

Deployable Secondary Structures for Expandable Volumes

STATEMENT OF WORK

1.0 General Description

NASA LaRC is seeking an industry partner to study the integration, deployment and packaging of secondary structures within inflation deployed volumes. Secondary structures include any structure that is deployed during or after expansion of the primary volume, such as the floor and work surfaces, but which do not contain pressure loads.

2.0 Scope of Work

The contractor will explore innovative approaches to deploying secondary structures and perform a conceptual design study of a deployable floor for the habitat demonstrator illustrated in the appendix. The ultimate goal of this research is to develop a system applicable to future habitation modules deployed on the lunar surface or in space. Specifically, the contractor shall design a system to provide a floor system spanning 236 inches supporting a dead load of 7 lbs/sq ft and a live load of 5 lbs/sq ft with a deflection limit of L/300. The preliminary report and final report shall include detail material properties and limiting stresses, as well as analysis approach used. Deliverables will include a preliminary and final report detailing the design approach, selected materials and their properties, analyses performed and analyses results. A “rough order of magnitude” (ROM) cost estimate for a demonstrator of the technology shall also be provided.

3.0 Task Requirements

- 3.1 The Contractor shall participate in a meeting to precisely define system requirements following contract award.
- 3.2 The Contractor shall provide monthly status briefings on progress.
- 3.3 The Contractor shall provide a preliminary report at the end of 5 months.
- 3.4 The Contractor shall provide a final report at the end of 6 months.
- 3.5 The Contractor shall provide a ROM cost estimate for a technology demonstrator at the end of 6 months.

4.0 Schedule of Deliverables

SOW Paragraph	DELIVERABLE	Format	DATE
3.1	Design Meeting	MS Word / Excel / PowerPoint / PDF via E-mail & telecon.	2 weeks after start
3.2	Status Teleconferences	MS Word / Excel / PowerPoint / PDF via E-mail & telecon.	monthly after start
3.3	Preliminary Report	MS Word / Excel / PowerPoint / PDF via E-mail	5 months after start
3.4	Final Report	MS Word Doc via E-mail	6 months after start
3.5	Cost Estimate for Technology Demonstrator	MS Word Doc via E-mail	6 months after start

Deliverables listed above shall be submitted to the NASA Technical POC: Contact to be furnished

5.0 Period of Performance: Six months from date of award.

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APPENDIX



Figure 1 –The LaRC Expandable Lunar Habitat. Stowed and deployed

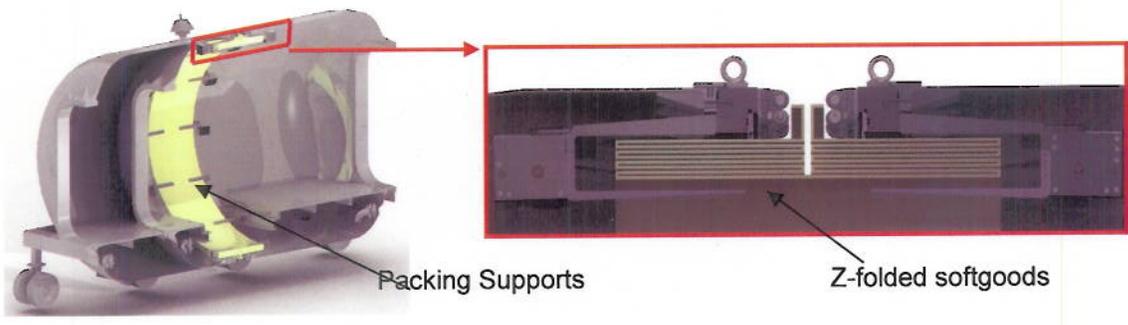


Figure 2 – Z-Fold soft-goods packaging

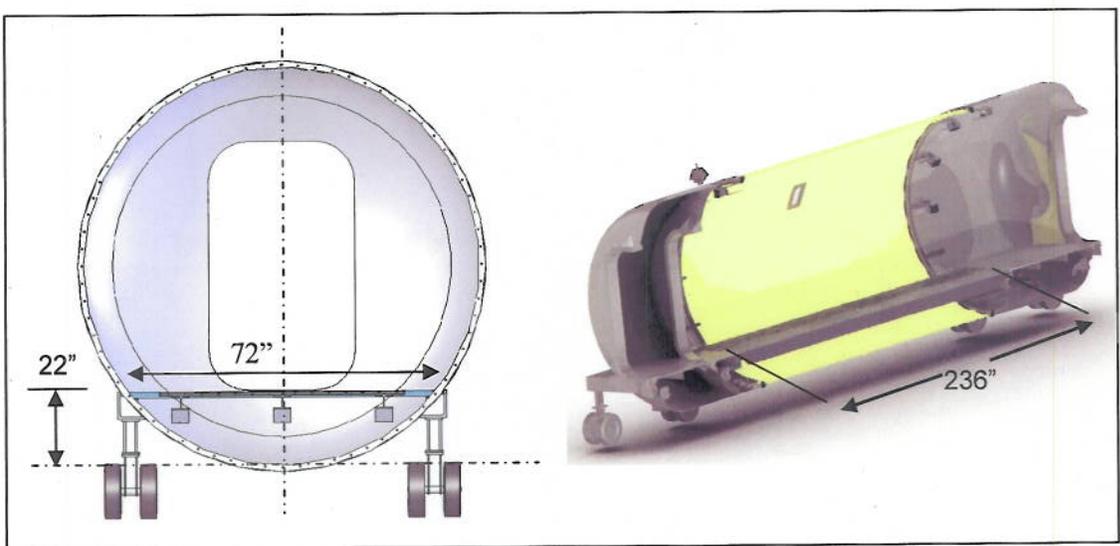


Figure 3 – Current floor design for the LaRC Expandable Habitat