

Returning Astronauts To The Moon: Lockheed Martin Finalizes Full-Scale Cislunar Habitat Prototype

NextSTEP Habitat Prototype to Support NASA's Gateway Architecture

CAPE CANAVERAL, Fla., March 14, 2019 /PRNewswire/ -- For long-duration, deep space missions, astronauts will need a highly efficient and reconfigurable space, and Lockheed Martin (NYSE: LMT) is researching and designing ways to support those missions. Under a public-private partnership as a part of NASA's [Next Space Technologies for Exploration Partnerships \(NextSTEP\) Phase II](#) study contract, Lockheed Martin has completed the initial ground prototype for a cislunar habitat that would be compatible with [NASA's Gateway architecture](#). This habitat will help NASA study and assess the critical capabilities needed to build a sustainable presence around the Moon and support pioneering human exploration in deep space.

The full-scale prototype, or Habitat Ground Test Article (HGTA), is built inside of a repurposed shuttle-era cargo container, called a Multi-Purpose Logistics Module (MPLM), at Kennedy Space Center. Using rapid prototyping and modern design tools like virtual and augmented reality, the team customized the interior making full use of the entire volume of the module to accommodate a variety of tasks like science missions and personal needs of future astronauts. The team also studied how to apply the advanced, deep space capabilities that are already built in to [NASA's Orion spacecraft](#). Through additional research and development funding, the NextSTEP team also applied mixed-reality technology to further refine the concept.

"Throughout the design and engineering process of this high-fidelity prototype, we have kept the diversity of missions top-of-mind," said Bill Pratt, Lockheed Martin Space NextSTEP program manager. "By building modularity in from the beginning, our design can support Lunar orbit and surface science missions along with commercial operations, all while accelerating the path to the Moon."

Over the past five months, the team used tools like virtual and augmented reality to simplify and streamline the build-up process. They also applied expertise from Lockheed Martin's heritage of operating autonomous interplanetary robotic missions, like OSIRIS-REx and InSight, to integrate reliable robotic capabilities in to the design.

"Getting back to the Moon, and eventually Mars, is no small feat, but our team are mission visionaries," said Pratt. "They have worked to apply lessons learned from our experience with deep space robotic missions to this first-of-its-kind spacecraft around the Moon."

The Lockheed Martin team will soon transition the prototype to the NASA NextSTEP team for assessment. During the week of March 25, a team of NASA astronauts will live and work inside the prototype, evaluating the layout and providing feedback. The NASA test team will also validate the overall design and will be able to evaluate the standards and common interfaces, like the International Docking System Standard (IDSS), and how to apply those systems for long-term missions based at the Lunar Gateway. Once NASA testing has completed, Lockheed Martin will continue to optimize and study the prototype to prepare for other Lunar efforts.

For additional information, visit [our website](#).

About Lockheed Martin

Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 105,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

SOURCE Lockheed Martin

Additional assets available online: [Photos \(2\)](#)

