/winit.

NASAfacts



Winning designs from Phase 1 of the challenge, where competitors imagined what a habitat on Mars would look like.