

INNOVATION

In Construction

Welcome to the World of.....

BIOMIMICRY



**CONSTRUCTION
ADVANCEMENT
INSTITUTE**

“Quality Construction Through Innovation”

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BIOMIMICRY.....Nature as a model, measure and mentor!

If you can architecturally envision termite mounds in Zimbabwe that are the genesis of a new kind of skyscraper....the surfaces of lotus leaves that hold the key to exterior building coatings that would make the structure(s) self-cleaning.....seashells that serve as models for fan blades of much greater efficiency at dramatically reduced noise levels.....then, you've just entered the exciting world of biomimicry!

Never heard of it? You're not alone. But keep your ear to the ground, because this cutting-edge technology is coming of age after nearly more than a decade since it was first



following the principles and systems of the Zimbabwe termite mounds. Housing millions of termites and their food supply, temperatures within a mound never varied more than 1° from 31° C even though Zimbabwe's outside temperatures ranged from 107° during the day to 35° at night.

Using state-of-the-art, computer, x-raying and modeling tools, it was revealed that the termites achieved this temperature control by constructing the mounds using a series of channels, ducts and venting. At first glance, the skeleton of a mound looked like a confusing labyrinth, but closer examination proved it to be an ingenious, passive HVAC system.



introduced ---and you'll be hearing a lot more about it in the future. *Biomimicry is a new discipline that studies nature's best ideas, designs and processes.....then, imitates them to solve human problems.*

The flagship of biomimicry building projects is the 340,000 sq. ft. retail and office tower in Harare, Zimbabwe, designed by architect Michael Pearce and local engineers, Arup Associates. Part of the Eastgate Centre development, the extraordinary building was designed and constructed

The 20-story Eastgate Tower was designed and built using all the principles of the mounds in 1996....and today still uses only **10%** of the energy another comparable building would consume! Temperatures are comfortably maintained year-round and since the building has no heating or ventilating plant, the owners saved \$3.5 million on these systems alone.

Now under construction in Guangzhou, China, is SOM's 71-story, 2.3 million sq. ft. Pearl River Tower. Inspired by the shape of a sea sponge, Pearl River will reportedly be the most energy-efficient, super-tall tower ever built and will be completed in 2010.

Think this is pie-in-the-sky dreaming? Think again!!



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Architectural giant, HOK of St. Louis, MO, has just formed an alliance with the Biomimicry Guild of Helena, MT, to integrate nature's innovations into the planning and design of buildings, communities and cities nationwide. Look twice at that tree outside your window, it may not be a tree at all....it may be another building.

[For more information on biomimicry, GOOGLE has more than a dozen different websites, but start with the cordial people at The Biomimicry Institute.]



[left] SOM's sea sponge-inspired Pearl River Tower and [right] a montage of nature's shapes, systems and processes. (All photos in this issue courtesy of Biomimicry Institute, Montana.)

ARCHITECTS' 6-LU 2009 COURSE NOW AVAILABLE



Architects again filled every one of the 40 seats at the CAI's 6-Learning Unit Continuing Education course last Fall. Two courses on cutting edge technologies will be held in 2009, with the first one scheduled for May 13, 2009.

To be guaranteed a seat in the Spring session in Tarrytown, NY, please call John R. Kubasek & Assoc., Inc. at (718) 727-4366 and ask to be placed on the pre-registered list. Registration fee is \$100, but no payment is due at this time.

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