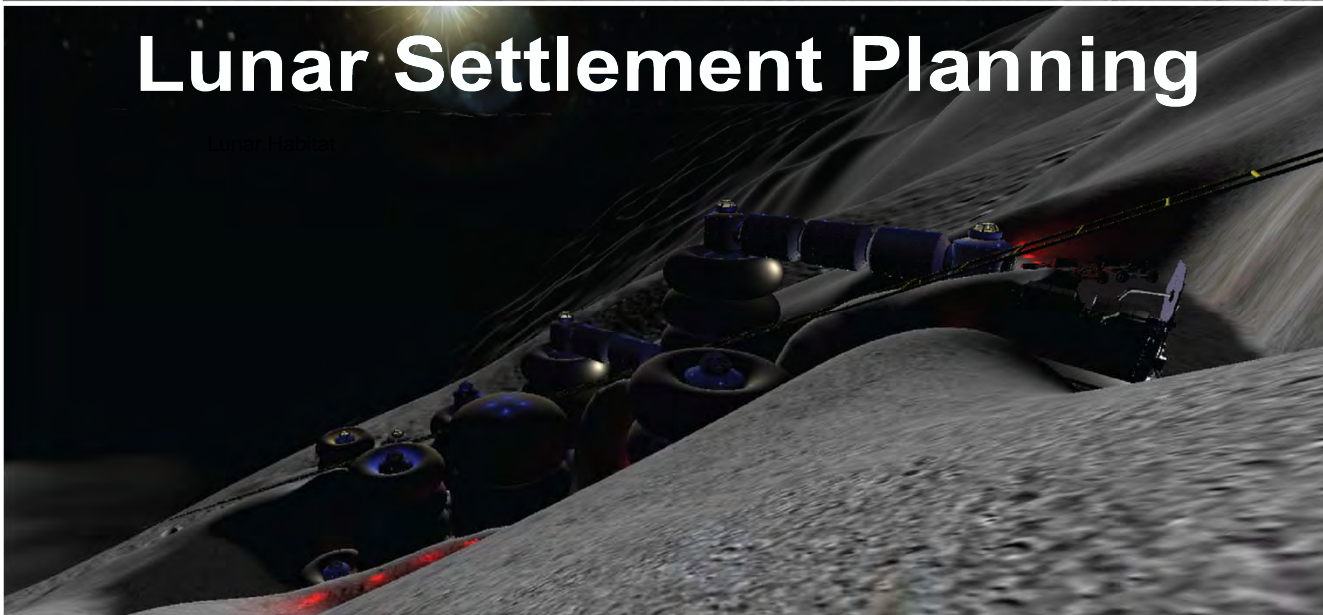


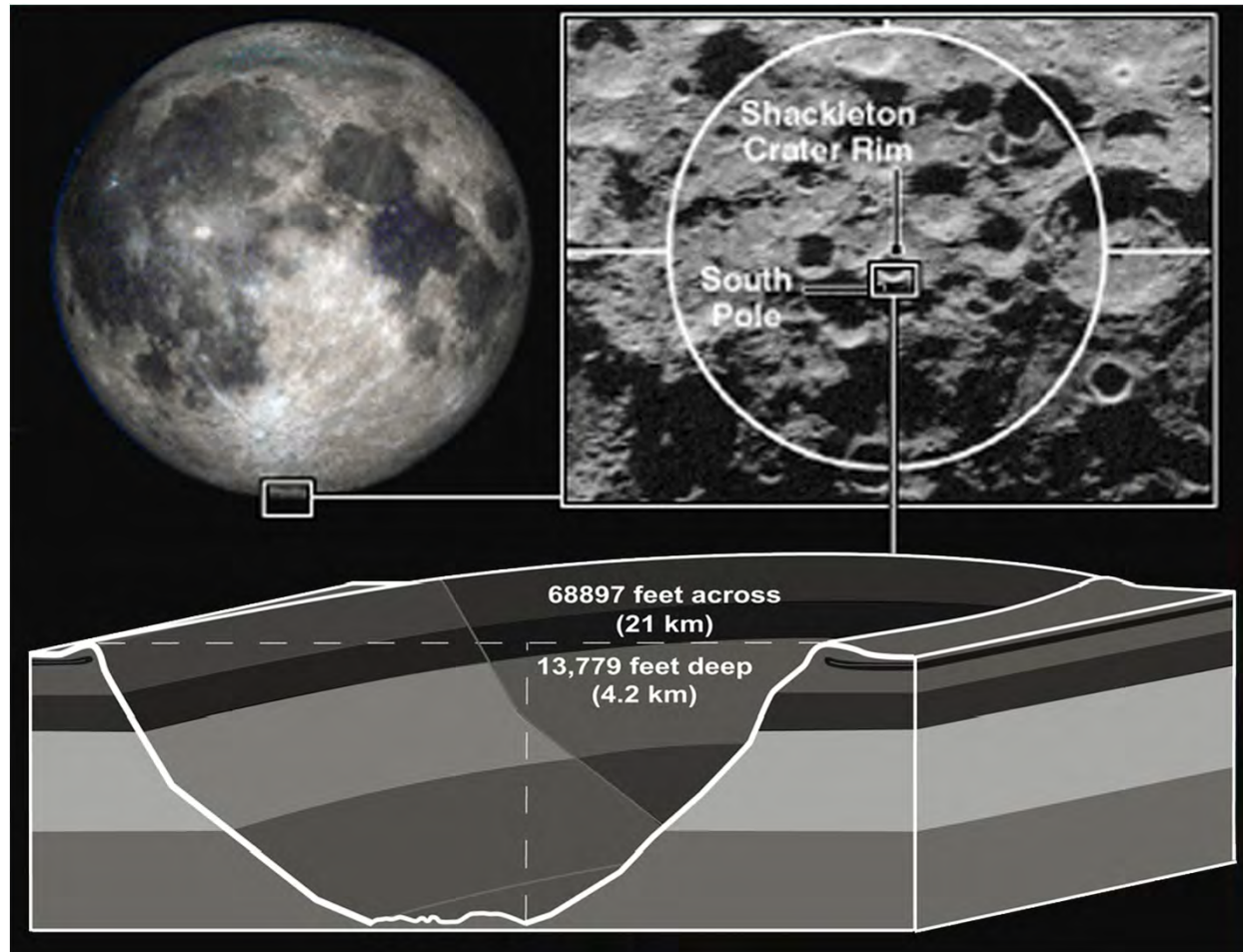
Lunar Settlement Planning



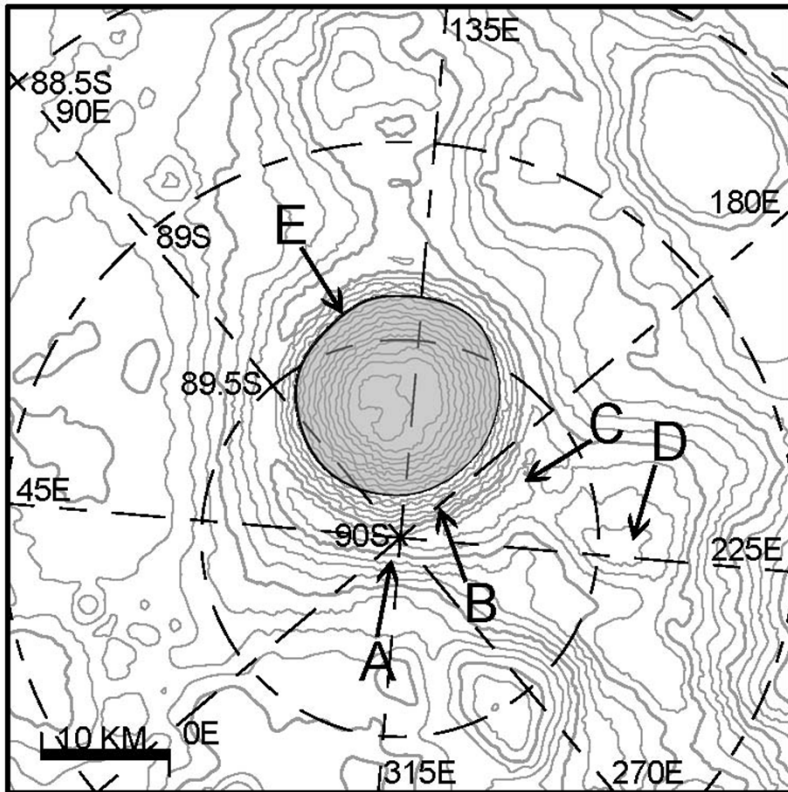
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Background

Crater Facts



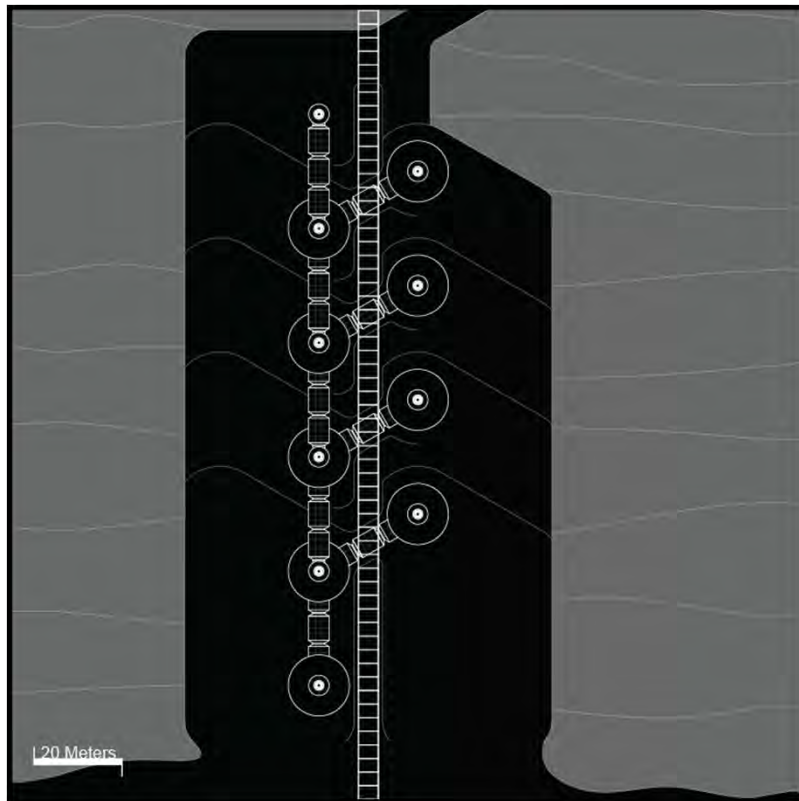
Background *Site Layout*



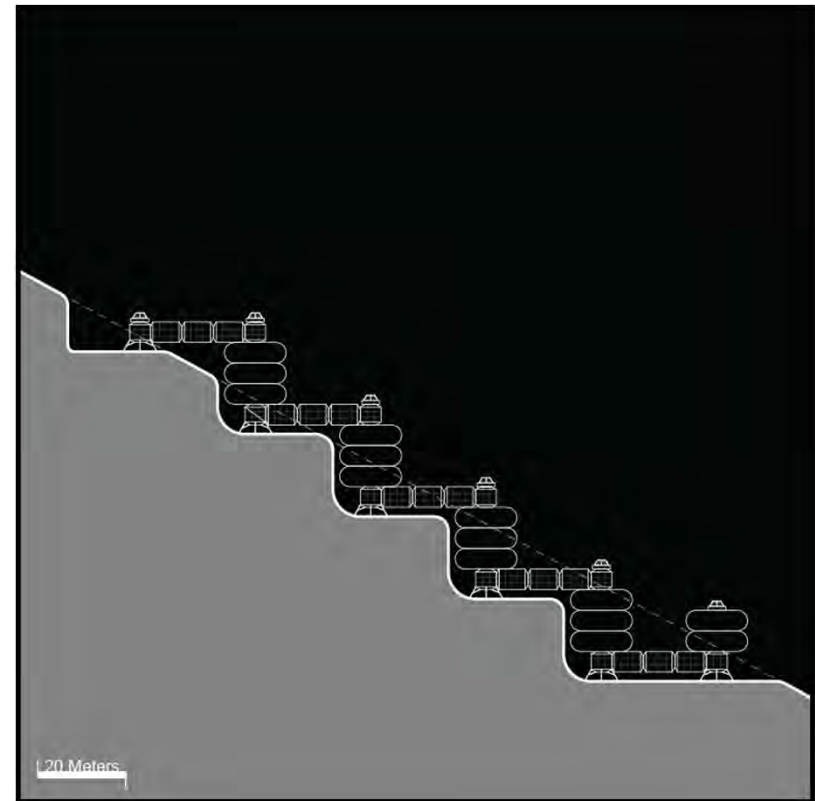
- (A) Landing site
- (B) Habitat site
- (C) Solar array farm one
- (D) Solar array farm two
- (E) Line of perpetual darkness
inside the Shackleton crater

Habitat *Design*

Plan of Habitat

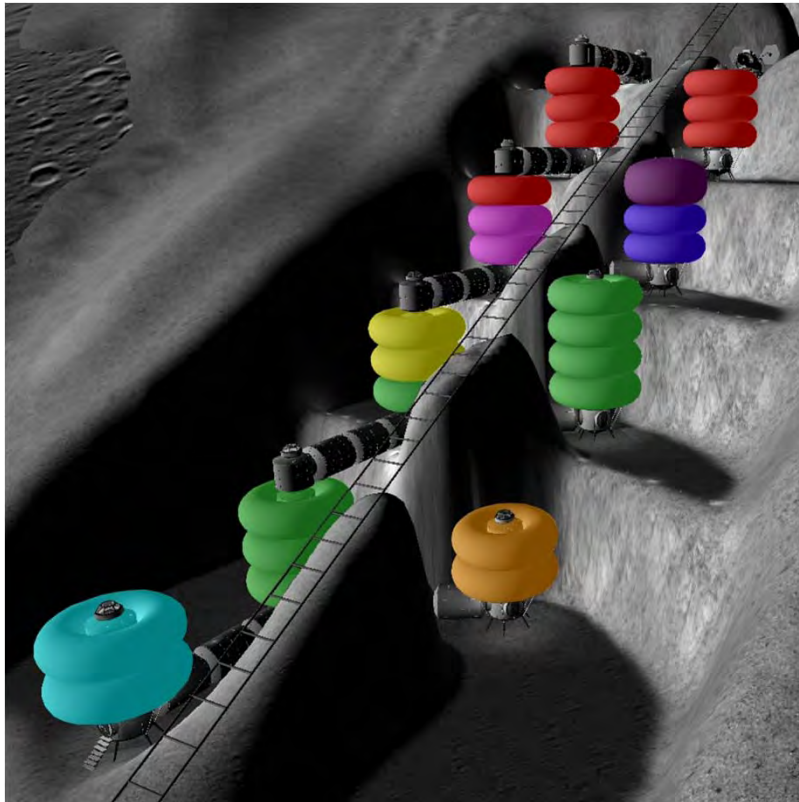








Section Through Habitat



Habitat

Functional Elements



-  Crew Quarters
-  Class Room / Cafeteria
-  Fitness Facilities
-  Recreational Facility
-  Medical Facilities
-  Green Houses
-  Research Lab
-  Command Control

Command and Control Center

Module for Lunar Base Project

Stacy Henze

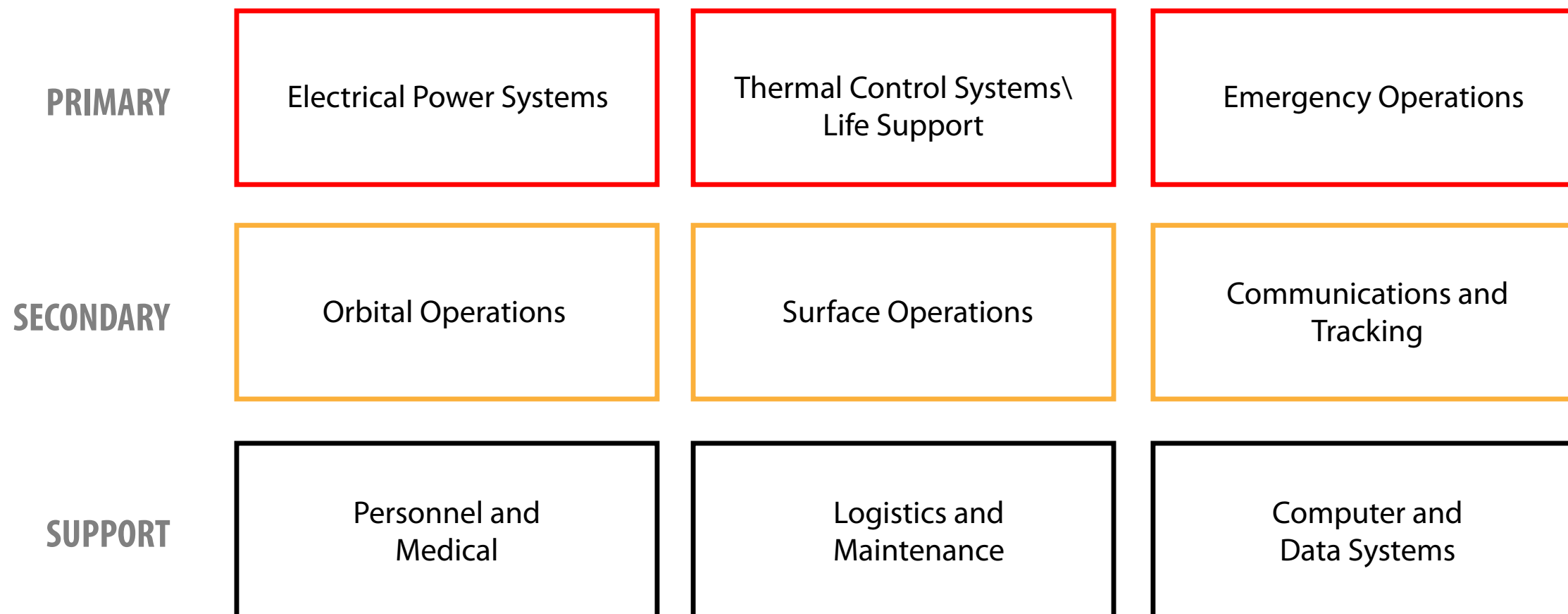
ARCH 7610 Space Architecture Studio

Spring 2012

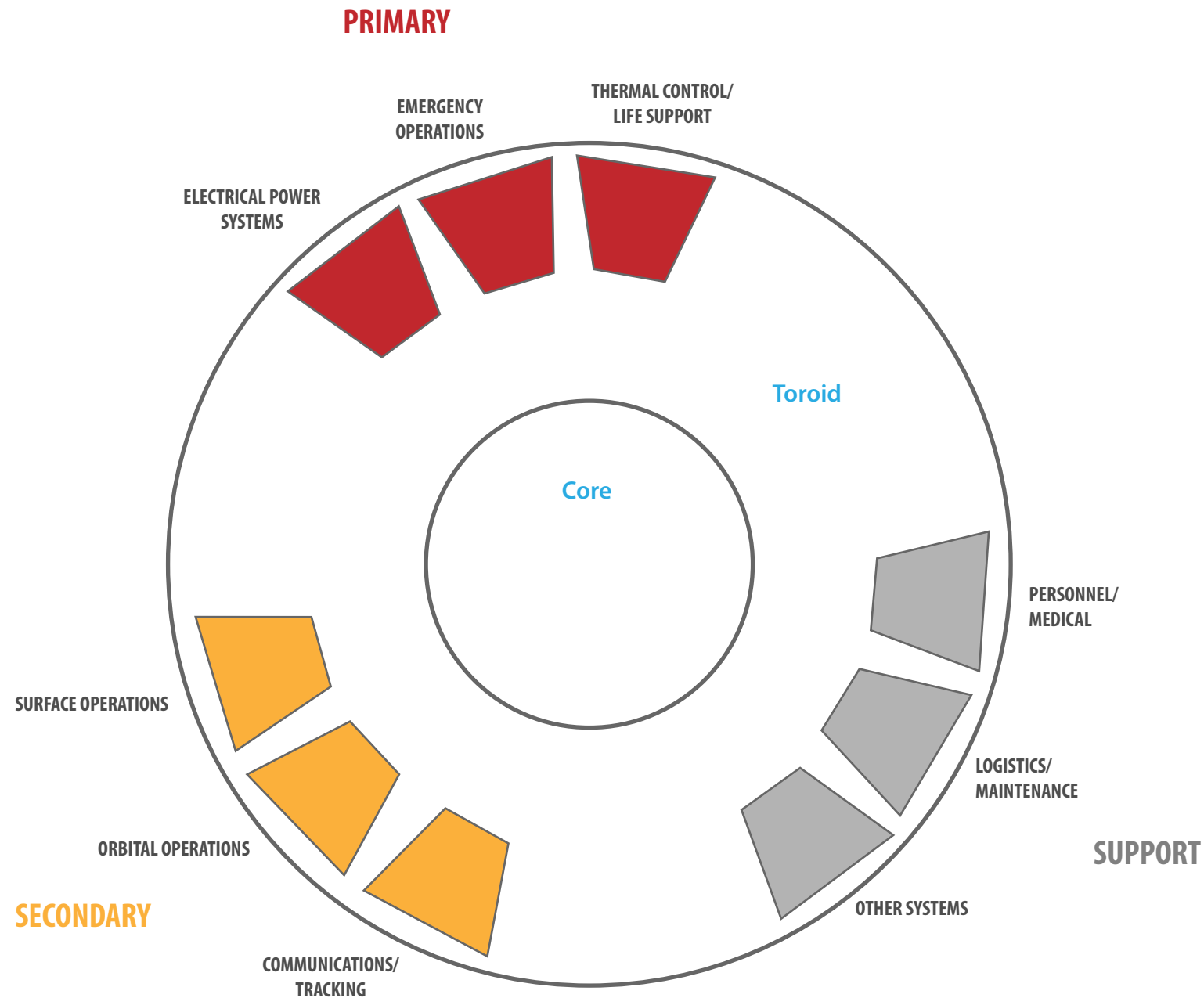


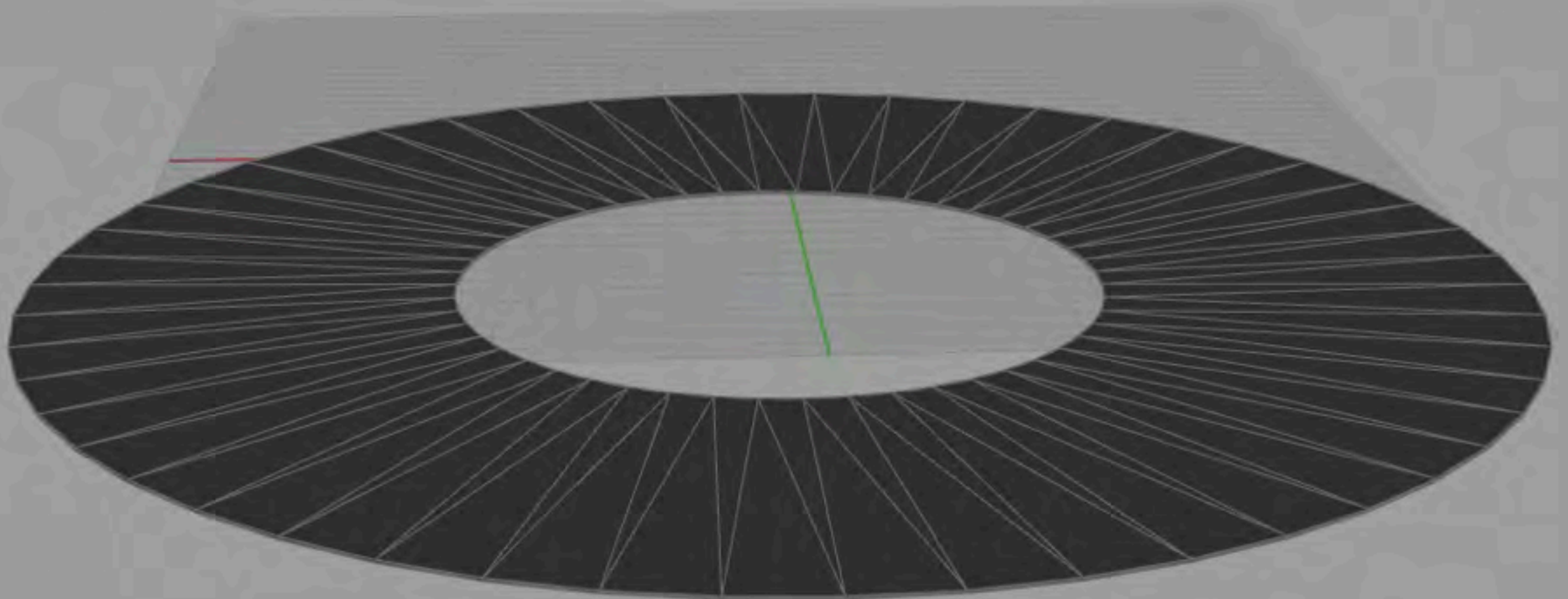
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Command and Control Center Functional Areas of Monitoring and Control



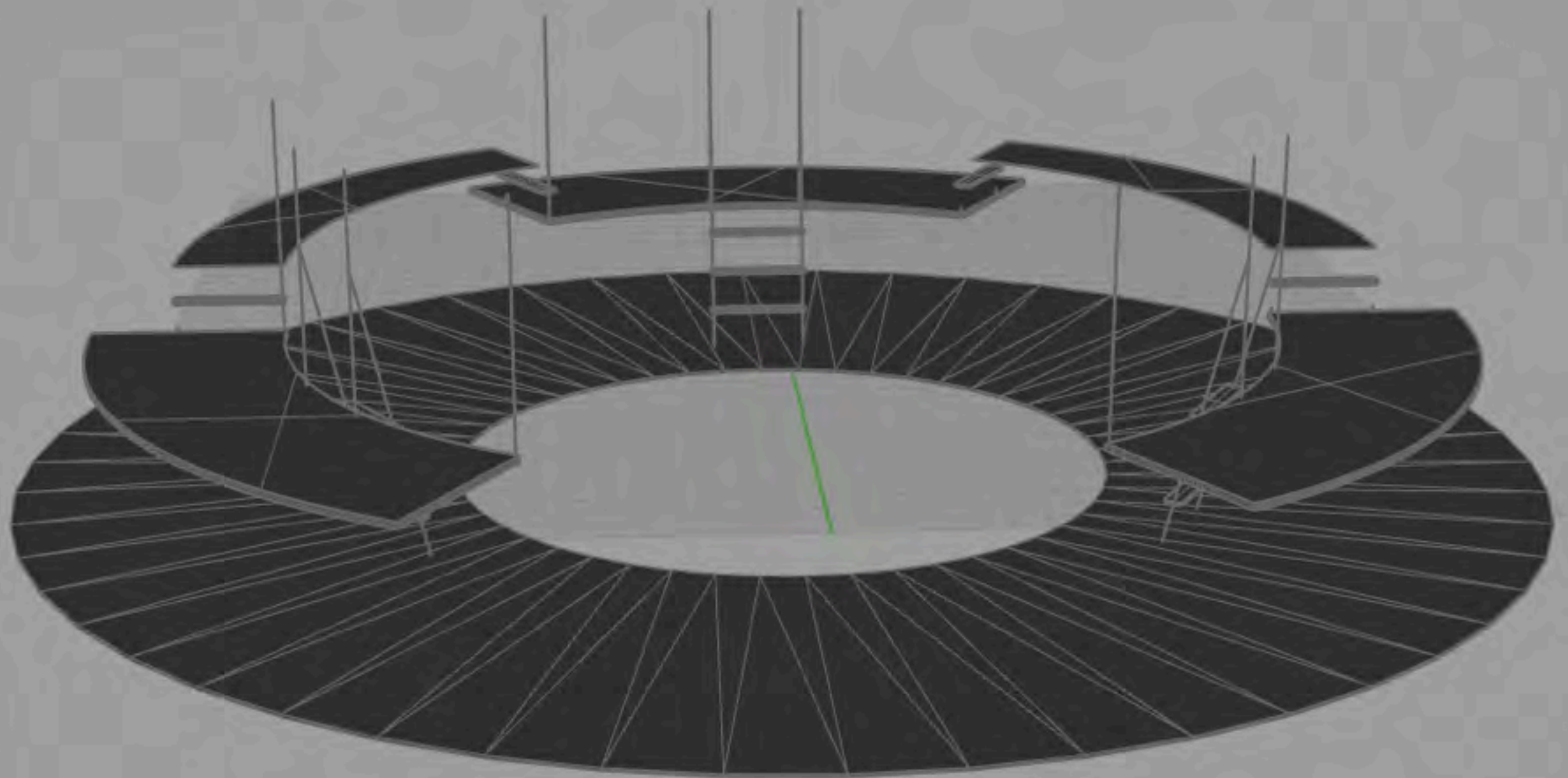
Lunar Base Command and Control Center Control Position Layout Diagram





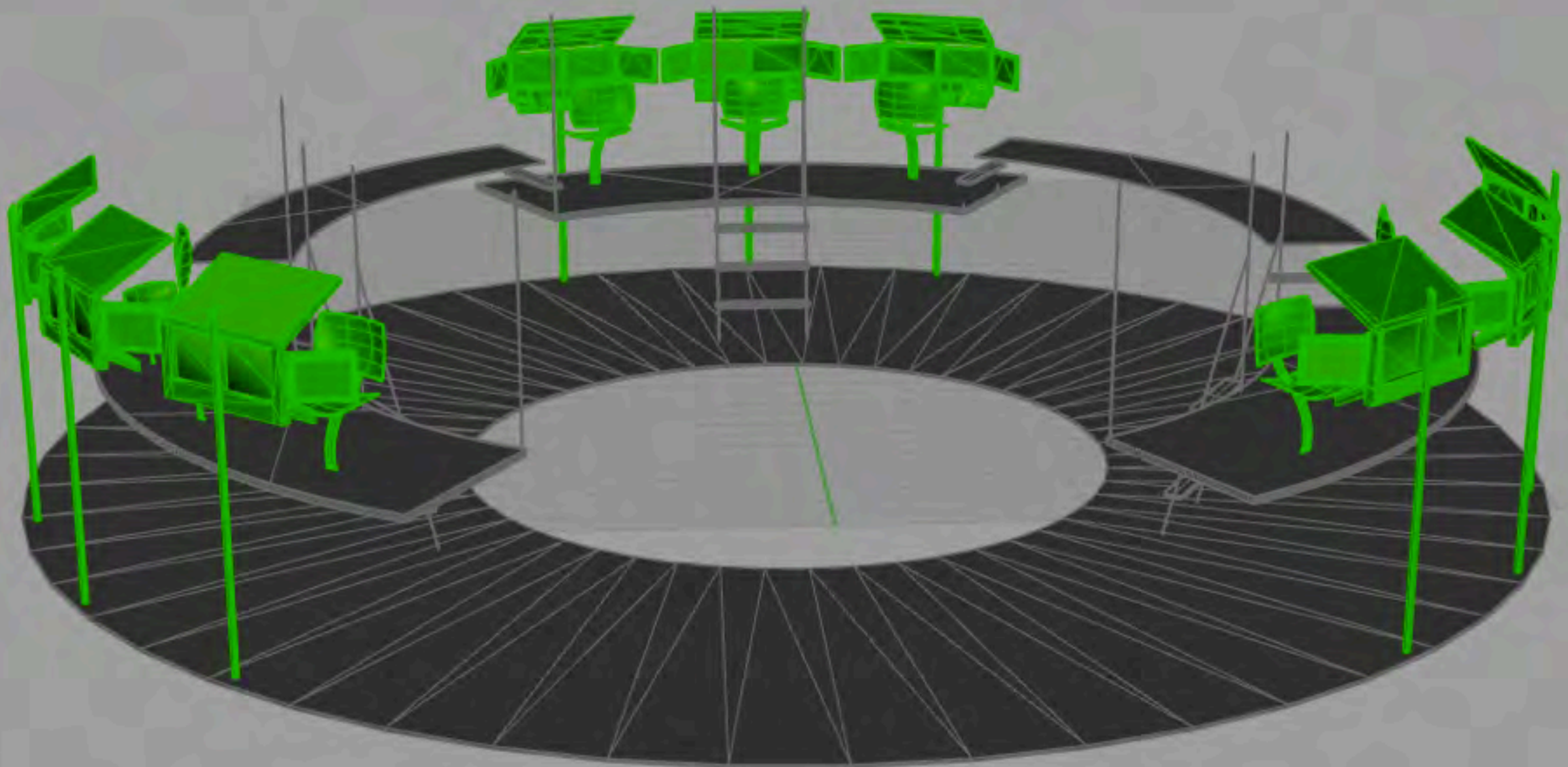
Assembly Sequence

Main Floor



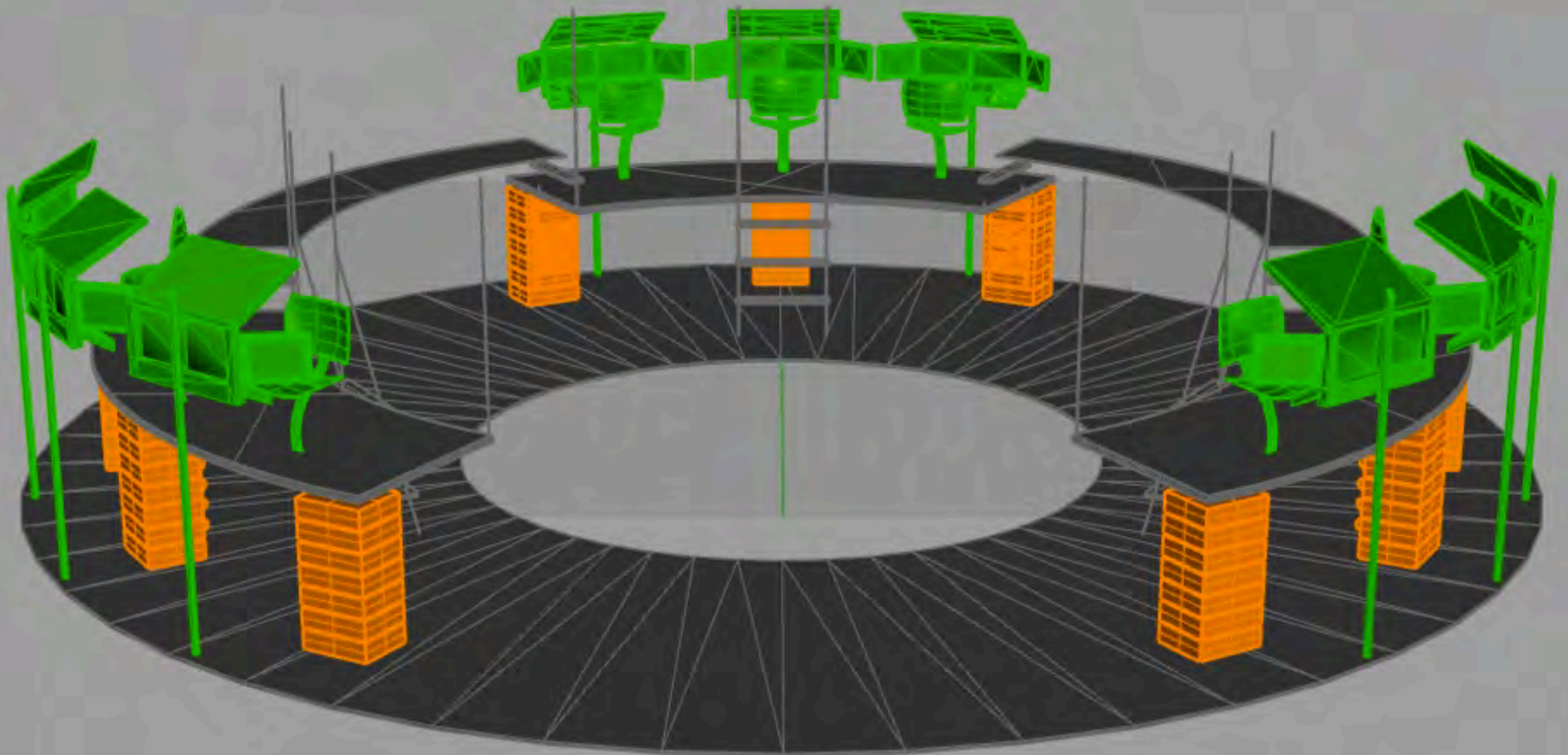
Assembly Sequence

Elevated Control Position Platforms and Access Bridges



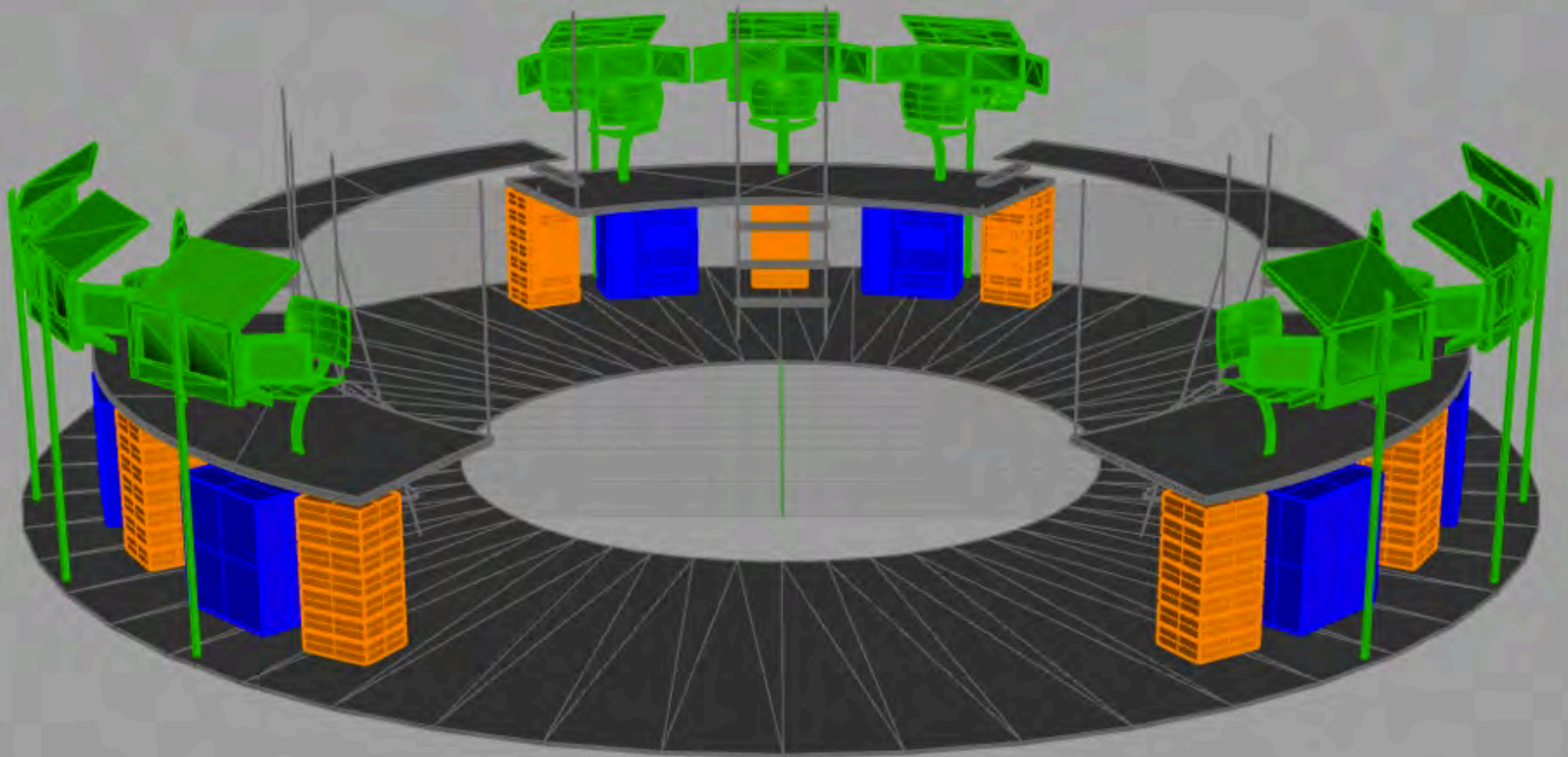
Assembly Sequence

Control Positions



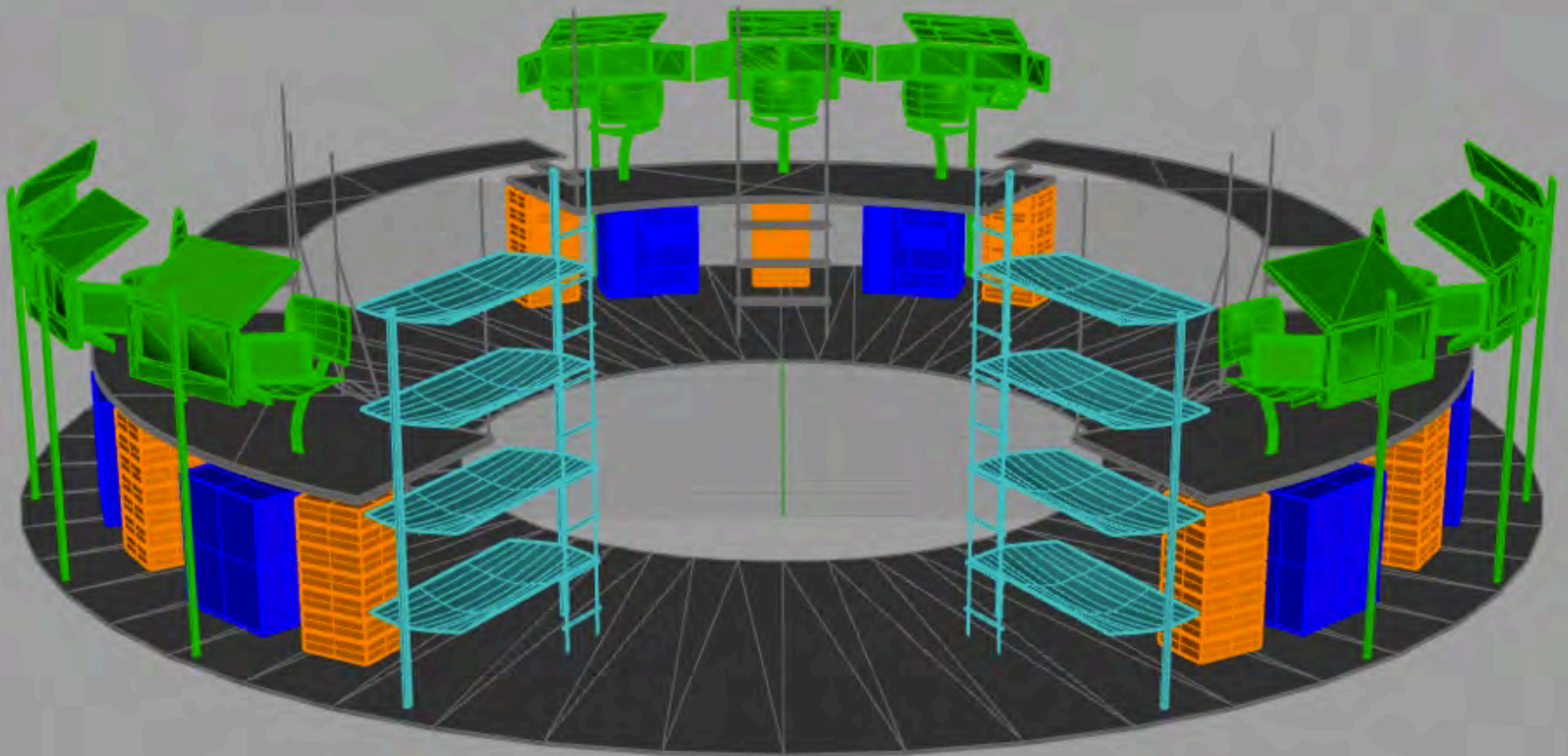
Assembly Sequence

Supporting Computer Equipment



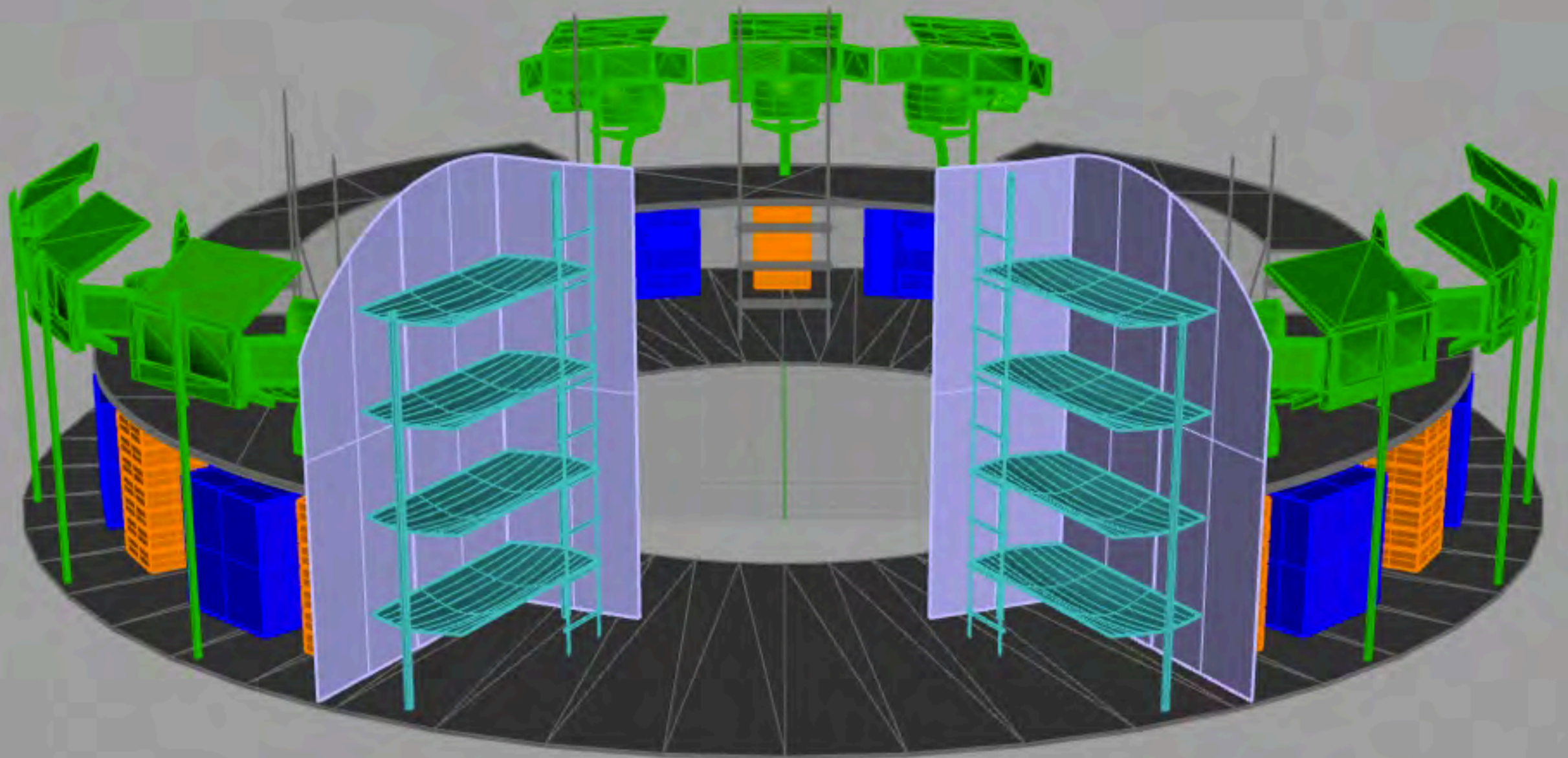
Assembly Sequence

Independent Life Support and Thermal Control Systems



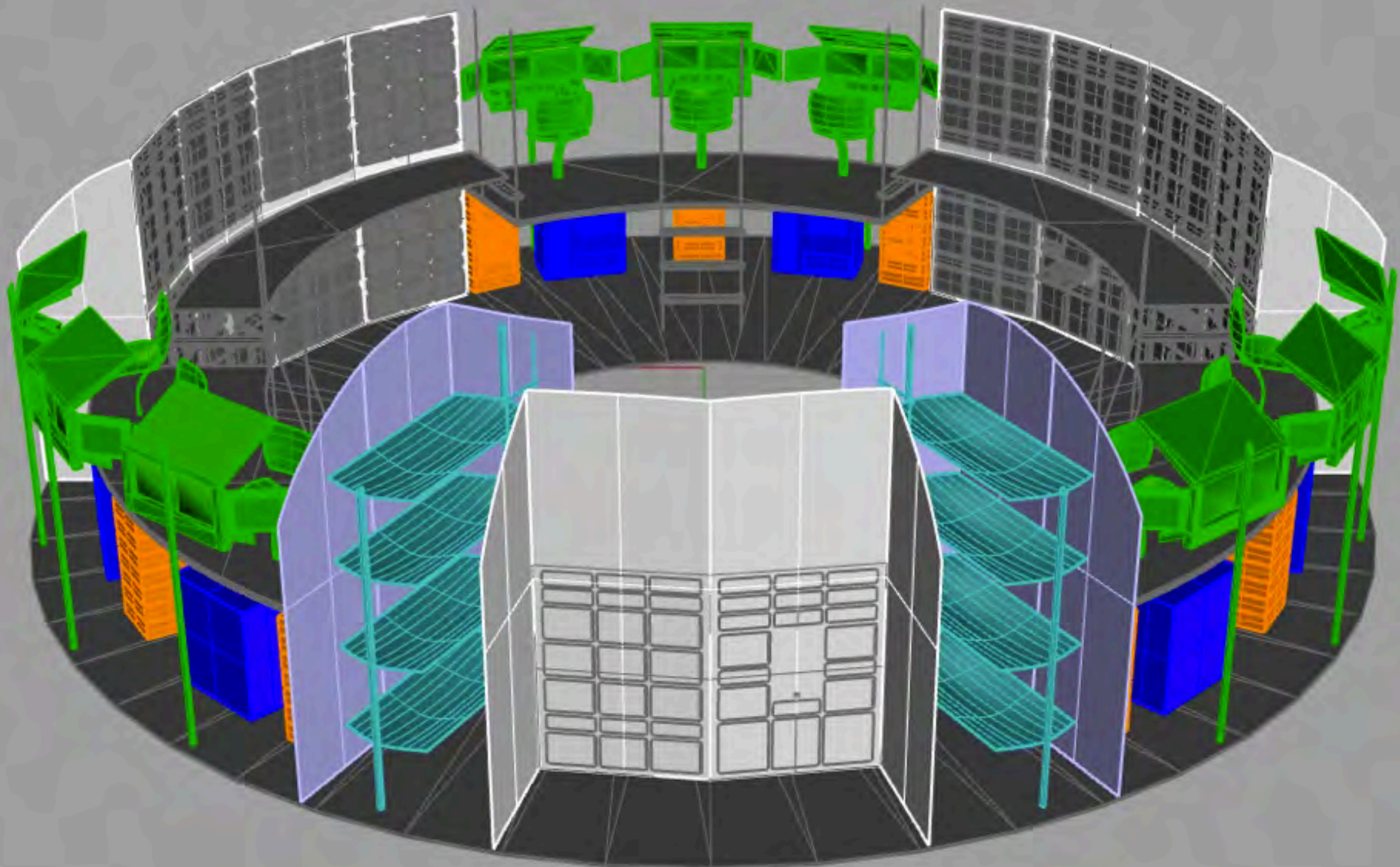
Assembly Sequence

Crew Rest Accommodations



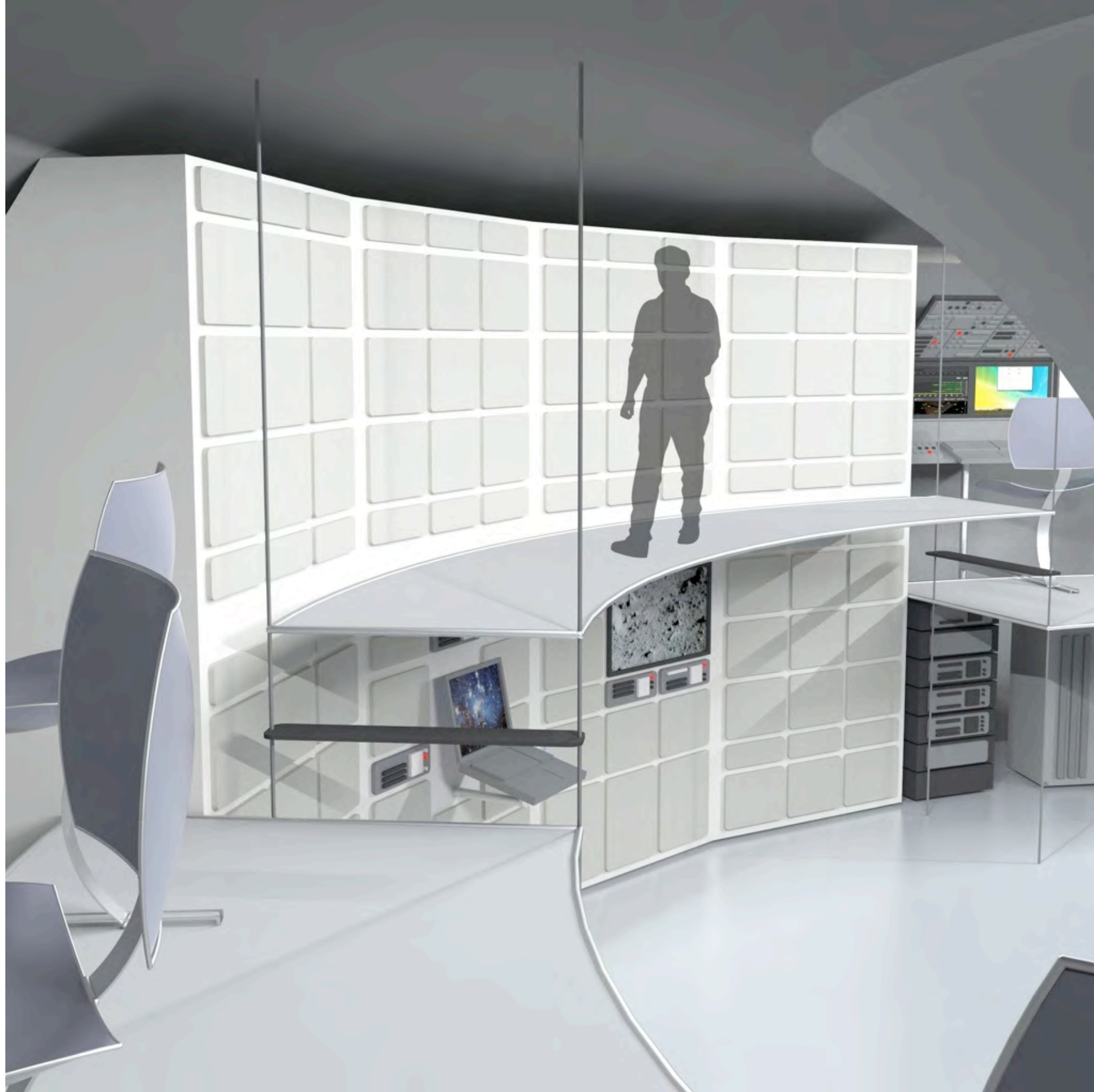
Assembly Sequence

Privacy and Sound Panels

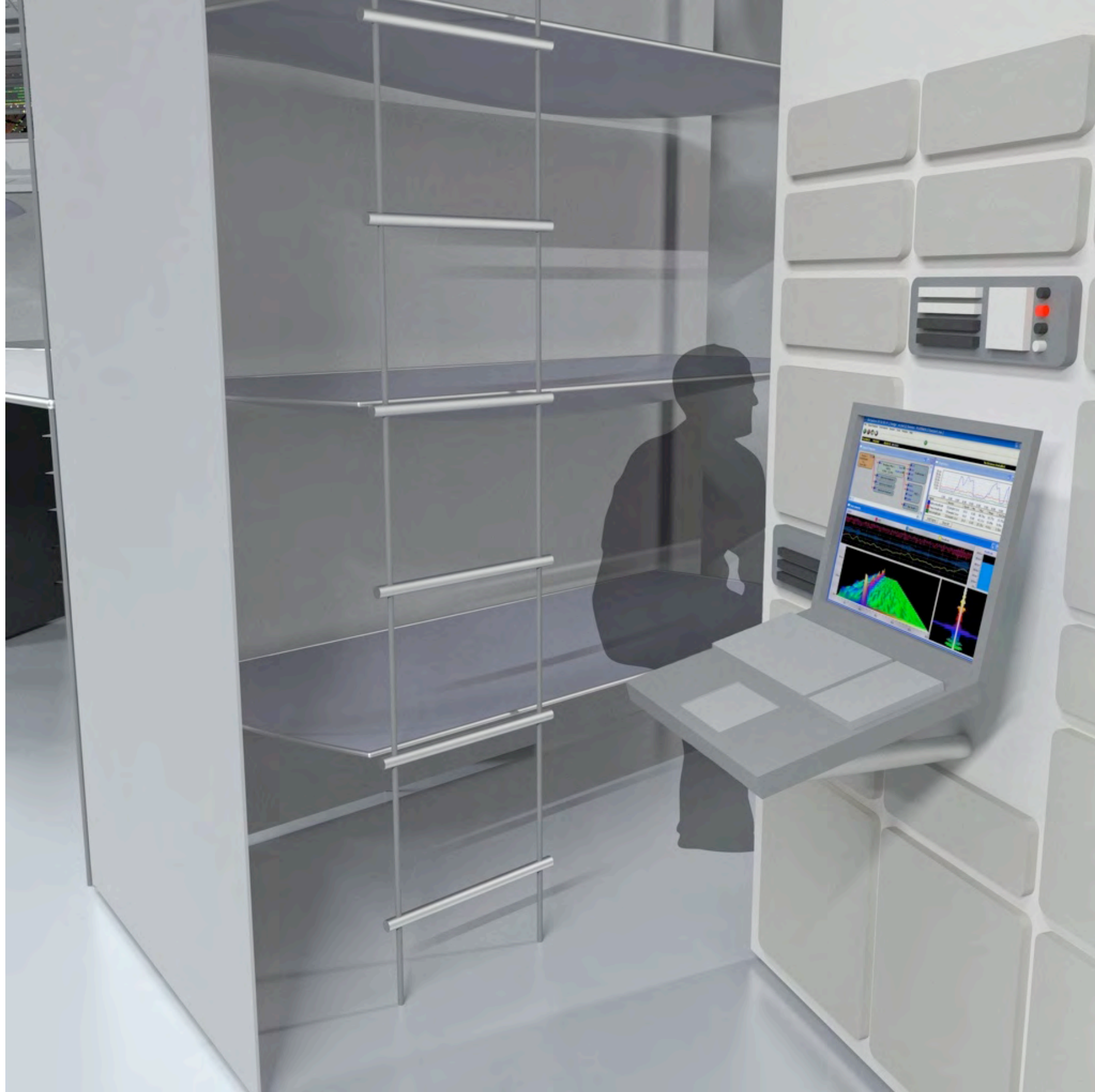


Assembly Sequence

Storage Lockers and Equipment Racks



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University of Houston College of Architecture**

Greenhouse Module

Module for Lunar Base Project

Nima Cheraghpour

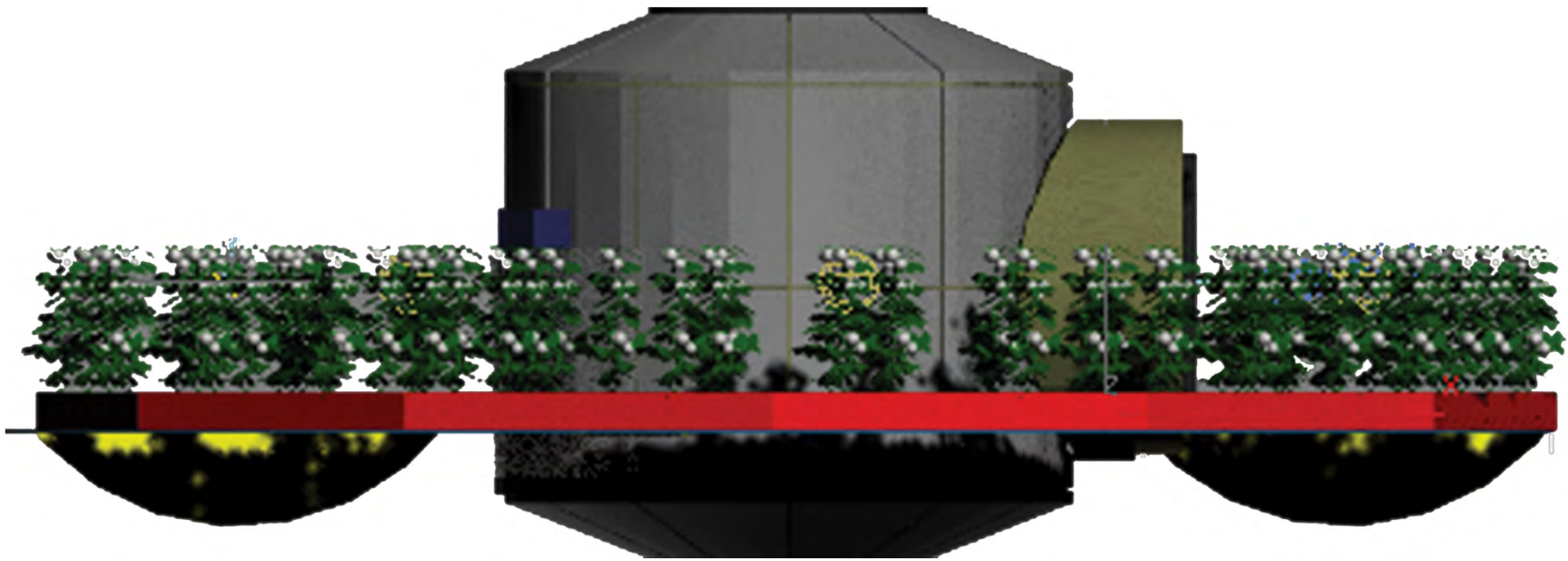
Arch 6204

Spring 2012



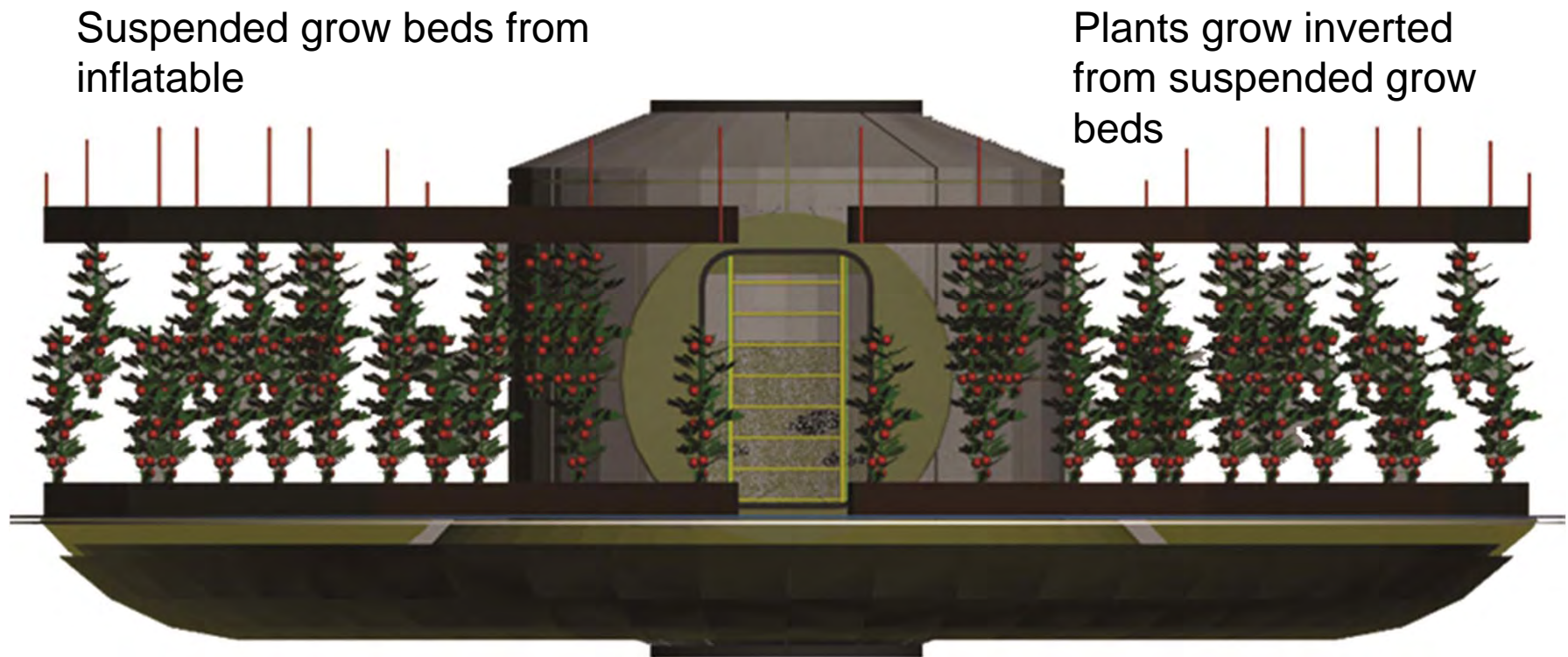
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SIDE ELEVATION OF STAGE I PLANT GROWTH CONFIGURATION



Plants grow upright from grow beds located at floor

SIDE ELEVATION OF STAGE II PLANT GROWTH CONFIGURATION



Plants grow upright from floor area grow beds

INFLATABLE GROWBED PERSPECTIVE



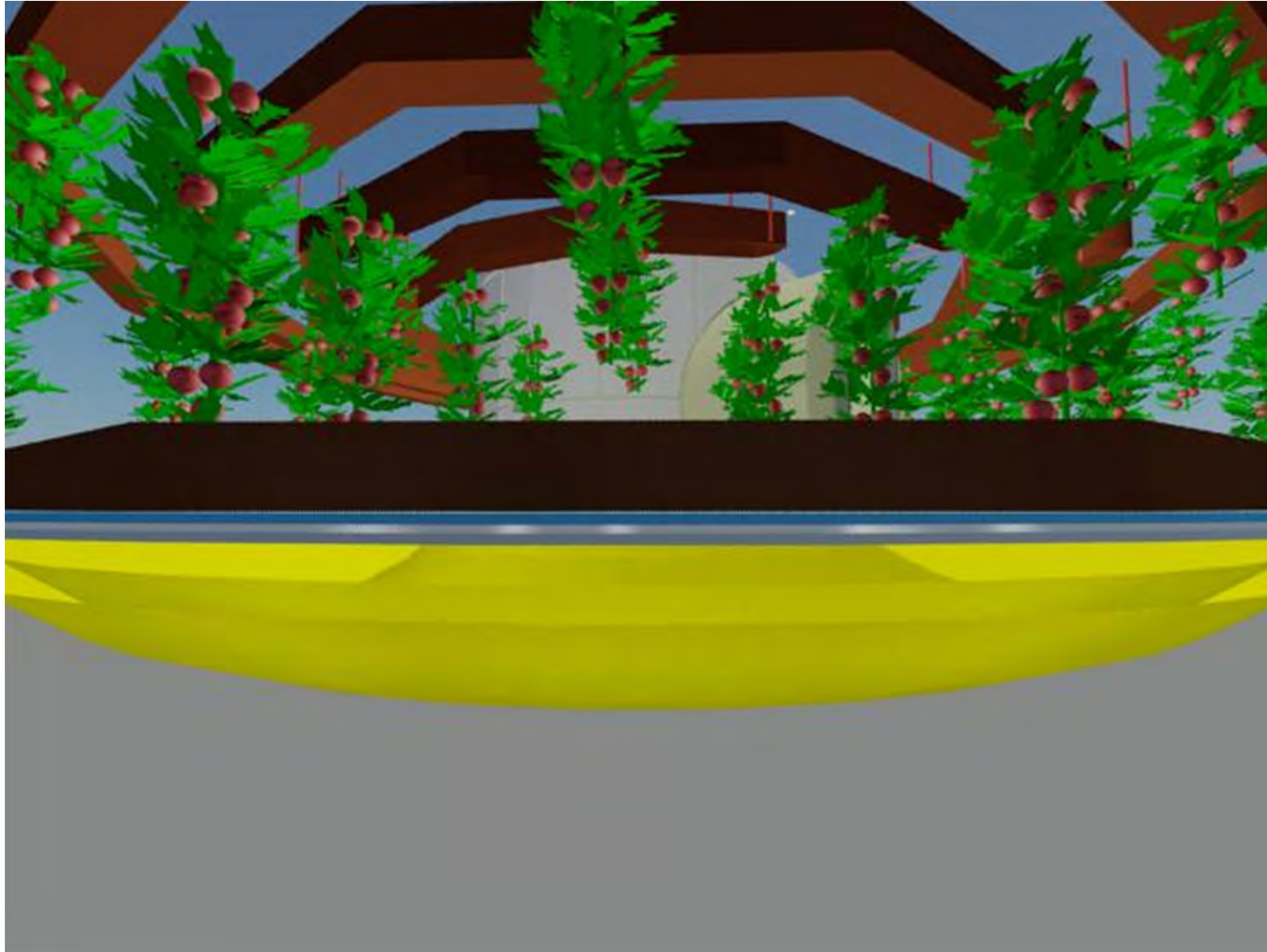
INFLATABLE GROWBED PERSPECTIVE



INFLATABLE GROWBED PERSPECTIVE

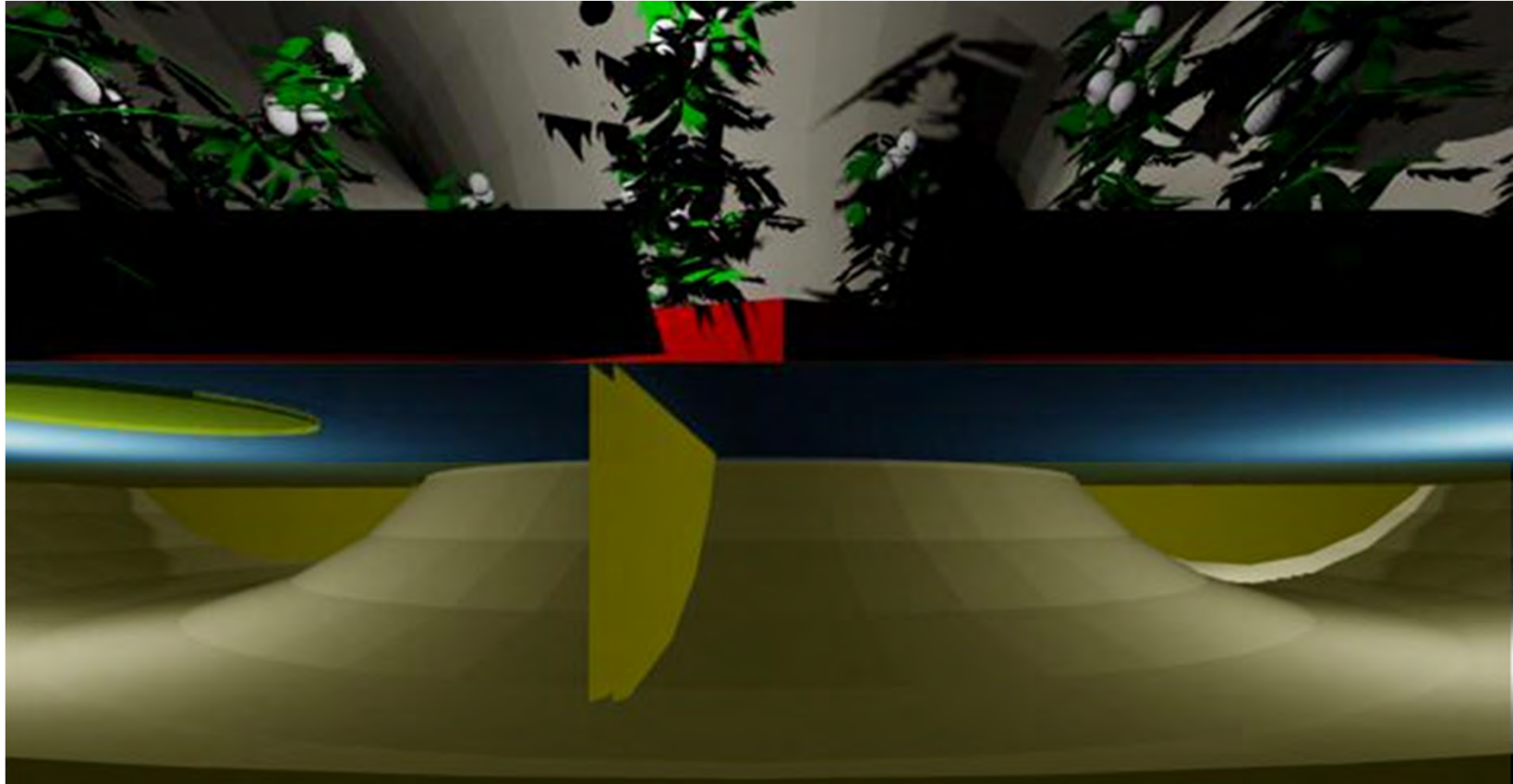


SUBFLOOR BIODIGESTOR CHAMBER ZONE



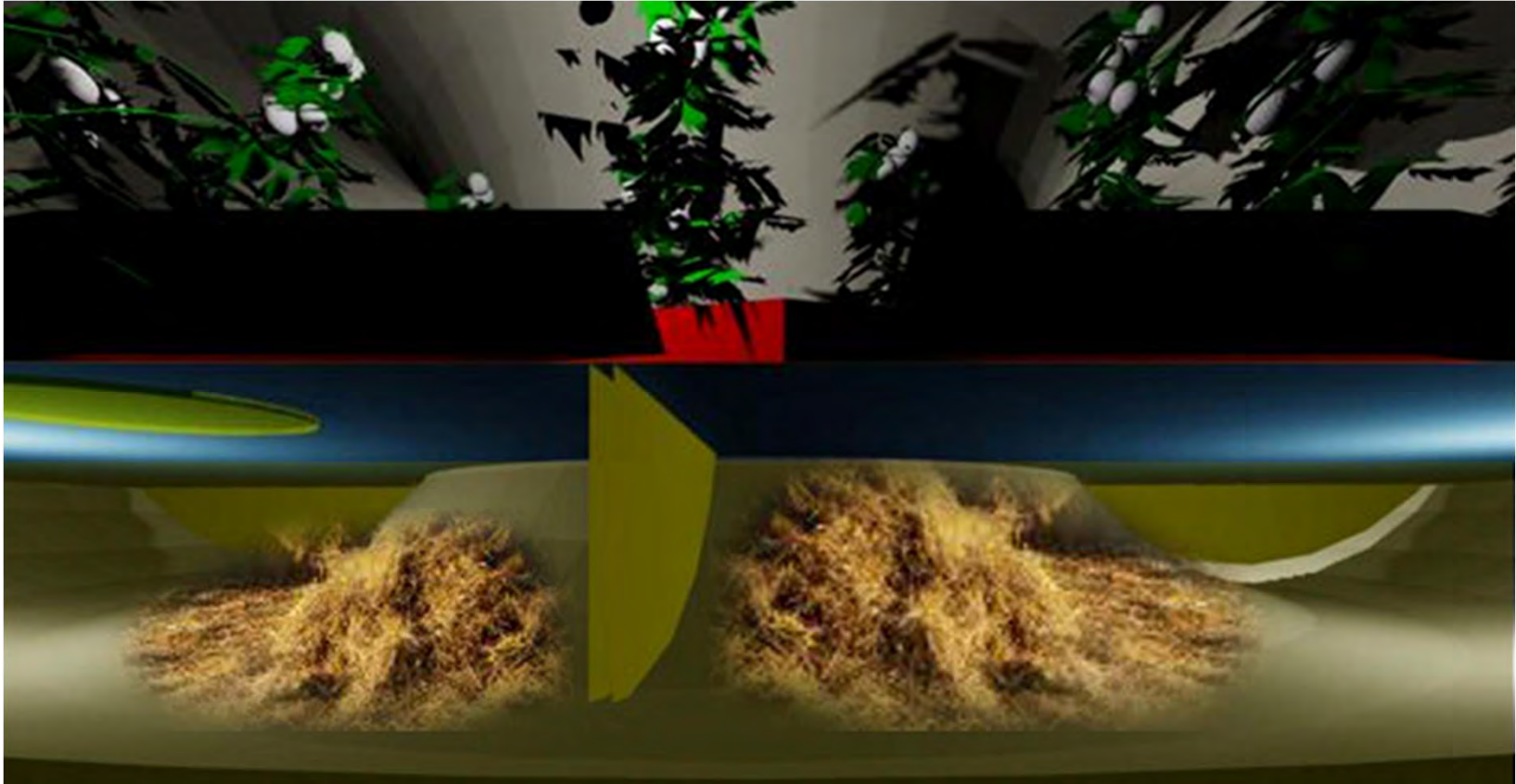
Biodigester shell located within the inflatable at inner lining of subfloor zone

SUBFLOOR BIODIGESTOR CHAMBER ZONE



Biodigester chambers at subfloor

SUBFLOOR BIODIGESTOR CHAMBER ZONE



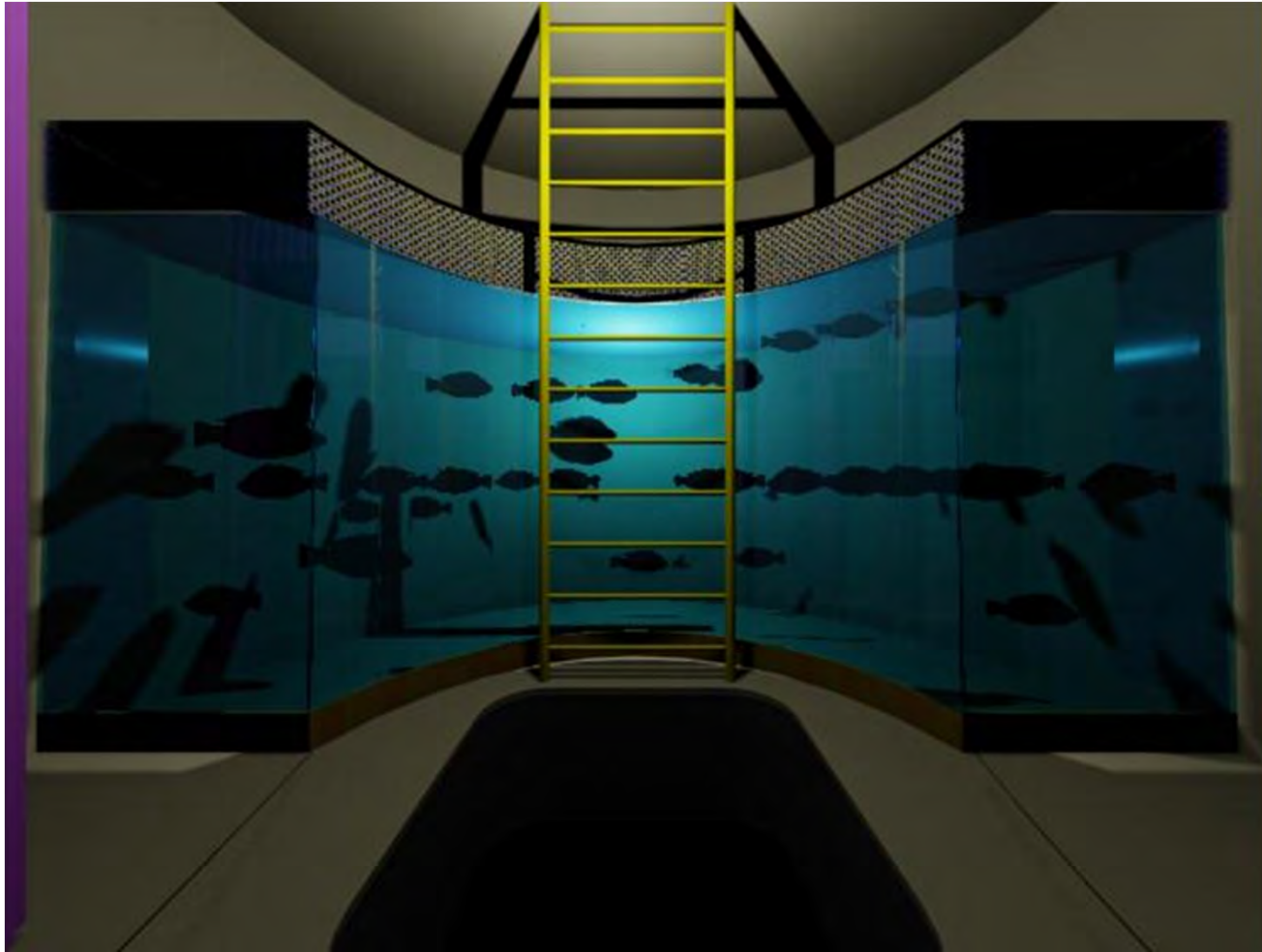
Organic waste decomposes to make fuel within biodigester chambers at subfloor



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FISHTANK WITHIN CORE MODULE PERSPECTIVE

Lights on
within core
module



Live fish within fish tank



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Living/Crew Quarters

Module for Lunar Base Project

Thomas Hockenberry

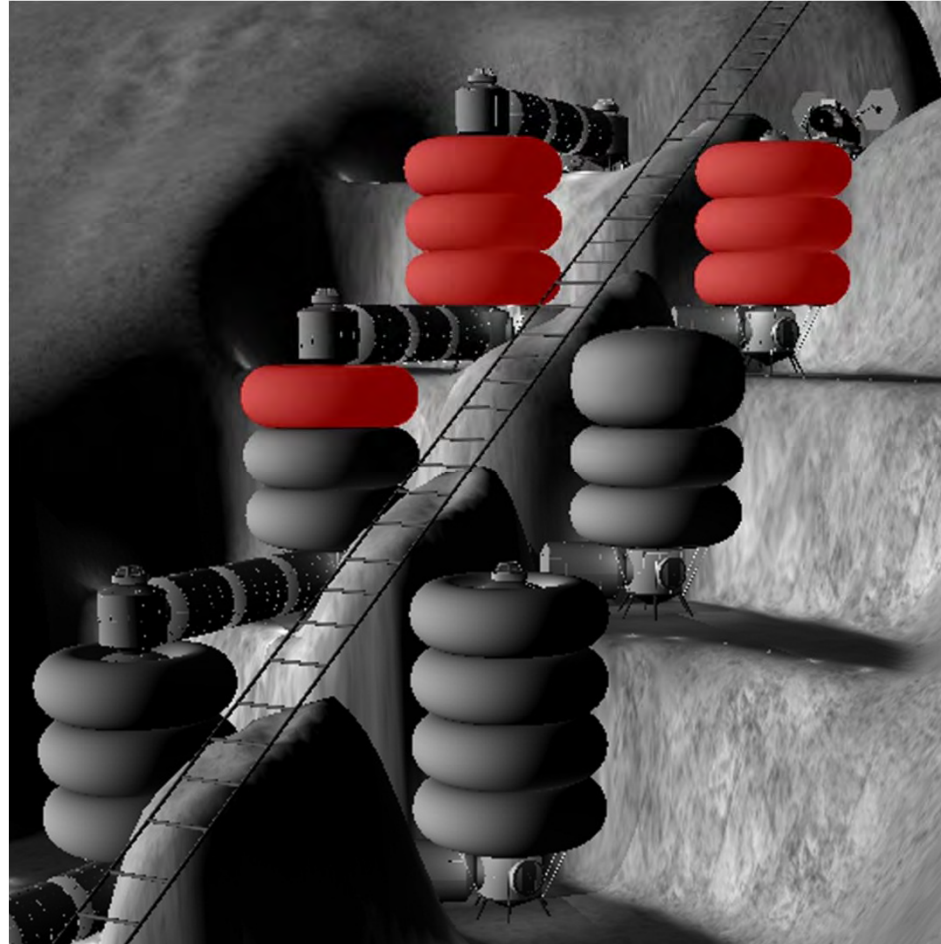
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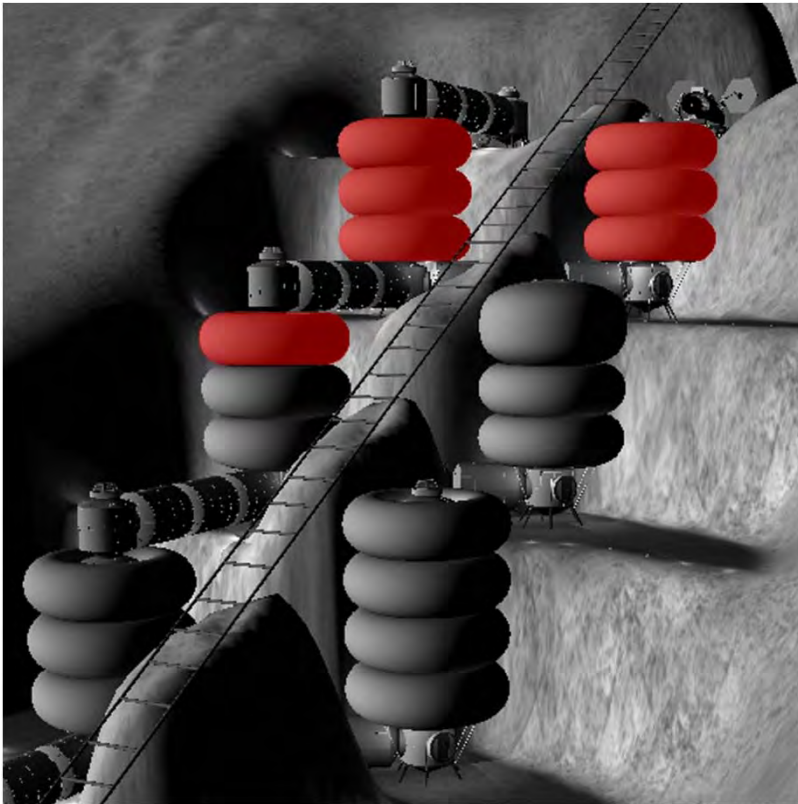


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Crew Quarters



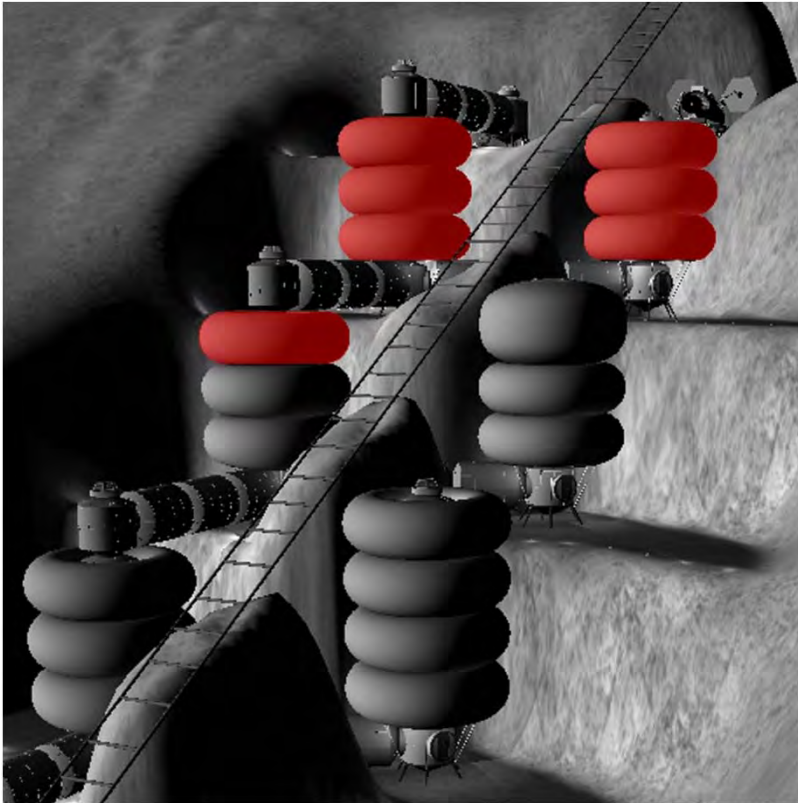
Crew Quarters *Population*



# of Inhabitants:	80
# Crew Quarter Modules:	7
# of inhabitants per crew quarters modules:	12
# of living square feet per inhabitant:	88.5

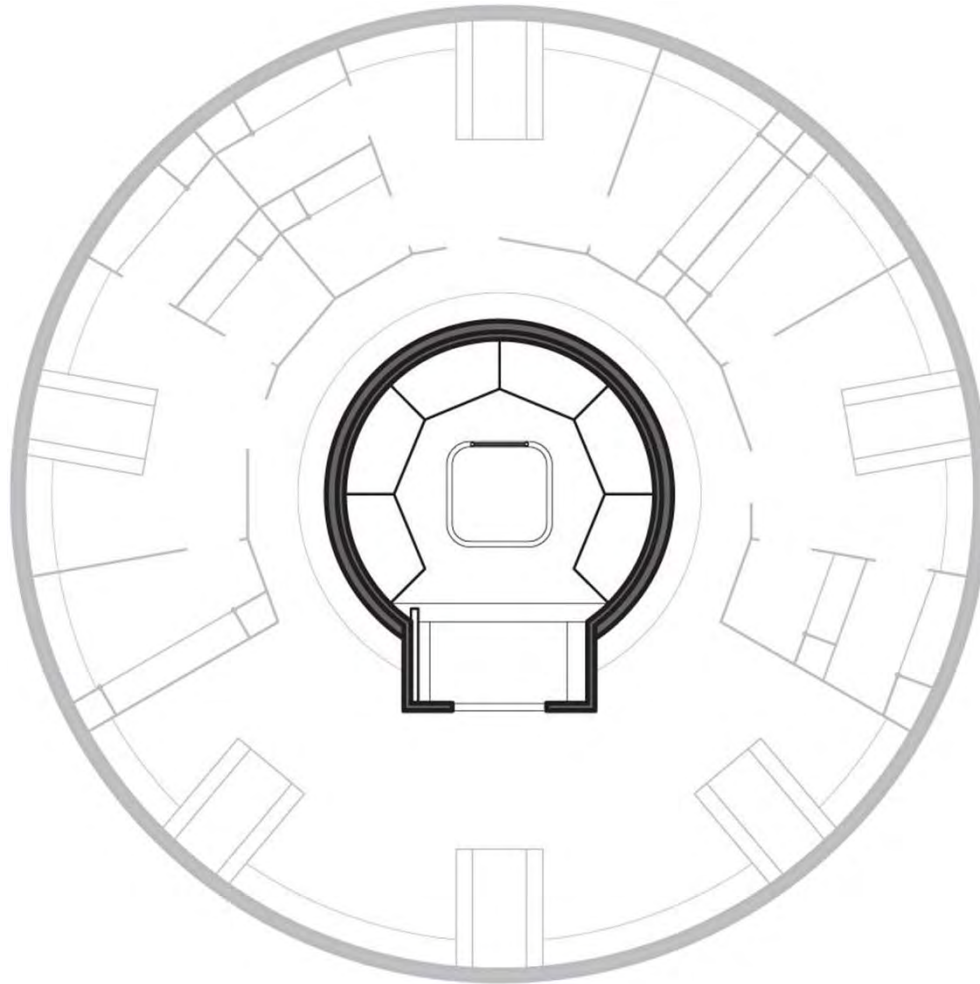
Crew Quarters

Topics



- Modular Design
- Core Module:
 - Racks
- Inflatable Module:
 - Materials
 - Design
 - Family Space
 - Common Space

Crew Quarters *Modular Design*

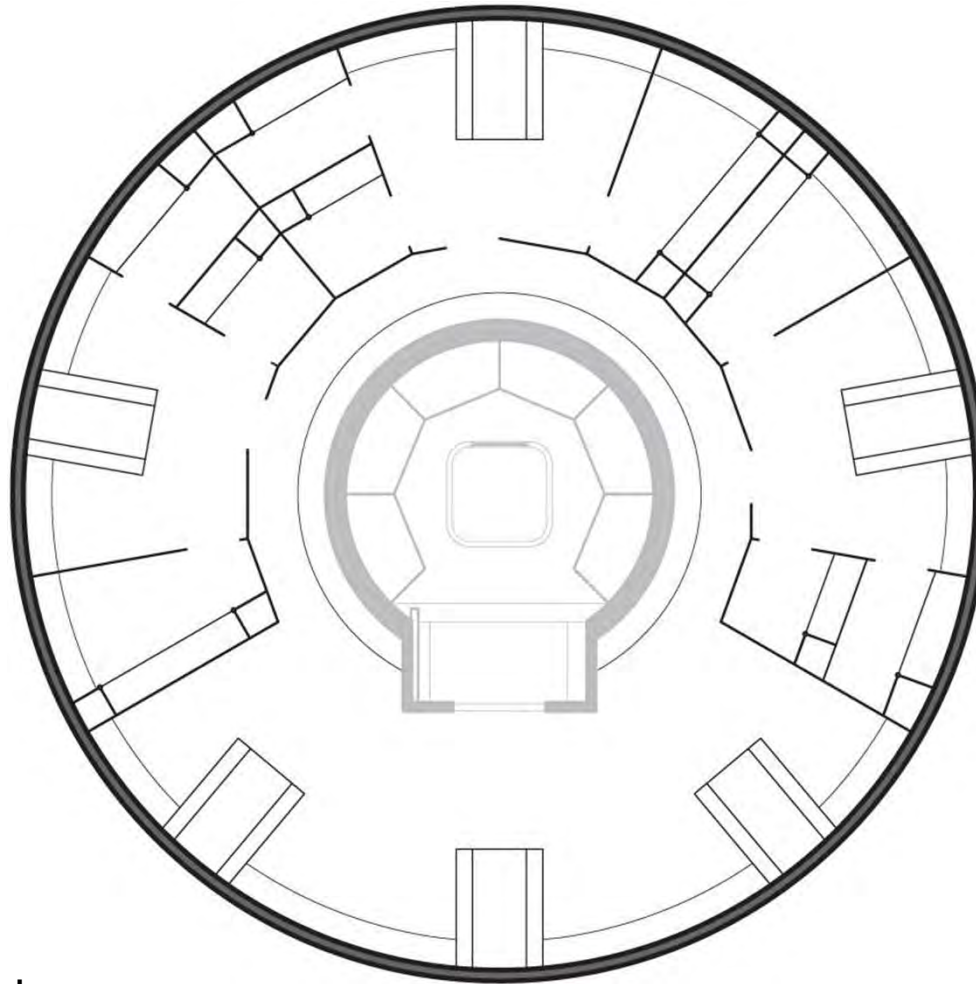


Core Module



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Crew Quarters *Modular Design*



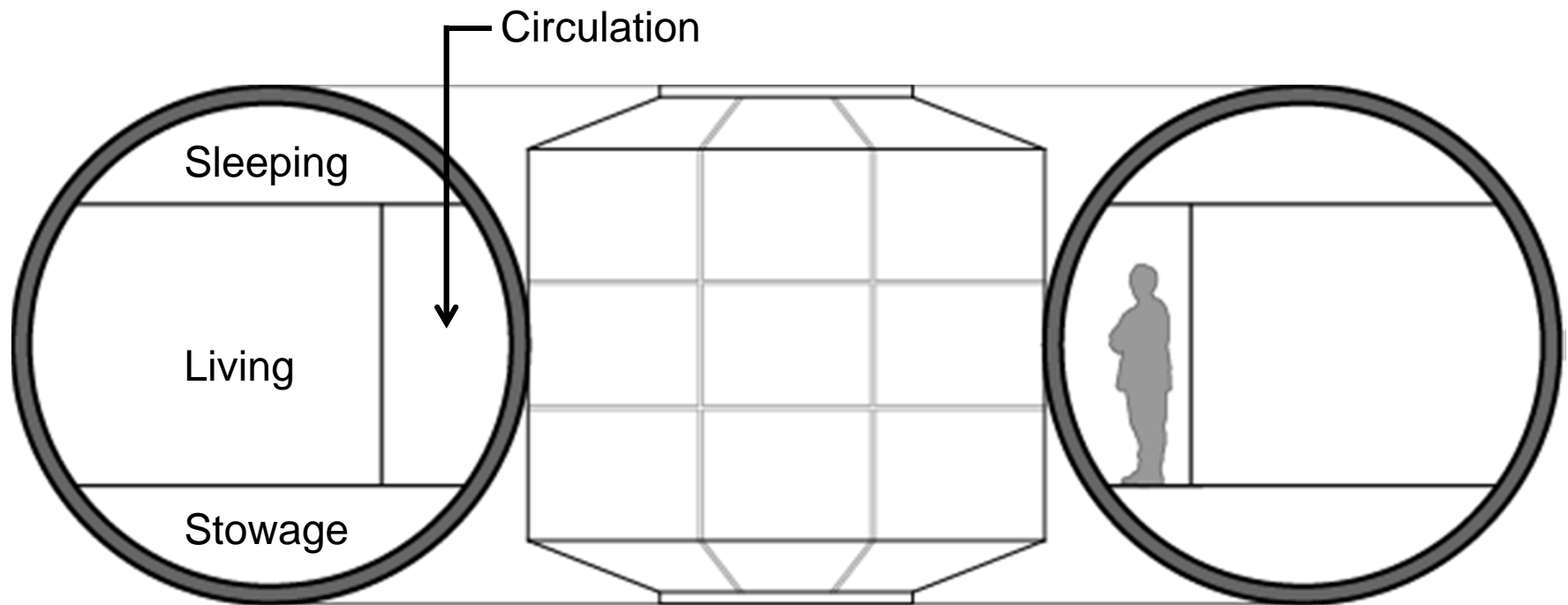
Inflatable Module



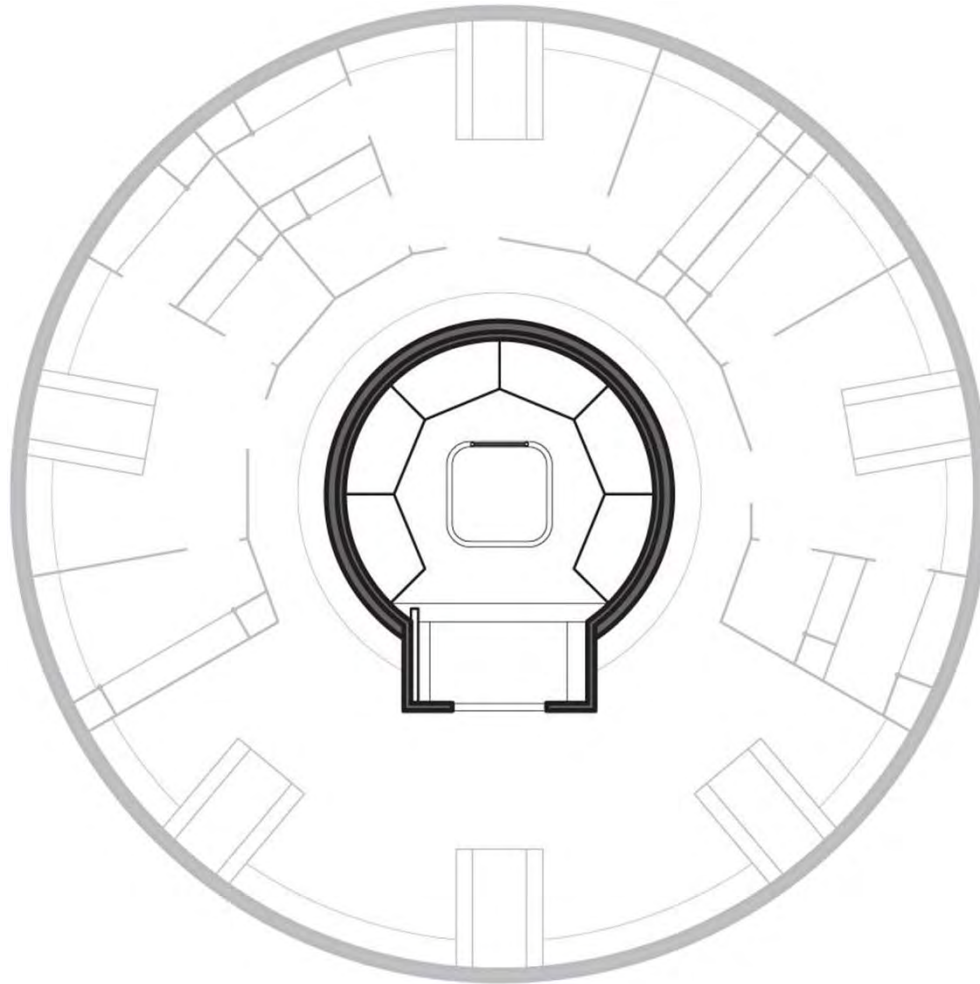
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Crew Quarters

Inflatable Section



Crew Quarters *Core Module*



Crew Quarters *Core Module*

Core Module:

- Secondary habitat circulation
- Access to crew quarters
- Six Racks



Crew Quarters

Rack Program

2 Hygiene:

- Bathing and restroom

1 Refrigeration and Sink:

- Individual food rations and drinks.
- Sanitation

1 Oven/Microwave

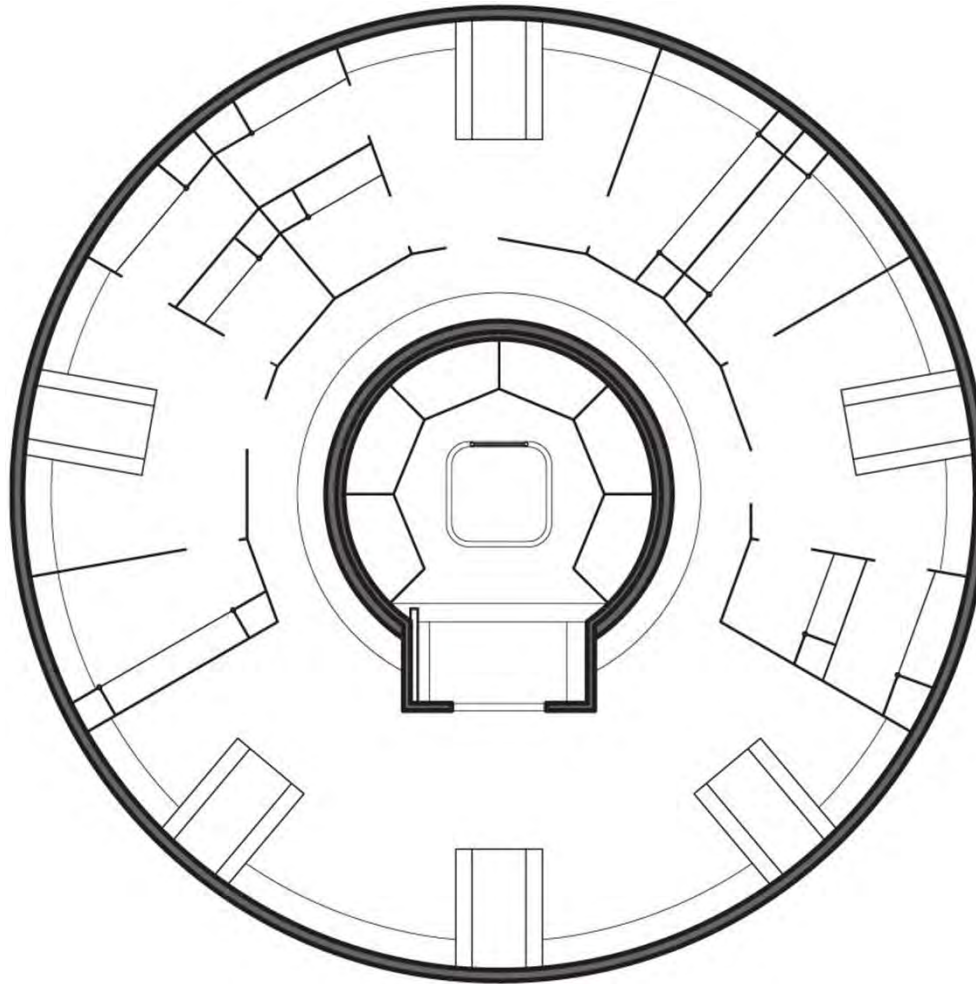
1 Environmental Control:

- Temperature control
- Oxygen and carbon dioxide levels
- Inflatable pressure monitor

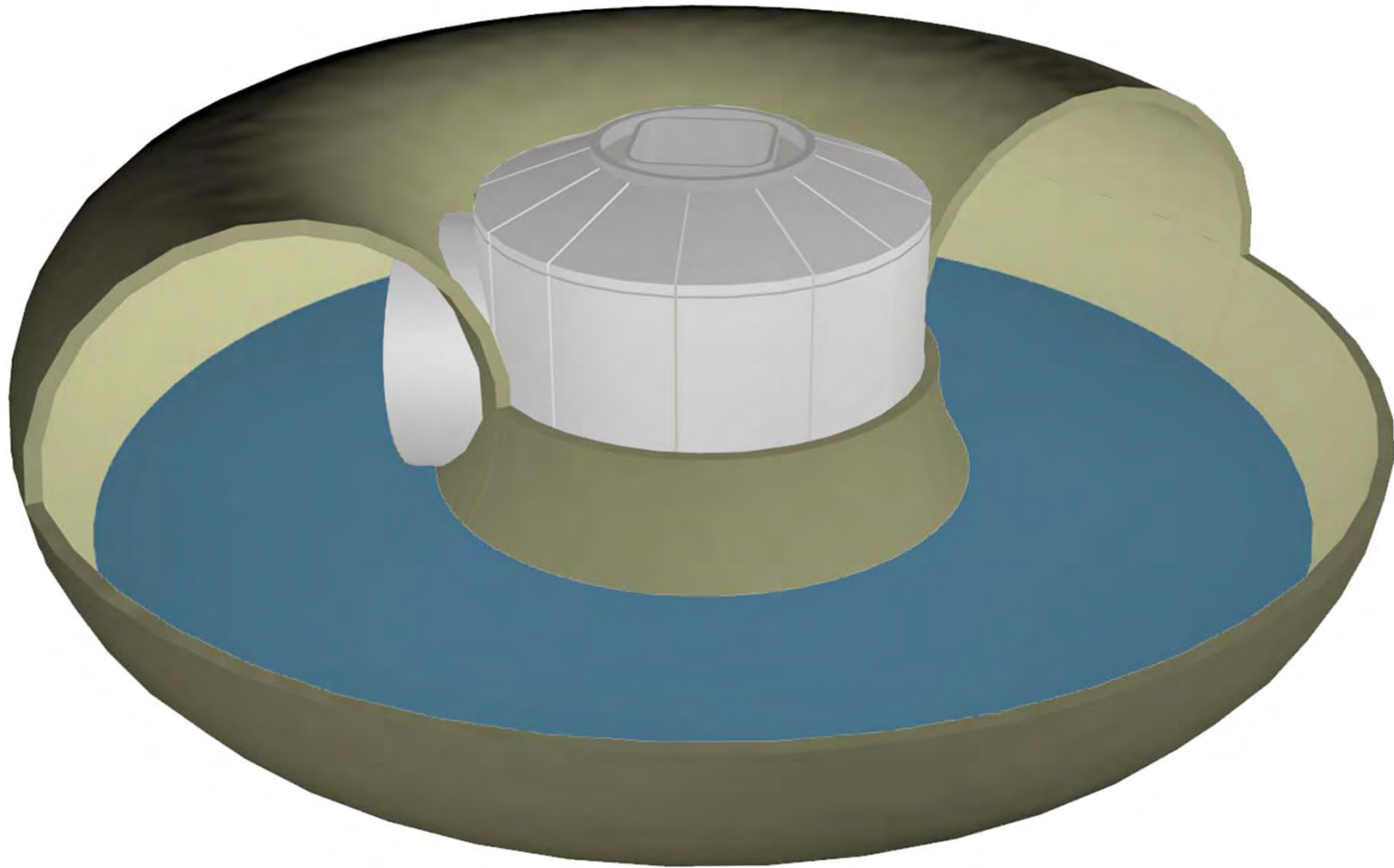
1 Health Monitoring



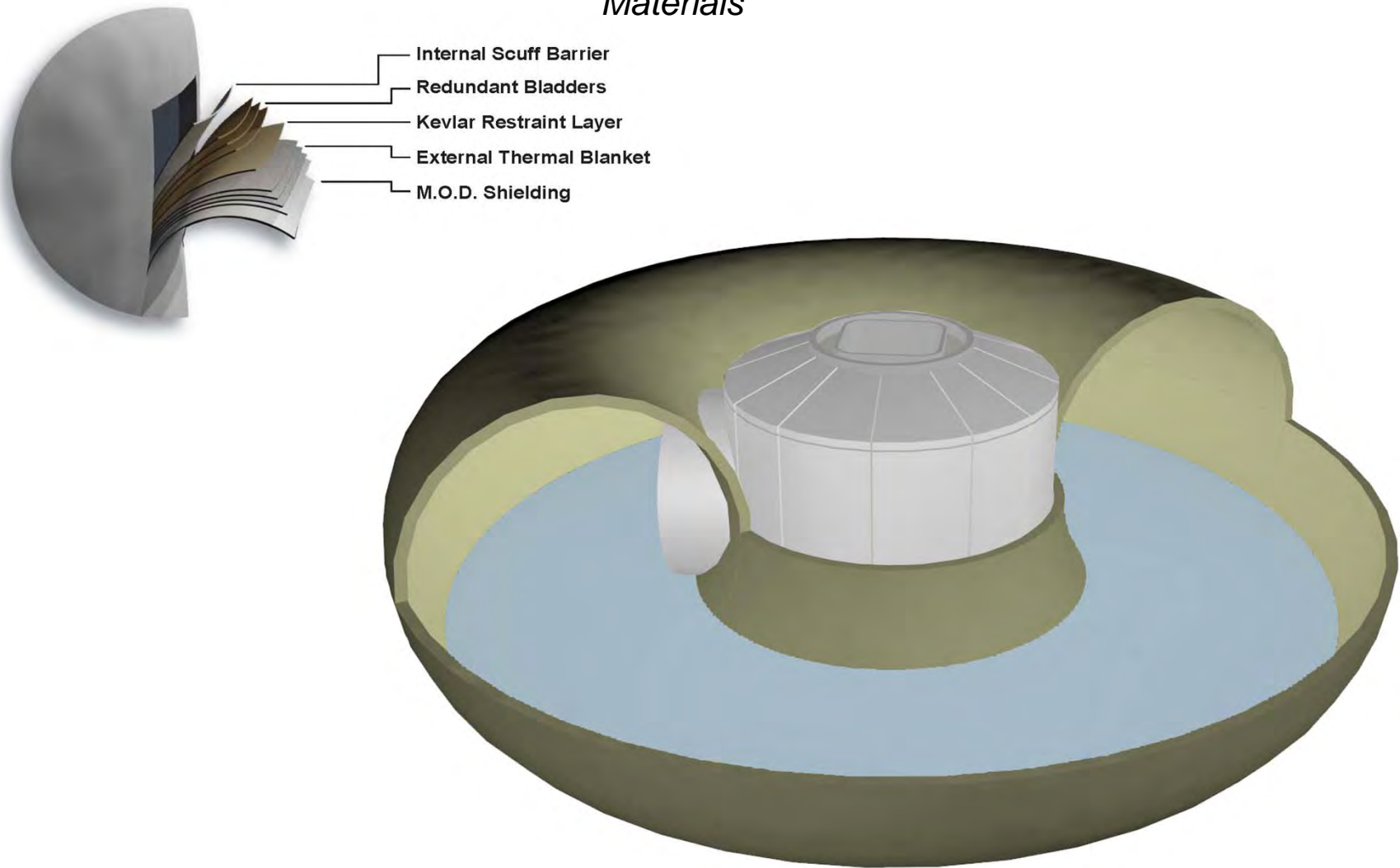
Crew Quarters *Inflatable Module*



Crew Quarters *Materials*



Crew Quarters *Materials*



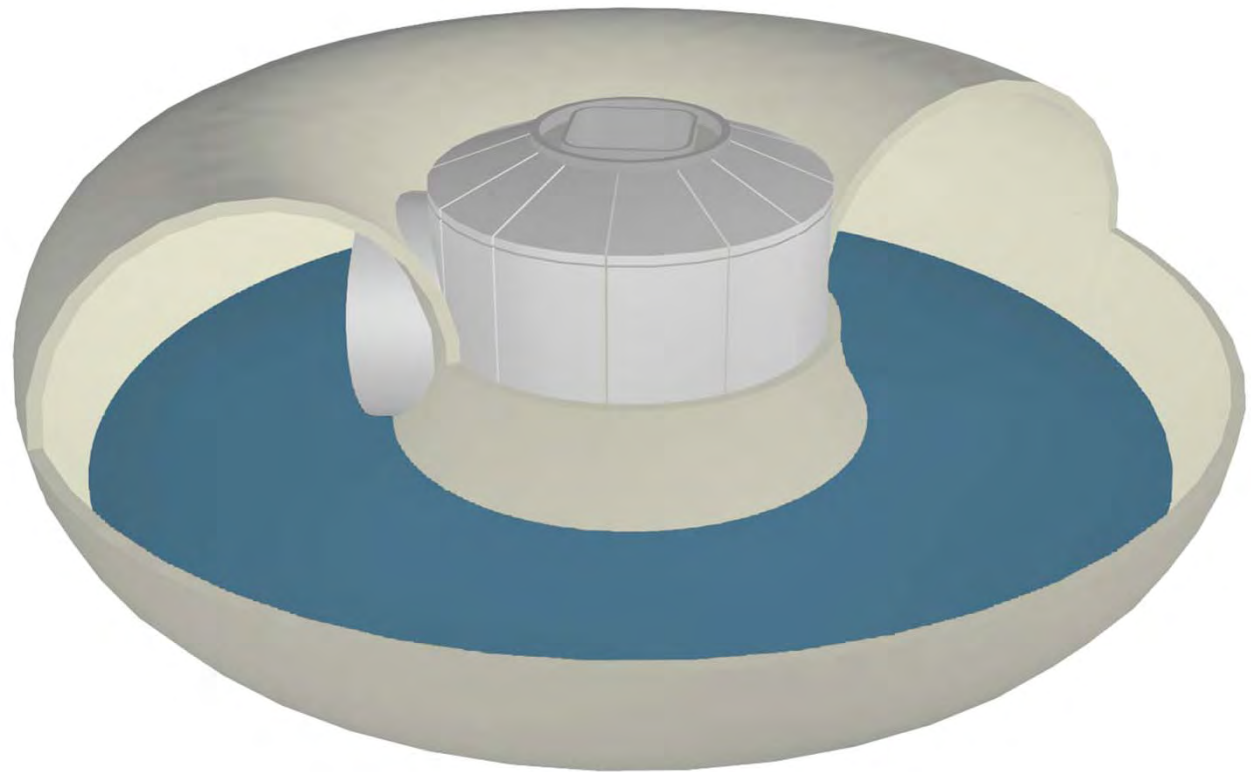
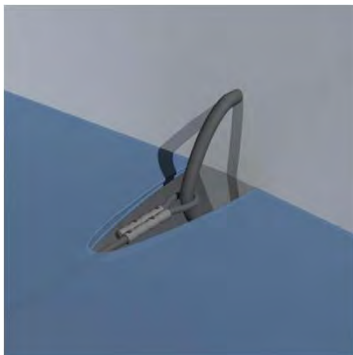
Crew Quarters

Materials

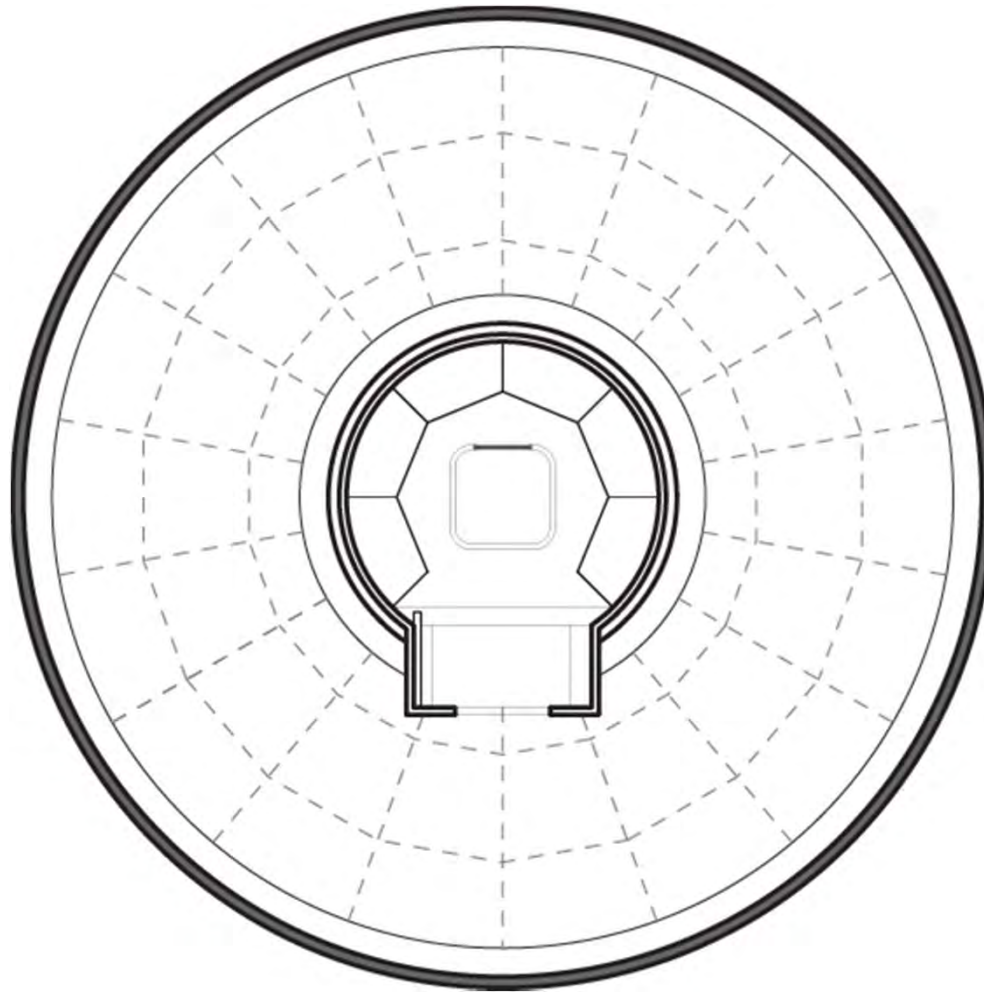
Tension Connection
at Intersection



Tension Connection
at Inflatable



Crew Quarters *Floor System*



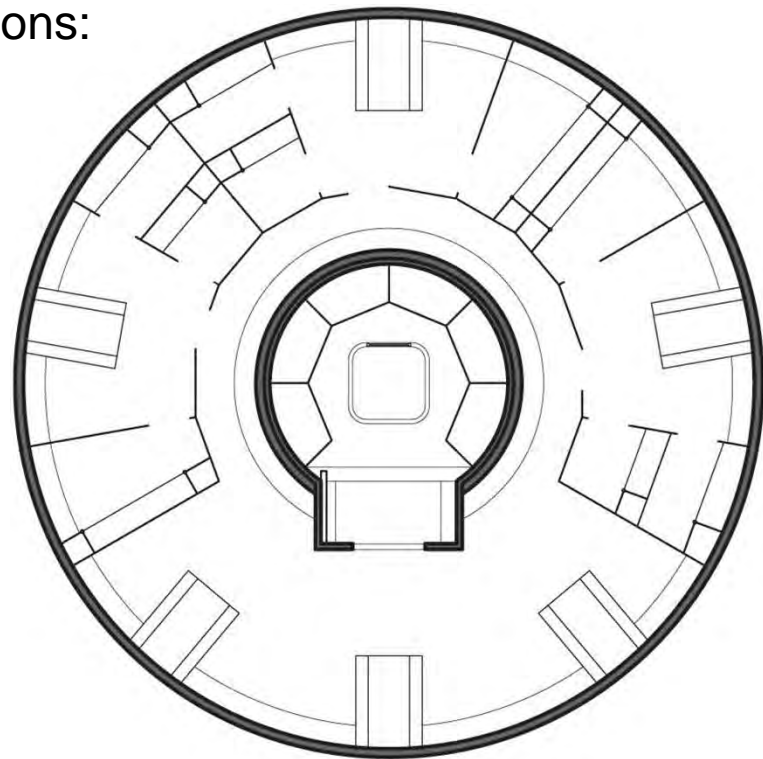
Crew Quarters

Inflatable Space Allocation

Crew accommodations allow for three average size families to occupy one inflatable volume.

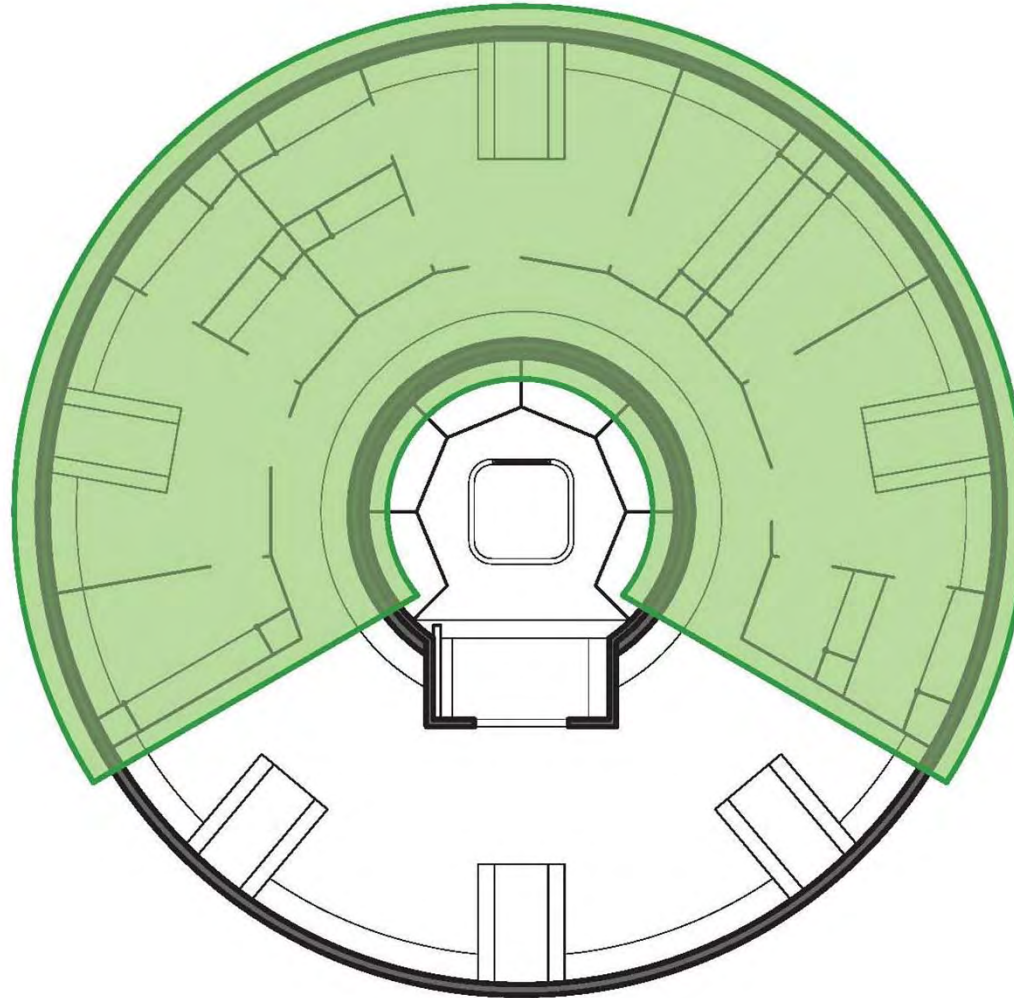
Each inflatable will be split into five sections:

- Total floor area: 1,062 ft²
- Three private family spaces
 - Floor area (each): 203 ft²
- One public communal space
 - Floor area: 348 ft²
- One circulation corridor
 - Floor area: 105 ft²

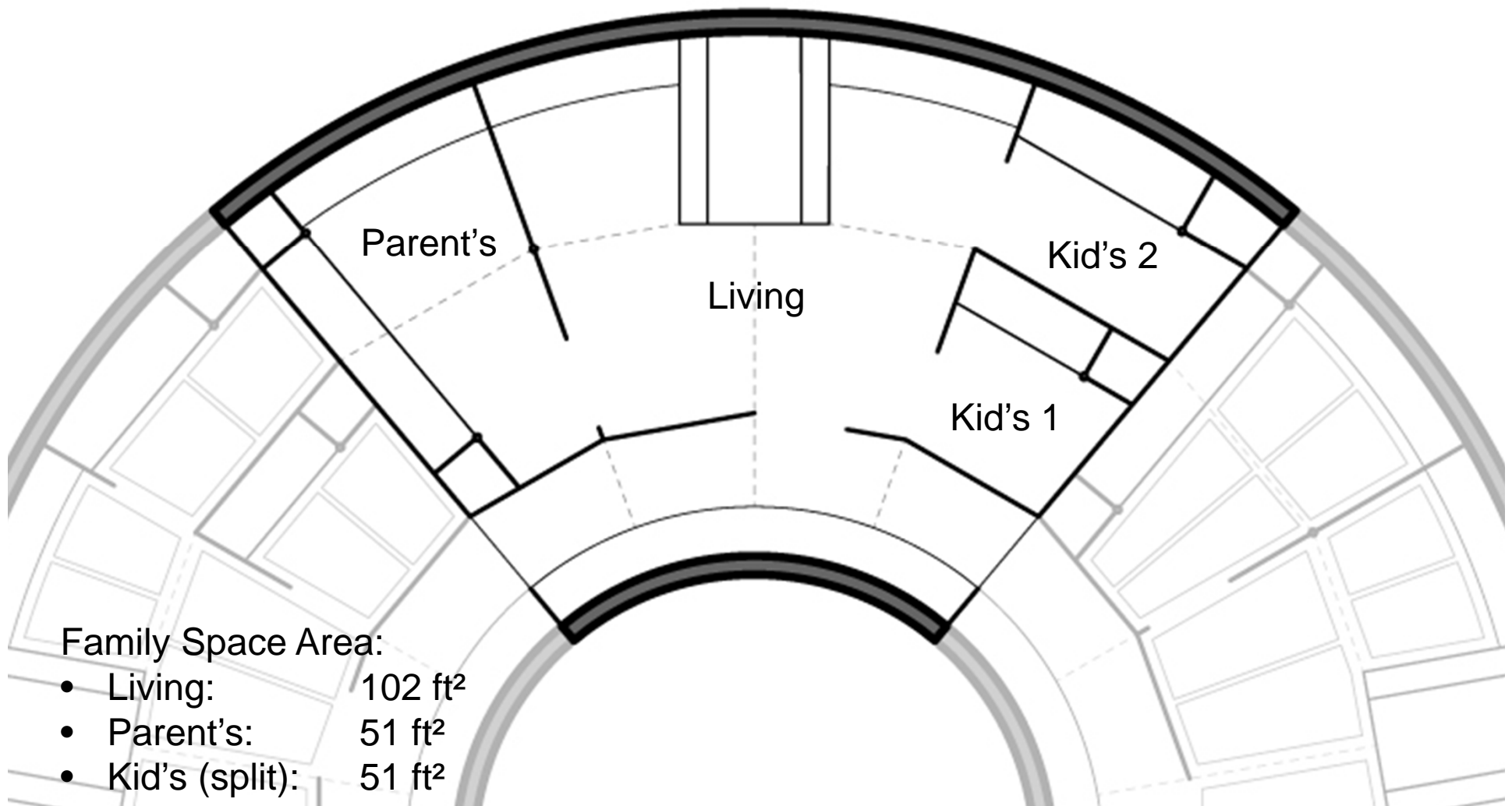


Crew Quarters

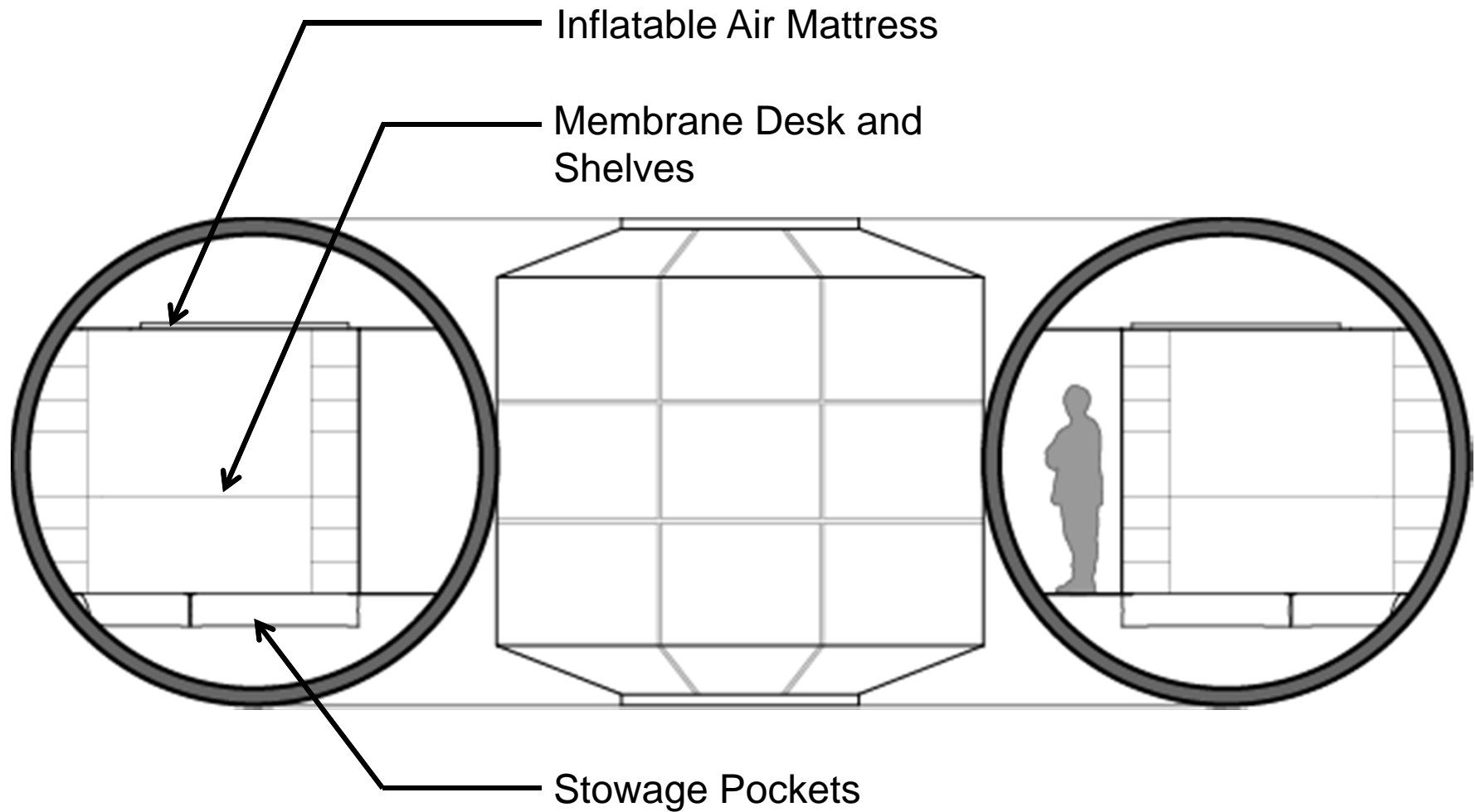
Family Space



Crew Quarters *Family Space*



Crew Quarters *Family Space Section*

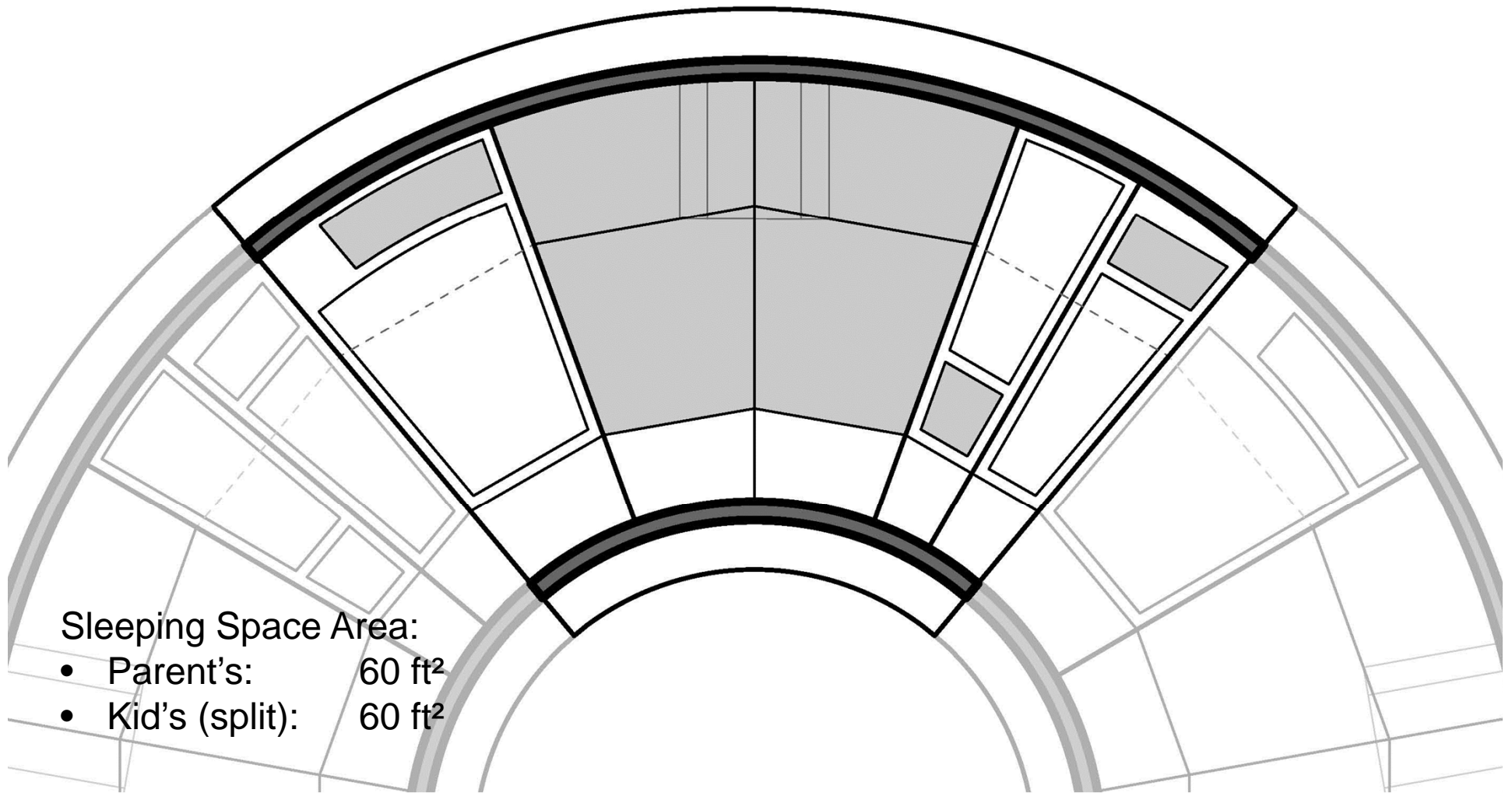


Crew Quarters *Family Space*



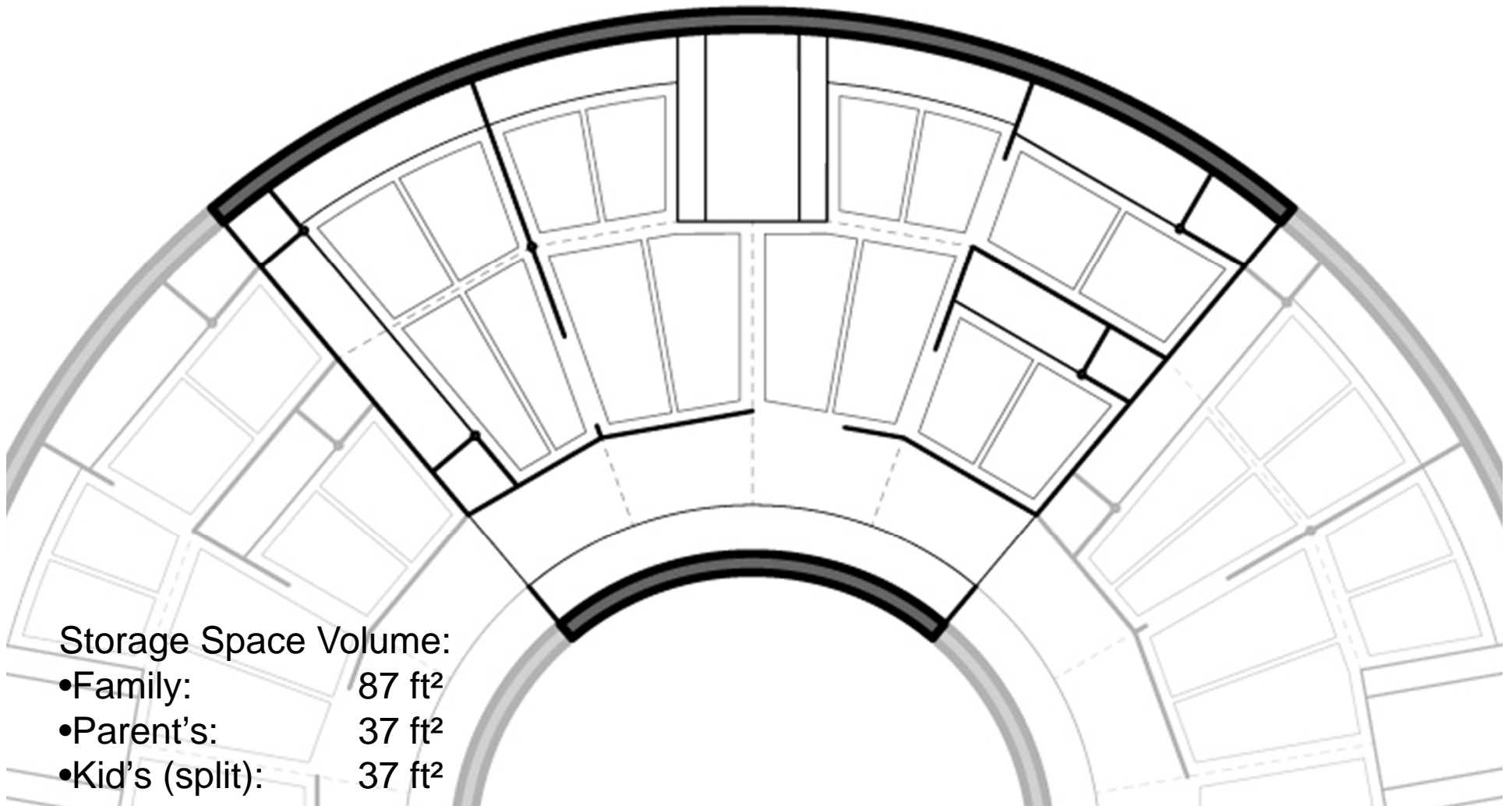
Crew Quarters

Sleeping Quarters



Crew Quarters

Stowage Space



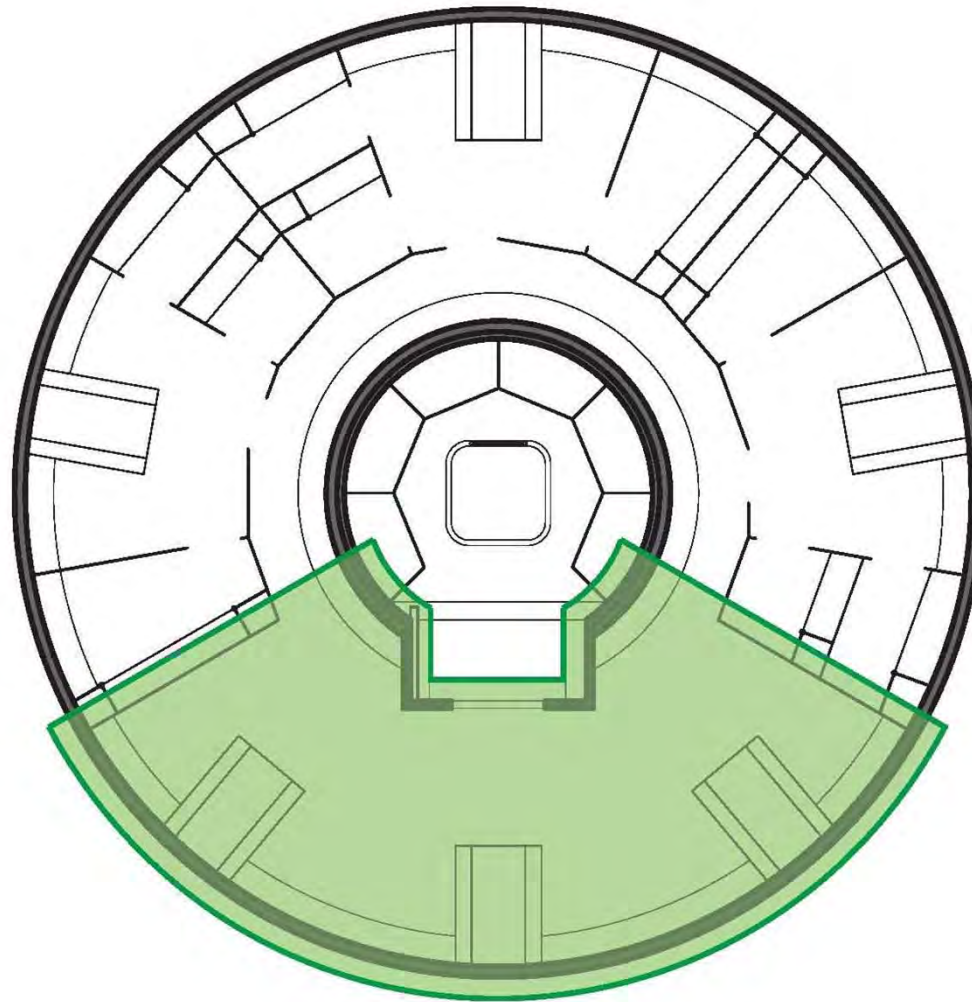
Storage Space Volume:

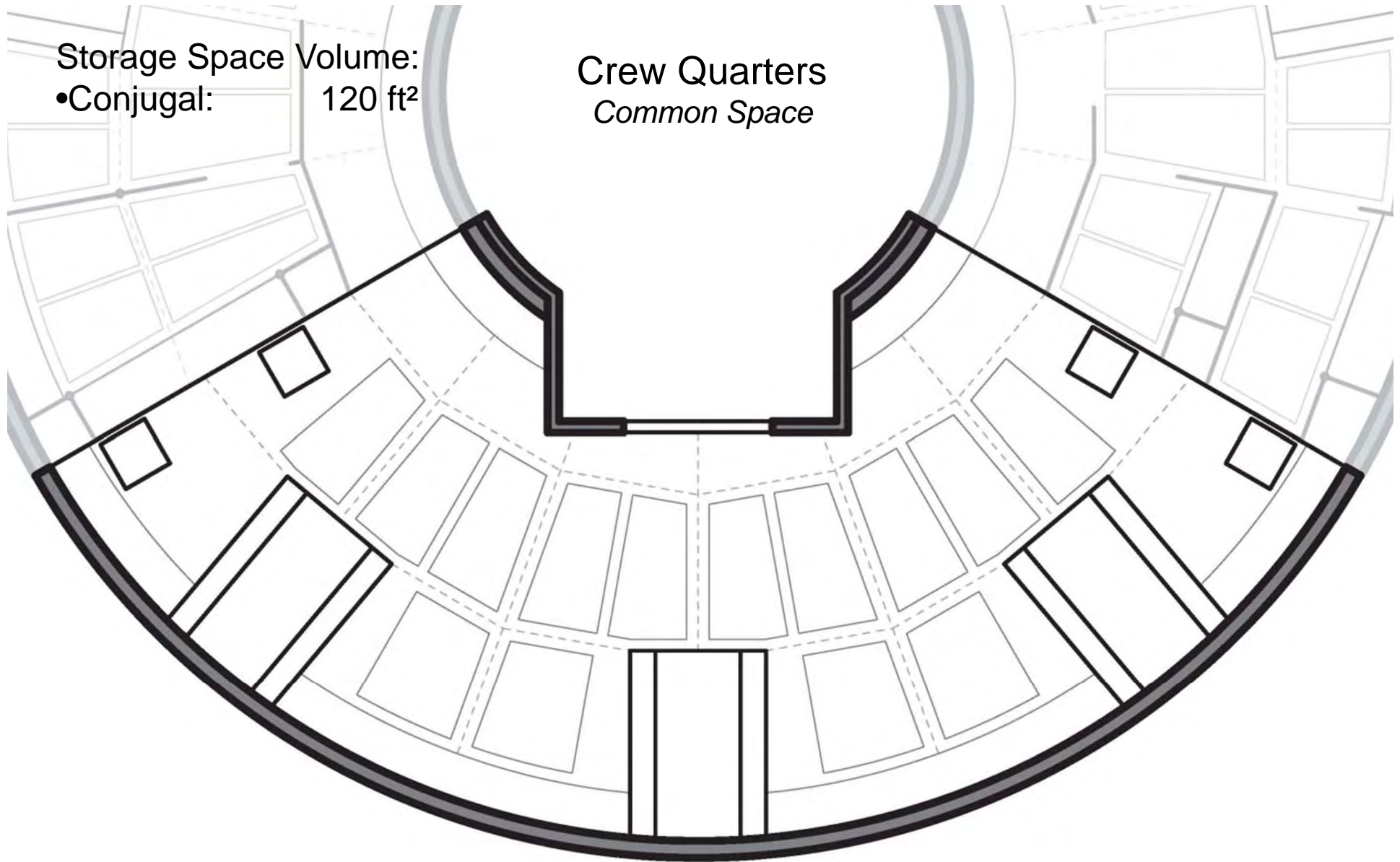
- Family: 87 ft²
- Parent's: 37 ft²
- Kid's (split): 37 ft²



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Crew Quarters *Common Space*

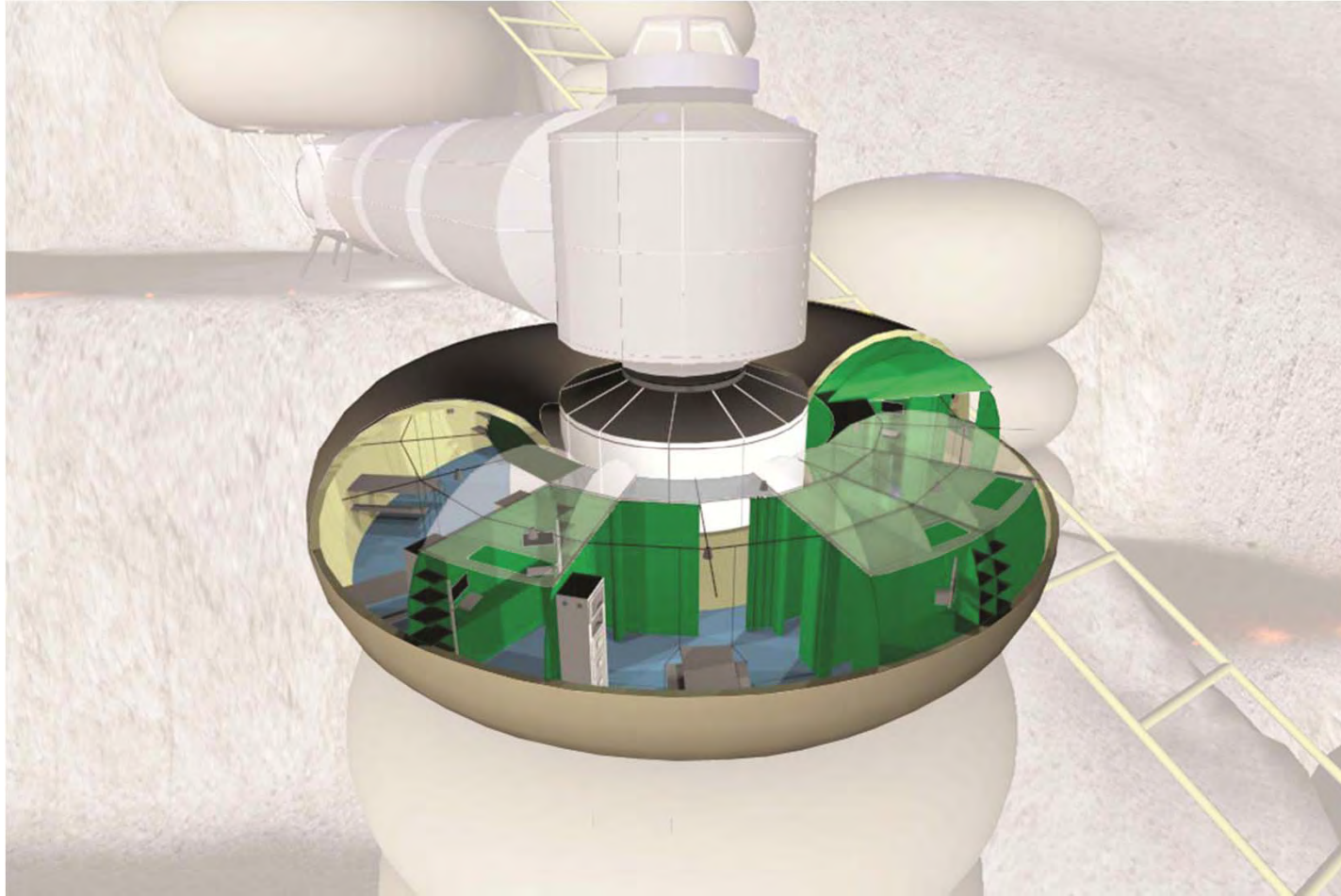




Crew Quarters *Common Space*



Lunar Base *Crew Quarters*



Healthcare Module

Module for Lunar Base Project

Nima Cheraghpour

ARCH 6398

Spring 2012



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PROPOSED PROGRAM LUNAR MEDICAL FACILITY

MEDICAL FACILITY PROGRAM

EMERGENCY EVACUATION ZONE

TREATMENT AREA

PREVENTION/ DIAGNOSIS AREA

MED. EQUIP. STORAGE

FLEXABLE, STRETCHABLE, STRETCHER/ RESTRAINT/ DENTAL CHAIR/ X-RAY TABLE

HYPERBARIC FACILITY – AIR LOCK

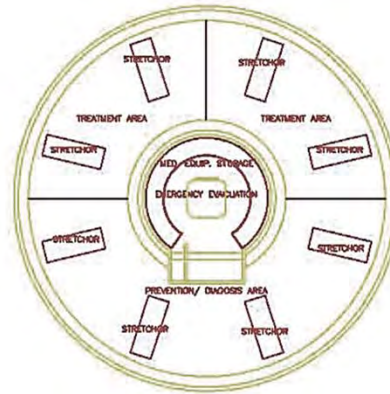
CLINICAL LABORATORY

PHARMACY

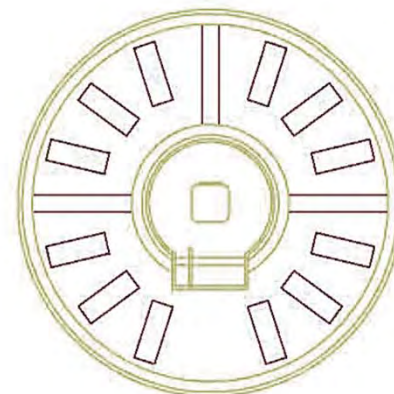
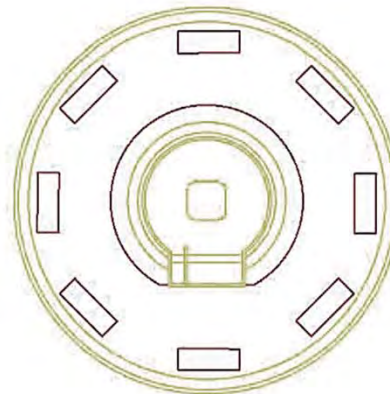


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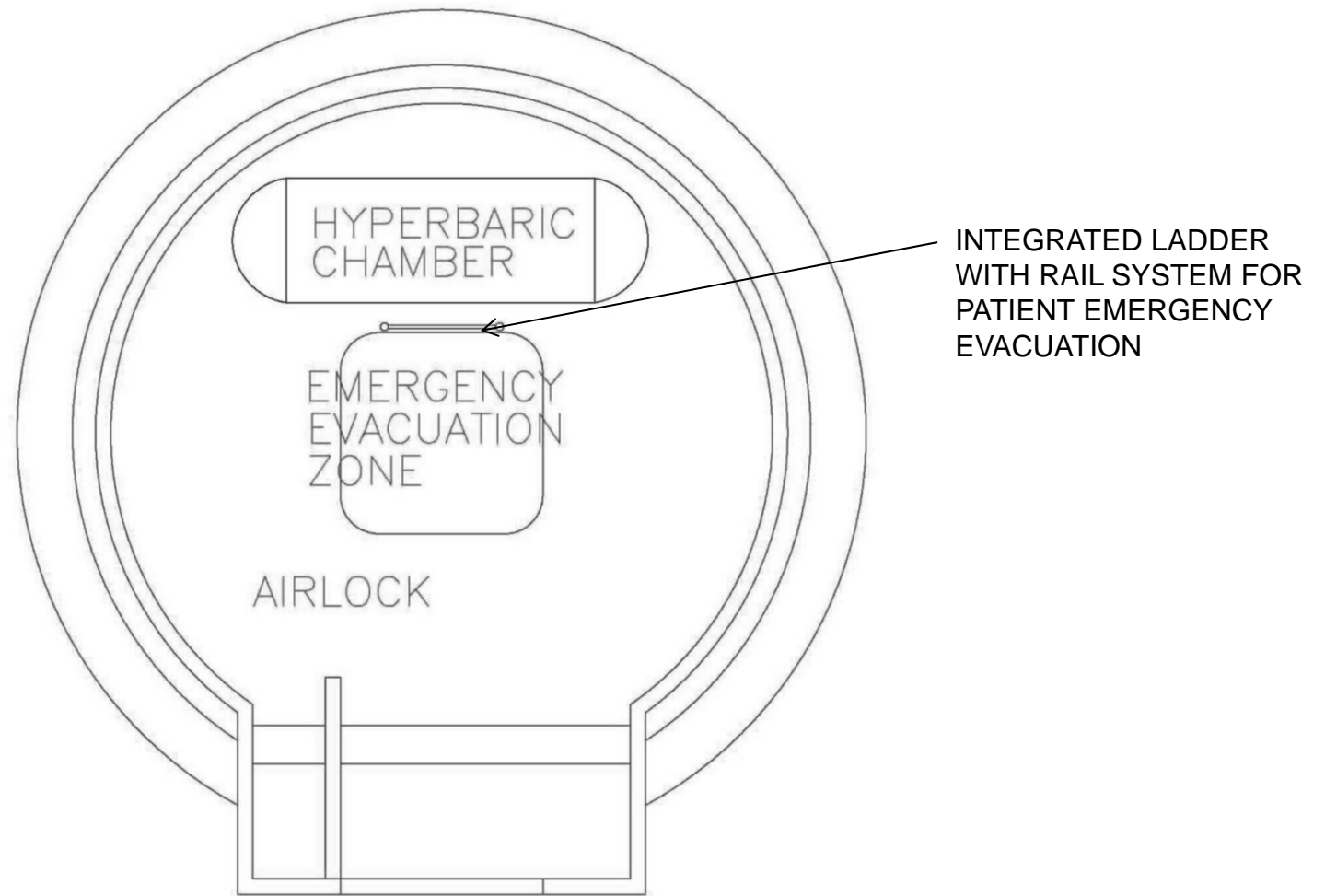
SCHEMATIC OPTIONS FOR FLOOR PLAN



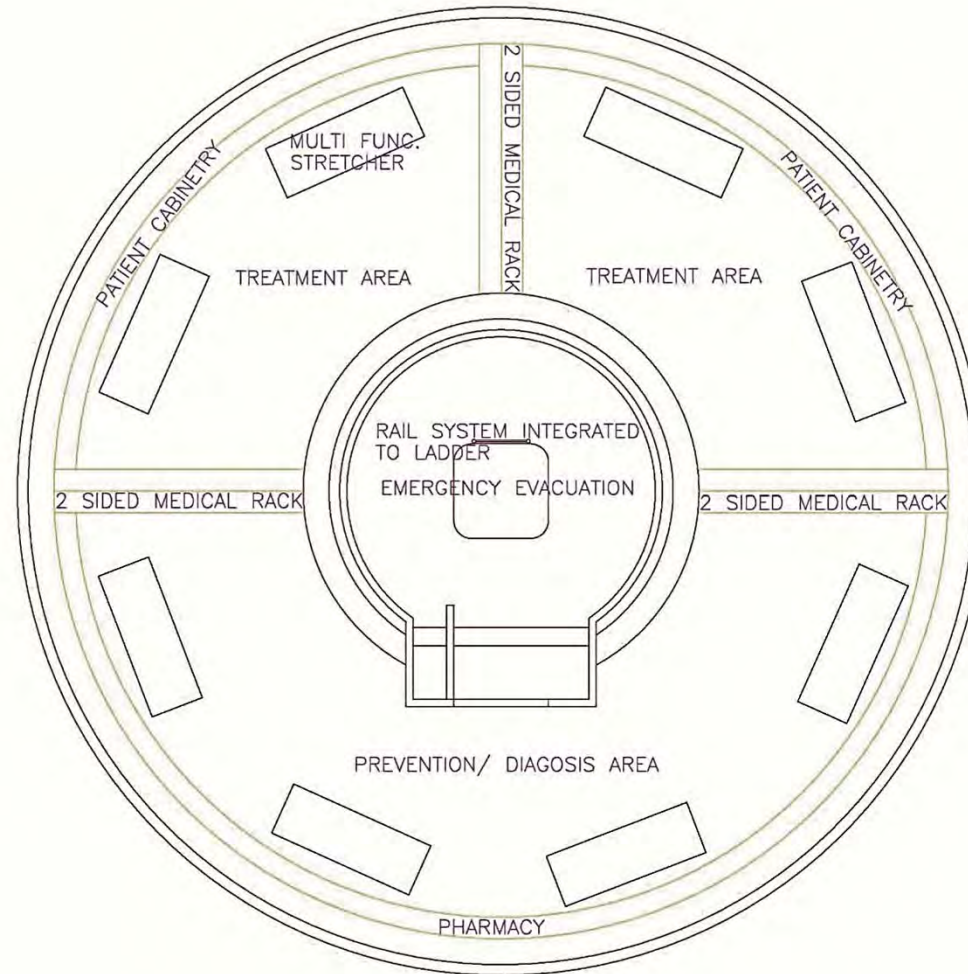
Plans include:
Multi-purpose stretcher
Rack system for medical equipment
Patient cabinetry & medical cabinetry



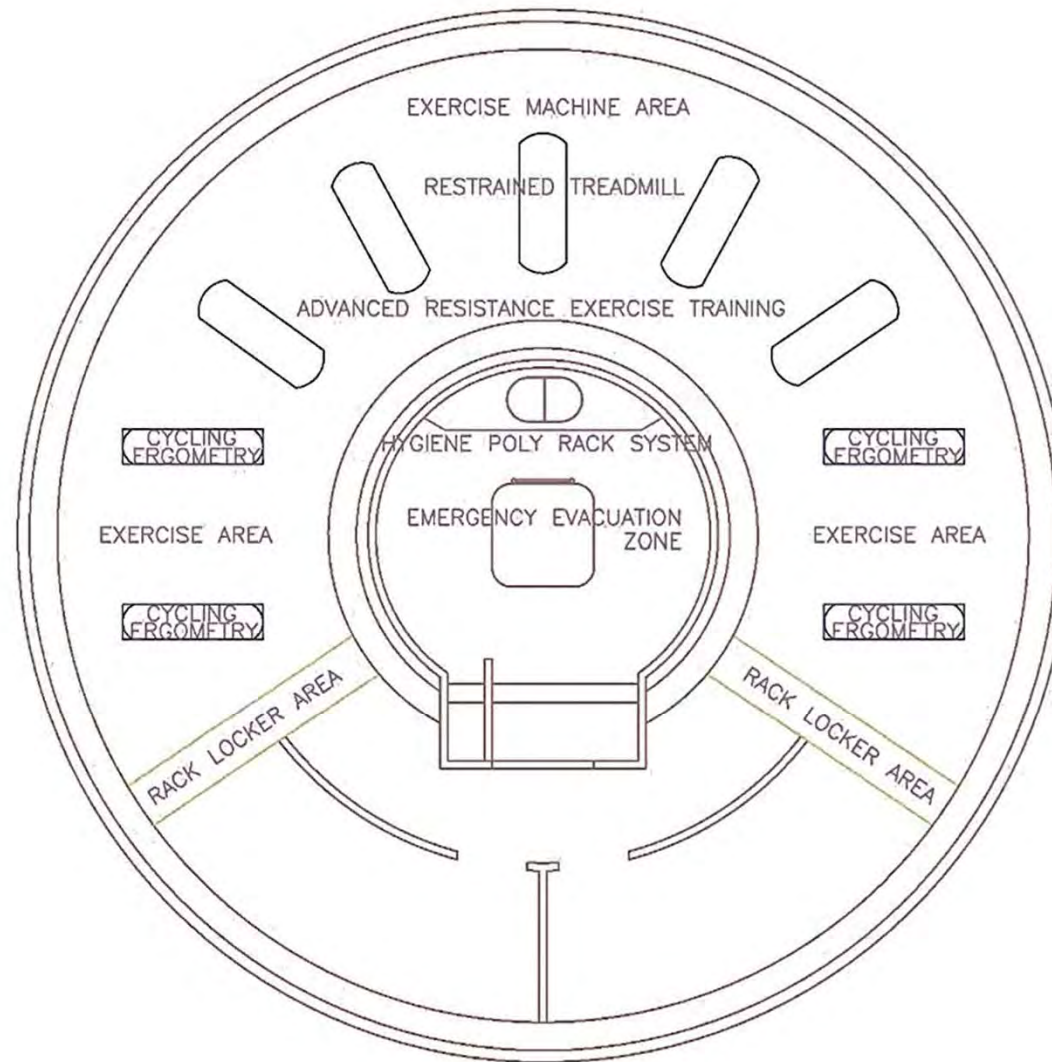
1ST FLOOR BUILT IN HYPERBARIC CHAMBER



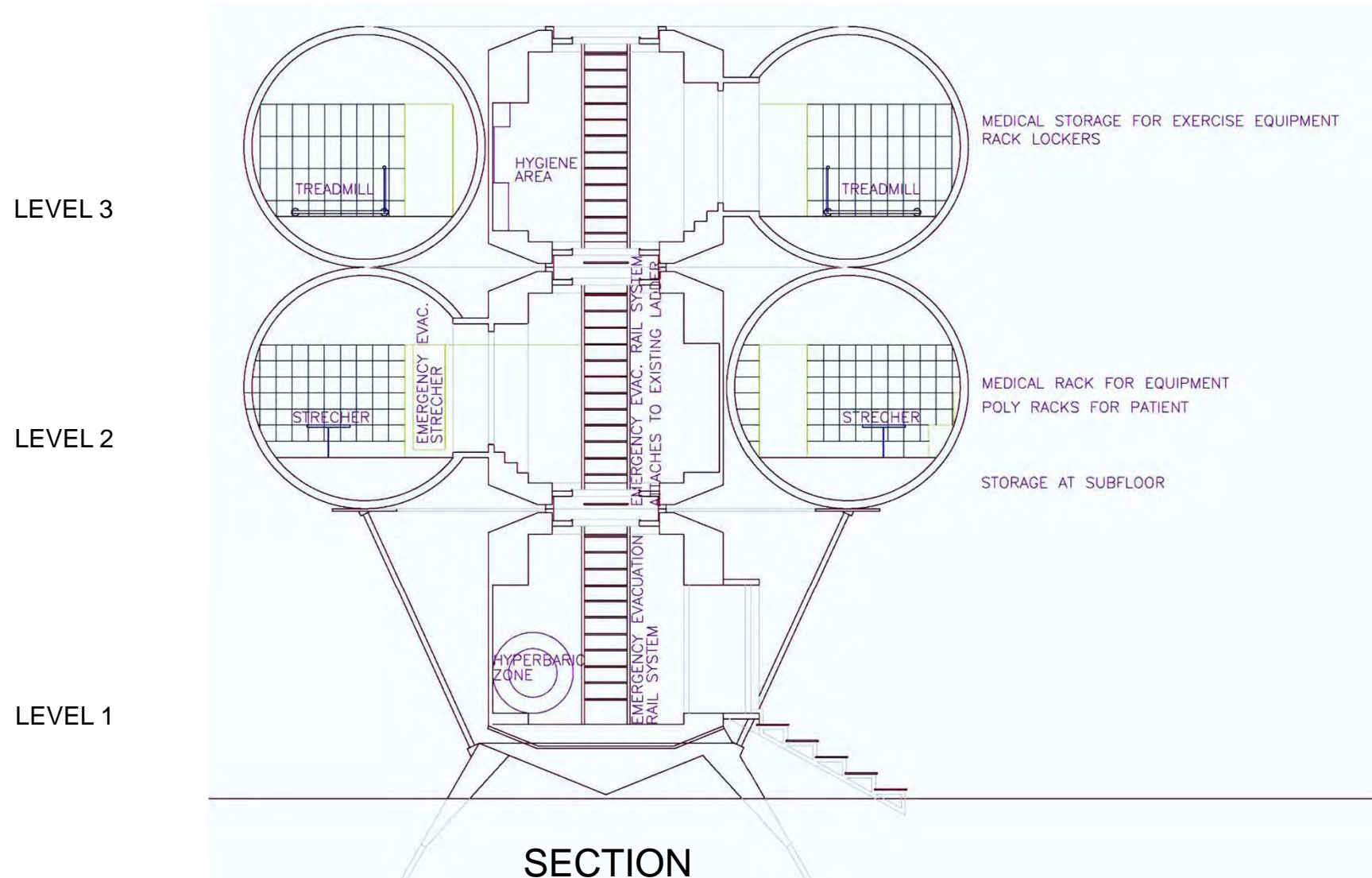
2ND FLOOR PATIENT DIAGNOSIS/ TREATMENT



3RD FLOOR EXERCISE RESISTANCE TRAINING



MEDICAL FACILITY TOWER



2ND FLOOR PATIENT DIAGNOSIS/ TREATMENT SHELVING

Medical equipment racks can also have partitions to divide up the racks



Shelving can have various coloration



Medical racks can be compartmentalized with partitions

2ND FLOOR PATIENT DIAGNOSIS/ TREATMENT



MULTI USE STRECHORS EQUIPED WITH MEMORY FOAM



Medical equipment
can be
compartmentalized
and stacked within
medical rack

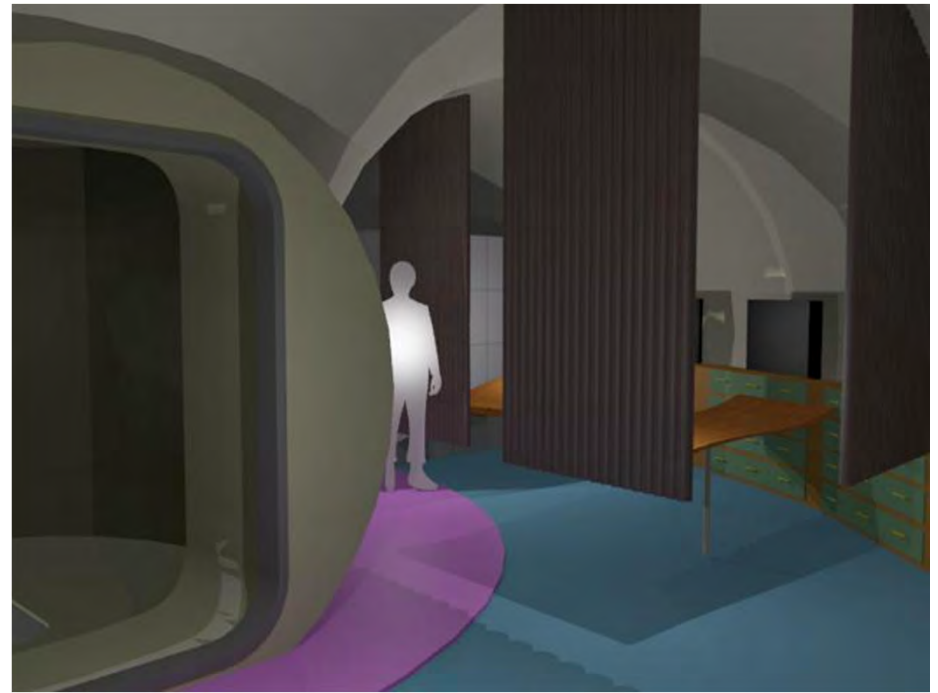


Rotatable bendable
patient restraint/ foam
padded stretcher takes
shape of patient

2ND FLOOR PATIENT DIAGNOSIS/ TREATMENT CURTAINS

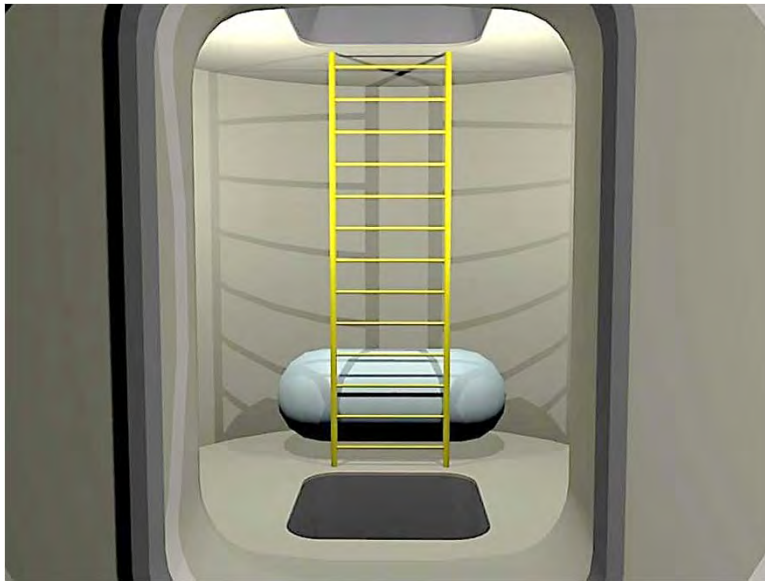


Open curtain

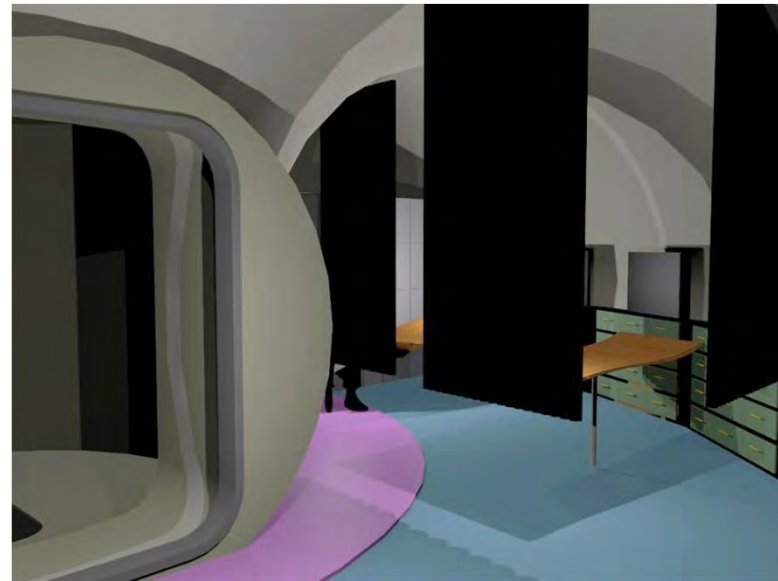


Closed curtains allow
privacy

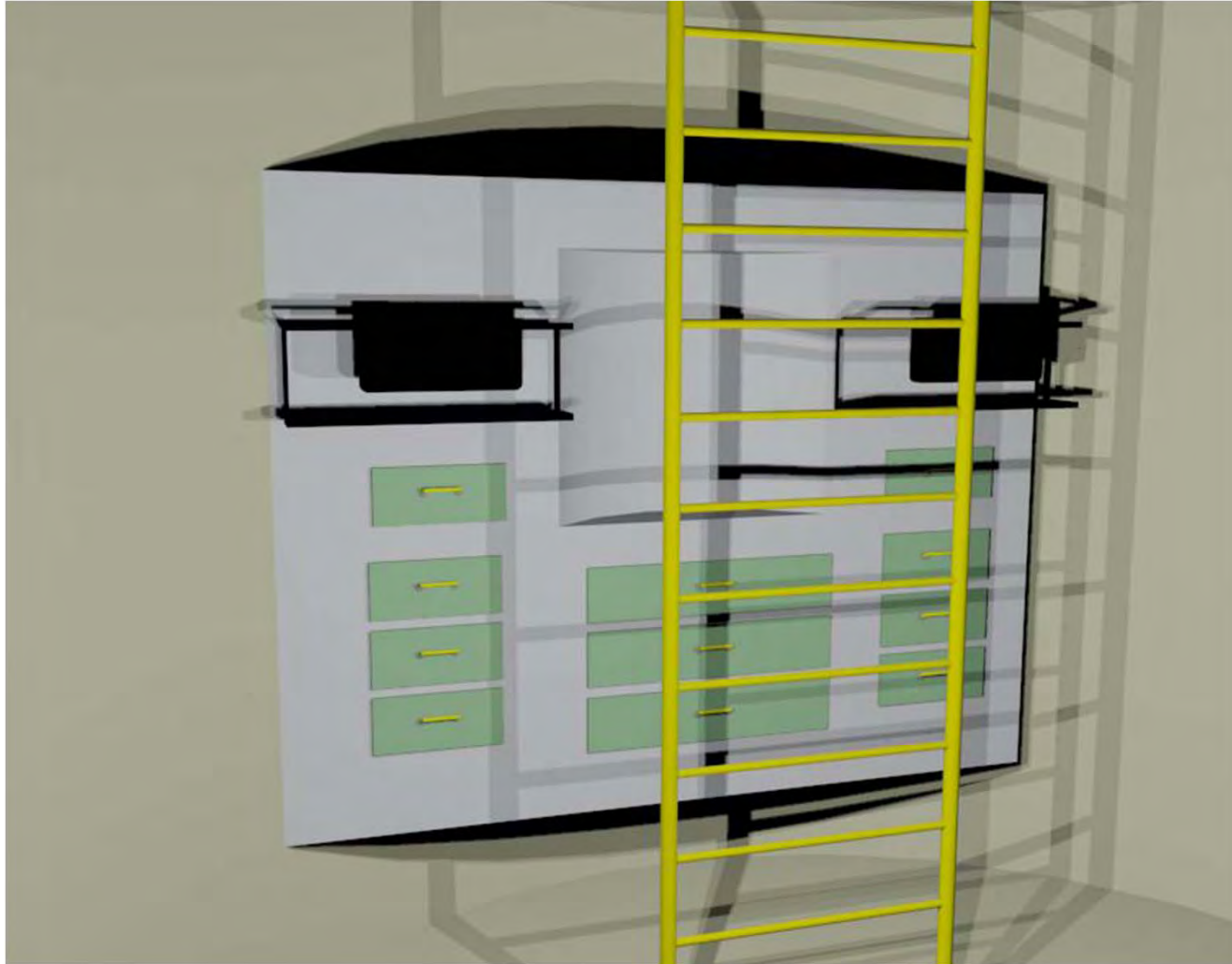
1ST LEVEL INFLATABLE
HYPERBARIC CHAMBER
WITHIN THE CORE MODULE



2ND FLOOR PATIENT
DIAGNOSIS/ TREATMENT



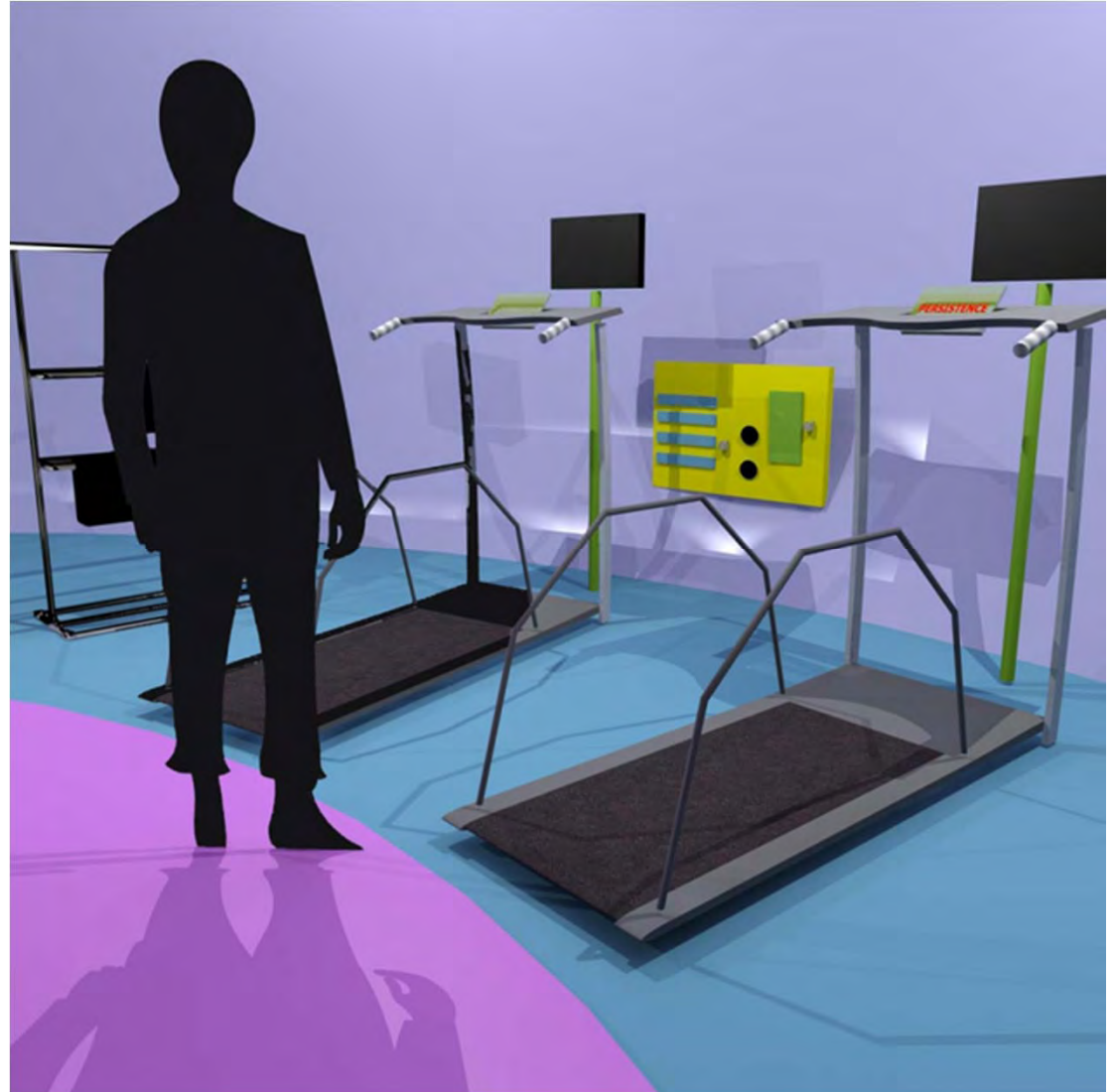
3RD FLOOR PERSONAL HYGIENE AREA WITHIN CORE MODULE



3RD FLOOR EXERCISE RESISTANCE TRAINING



Exercise machines with lockers

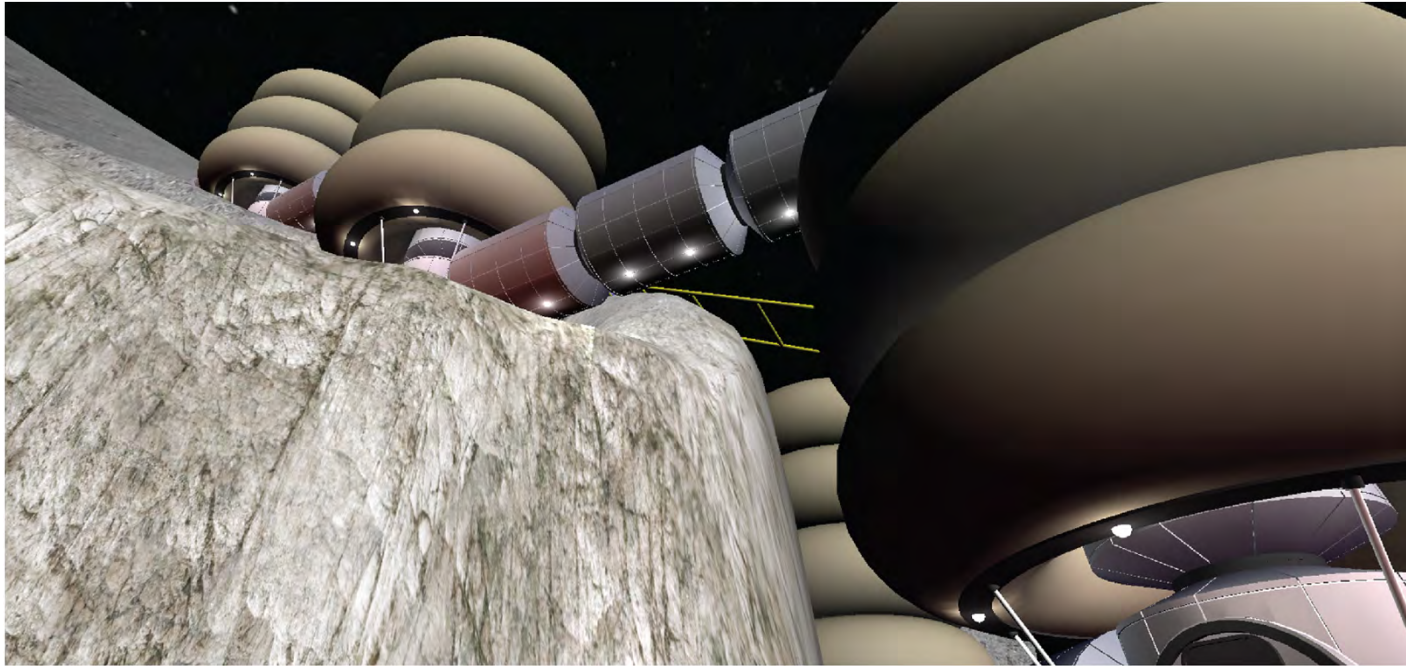


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DIAGNOSIS/ TREATMENT



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