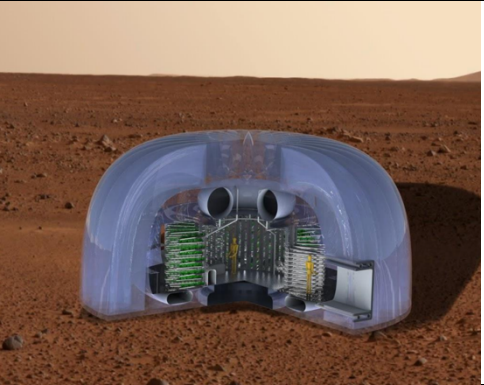

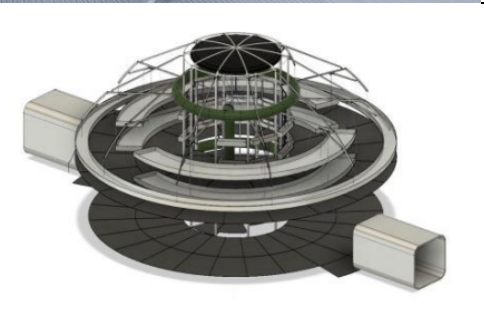



	Title	Summary	Images
Dartmouth College	DEMETER (Deployable Enclosed Martian Environment for Technology, Eating, and Recreation)	Our greenhouse design concept, DEMETER, is a Deployable Enclosed Martian Environment for Technology, Eating, and Recreation. DEMETER incorporates ice shielding from the Mars Ice Home habitat design and will provide sufficient nutritious food for a four-person astronaut crew on a 600-sol surface mission to Mars. The design is a low-mass, low-cost, low-risk automated hydroponic growing system which utilizes a cylinder inside a torus.	
Massachusetts Institute of Technology	BEAVER (Biosphere Engineered Architecture Viable for Extraterrestrial Residence)	BEAVER is an innovative greenhouse designed to fully support the food requirements for a crew of four astronauts on the surface of Mars. It employs redundancy, utilizes high Technology Readiness Level (TRL) components, and focuses on simplicity in order to reduce risk. In addition, it has minimal labor requirements and is designed to provide key mental health benefits for the crew.	
University of California, Davis	Martian Agricultural and Plant Sciences (MAPS)	MAPS is a 2-story inflatable greenhouse equipped with a variety of sensors and automated systems. MAPS provides a unique transformation of Martian regolith into soil as well as an installation of a drip-down irrigation system.	
University of Colorado Boulder with Harvard University, Cornell University, and the University of Hawaii, Manoa	SIRONA – Sustainable Integration of Regenerative Outer-space Nature & Agriculture	SIRONA: Sustainable Integration of Regenerative Outer-space Nature and Agriculture. The goal is to improve habitability and human factors of the outpost beyond satisfying basic nutritional needs.	
University of Michigan with Pennsylvania State University, Purdue University, Michigan State University, and the University of Wisconsin, Platteville	GAIA – Greenhouse Attachment for Ice home Architecture	By conducting a meticulous crop selection process, staggering crop cycles, and integrating an innovative waste processing system, the GAIA concept sufficiently provides stable food production. GAIA efficiently completed this objective via vertical farming systems, a mobile shelving system, and a staggered lighting system.	