



A Home for Everyone

by Lindsey Darby & Vinay Gupta

Around one billion people live on \$1 a day, and another two billion live on less than \$5. The common approach to poverty alleviation is to try and make the poor richer, but this is an uphill struggle. Powerful economic and social forces tend to concentrate wealth, not distribute it. Our approach to poverty alleviation is different: bring innovation to the poor, making essential goods and services affordable to everyone. Many technologies find service among the very poor, from kerosene lanterns and plywood to TVs and cell phones. The poor are customers too. The question is how to let them buy health and welfare along with their communications and light.

We come to this work from two complementary perspectives. Lindsey was partially raised on principles of survivalism and has a knack for spotting technologies that are suited to austere environments. Vinay's background is unusual for a designer: ten years in software. He started work on poverty with an energy policy think tank called the Rocky

Mountain Institute and pitched in on editing two books, *Small is Profitable*, on renewable electricity economics, and *Winning the Oil Endgame*, on transport energy efficiency and alternative fuels.

Currently we focus on housing, specifically the Hexayurt. A very simple building that looks like a shiny hut, Hexayurts are marvels of economy—probably the cheapest possible long-term dwelling that can be stockpiled for emergencies.

Getting to low-cost required looking to unusual places for inspiration. We knew that the materials had to be

A very simple building that looks like a shiny hut, Hexayurts are marvels of economy—probably the cheapest possible long-term dwelling that can be stockpiled for emergencies.

mass produced on an industrial scale already, so we could piggyback on existing economies of scale. Cardboard is everywhere, it is close to the cheapest material in general use. Hexayurts also had to be durable. Aluminum is pervasive and it lasts almost forever. So the Hexayurt is designed to work in cardboard and aluminum foil, if that is all that is available. Better materials will produce a better home, but even very basic materials will work.

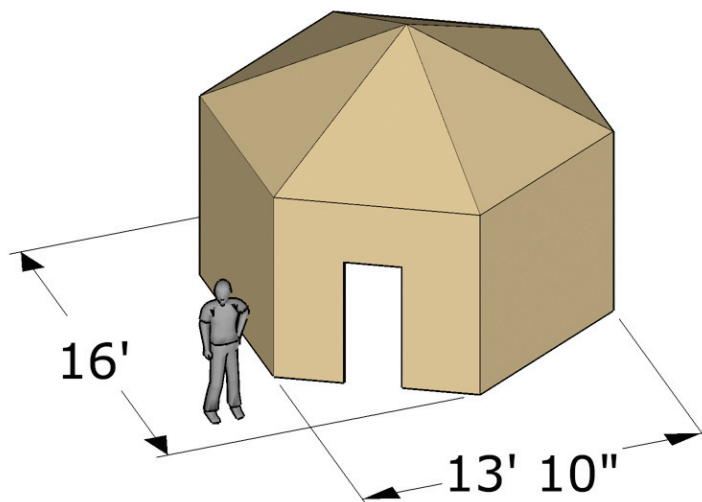
To make it strong, we applied the understanding that pound-for-pound, tensile materials are much stronger and cheaper than regular materials. So the Hexayurt uses filament tape, from the packaging industry, to hold the building together—a cheap, high volume, high specification tensile product. Most of the wind loads are taken by the tensile elements, meaning you can use light panel materials. There is zero cutting waste if you fabricate from standard industrial materials. Everything is used. The building is that shape because it works with standard sizes.

The Hexayurt can be thought of as the modern equivalent of the leaf and branch shelter our ancestors made in the forest. We take what is around us and shape it into a home.

To realize the dream of cheap, effective living tools, we have collaborated with a strange mix of people, from counterculture, the military, NGOs, and private companies. Burning Man was the home of the Hexayurt for the first five years, and “Burners” build more Hexayurts every year as the design spreads by word of mouth. The Department of Defense became interested in our work in 2006, and last year Hexayurts were built in the courtyard of the Pentagon. Now the Red Cross is considering the design as part of their next-generation shelter development program.

Commercialization has come slowly, but in 2008 we will see Hexayurts in commercial development. Because the design is open source, without copyright or patent, it has been difficult to figure out a business model. We found the

A design challenge worthy of a generation is to reach every corner of the planet with clean water and effective shelter as fast as the global phone network spreads.



“free/open” approach the only one morally consistent with the goal of creating a real home for everyone. Knowing that the design will be available to anyone who needs it is worth the extra work required to make it commercially viable. It’s not about “free” vs. “commercial,” it is about partnerships and collaborations, about integration and cooperation.

LEDs, phones, and computers are all on exponential price/performance curves. These technologies will bring the network with them as they spread globally. Designers need to find out how to bring essential services like shelter and clean water to people alongside the phone network. It is a design challenge worthy of a generation—to reach every corner of the planet with clean water and effective shelter as fast as the global phone network spreads. All of this is possible with a politically conscious design process.

Mahatma Gandhi and Buckminster Fuller are our big inspirations. Gandhi designed a spinning wheel as a tool for the poor to achieve first economic, then political, independence. Fuller envisioned a world with enough for everybody, a world without want, through maximally efficient use of planetary resources. We think of our work as striving for peace by applying Fuller’s design techniques with Gandhi’s political vision. Economic and political independence are inherently interlinked—what work can you do to support that agenda? 