



HIDDEN GENIUS

Loisos + Ubbelohde Associates is the smartest design firm you've never heard of. Its views on energy and light efficiency are illuminating the way forward for some of the architectural world's biggest names.

story
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LEFT: Principal George Loisos (top) and Professor Susan Ubbelohde (bottom) are the brainpower behind Loisos + Ubbelohde Associates, a consulting firm specializing in energy, light, and thermal modeling.

Although Loisos + Ubbelohde Associates has worked on dozens of renowned buildings—from the newest Apple stores to the Goldman Sachs headquarters—the firm isn't a household name even among those familiar with leading architects. This is because the bulk of its work isn't architectural design, per se, but rather in helping architects and others solve unique problems, often (but not exclusively) in the areas of energy and light efficiency.

The firm, founded in 1985 by architect George Loisos and university professor Susan Ubbelohde, was based on a simple but unique vision: apply research to architecture. "The firm arose from a desire to take advances we were seeing only in research and apply them in practice," Loisos says. "We wanted to obtain a deeper understanding of a project's impact on its immediate and less immediate environment by modeling rather than by simply finding ways energy and light can be used to assist a project from a business perspective."

As an example, Loisos points to energy. "If your building uses energy in a flatter way—that is, if you don't have peaks and valleys of energy usage—you're in a sense making your neighborhood a better place," he explains. "So we'll ask, is there any way to quantify that? Is there any way to make it available to others as well?" It's a novel approach, says Loisos, because buildings affect the environment in many ways that aren't recognized in current architectural practice—which is why Loisos + Ubbelohde Associates' consulting services are in such high demand.

The business took off around 2000, about the time that sustainability entered the mainstream architectural vernacular, and since then, it's flourished through word of mouth. "We're not quite sure how we get work—usually the phone just rings," Loisos says. "I think what happens is that someone is trying to figure out how to solve a problem, asks around, and eventually finds us."

It helps that Loisos + Ubbelohde rarely has to say no. "We get phone calls from people asking, 'Can you do this?' And our answer usually is yes," Loisos says. "Anything that has to do with energy and light and thermal modeling, we can tackle."



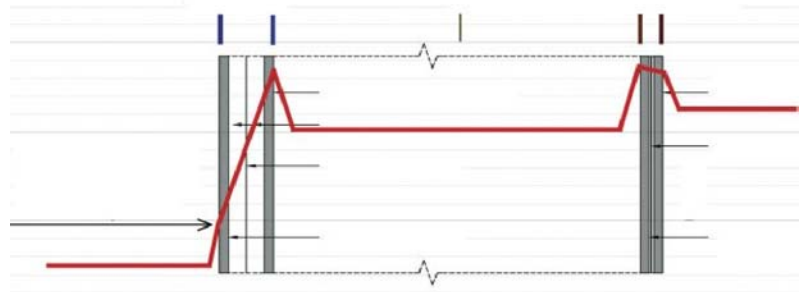
A GLASS BUILDING IN THE DESERT

The Cleveland Clinic Abu Dhabi (CCAD) is a 2 million-square-foot hospital in the United Arab Emirates' capital city. The hospital, which is scheduled for completion in 2012, was designed by San Francisco's HDR and won a 2010 Best Hospital Design Award from Hospital Build Middle East.

"The design team at HDR wanted a glass building in the desert, but that's obviously illogical, so it hired us to provide skin, energy, and daylight analysis," says Loisos, explaining his firm's role—a typical one for an atypical structure.

Loisos + Ubbelohde's solution, working in conjunction with Ted Jacobs Engineering, was to create a double-layer glass skin and use the space in between the layers to extract the last bit of cool air from the building's exhaust. The firm also used multiple layers of glass to filter out just about everything other than the visible spectrum of the sun's radiation.

"By finding a way to make a glass skin an asset, the building went from one that was consuming the same amount of cooling as San Francisco's entire financial district to one that was consuming 40 percent less than ASHRAE 90.1," Loisos says.



TOP: The clinic features a high-performance, double-skin facade system to deliver low energy costs and high occupant comfort in a demanding climate. CENTER: Detail section through Cleveland Clinic double-skin showing glazing assembly and thermal performance. BOTTOM: A diagram of daylight levels at the Cleveland Clinic Abu Dhabi.