

Inflatable space habitat to be tested on the ISS

March 31 2016, by Evan Gough



The Bigelow Expandable Activity Module (BEAM) will be launched onboard a SpaceX Dragon on Friday April 8th for a 2-year mission. Astronauts will test the module during that time. Credit: Bigelow Aerospace.

Space habitats have long been an object of fascination for thinkers, dreamers, and engineers. Science fiction is littered with space habitats, whether in books or movies. And their designs have ranged from titanic,

uber-engineered types to fanciful, organic types.

Bigelow Aerospace is one company that is focused on creating affordable, practical [space](#) habitats. Inflatability is the name of the game for Bigelow, and now, one of their habitat modules is going to be tested on the ISS for a 2-year period. The BEAM, or Bigelow Expandable Activity Module, will be launched aboard a SpaceX Dragon on Friday April 8th, for a 2-day journey to the ISS.

The BEAM travels as an 8 foot bundle, but once it's attached to the ISS, and inflated by astronauts, it will be large enough to hold a car. However, astronauts won't be living inside it; rather, the BEAM will be tested for 2 years to see how it holds up. The objectives for this 2 year mission include:

- Demonstrating launch and deployment, as well as folding and packing techniques.
- Determining radiation protection capability.
- Demonstrating design performance such as thermal, structural, mechanical durability, long-term leak performance, etc.
- Increasing Technology Readiness Level (TRL) of expandable habitat technology

"The International Space Station is a uniquely suited test bed to demonstrate innovative exploration technologies like the BEAM," said William Gerstenmaier, associate administrator for human exploration and operations at NASA Headquarters in Washington. "As we venture deeper into space on the path to Mars, habitats that allow for long-duration stays in space will be a critical capability. Using the station's resources, we'll learn how humans can work effectively with this technology in space, as we continue to advance our understanding in all aspects for long-duration spaceflight aboard the orbiting laboratory."



The BEAM with human figure for scale. Credit: Bigelow Aerospace

The obvious risk to an inflatable space habitat is puncturing; not only from meteoroids, but from the growing population of space junk that inhabits Earth's orbit. But BEAM is designed with this hazard in mind. It's a thick-walled design, made from multiple layers of fabric similar to Kevlar. As far as [space junk](#) goes, BEAM should be impenetrable.

The BEAM is just a test module. It will hold only monitoring equipment, and will be entered by astronauts retrieving data and performing inspections. Bigelow Aerospace's design for a usable habitat is the [B330](#), a module large enough for 6 occupants, with a projected lifespan of 20 years. Test results from BEAM's 2 years in space will help refine the design of the B330.

After its 2 years are up, BEAM will be released from the ISS and will be destroyed when it enters Earth's atmosphere.

Source: [Universe Today](#)

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