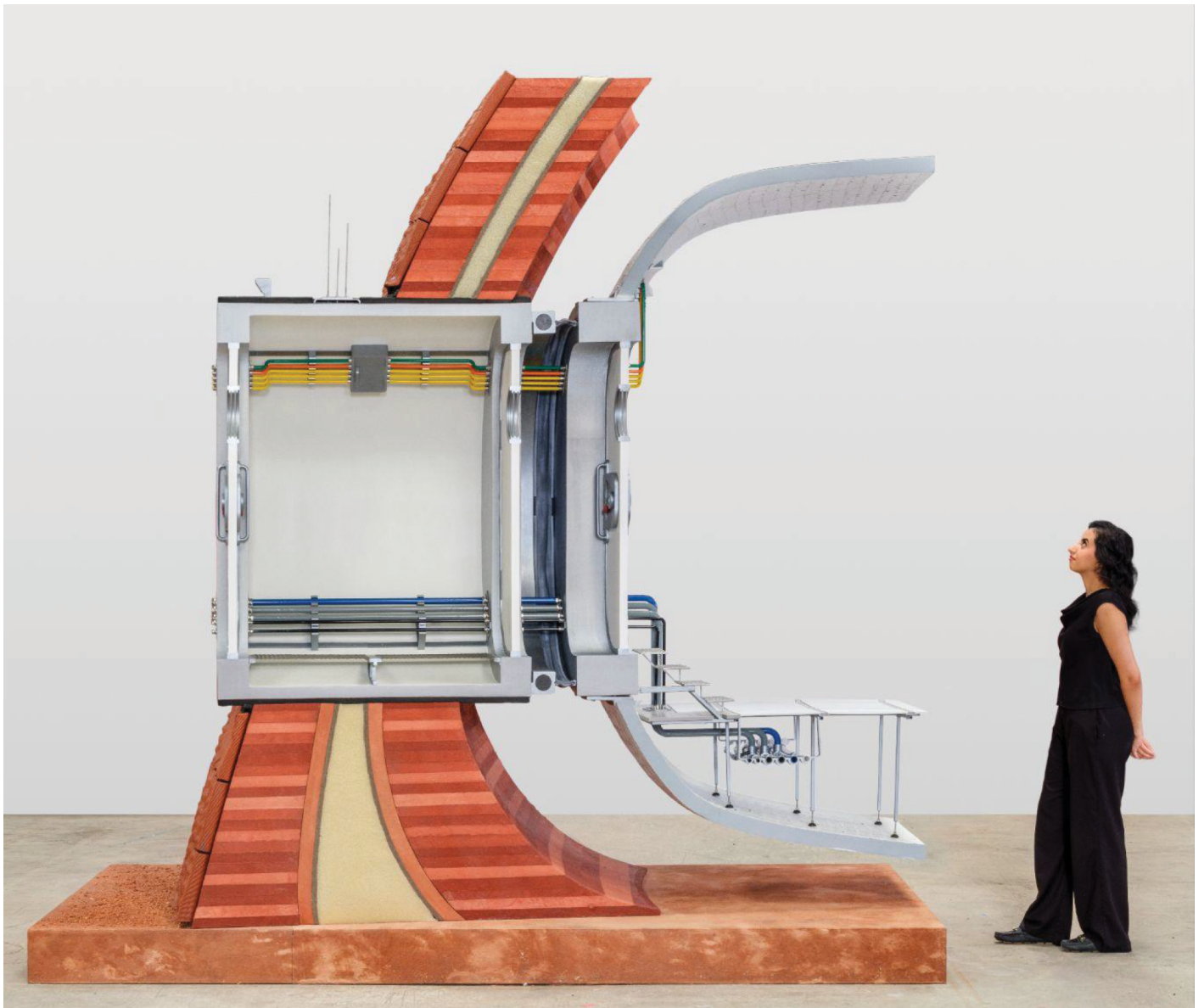


EXPERIENCE A MARS HABITAT ON EARTH

AENARA Presents a 2075 Mars Habitat
An Exclusive Commission at Powerhouse Parramatta



Task Eternal opens 7 November 2026
Press contact: Mirna Huhoja-Dóczy, <mirna@aenara.space>

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PROJECT AT A GLANCE

A concise reference for editors, writers and producers.

FIRM	AENARA
FOUNDER	Melodie Yashar
INSTALLATION TITLE	<i>Off-World Habitat Wall Section</i>
PROJECT TITLE	2075 Mars Habitat
MUSEUM EXHIBITION	Task Eternal
MUSEUM VENUE	Powerhouse Parramatta, Sydney
OPENING DATE	7 November 2026
FORMAT	Building section using representative Martian materials
COMMISSION PROMPT	An installation representing future off-world architecture to the public
PROJECT BEGAN	2024

For Task Eternal at Powerhouse Parramatta, AENARA has created *Off-World Habitat Wall Section*, a sectional model revealing how the wall assembly of a Mars habitat sustains human life. The installation reveals the internal layers, utilities and technologies required to maintain a safe and

habitable environment beyond Earth. Designed as part of AENARA's broader 2075 vision for Mars habitation, the work considers how future habitats could be autonomously constructed using local materials while creating an interior experience that feels as close to Earth as possible.

2 THE PROJECT

Off-World Habitat Wall Section presents architecture as a system for sustaining life.

Project overview

Commissioned by Powerhouse for Task Eternal, *Off-World Habitat Wall Section* extracts a section of AENARA's habitat concept for astronauts living on Mars in the year 2075-80. The installation cuts through the habitat wall to reveal the materials, layers, utilities and technologies that support life inside it.

AENARA's habitat concept began as a NASA-endorsed research study developed for a crew of four undertaking a conjunction-class mission to Mars. The habitat's multi-layered wall assembly brings together redundant structural shells, an inflatable membrane, thermal insulation and integrated systems for power, data, water and air circulation. In an environment where the building itself must maintain pressure and protect its occupants from extreme and hostile environmental conditions, these systems become an essential part of architecture.

As NASA begins planning and procurement for a future Moon base this decade, projects that put off-world construction concepts into practice reveal just how far we have to go before far-out visions of extraterrestrial living become reality. AENARA's project brings into sharper focus the social, ethical, and geopolitical pressures of realizing off-world infrastructure and construction responsibly.

The project also explores the use of local materials and autonomous construction. While primarily developed for life beyond Earth, research in in situ materials and robotic autonomy also support the development of new construction technologies which rethink the paradigm of construction on Earth.

3 HOW THE HABITAT WORKS

The installation reveals structural systems that are normally hidden.

The wall as a technological service system

On Earth, utilities are often treated as secondary systems hidden within a building. In an off-world habitat, they are essential to keeping the crew alive. The habitat wall must maintain a pressurized and environmentally controlled interior while integrating power, data, water and air circulation. It therefore functions not only as a protective boundary, but as active technological infrastructure.

The visitor experience

Visitors will encounter a strategically cut section of a multi-layered habitat wall. By exposing what would normally remain hidden inside the structure, the installation enables visitors to see how utilities, materials and other technologies work together to protect astronauts and sustain life on Mars. The work is not designed to be entered, touched or used interactively.

Materials and making

The sectional model is made from steel, aluminum, Vectran, 3D-printed terracotta, and other 3D-printed components. The material choices are intended to represent the wall assembly of the habitat. The installation does not feature space-rated materials.

Human life beyond Earth

Alongside safety and technical performance, AENARA's habitat concept considers how architecture supports the health and wellbeing of a crew living far from Earth. Natural light, large windows and an interior environment that feels as familiar and Earth-like as possible are central to the design and the installation.

4 THE WALL IN DETAIL

Selected views of the sectional model,
materials and integrated systems.



3D-printed terracotta components



Airlock and utility routes



Sectional view of the wall assembly



Detail view of the habitat vision window

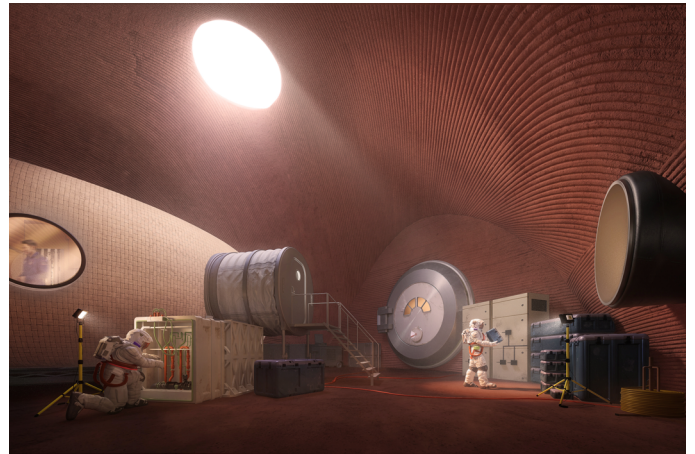
Photography:
Joshua White / jwpictures.com

4 THE HABITAT CONCEPT

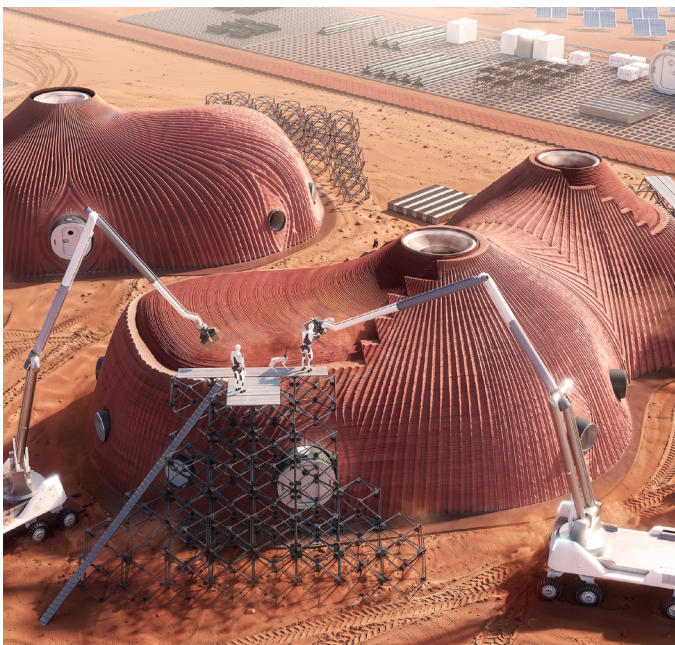
Visualizations from AENARA's NASA-endorsed
2075 Mars Habitat Study



3D-printed construction of the habitat



The habitat's annulus work area



Construction of the habitat



Personal crew quarters

Renderings:
AENARA

5 ABOUT TASK ETERNAL

An ambitious aerospace exhibition exploring humanity's relationship with the sky and space.

Opening at Powerhouse Parramatta on 7 November 2026, Task Eternal traces humanity's continuing quest to defy gravity, take flight and journey into the sky.

The exhibition brings together scientists, engineers, designers and artists from Australia and around the world. It expands the conversation beyond technology to consider humanity's cultural relationship with the sky and how we might approach our future in space ethically and collectively.

EXHIBITION DETAILS

TITLE	Task Eternal
VENUE	Powerhouse Parramatta
OPENING	7 November 2026
EXHIBITION DESIGN	OPEN Architecture
EXHIBITION SEQUENCE	Skyward, Power, Off-Earth and The Return
OPENING FESTIVAL	7-29 November 2026
OFF EARTH PANEL/TALK	Sunday 8 November 2026, 2:30 pm

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AENARA

A design, engineering and research practice
working across Earth and space.

PRACTICE OVERVIEW

AENARA is a design, engineering and research practice founded by space architect Melodie Yashar. Working across Earth and space, the practice develops technologies for autonomous construction, technologies supporting crews in Earth-independent environments, and new approaches to space architecture. Its interdisciplinary work brings together design, robotics, material science, human-robot interaction and civil and structural engineering to explore how future habitats can be built and how similar technologies can contribute to disrupt construction practices on Earth.

AENARA's research is focused on the challenges of building in places where materials, labor and infrastructure are limited. Its work considers how structures might be autonomously constructed using locally available resources, both for future missions beyond Earth and for new approaches to construction on Earth.

AREAS OF WORK

- Autonomous construction for Earth and space
- Human-robot interaction
- Space architecture and space policy
- Artificial intelligence for construction
- Material science
- Civil and structural verification
- Crew-support systems for
Earth-independent environments

7 ABOUT MELODIE YASHAR

Founder and CEO of AENARA.



BIOGRAPHY

Melodie Yashar is a space architect and the founder of AENARA, a practice developing technologies to autonomously build off-world habitats while redefining construction paradigms on Earth. Her TED talk “How to Build for Human Life on Mars” has been viewed over 1.6 million times. Previously, Melodie served as Vice President of Building Design and Performance at ICON, a technology company focused on large-scale additive manufacturing for Earth and space. In prior roles Melodie was a Senior Researcher with the Human Systems Integration Division at NASA Ames, as well as a co-founder of Space Exploration Architecture (SEArch+). Melodie played a lead role in the design and construction of NASA’s Crew Health and Performance Exploration Analog, known as CHAPEA, a 3D-printed Mars mission habitat at NASA’s Johnson Space Center completed in 2023.

INTERVIEW TOPICS

- Space architecture and designing environments for human life beyond Earth
- Why the Moon Base requires that we look to terrestrial architecture and settlements first
- Why AI is fundamental to robotic construction in space
- The future of 3D-printing on Earth and in space
- How research for space can inform how we rethink construction paradigms on Earth

SELECTED RECOGNITION AND APPEARANCES

- TED2022 speaker: How to build for human life on Mars
- NASA challenge winner: Mars Ice House and Mars X-House
- Powerhouse Parramatta speaker: Space Architectures, 2024

8 KEY MESSAGES AND QUOTES

KEY MESSAGES

1. Space architecture is becoming real.
“Space architecture is moving from speculative fiction into an emerging design discipline confronting real questions about how humanity will live beyond Earth.”
2. In space architecture is life-support infrastructure.
“On Mars, architecture is not simply shelter. The building itself must maintain pressure, protect human life, and integrate the systems that make survival possible.”
3. The installation makes the invisible visible.
“Off-World Habitat Wall Section cuts through a future Mars habitat to reveal the materials, utilities, structures, and technologies required to sustain human life.”
4. Building beyond Earth carries ethical responsibilities beyond engineering.
“As off-world construction moves closer to reality, the challenge is not only how we build on the Moon and Mars, but how we do so responsibly.”
5. Design for space can transform how we build on Earth.
“Research into local materials and autonomous construction for the Moon and Mars can create new pathways for how we design and build here on Earth.”

9 CREDITS

PROJECT CREDITS

Credits should be reproduced exactly in editorial coverage.

2075 MARS HABITAT CONCEPT

Commissioned by
Powerhouse for Task
Eternal. Courtesy of
AENARA 2025-26.

Architectural design

Melodie Yashar
Mariam Alothman
Caden Savage
Pingting Li

Material concept and engineering

Andrea Jean Hoe
Ashley Li
Mira Schubert

Computational design

Sofia Veselova
Soroush Atashak

Systems engineering

Aleigha Morgan
Takaharu Igarashi
Daniel Case
Eric Cremer

Civil engineering and integration

Matthew Troemner
North Fracture

Structural engineering

Nous Engineering

Production

Jim Zhong
Nishant Gaurav
Khanh Ngo

Advisors

Haym Benaroya
Michael Fiske
Tracie Prater

INSTALLATION CREDITS

Design, engineering and fabrication credits for the commissioned sectional model.

OFF-WORLD HABITAT WALL SECTION

Commissioned by
Powerhouse for Task
Eternal. Courtesy of
AENARA 2026.

Design and management

Melodie Yashar
Mariam Alothman
Caden Savage

Dyson Womack

Chris Dyson
Ayu Halim

Nous Engineering

Matthew Melnyc
Araxi Malazian

JF Hanson Engineers

Jesse Hanson

North Fracture

Matthew Troemner

Studio RAP

Lucas van der Hall

Graphic Design

Jang Hyun Han

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VISUAL ASSETS

The complete press image set combines architectural renderings of the 2075 Mars Habitat concept with photographs of the Off-World Habitat Wall Section installation. The renderings represent the habitat in true context; while the photography shows how a part of that proposal has been translated into a physical installation.

CONCEPT RENDERINGS / 01–08

01. 3D-Printing of Habitat

File 3D-Printing of Habitat_AENARA.jpg
Caption 3D-printing concept for AENARA's proposed 2075 Mars habitat.
Credit Courtesy of AENARA

02. Habitat Annulus

File Habitat Annulus_AENARA.jpg
Caption Annular configuration of AENARA's proposed Mars habitat.
Credit Courtesy of AENARA

03. Habitat Construction

File Habitat Construction_AENARA.jpg
Caption Construction concept for AENARA's proposed Mars habitat.
Credit Courtesy of AENARA

04. Habitat Crew Quarters

File Habitat Crew Quarters_AENARA.jpg
Caption Proposed crew quarters within AENARA's 2075 Mars habitat concept.
Credit Courtesy of AENARA

05. Habitat Interior

File Habitat Interior_AENARA.jpg
Caption Interior concept for AENARA's proposed 2075 Mars habitat.
Credit Courtesy of AENARA

06. In Situ Resource Utilization on Mars

FILE In Situ Resource Utilization on Mars_AENARA.jpg
Caption Concept illustrating in-situ resource utilisation for construction on Mars.
Credit Courtesy of AENARA

07. Map of Mars In Situ Construction Materials

FILE Map of Mars In Situ Construction Materials_AENARA.jpg
Caption Map illustrating potential in-situ construction material resources on Mars.
Credit Courtesy of AENARA

08. Mars Early Settlement

FILE Mars Early Settlement_AENARA.jpg
Caption Conceptual illustration of an early human settlement on Mars.
Credit Courtesy of AENARA

09. Off-World Habitat Wall Section

File Off-World Habitat Wall Section by AENARA_Credit: JW Pictures.jpg
Caption Off-World Habitat Wall Section by AENARA, commissioned by Powerhouse for Task Eternal at Powerhouse Parramatta.
Credit Photography: Joshua White / JW Pictures

10. Off-World Habitat Wall Section

File Off-World Habitat Wall Section by AENARA_Credit: JW Pictures.jpg
Caption Off-World Habitat Wall Section by AENARA, commissioned by Powerhouse for Task Eternal at Powerhouse Parramatta.
Credit Photography: Joshua White / JW Pictures

11. Airlock Detail

File Off-World Habitat Wall Section by AENARA, Airlock Detail_Credit: JW Pictures.jpg
Caption Airlock detail of Off-World Habitat Wall Section by AENARA.
Credit Photography: Joshua White / JW Pictures

12. Airlock Detail

File Off-World Habitat Wall Section by AENARA, Airlock Detail_Credit: JW Pictures.jpg
Caption Airlock detail of Off-World Habitat Wall Section by AENARA.
Credit Photography: Joshua White / JW Pictures

13. Airlock

File Off-World Habitat Wall Section by AENARA, Airlock_Credit: JW Pictures.jpg
Caption Airlock assembly within AENARA's Off-World Habitat Wall Section installation.
Credit Photography: Joshua White / JW Pictures

14. Detail

File Off-World Habitat Wall Section by AENARA, Detail_Credit: JW Pictures.jpg
Caption Detail of AENARA's Off-World Habitat Wall Section, revealing elements of its layered construction.
Credit Photography: Joshua White / JW Pictures

15. Inflatable Detail

File Off-World Habitat Wall Section by AENARA, Inflatable Detail_Credit: JW Pictures.jpg
Caption Inflatable membrane detail from AENARA's Off-World Habitat Wall Section.
Credit Photography: Joshua White / JW Pictures

16. Window Detail

File Off-World Habitat Wall Section by AENARA, Window Detail_Credit: JW Pictures.jpg
Caption Window detail of Off-World Habitat Wall Section by AENARA.
Credit Photography: Joshua White / JW Pictures

CONCEPT RENDERINGS / 17–18

17. Robotically Constructed Mars Habitat

File Robotically Constructed Mars Habitat_AENARA.jpg
Caption Concept for robotic construction of AENARA's proposed Mars habitat.
Credit Courtesy of AENARA

18. Robotically Constructed Mars Habitat

File Robotically Constructed Mars Habitat_AENARA.jpg
Caption Concept for robotic construction of AENARA's proposed Mars habitat.
Credit Courtesy of AENARA

MEDIA USE

Please reproduce all project titles, collaborator credits and image credits as supplied. Contact AENARA's press representative for high-resolution files, additional project information, interview requests and image usage information.

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PRESS INFORMATION

For interviews, project information and approved high-resolution images.

FUTURE HABITATS WILL NEED TO BE BUILT FOR LIFE, NOT ONLY SURVIVAL

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Project: Off-World Habitat Wall Section
Exhibition: Task Eternal at Powerhouse Parramatta