



PROJECTS OF NOTE

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DESIGN

Next to a Real Oasis, the Water + Life Museums Offer a Refuge of Sustainable Design

The natural history of the desert and the human-designed infrastructure to make it livable come together in a landmark project.

by Zach Mortice
Associate Editor

How do you . . . design a museum in a desert climate that is maximized for sustainability and uses an infrastructural palette of forms?

Summary: The Water + Life Museums, by Lehrer + Gangi Design + Build, are the first LEED® Platinum certified museums. Both institutions are designed using infrastructural forms and materials that call attention to the industrial effort required to maintain human settlements in the desert and the need to preserve resources. The museum design uses several solar shielding techniques, a massive PV panel array, and radiant floor heating and cooling.



The museum complex also snatched the title away from a much higher profile project: AIA Gold Medal recipient Renzo Piano's California Academy of Sciences in San Francisco.

Were it not for the largest earthworks project ever undertaken in the nation, the museum campus wouldn't even exist. The two museums that make up the complex are in the Southern California desert, next to Diamond Valley Lake, a reservoir that came about after the Metropolitan Water District of Southern California dug 150 feet into bedrock to build two two-

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Captions

1. Lehrer + Gangi Design + Build's Water + Life Museums are the first LEED® Platinum certified museums. Photos © Benny Chan, Michael Lehrer, FAIA.

2. The architect wanted the long, narrow 70,000-square-foot museum complex to define the highway experience for visitors traveling past. Photos © Benny Chan, Michael Lehrer, FAIA.

3. Each museum consists of five 46-foot tall brushed-steel towers that contain exhibit galleries. Photos © Benny Chan, Michael Lehrer, FAIA.

4. To combat solar heat gain from the desert climate, the towers in each museum are heavily insulated and completely opaque. Photos © Benny Chan, Michael Lehrer, FAIA.

5. To combat solar heat gain from the desert climate, the five towers in each museum are heavily insulated and completely opaque. Photos ©

and-a-half mile long dams between two mountain ranges. The reservoir holds 260 billion gallons of water and took two years to fill. The Western Center for Archaeology and Paleontology exhibits rare items unearthed by this excavation, and the Center for Water Education was founded to tell the story of the desert water industry. The building's formal language is tribute to the incredible effort required to bring water to desert cities—and as Lehrer says “the timeless idea of what it takes to run civilization.”

Utilitarian, manmade form

Some buildings that put sustainability at the center of their parti emulate the landscape with materials and form, but the Water + Life Museums stand in expressive opposition to the natural landscape. It instead reflects the raw, industrial, and infrastructural forms of machinery people rely on but are often unaware of—sewage pipes, water mains, pumping stations, locks, and dams.



Lehrer speaks of being inspired by the utilitarian forms of water infrastructure along the Colorado River. “You viscerally get to see the day-to-day, minute-to-minute work of providing water,” he says.



This visceral experience is expressed in a monolithic machine-stamped repetition, “primal” and “Stonhengeian”, as Lehrer calls it, in its abstract starkness. Each museum consists of five 46-foot tall brushed-steel towers that contain exhibit galleries. Among the towers are interstitial spaces walled by glass and partially covered by graphically decorated banners. This simple rhythm of orthogonal forms stands in

singular contrast with the flowing desert landscape. An arcade and loggia run along the sides and rear of the museums, lined with trellis-like parallel and perpendicular steel strips that blur the division between inside and outside and recall the computer-engineered design language of power stations, factories, and other resource management building types that aren't constructed for museum spectacle. Seen from afar, the forms are recognizable, but still enigmatically alien. A landscaped courtyard runs between the Western Center and the Center for Water Education, which then leads to parking lots and nature preserves.

Lehrer says that by adopting a design vocabulary that's rarely used for aesthetic appreciation by the public, he's making visitors aware of the nearly invisible water resources industry and then encouraging people to help preserve it. “To change people's habits, it has to become part of their consciousness,” he says.

Dealing with the desert

Located in Hemet, Calif., within a two-hour drive of Los Angeles and San Diego, the Water + Life Museums' site orientation has it facing rays of direct sunlight from the east. Lehrer says he chose this plan as an “instantaneous response” to the site, even though it's a sustainability pitfall. He wanted the long, narrow 70,000-square-foot museum



Benny Chan, Michael Lehrer, FAIA.

6. The buildings' simple rhythm of orthogonal forms stands in singular contrast with the flowing desert landscape. Photos © Benny Chan, Michael Lehrer, FAIA.

7. The PV array's 30,000 panels generate almost half of the museum campus's power. Photos © Benny Chan, Michael Lehrer, FAIA.

8. Between the towers are interstitial spaces walled by glass and partially covered by graphically decorated banners. Photos © Benny Chan, Michael Lehrer, FAIA.

9. Between the towers are alternating glass-walled spaces partially covered by replaceable banners that Lehrer calls “theatrical screams.” Photos © Benny Chan, Michael Lehrer, FAIA.

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From the AIA Bookstore: [Building Type Basics: Museums](#), by Arthur Rosenblatt (John Wiley & Sons, 2000)



complex to define the highway experience for visitors traveling past, and the best way to do this was to make it run parallel to the road, facing it eastward.



To combat solar heat gain from the desert climate, the five towers in each museum are heavily insulated and completely opaque. These spaces are used for black box exhibit galleries. Between the towers are alternating glass-walled spaces partially covered by replaceable

banners that Lehrer calls “theatrical scrims.” As the sun rises in the east, they block solar energy and display pixilated images from the museum’s collection and the surrounding landscape. As the sun moves across the horizon, clerestory windows bring light into the museum from the west, and the banners slowly dematerialize and become invisible; a playful flourish that exhibits the otherwise austere buildings’ collaborative relationship to the environment. The museums’ radiant floor heating and cooling systems circulate hot and cold water through miles of pipes. It only heats the bottom 6-7 feet of the building, and the high ceiling heights in the single-level museum (32 feet in the towers and 12-18 feet elsewhere) means there is plenty of room for heat to rise above visitors’ heads. A large photovoltaic panel array sits on the museum’s roof. Its 30,000 panels generate almost half of the museum campus’s power. Additionally, 95 percent of construction waste was recycled.

Limits and liberation

Lehrer’s clients never asked for a headline-grabbing sustainable museum at any cost required, and its \$40 million budget couldn’t be called extravagant. The building’s victory was much more incremental but—as its rating attests—complete. After initial LEED certification was okayed, Lehrer and the team began designing beyond this rating. Midway through, they realized they were close to LEED Silver. Towards the end, they were at LEED Gold, if not beyond. Then, their LEED experts at Zinner Consultants told them they were within reach of LEED Platinum. Only then did they go back to their client and renegotiate the museum’s commitment to sustainability.



Lehrer says he never felt formally or aesthetically handcuffed by the project’s stiff (self-imposed) sustainability mandate. If anything, he says, these restrictions were “incredibly enriching,” because they gave him a framework for refining the design.



“We did what we always do,” Lehrer says. “The work is to squeeze every ounce of value out of every dollar. Maximize the bang for the buck, and use every opportunity to make the building better and better and better and better.”

This kind of economical design rigor has gotten him recognized before. Lehrer’s firm (Lehrer Architects) won a 2008 Interiors AIA Honor Award for their renovation of their own office.

For \$125,000 (about \$20 per square foot), they converted a dilapidated warehouse into a bright

and spacious workplace. AIA Los Angeles gave the Water + Life Museums a 2008 Design Award as well.

The museums (which opened a year and a half ago) were the product of a design-build partnership among Lehrer; Mark Gangi, AIA, of Gangi Architects; and his brother Frank Gangi, the project's construction manager, all based in Los Angeles. Lehrer says the collaboration within Lehrer + Gangi Design + Build meant that the entire process was driven by sustainability and design, not bottom lines. "The fact that we were on the same side is why we ended up getting LEED Platinum for this," he says.

Not an option

The Water + Life Museums are a far cry from the aesthetized fashion of industrial chic seen in countless condominiums, offices, retail boutiques, and hotels around the world. It draws inspiration from a true-to-life design vernacular, not a trendy composite of materials and forms. If not for the false choices between beauty and sustainability that buildings like the Water + Life Museums are helping to tear down, this synthesis might be taken for granted.

Lehrer thinks that might be a nice goal.

"In architecture, for me, it's not an option," he says. "The mission of architecture is—you solve your problems and you lift the soul. That's the work."



