THE DAYS OF THE PIONEERS ARE NOT IN THE PAST

(EDLER OAKS)

SPACE EXEMPLAR IS A PROPOSAL TO MAKE REAL THE DREAM OF INHABITING THE MOON. RIDING ON THE WINGS OF NASA'S ARTEMIS, THE GATEWAY WILL OPEN TO THE MAKING OF 3D PRINTING PROTOTYPE SHELTERS ON THE MOON, INSPIRED BY THE HUMBLE SEA SHELL AND ANTIQUECAVE THIS HABITAT WILL SUCCESSFUL ONLY USE THE MOONS RESOURCES TO CREATE A PROTECTIVE, SELF-SUSTAINED, LIVEABLE, HAPPY AND UNIQUE ENVIRONMENT.

ONE SMALL STEP FOR MAN, ONE GIANT LEAP FOR MANKIND

(NEIL ARMSTRONG)

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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SPACE AND SEA GENERATION
INSTITUT DE FRANCE

THE LUNAR REGOLITH IS A UNIQUE, COMPREHENSIVE ABUNDANT RESOURCE ESPECIALLY SUITED TO ITS NATIVE ENVIRONMENT. COMPOSED OF THE MOST VERSATILE MATERIALS; METALS LIKE IRON, ALUMINIUM, TITANIUM; MINERALS LIKE SILICA AND MOST IMPORTANTLY LIFE SUSTAINING OXYGEN, IT IS TRULY COMPREHENSIVE SOURCE FOR CONSTRUCTION! OUT OF IT CAN BE DERIVED REGOLITH CONCRETE, ALUMINIUM GLASS, METAL ALLOYS AND CARBON FIBRES. PIONEER PROPOSES TO USE THE SHARP, STEADY AND CONSISTENT SUNLIGHT THROUGH A EASY, TIME PROVEN, HEAT GENERATING MECHANISM OF FRESNEL LENS TO DERIVE THESE VARIOUS ELEMENTS FROM THE REGOLITH. ANOTHER KEY RESOURCE IS LUNAR ICE FOUND ON THE MOON SURFACE AS A THIN MIST AT SOME PLACES AND AT OTHER LOCATIONS BURIED UNDERGROUND, IT WILL FORM A SUSTAINED SOURCE FOR WATER, OXYGEN AND FUEL (HYDROGEN). HENCE THE PROJECT IS STRATEGICALLY LOCATED NEAR THE SHACKLETON CRATER AT THE LUNAR SOUTH POLE WHERE ABUNDANT SOURCES OF BOTH PERPETUAL SUNLIGHT AND LUNAR ICE ARE AVAILABLE.

PAYLOAD SCHEME TARGETED BY 2024 (FOLLOWING NASA ARTEMIS & FALCON)

COURTESY NASA: HTTPS://WWW.NASA.GOV/-PRESS-RELEASE/NASA-TECHNOLOGY-MISSIONS-LAUNCH-ON-SPACEX-FALCON-HEAVY

1

SOLAR PANEL ARRAY

HIGH RATE DATA COMMUNICATION GEAR

MICROWAVE POWER BEAMING SET

ELECTROLIS/ REFRIGIRATION UNIT

CREW VEHICLES

TELEOPERATED ROBOTIC ROVERS

CONSTRUCTION EQUIPMENT(INCLUDED)

2

TEMPORARY HABITATION MODULE

FOOD

SPARE SPACE SUITS

SCIENTIFIC EQUIPMENT

TOOLS AND OTHER SUPPLIES

3D PRINTER MECHANISM(INCLUDED)

3

1 FULLY FUELLED LUNAR EXCRUSION VEHICLE

PROPOSED CONSTRUCTION BEGINS IN LINE WITH NASA'S FALCON TIMEFRAME. CONSTRUCTION PER UNIT EXPECTED AT 1 - 2 MONTHS PER UNIT.

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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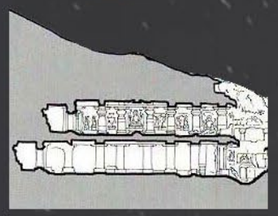
INSPIRATION

THE WHELK SHELL - SHELL'S ARE MONOLITHIC , STRUCTURALLY STABLE, AND ARE A STRONG PROTECTION TO THEIR INHABITANT, IT EXEMPLIFIES THE TYPE OF STRUCTURE INTENDED FOR THIS PROJECT

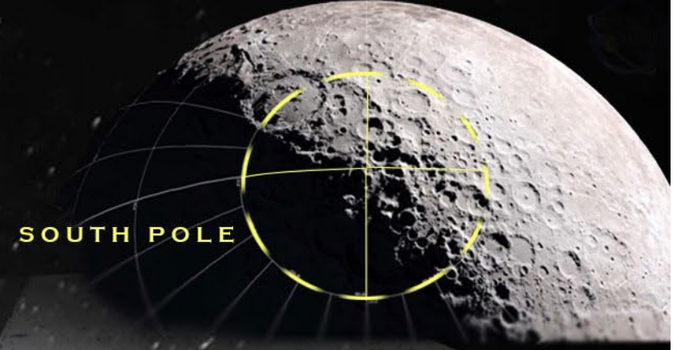


THE CAVE - CARVED OUT OF THE EARTH, ITS THICK WALLS FORMS A GREAT PROTECTION FROM ALL TYPES OF HAZARDS, HENCE THE HABITAT IS PROPOSED ON SIMILAR CONCEPT WHERE SPACES ARE CARVED OUT OF A SOLID SHELL INSTEAD OF VICE-VERSA.

CREDIT : NERI OXMAN
HTTPS://WWW.BEHANCE.NET/GALLERY/46366845/NERI-OXMAN-VESPERS-SERIES-2

3D PRINTING - COMPLEX AND INTRIGUING SHAPES, COLURFUL, STABLE, STRONG YET COMPLEX. 3D PRINTING HAS PROVEN ITS ABILITY TO BUILD FAST AND BUILD STRONG. HENCE IT FORMS THE BASIC CONTRUCTION MECHANISM FOR THIS PROJECT.

TELKITES - ARE METEORITE SAMPLES FOUND ON THE EARTH THAT RESEMBLE THE OUTCOME OF HEAT FUSUED REGOLITH. THEY ARE BEAUTIFULLY TRANSLUCENT SOMETIMES AND AT OTHERTIMES METALLIC. ITS AN INSPIRATION TO SEE A SIMILAR OUTCOME IN THE 3D PRINTING OF REGOLITH



SITE OF CONSTANT LIGHT
(NEAR SHACKLETON CRATER)

SITE PLAN

RADIO COMMUNICATION

LASER DEFENCE SHIELD (AGAINST METEORITES)

ELECTO-MAGNETIC FIELD

SOLAR POWER

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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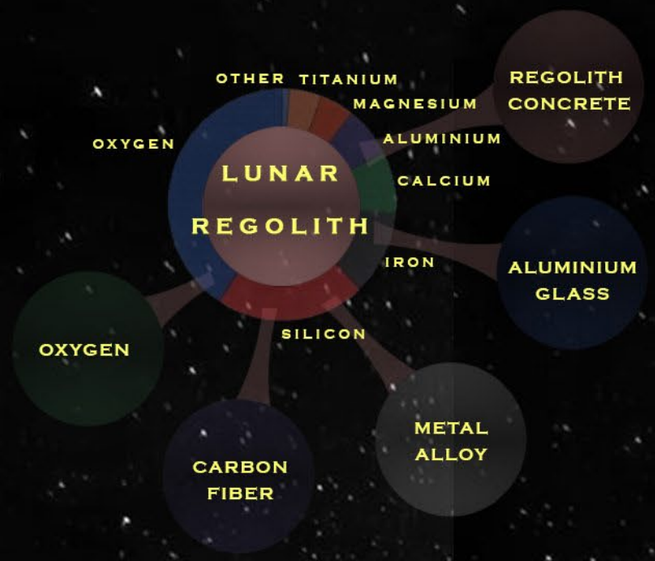
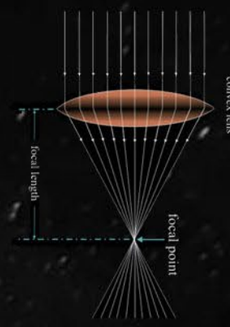
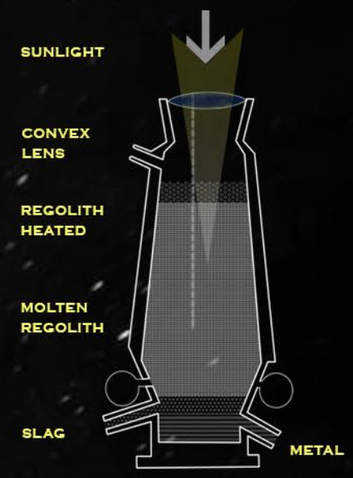
KEY RESOURCES & TECHNOLOGY



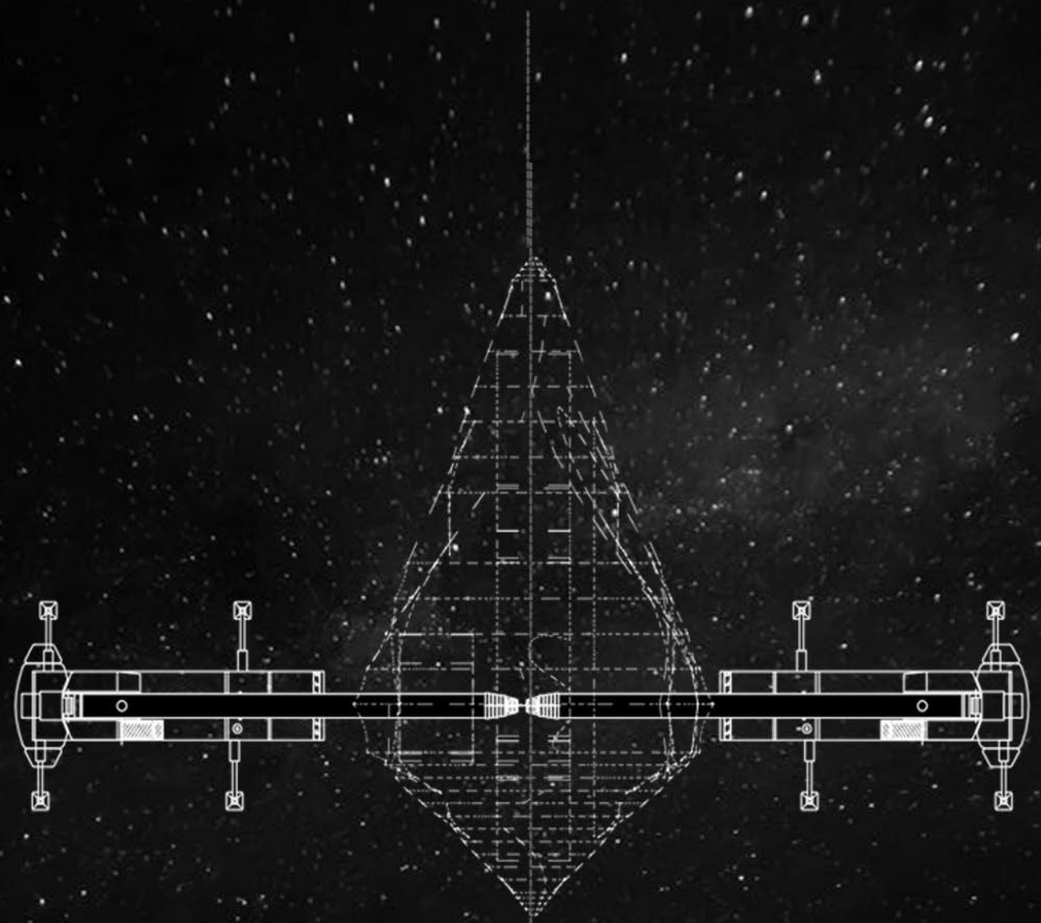


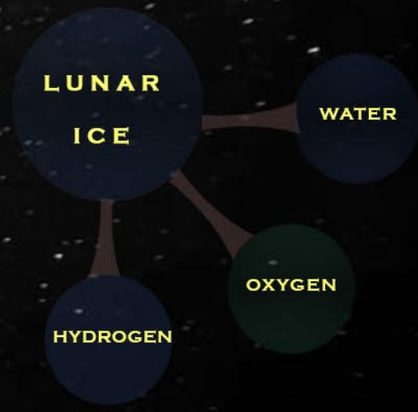


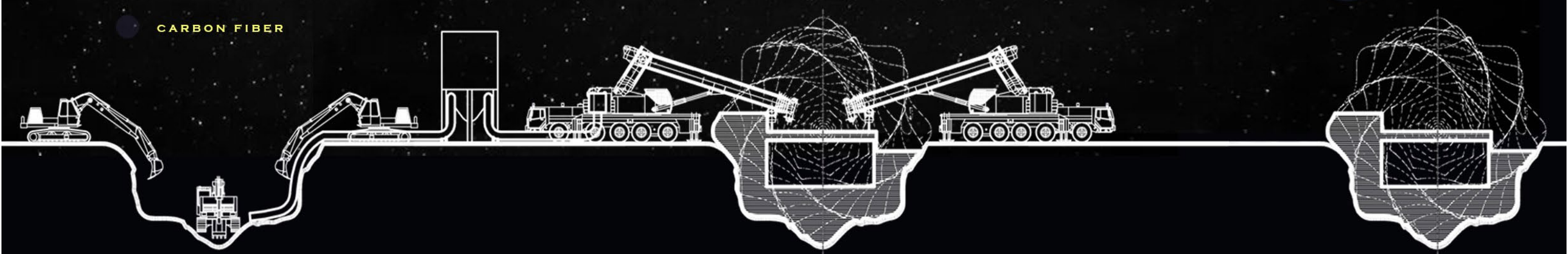
METAL EXTRACTION PROCESS

3D PRINTING ON SITE

- REGOLITH CONCRETE
- ALUMINIUM GLASS
- METAL ALLOY
- CARBON FIBER







EXCAVATION

REGOLITH TRANSFERED THRU PIPE

REGOLITH POUNDED TO FINE POWDER IN SILO

REGOLITH DUST HEATED AND PRINTED TO UNIT

PROCESS REPEATED AS REQUIRED

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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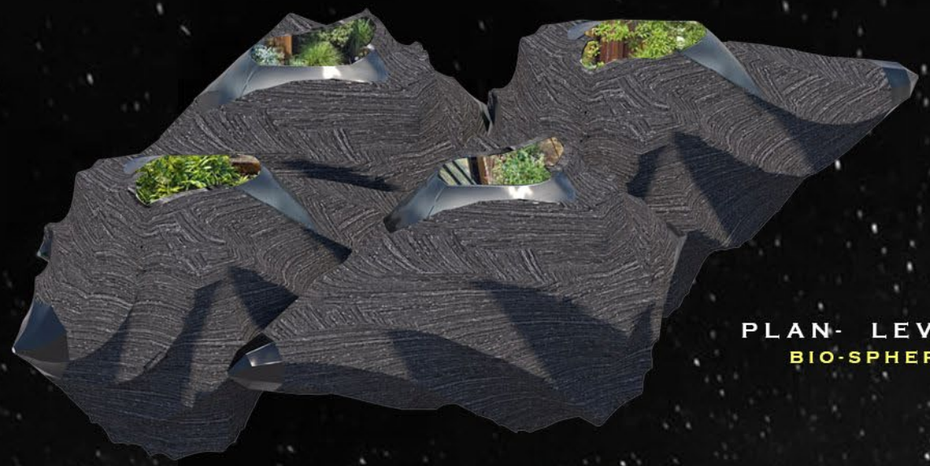
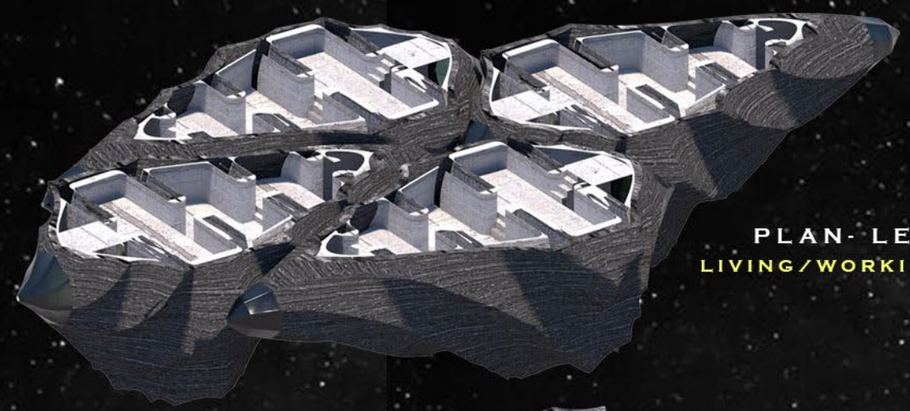
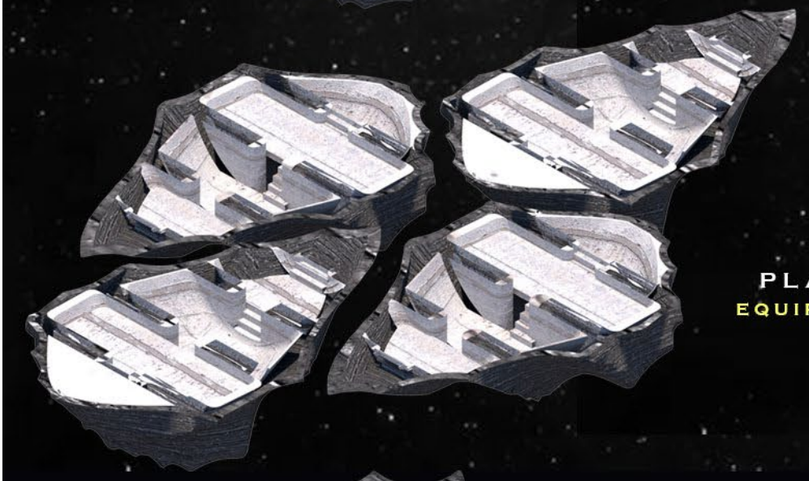


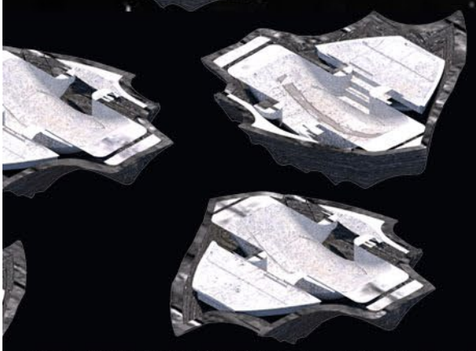
PLAN- LEVEL 4
BIO-SPHERE



PLAN- LEVEL 3
LIVING/WORKING/DINING



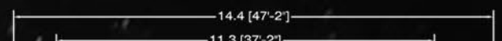
PLAN- LEVEL 2
EQUIPMENT/STORAGE



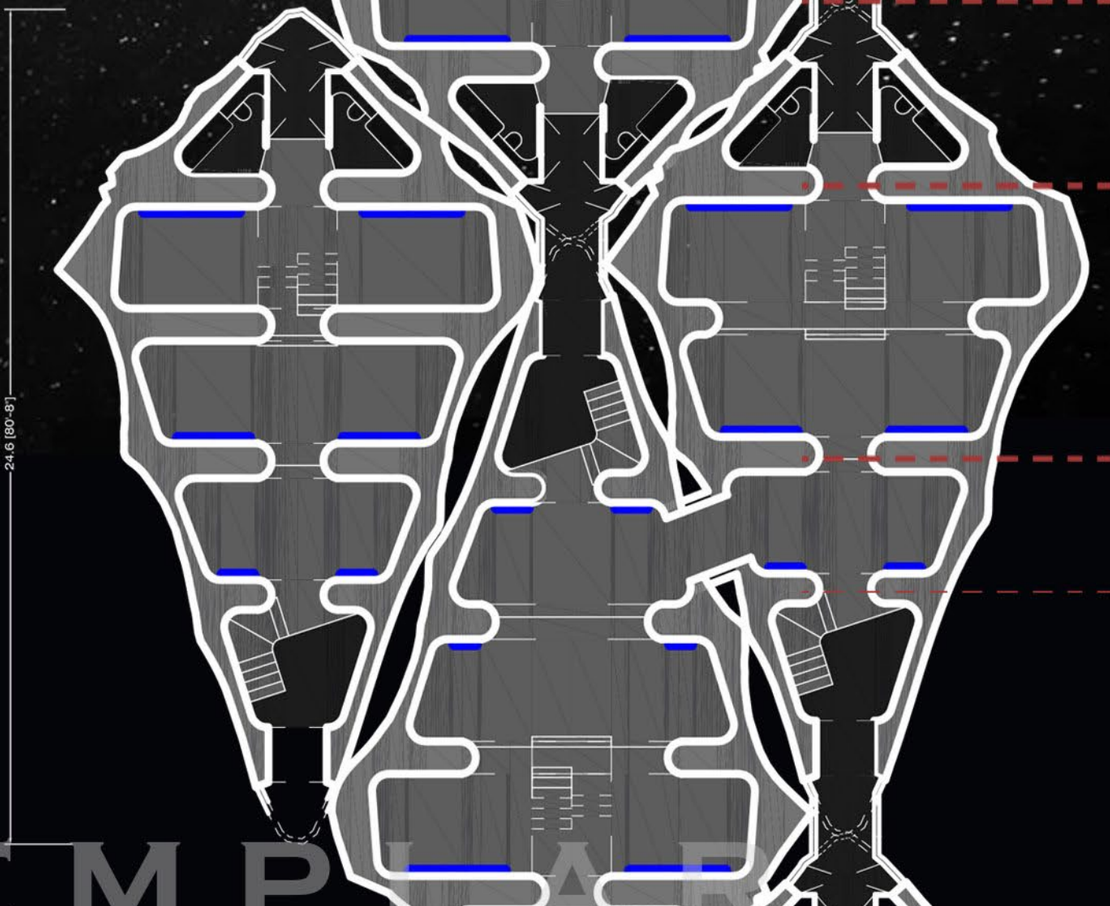
PLAN- LEVEL 1
EQUIPMENT

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR



PLAN- LEVEL 3



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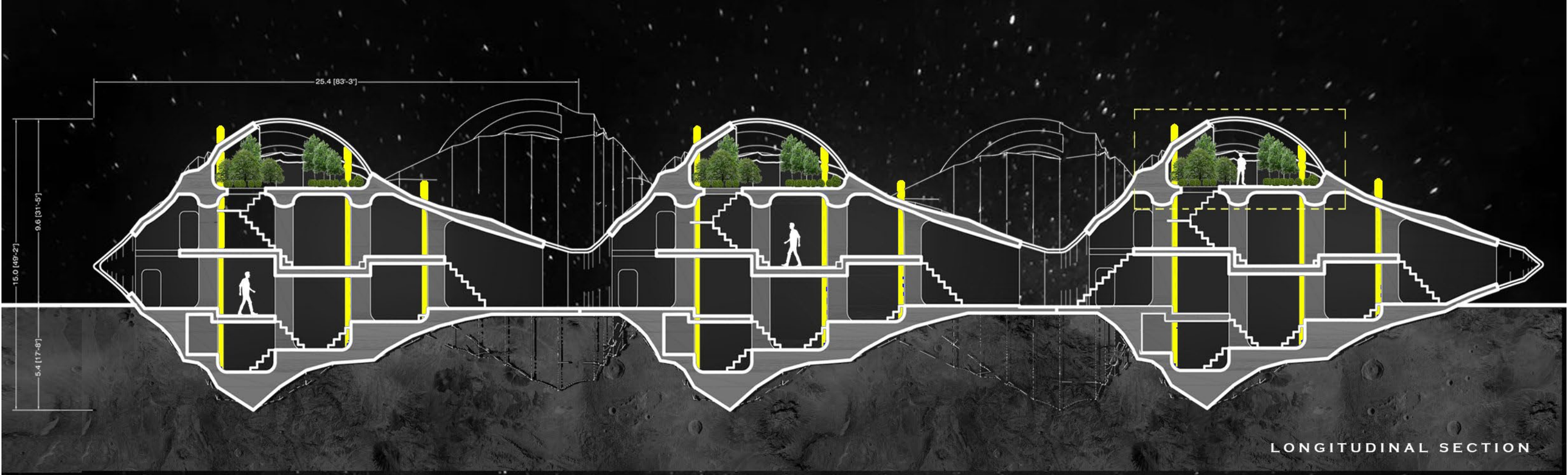
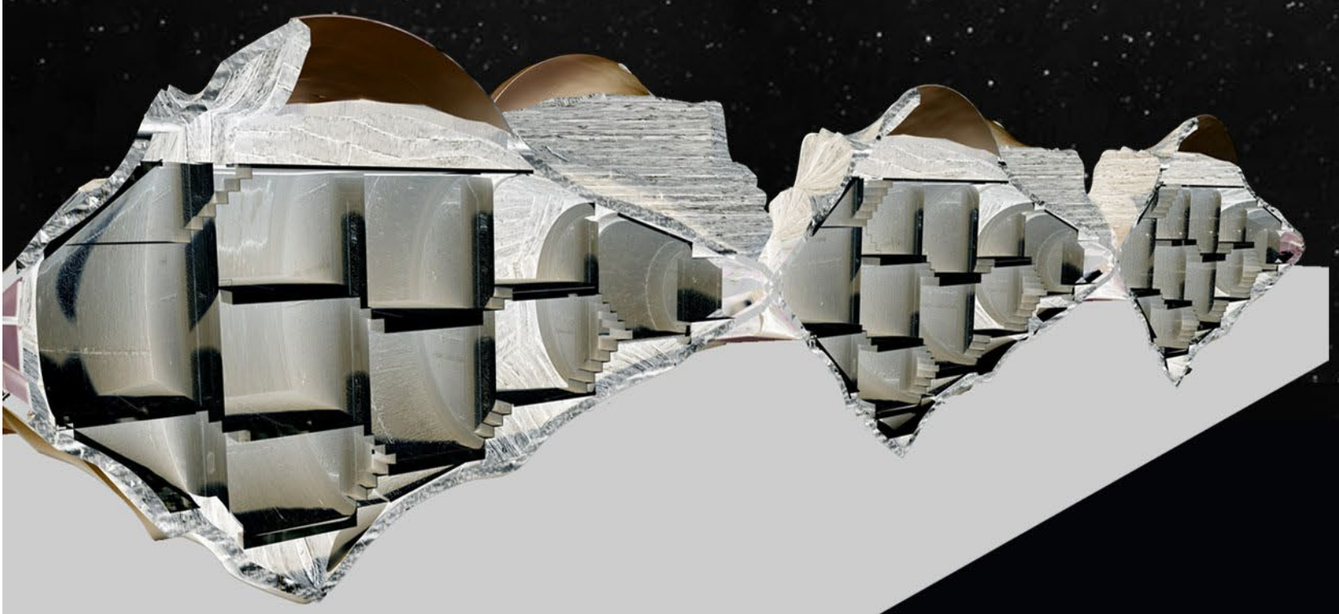
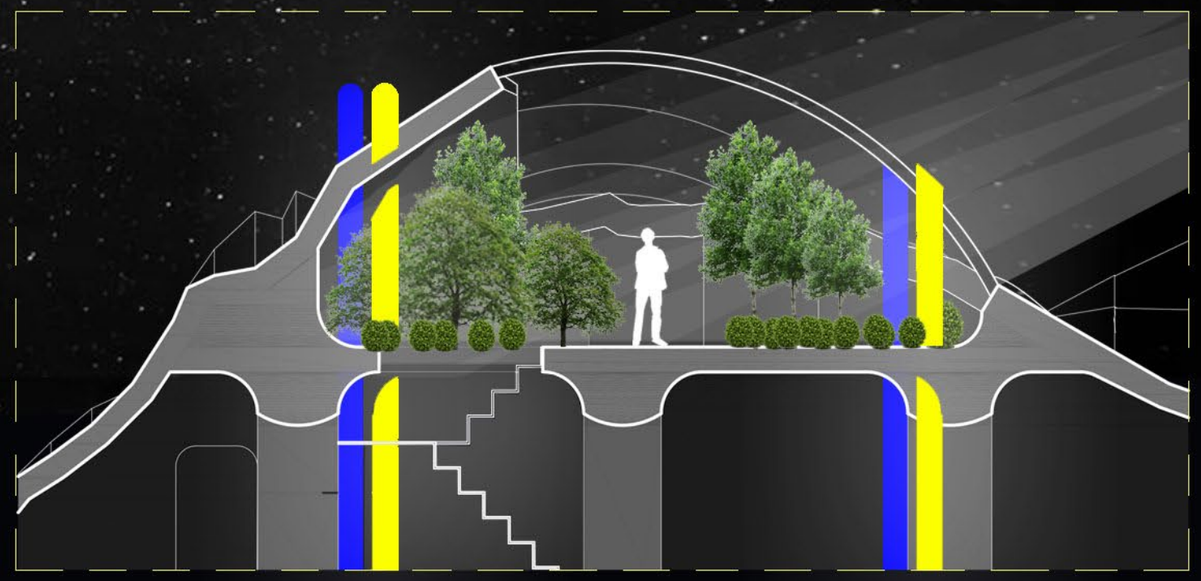


LONGITUDINAL SECTION



ISO SECTION



BIO-SPHERE SECTION

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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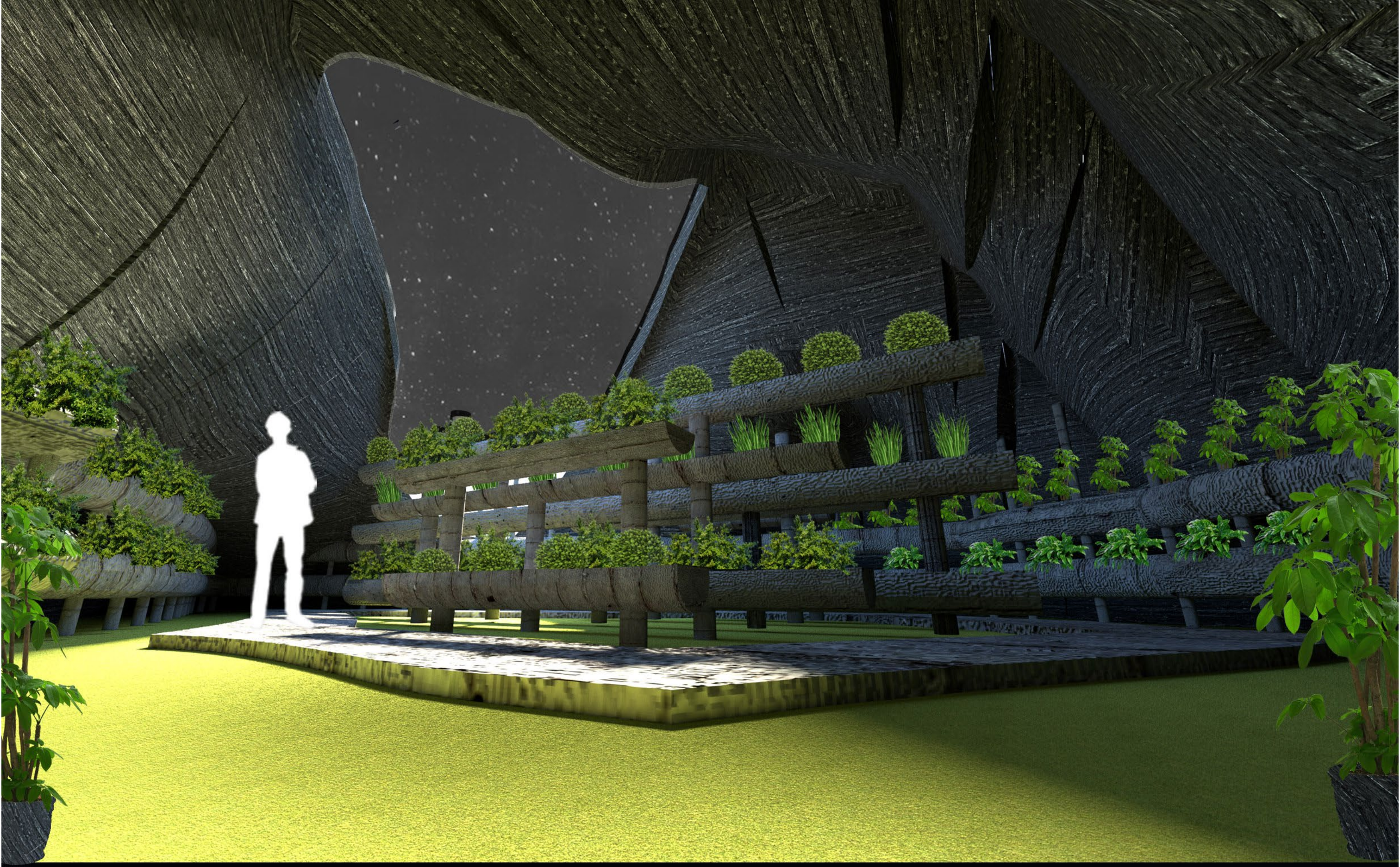
SPACE AND SEA GENERATION



PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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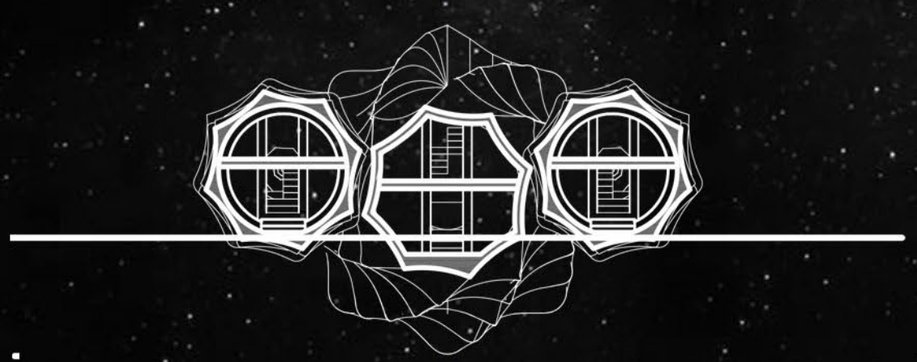
1

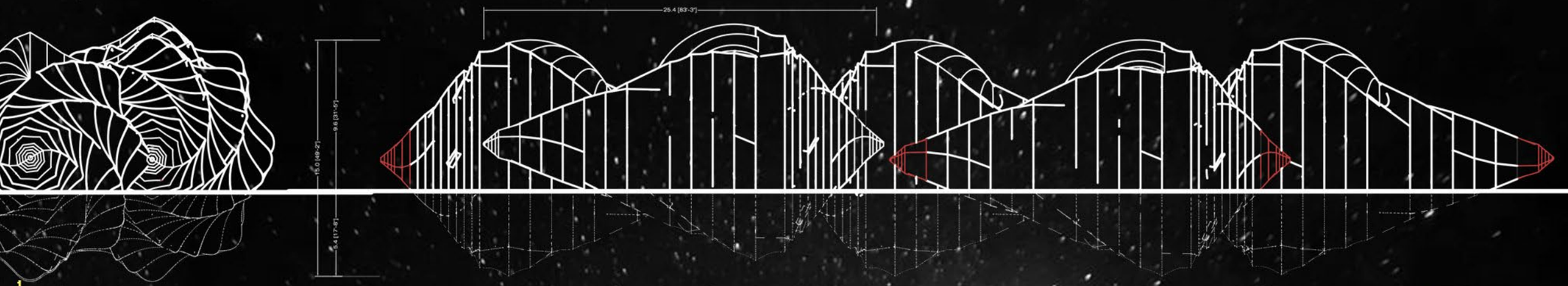
2



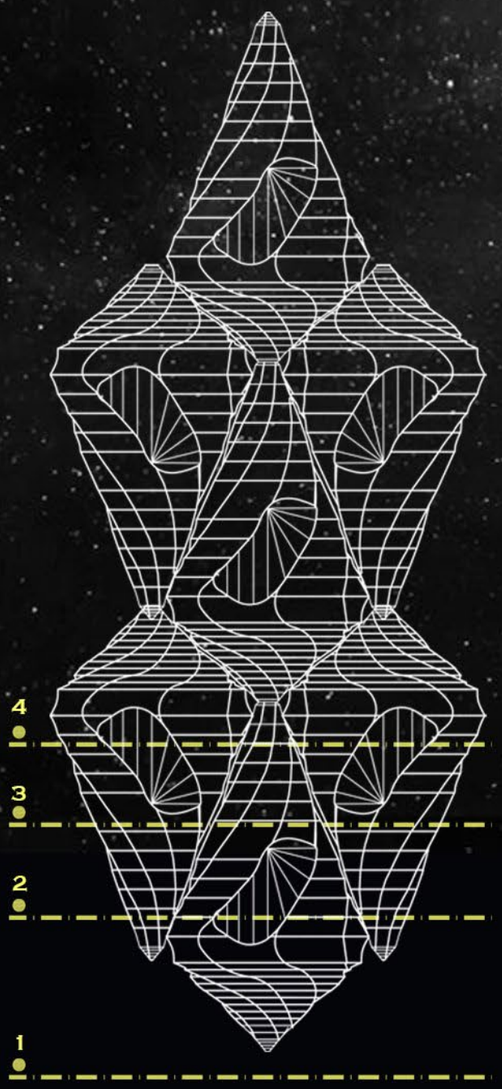
3

4

CROSS SECTION



SECTIONAL ELEVATION



PLAN

RADIATION PROTECTION
MECHANISM

PROTOTYPE LUNAR HABITATION

SPACE EXEMPLAR

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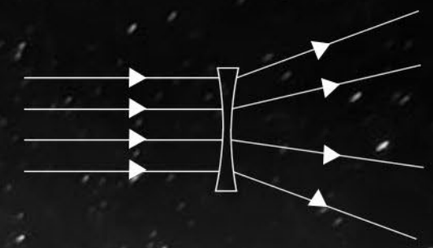
PIPE PLANTATION USING HYDROPHONICS

IMAGE COURTESY : FREE PIC
HTTPS://WWW.FREEPIK.COM/PREMIUM-PHOTO/ROW-PIPE-PLANTATION-HYDROPHOBIC_2512608.HTM

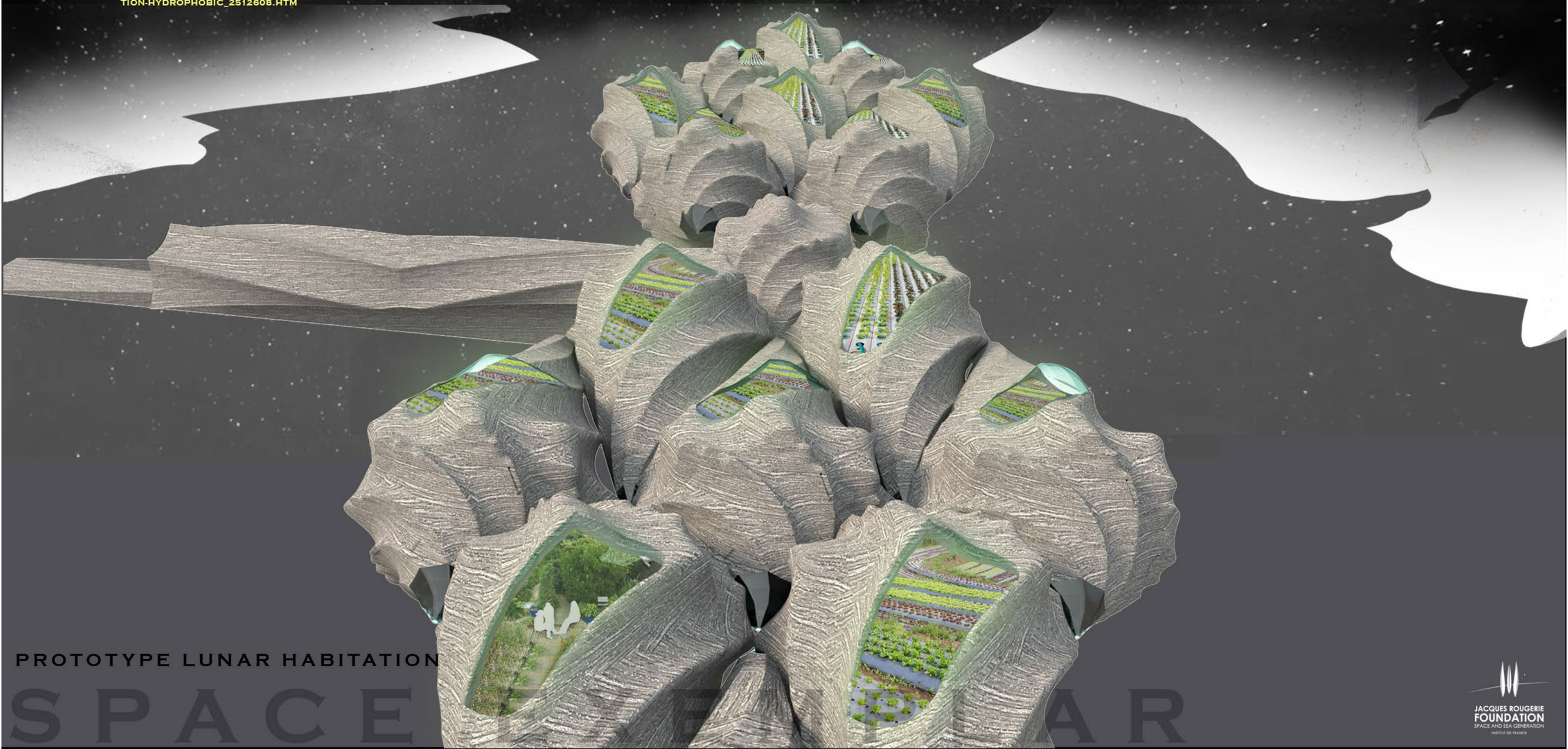
PLANTS GROW ON NUTRIENT ENRICHED WATER (HYDROPHONIC SYSTEM) AND SUNLIGHT. IT IS A SIMPLE TECHNOLOGY AND CAN BE USED IN A VARIETY OF SITUATIONS AND SPACIAL CONFIGURATIONS

THE PROJECT PROPOSES MODULAR REGOLITH PIPES WITH WATER DERIVED FROM LUNAR ICE. NUTRIENTS CARRIED FROM EARTH IN TABLET FORM WILL BE ADDED TO THE WATER. SUNLIGHT IS NEARLY PERPETUAL AT THE LUNAR SOUTH POLE (SHACKLETON CRATER)

DIFFUSED LIGHT



TRANSLUCENT CONCAVE GLASS SKYLIGHTS ARE PROPOSED TO DIFFUSE THE SHARP SUNLIGHT OF THE MOON



PROTOTYPE LUNAR HABITATION

SPACE [illegible] AR

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PROTOTYPE LUNAR HABITATION

EXEMPLAR

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