

## **A Cactus in the Desert**

The tiny monarchy of Qatar might seem like an unlikely place for a green building revolution. But this small nation on the Arabian Peninsula is the home of the Qatar Green Building Council, an independent organization made up of architects, builders, academics, businessmen and government officials that is dedicated to promoting eco-friendly principles of design and construction in this tiny emirate of 300,000 native souls. Qatar is just the second country in the Middle East and one of only twelve countries around the world that has been able to attain membership in the World Green Building Council, which is an international organization dedicated to removing any barriers that remain to sustainable development.

The involvement of so many powerful people in Qatar, which has the highest per-capita Gross Domestic Product in the world, is an encouraging sign for the burgeoning green design movement. Qatar has gotten rich from its prodigious oil and natural gas deposits, but this has not stopped its most influential people from developing an ecological consciousness that is looking beyond the old fossil fuel economy. Qatar leads the world in carbon dioxide production per-capita as well, and they are large users of water even though the country only receives 8.13 centimeters of rainfall each year. These facts have helped provide the incentives for Qatar to embrace green building and design principles as a way to protect scarce resources while living in a more environmentally sustainable manner.

Of course, countries all around the world are notorious for paying lip service to carbon dioxide reduction and other important environmental goals, and then doing next-to-nothing to put their words into practice. Lest anyone get the idea that this may be the case in Qatar, however, Qatar's movers and shakers in the QGBC have been working hard to spread the gospel in their part of the world. In January of this year, the QGBC sponsored a conference that included a presentation called "Green Buildings from Islamic and Architectural Identity Perspective." Conference organizers emphasized that Islam is a spiritual tradition that promotes respect for nature while placing great importance on protecting resources and eliminating waste. Qatar seems determined to be a leader in the development of a new ecological orientation in the Middle East, and they are doing what they can to connect sustainability with the foundations of the region's civilization.

### **Biomimicry and Modern Green Design**

But beyond this aggressive advocacy, Qatar is putting its money where its mouth is. The government has contracted with an architectural firm based in Bangkok called the Aesthetics Architects GO Group to build a new office building for the Ministry of Municipal Affairs and Agriculture. But this new construction is not going to be the typical staid and unimaginative government edifice. Instead, the new ministry is going to be built to look just like a big, giant cactus. This may sound like a strange choice for the

shape of a building but the motivation for this unusual plan is an innovative principle called biomimicry, which is helping to revolutionize the art of architectural design.

Biomimicry is design based on imitation. Because living forms are perfectly adapted to their environments, the idea is that if architects and builders copy the designs of nature in their construction projects, they will be able to erect buildings that maximize efficiency and minimize resource usage. In a desert environment, there is no more efficient and hardy type of life form than a cactus, which is able to survive beneath a boiling sun without a reliable and consistent supply of water. In order to minimize the new ministry's use of water and production of waste, a botanical garden with three separate natural systems for cleaning and recycling water will be installed at the foot of the cactus tower. Much as a real cactus can use its thick skin to protect itself from the sun, the individual window panels of the new multistory tower will each have shades that can be put down when the sun is too strong and pulled up at other times to provide natural lighting and save electricity. At each step of the project, the designers of this giant cactus are going to be looking for ways to minimize waste and inefficiency, and the hope and belief is that the cactus shape will present all kinds of interesting possibilities for its ecologically-minded builders to do just that.

### **The Value of the Unique**

Biomimicry design, at this stage, is still somewhat in the metaphorical/speculative stage. While the idea of using the principles of nature in design seems intuitively brilliant, it is hard to say if design patterns that work so well for living things will work equally well for inanimate, man-made buildings, which are all ultimately intruders on natural landscapes that were made more for plants and animals than for cultural settlements. The most promising thing, however, is that the motivation behind biomimicry is bound to lead to a lot of experiment and creative flights of fancy that will inevitably spur on green development.

A big giant glittering cactus in the middle of the desert is going to attract a lot of attention because it is original, different, eye-catching, and just flat-out interesting. This big gleaming cactus is going to quickly become a tourist attraction, and the kind of publicity the cactus brings will be a boon to those who are pushing Qatar to become more green and sustainable – and there is no doubt that other nations and cities around the world will be watching and taking notice. Biomimicry is a principle that is likely to capture people's imaginations everywhere, and that is why it could be the perfect building style to spur green architectural design and construction on to new and unprecedented heights.