



MAGAZINE

Space: Home Away From Home

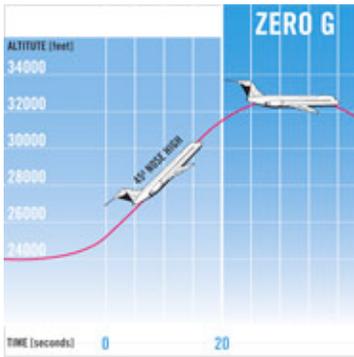
Umbilical Design creates habitable settings for extraterrestrial travel.

By Karen E. Steen

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Xero Flights

Umbilical Design's concept to make commercial passengers more comfortable on zero-gravity flights includes using lighting, scent, and sound to signal weightlessness.



Zero Gravity

Developed for space test flights, KC-135 aircraft are now being used by companies like Xero to give commercial travelers the chance to experience weightlessness. After reaching a height of 34,000 feet, the plane dives 10,000 feet, allowing passengers to float for approximately 20 seconds.



Cecilia Hertz, founder of Umbilical Design, specializes in designing comfortable conditions for space and other extreme environments.

Speaking with Cecilia Hertz about her work is like talking to someone from the future. She uses terms like “weightless thinking” to indicate that zero gravity should affect the way we live, and refers to designs used in our homes and offices as “terrestrial applications”—as if it were the Earth that was far away, and not the Moon and the stars. Hertz is one of the founders of Stockholm’s Umbilical Design, a three-year-old firm specializing in designs for space and other extreme environments. The company’s latest project, and its largest to date, is to create an interior-design scheme for Xero, the first Swedish entry in the growing field of space tourism.

In February Xero will begin offering zero-gravity flights, a service the firm bills as an “extreme experience”—a sort of roller coaster plus. Using a parabolic flight plane rented from the Russian space program, Xero will take passengers on a one-and-a-half-hour flight that features 15 short periods of weightlessness. Normally used to train astronauts and test equipment, the plane flies in a pattern of peaks and valleys, with 10,000-foot drops that create a temporarily weightless environment. Because the plane is a military craft—and because visitors will pay somewhere around \$8,000 for the experience—Xero has charged Hertz and her firm with creating a more pleasant consumer-oriented interior. Hertz, who experienced a weightless flight herself while a student in the Star Design Studio at Sweden’s Lund Institute of Technology, says her firm’s focus is creating a playground-like environment that will be both fun and reassuring. “It’s the most fantastic thing I ever tried,” she says of weightlessness, “but it’s a bit of a crazy feeling to enter the plane and not know exactly what is going to happen.”

The biggest challenge for Umbilical, however, is timing: the plane is rented for three to ten days, so the interior must be quick to assemble and remove. Drawing on space-architecture designs for inflatable habitats for the Moon and Mars, the firm is developing a concept for an inflatable module that would completely transform the plane interior in about an hour. “Xero really liked the idea because it also gives you a very safe experience,” Hertz adds. “You can’t hurt yourself in any way if you have this soft environment.” Aside from the inflatable interior, the cabin will be fairly open, with a few elements like vertical handrails that passengers can use to propel themselves around the space.

To further transform the cabin, Umbilical is taking cues from the world of theater, where scenery can change drastically in a matter of minutes. “You can do a lot of things to change the atmosphere with light and sound,” Hertz says. “So I decided to work with mood lighting and also to integrate some kind of scent design.” In addition to creating an otherworldly experience, these elements might also be used to give information. For example, instead of a pilot’s voice announcing when periods of weightlessness will begin, a change in sound or lighting might cue guests to prepare. Sound design can also be used to mask engine noise. “It will be more smooth and nice between the parabolas,” Hertz



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explains. “We can also give a greater feeling of security. It’s about having people feel very comfortable to be there and enjoy the situation the most.”

Xero has three flights planned for 2005--in February, July, and October--each holding 12 passengers. Flights will take off from Kiruna, a remote town in northernmost Swedish Lapland, and, in winter at least, passengers will spend the night at the nearby Icehotel, a seasonal facility built entirely of ice and snow. In summer they can witness another “extreme experience”: the aurora borealis.

After this test run Xero plans to expand its offerings and Umbilical Design also hopes to collaborate with other space-tourism pioneers such as the designers of SpaceShipOne, winner of the 2004 Ansari X Prize, a high-profile competition to promote space travel. When asked if true space travel will be available to civilians in the near future, Hertz answers, “Definitely--that’s what most people don’t realize! But I think with the success of the SpaceShipOne attempt, people will start to get more and more aware of that opportunity.”

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