



# Life on the Red Planet

## ARCHITECTURE AND ENGINEERING STUDENTS DESIGN HABITAT FOR MARS

By Clay Fowler

Kinetic architecture is an emerging trend, one that requires engineers and architects to collaboratively solve problems.

The project that a group of 65 Cal Poly Pomona architecture and civil engineering students took on last year was so far off the grid – it involved a simulated trip to Mars – that kinetic architecture doesn't begin to describe it.

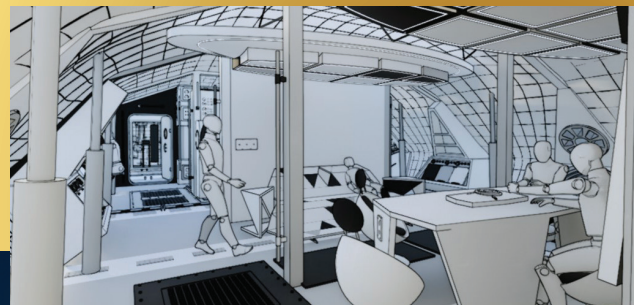
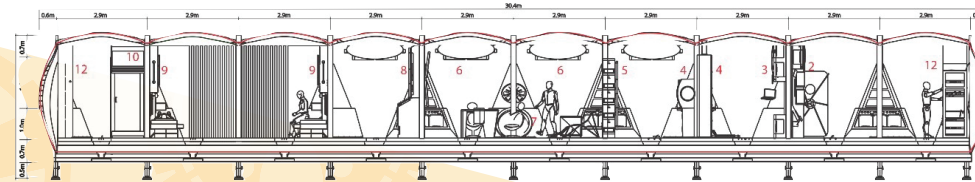
The NASA eXploration Systems and Habitation Academic Innovation Challenge required student teams to create living quarters that would travel 34 million miles inside a spacecraft, propel across the surface of an alien planet and unfold into a functional habitat for astronauts.

Designing for the Red Planet's extreme temperatures, low gravity and toxic atmosphere introduced exponentially more variables for the interdisciplinary CPP team.

"Students went from knowing nothing about space architecture to having a completed prototype in 20 weeks," says Architecture Professor **Michael Fox**. "You can make something on the computer, but when you scale it up, there's all sorts of problems to tackle, the kind you're not aware of unless you're doing it hands-on."

The Mars habitation module (nicknamed the Cal-Roli) was inspired by a roly poly bug and funded by a \$30,000 competitive NASA grant. Once the Cal-Roli lands on Mars, the idea is that four pod-shaped modules would roll to the designed site and unroll into living quarters.

"This project was very challenging because it involves problems we usually don't deal with on Earth," says architecture student **Eduardo Martinez**. "Every time you're designing something, you're not just showing it to your professors, you're going to Skype with real NASA engineers. So you're always adding more pressure on yourself in terms of solving problems."



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*Architecture and civil engineering students designed and built a prototype of a Martian habitat for astronauts.*

