

HESTIA

Tyler Gilliland

Pratik Parab

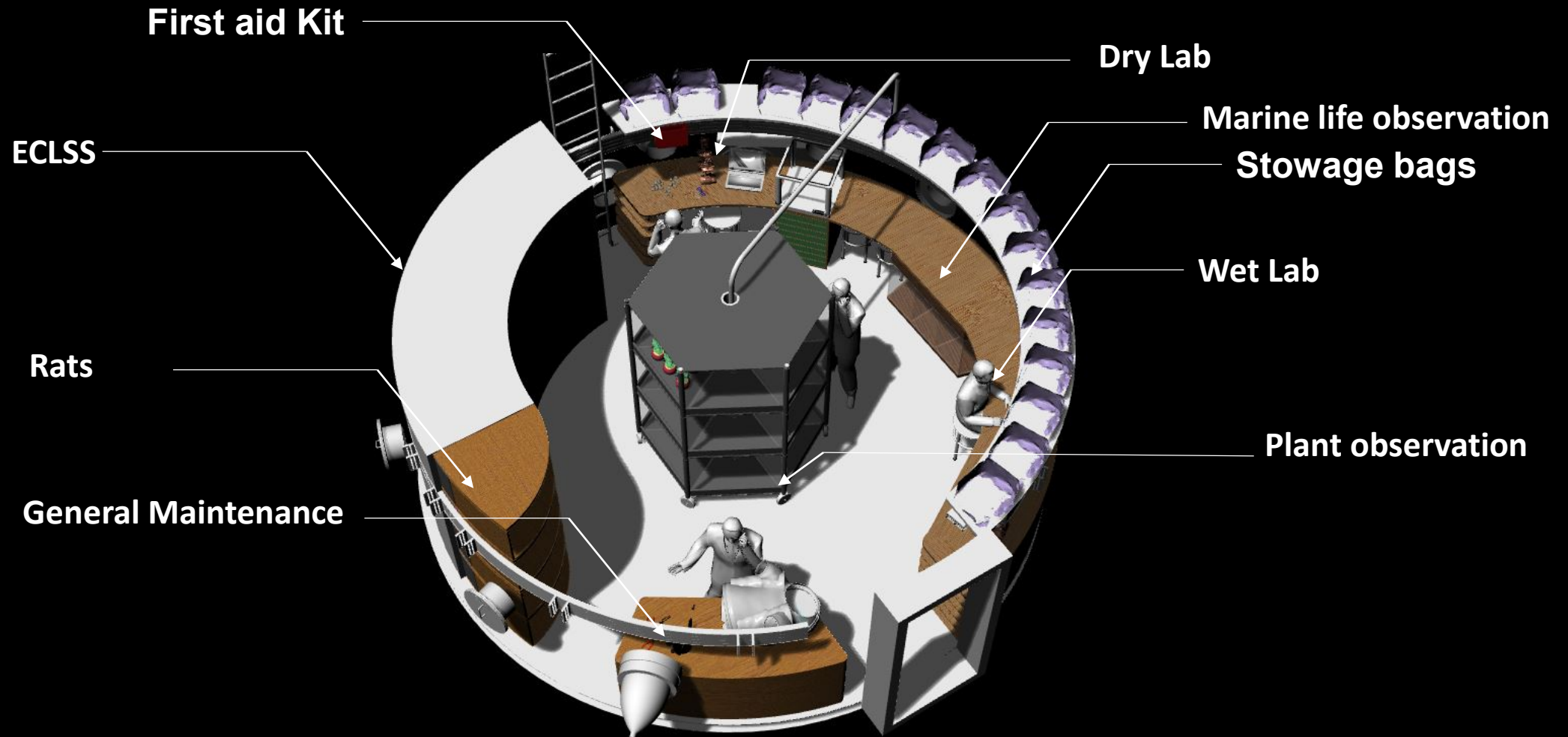
Our Intent

Through a partnership between the UH Space Architecture Program and representatives from NASA, Tyler and Pratik were tasked with outfitting the interior of the Hestia Pressure Chamber found in Building 7 at the Johnson Space Center. The interior design is intended to be used by NASA as an analog for a Mars Habitat. The analog will house four crew members for 90 days at various atmospheric environments. As first semester graduate students, Tyler and Pratik established an initial design concept. As the semester progressed and milestones were met, the design evolved into what you see here today. As with all designs, it is not perfect and additional tweaking is not only needed but also welcome. Over the next few years we hope to put our design through many iterations as we continue to progress towards becoming an interplanetary species.

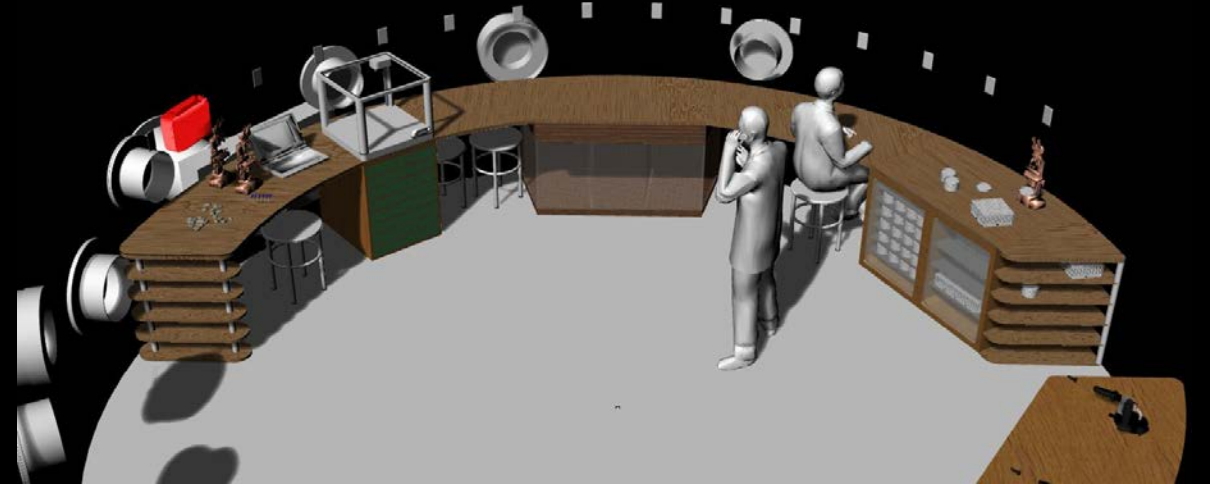
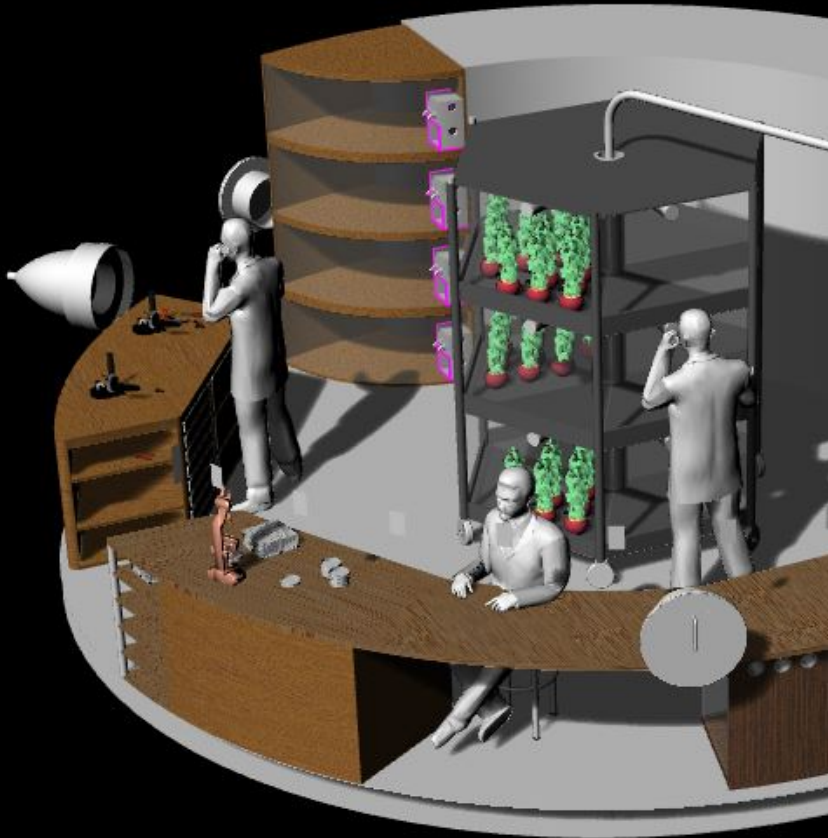
1st Floor Summary

The first floor of the Hestia habitat is intended to operate and feel like a cross between a garage and a laboratory. On this floor the lighting should be bright for optimum work environments. Lighting for the plants, fish and rodents is intended to be independent from one another and can be adjusted according to the experiment's needs.

1st Floor Science and Maintenance



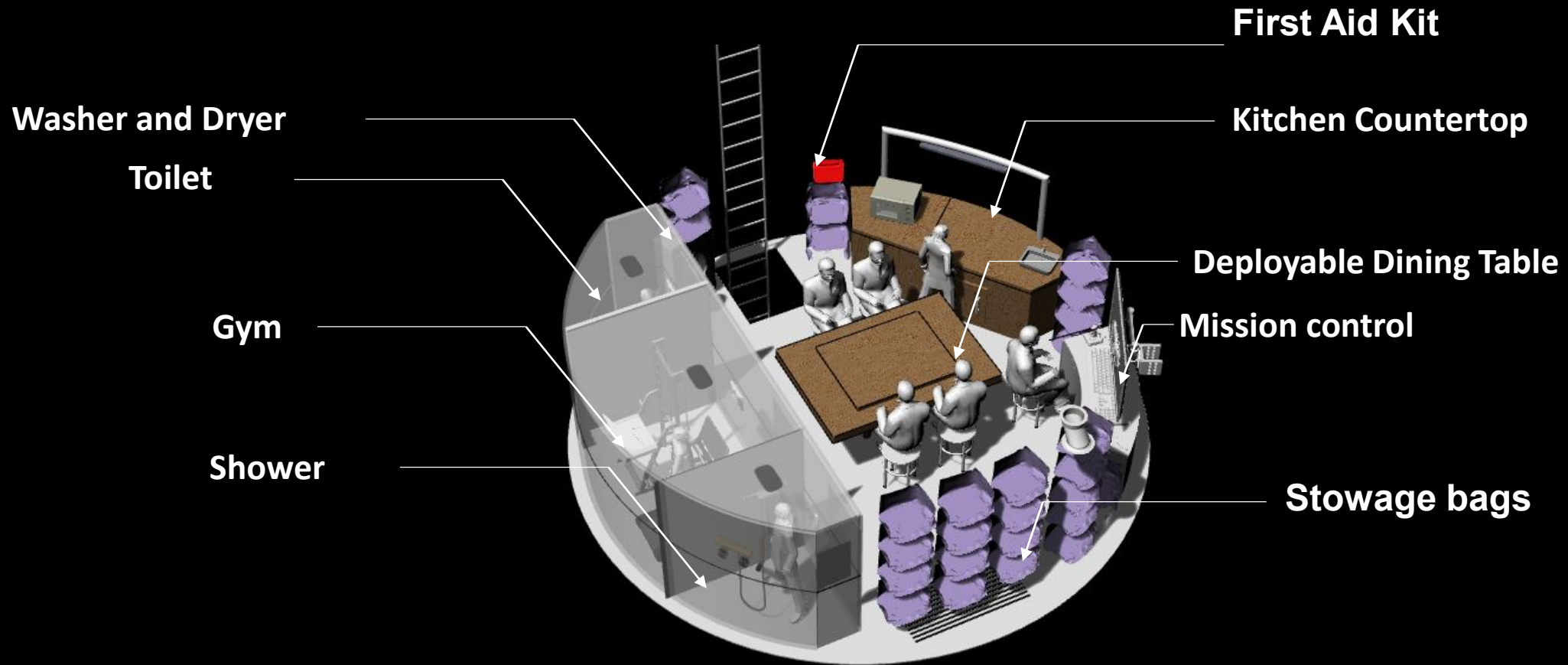
Research and Maintenance



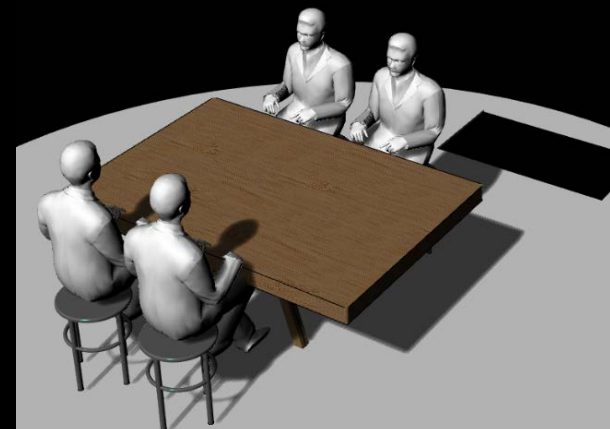
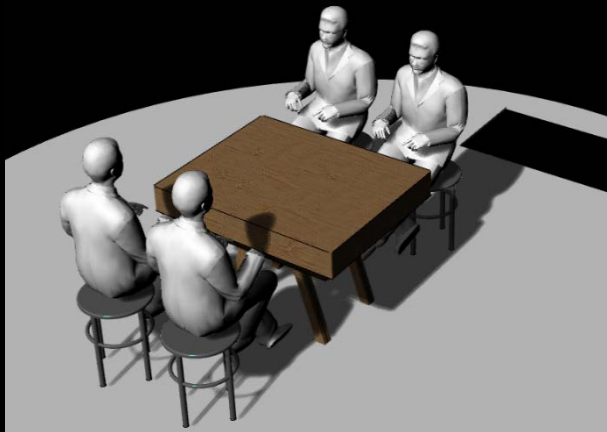
2nd Floor Summary

The second floor of the Hestia habitat is intended to be the gathering zone for all crew members. Soft light mimicking the sunrise and sunset should be used for this area. Because the gym, toilet, and shower lend themselves to smells and/or humidity we found that they should be partitioned to contain their own environments. The command center on this level is intended to be used for robotic and rover maneuvering outside the habitat in addition to communicating back and forth to Earth.

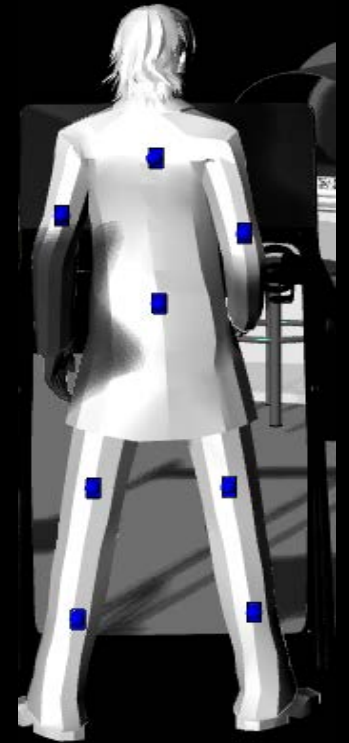
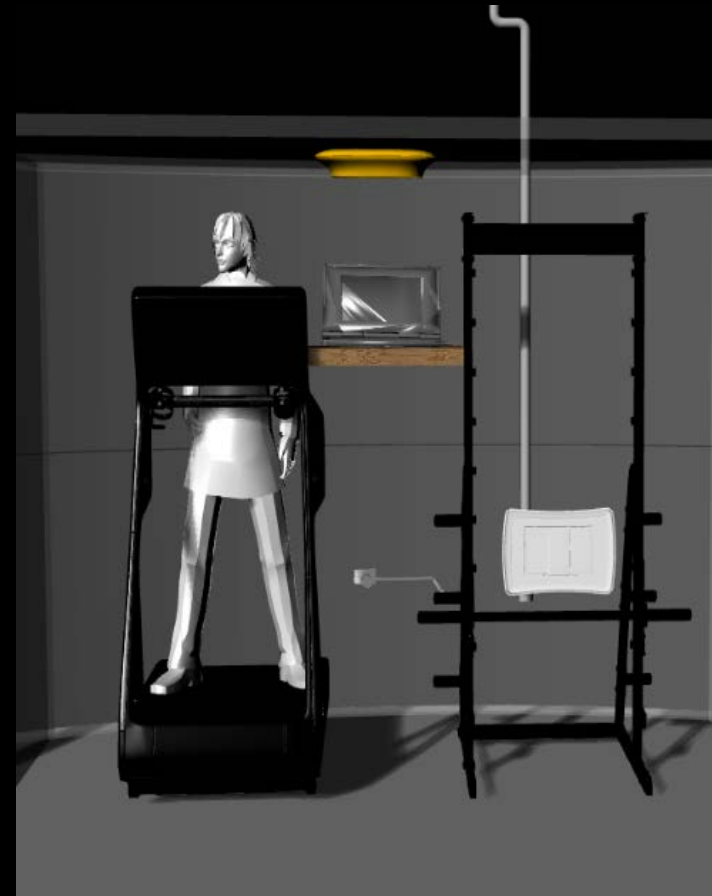
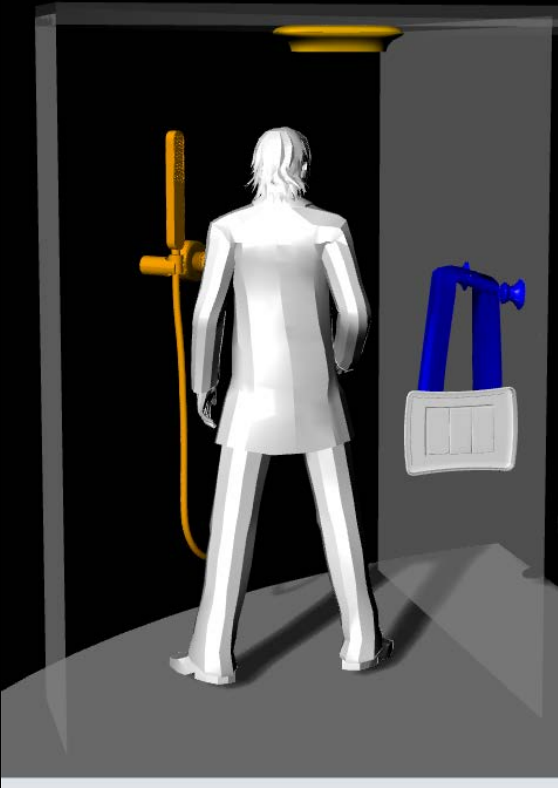
2nd Floor Command and Recreation Center



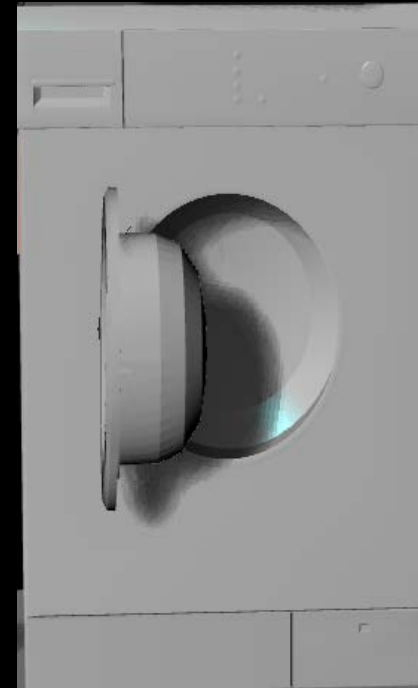
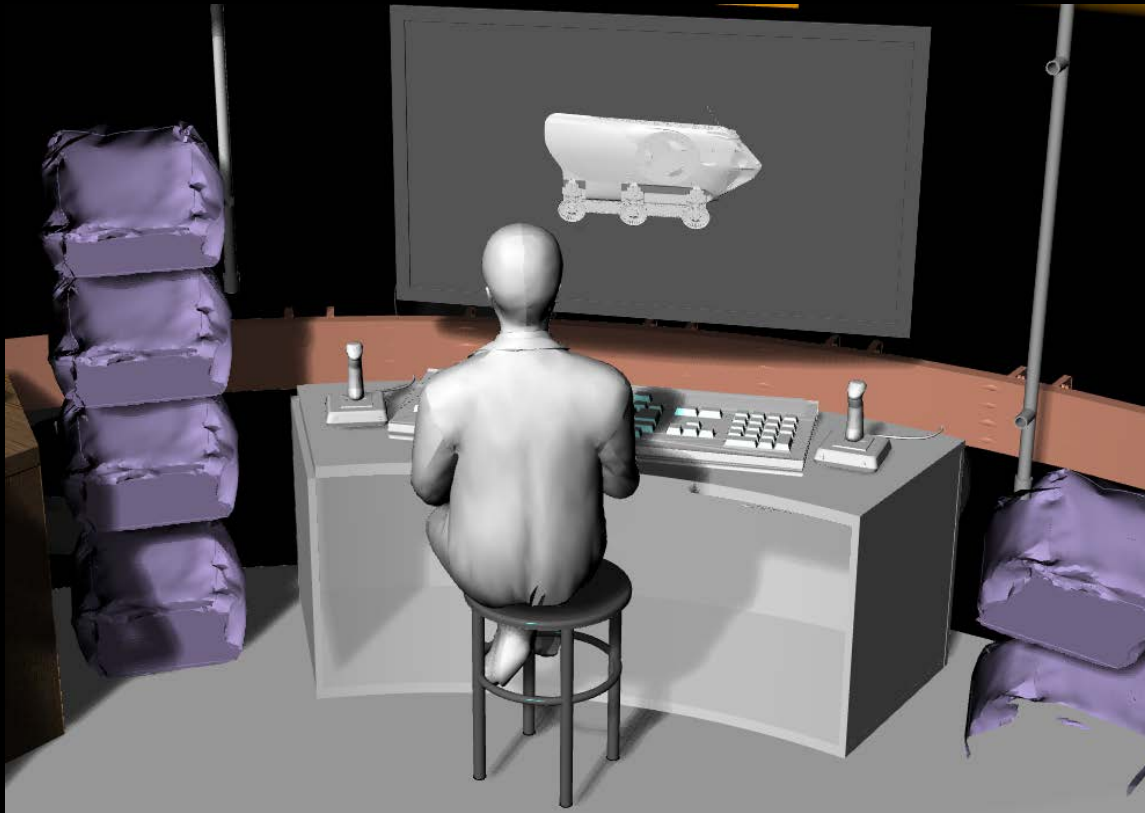
Kitchen and Dining Table



Shower Toilet and Gym



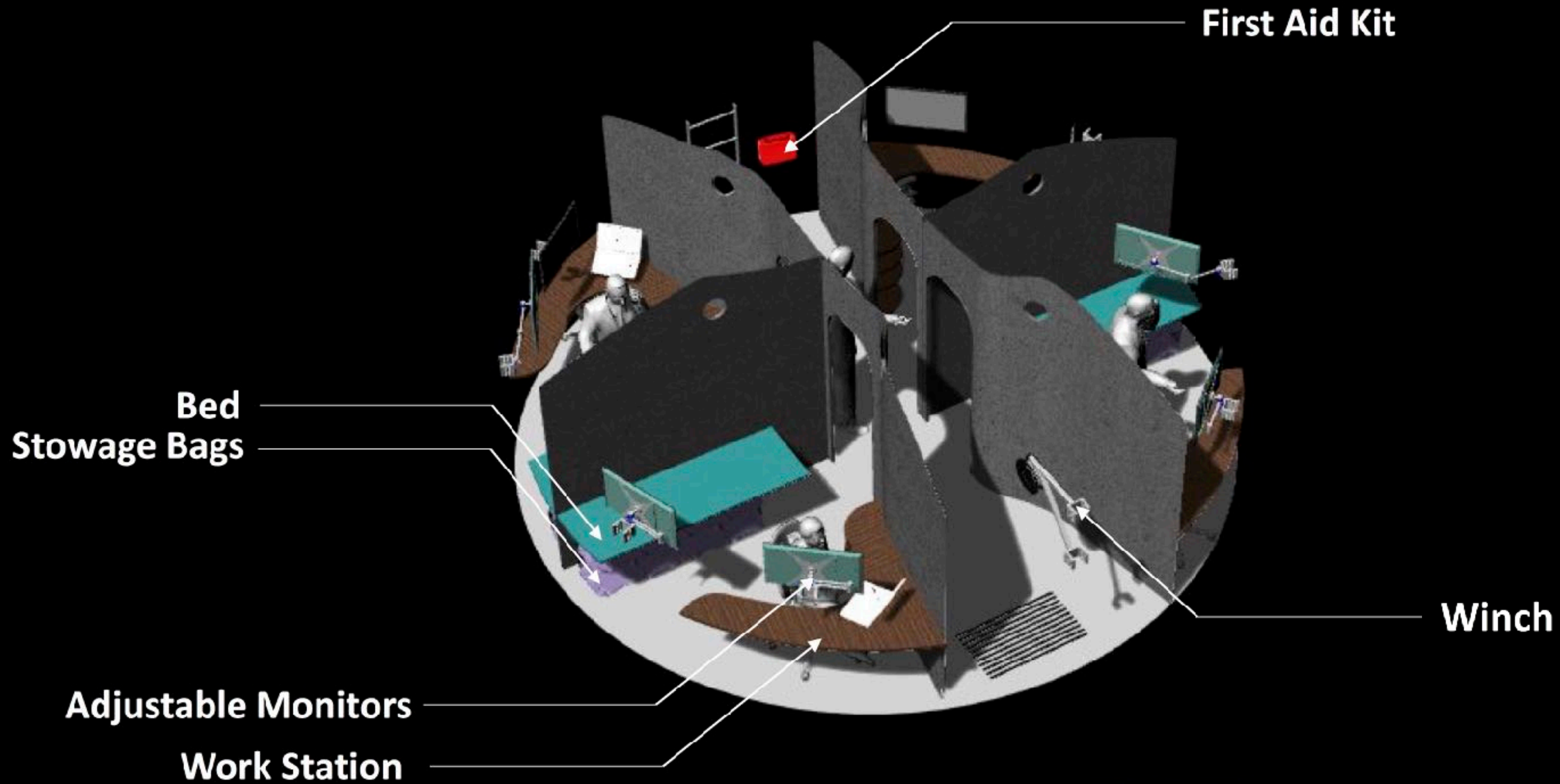
Mission Control, Washing and Drying Facility



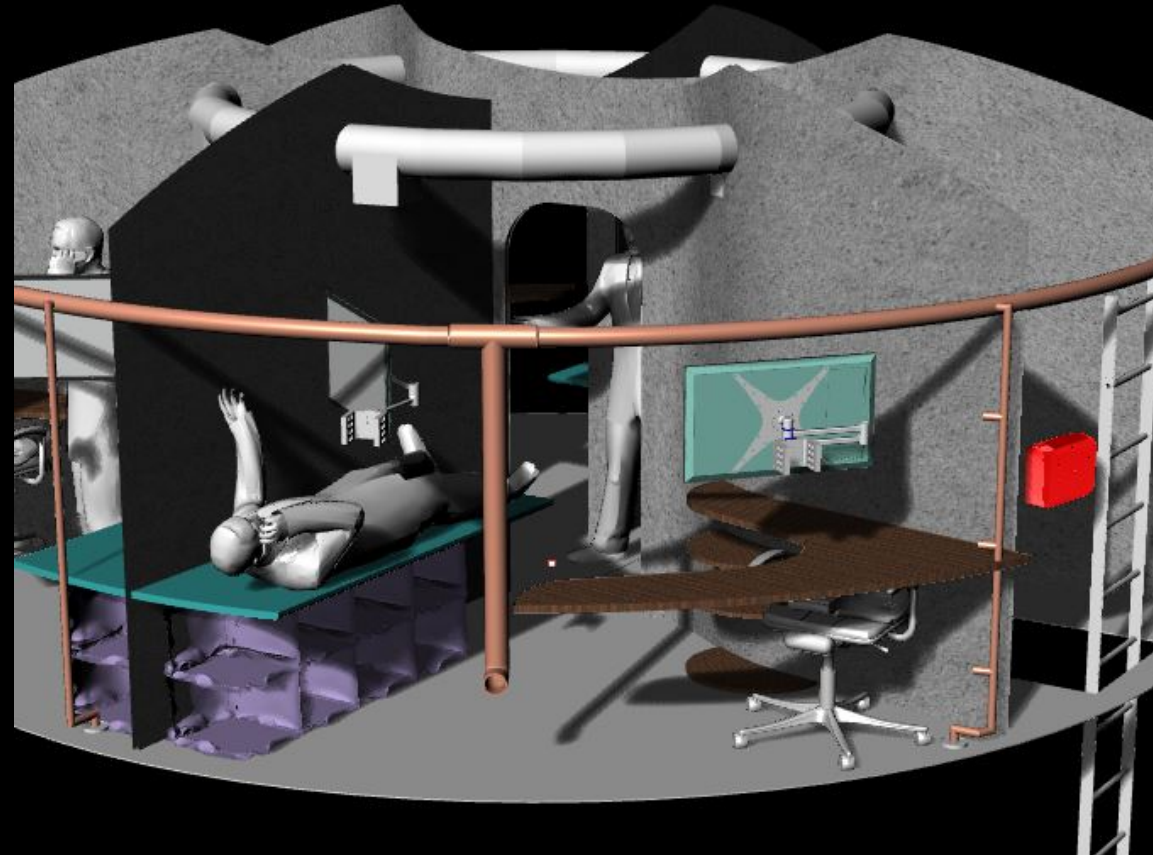
3rd Floor Summary

The third floor of the Hestia habitat is the crew quarters. Design is intended to be exactly the same for each room. Privacy as well as personal space is maximized on this level. Lighting per room should be completely adjustable according to the individual crew member's preference. The walls are intended to be hard to dampen noise and eliminate light pollutions from the outside environment.

3rd Floor Rooms



Room Features



Stowage and Secondary Structure



TYLER D. GILLILAND

Tyler Gilliland is a graduate student at the University of Houston, pursuing a dual-masters in Aerospace Engineering and Space Architecture. He studied and received his bachelor's degree in Aerospace Engineering from New Mexico State University, where he participated and placed in engineering competitions such as SEDS (Students for the Exploration and Development of Space) and DBF (Design, Build, Fly). After getting married and graduating in 2016, Tyler and his wife, Tori, moved to Houston, Texas, the hub of all things space related, to follow his dreams of establishing a colony on the surface of Mars and helping humanity become an interplanetary species. Tyler continues to work towards his passion through his thesis project that will outline his plan for establishing modular habitats on the surface of Mars. Tyler, his wife, and cat hope to one day retire on Mars.

Tyler can be reached by email at gillilandtyler89@gmail.com.



PRATIK DEEPAK PARAB

Pratik Parab is a graduate student at University of Houston, currently pursuing Master of Science in Aerospace Engineering and Space Architecture. Every child is fascinated by rockets taking off, landing, zooming in the space, He was no exception. That early fascination manifested into his passion. He moved to Houston in fall, 2016. Pratik completed his undergraduate studies from D. J. Sanghvi College of Engineering (University of Mumbai) where he studied Bachelor of Engineering in Production Engineering. During his undergraduate studies, he participated in various competitions including “SAE Aero design” which was held in Lakeland, Florida. Pratik Spearheaded wing design and fabrication for energy efficient flight. His team was ranked 17th among 75 teams from all over the world at this prestigious event. He is currently working on “Space manufacturing” as a master’s thesis for Department of Space Architecture. His aim is to colonize Mars and start manufacturing on surface of mars itself.

Pratik can be reached on LinkedIn at -

<https://www.linkedin.com/in/pratik-parab-084905a9>

