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In Depth

# The world's greenest museum

The Platinum-LEED-certified California Academy of Sciences opens its doors to the public  
By Emily Wilson



California Academy of Sciences roof



Standing on the newly remodeled [California Academy of Sciences'](#) living roof, senior curator and botanist Frank Almeda points out some of the cutting-edge environmental design features of the roof's 2.5 acres: native plants that draw birds and butterflies, skylights that regulate the inside temperature and provide heat for the coral reef and rainforest, and the seven layers of the roof that absorb rainwater and prevent runoff. But the most exciting aspect, Almeda thinks, is that the roof, an exhibit in itself, offers an appealing way for people to learn.

"We're creating a landscape that's dynamic," he says. "I love the educational facet to this roof. It attracts people as well as different species. They're seeing things they can tell stories about when they go home."

Pritzker-Prize winning Italian architect Renzo Piano designed the new academy in San Francisco's Golden Gate Park. Awarded the highest LEED certification of platinum by the [U.S. Green Building Council](#), the museum is now the greenest in the world. The 410,000-square-foot building, filled with light and space, cost nearly \$500 million to build. Ten years in the making, the museum opened its doors to the public on September 27. Museum officials anticipate receiving a million and a half visitors in the first year to see the planetarium, four-story rainforest and coral reef housed inside.

Almeda says Piano's unique design was inspired by the surrounding landscape: the hills of San Francisco. Unlike most living roofs, which are flat, Piano sought to integrate the building into the natural topography. "He had this idea of just lifting up the landscape and sliding a museum in, and then putting the landscape back down," Almeda says.

To choose the plants for the roof, Almeda tested more than 30 native species to see how they did without watering or fertilizing. Nine finalists were selected, including beach strawberry, which attracts native birds, and miniature lupine, which provides nectar for bees and butterflies. These nine species are planted close to the viewing deck on the roof where visitors can easily see them, but Almeda says there are more than 40 other species planted throughout the roof to draw all kinds of visitors besides the thousands of humans down below.

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"Life attracts life," Almeda says. "It's like that saying, if you build it, they will come."

The LEED platinum certification means a lot, says Aaron Pope, the manager of sustainability programs for the Academy. In replacing the old academy building, damaged by the 1989 earthquake, architects and museum officials were looking to be as sustainable as possible through energy efficiency, water usage, and recycled materials. Pope says they went above and beyond in all areas. The new academy consumes about 35 percent less energy than required by code, due to features like radiant heat in the floor that reduces the building's energy needs and the 60,000 photovoltaic cells in the roof's perimeter, which supply almost 10 percent of the electricity. The steel in the building is 100 percent recycled and old blue jeans provide insulation. About 95 percent of the building has natural light. By using water from the Pacific Ocean in the aquarium, low-flow fixtures and reclaimed water to flush the toilets, potable water use is 30 percent below the baseline.

"We've made a building that is itself a big exhibit of greenness," says the academy's executive director Gregory Farrington, who likes to refer to himself as Chief Penguin. "We're a museum—a teller of stories. The building is itself one big teller of stories."

As for Pope, he can barely contain himself when he talks about the academy's features. A professional DJ, he likes to see people get enthused whether it's on the dance floor or while checking out a planetarium. And that's what he's seeing in visitor reactions to the new academy. "It's an amazing response," he says. "From what we're hearing from members and trustees to the comment cards to the wide eyes and 'wows' we see on the floor."

Pope had a hand in designing two of the exhibits on display. One on green building includes a tactile exhibit that shows some of the recycled rebar in the building, the blue jean insulation, and the tubes for the radiant heating. Another on climate change shows the effects of warming on the world in general and California specifically. But Pope says they wanted to be sure to focus on solutions as well as consequences, and he points to the stories of people who are making a difference and suggests steps everyone can take to inhibit future warming. "We want people to feel a part of something," he says. "We don't want to just leave them feeling all alone and scared."

Farrington says the Academy isn't really a natural history museum anymore, but rather a natural future one. "The two major questions for the future," he says, "are how did we get here and how are we going to stay."

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