ASK ANY SAN FRANCISCO schoolchild to name their favorite field trip of the year, and it’s a safe bet that they will cite the most hands-on museum in town: the Exploratorium. Until recently, that trip entailed piling on a bus and entering the cavernous expanse of the Palace of Fine Arts—a Roman- and Greek-inspired folly, originally designed by Bernard Maybeck for the 1915 Panama-Pacific Exposition. The visits were made all the better by the fact that the classical architecture gave way to a veritable playground of exhibits: static generators that made your hair stand on end; Alice-in-Wonderland-esque rooms that seemed to grow smaller; and cow-eye dissections carried out for groups of slightly horrified kids every few hours.

But, over time, the landmark space proved something of a liability: The institution was forced to limit the growth of its continuing education and teacher training programs due to lack of space. “The facility wasn’t working—we would have had to cannibalize ourselves,” says Dennis Bartels, the Exploratorium’s executive director.

The institution’s board began talking as early as 1991 about renovating or relocating to another site in the city, and, in 1998, they retained local firm EHDD and lead designer Marc L’Italien, FAIA. Once relocation seemed certain, the goal was to find a larger, more accessible space. But it wasn’t until 2004, when the city offered them another set of architectural icons—piers 15 and 17 on the historic waterfront—that they found a site that suited all of their needs: “When people saw this old, empty, industrial pier, it was like seeing the Exploratorium all over again,” Bartels says.

The new 9-acre campus is nearly five times the size of the old facility, and it opens onto the Embarcadero, which boasts a streetcar and access to several bus lines. EHDD renovated the existing Pier 15 shed building into a massive exhibition hall; nearly the length of three football fields, the interior can accommodate all of the existing displays and then some. In a stark contrast to the windowless Palace of Fine Arts, natural daylight pours through clerestories that run the length of the shed. A second floor, in the form of built-out bridges that cross the width of the space, is now home to the institution’s offices, as well as continuing education classrooms.

Outside, a 1.5-acre public plaza plays host to a series of outdoor exhibitions—including a fog bridge by Japanese artist Fujiko Nakaya that mimics the city’s signature weather—with a further half-acre of outdoor exhibits accessible to ticketed visitors. The plaza creates an active urban environment that the old site sorely lacked. “This was the juice of the project,” L’Italien says. “They are getting a much more public presence on the new site and a level of visibility they had never had.” The historic Pier 15 bulkhead had to remain untouched, so the outdoor exhibits “create the marquee,” L’Italien explains. “You come upon it and you think ‘I gotta see this!’”

Anchoring the end of Pier 15 is the only new structure on the campus: a two-story glass box that holds a publicly accessible restaurant at ground level, and a bay observatory on the upper level. This waterfront gallery is a showcase for a series of exhibits focusing on the surrounding ecosystems. “For 40 years, we’ve been taking Mother Nature and shrinking her to tabletop size,” Bartels says. “Now, we get to go outside and play with her.”

The process of constructing the new facility was akin to an Exploratorium exhibit in and of itself. Many community members saw rehabilitating one of the decrepit pier buildings as “an absolutely ridiculous thing to do,” says the client’s project director Kristina Woolsey. “You need to be a dreamer, and you need to have an uncanny sense of survivability.” Pier 15 was originally constructed in 1914, and rebuilt in 1930, but the wooden structure underneath had been largely untouched. The team employed...
Previous Spread: The new aluminum-panel clad entrance to the Exploratorium on Pier 15 in San Francisco. This image: EHDD transformed the historic pier shed and added a glazed pavilion at the pier’s edge. Solar panels line the roof as part of the building’s net-zero-energy strategy.

Below: A new public plaza between the museum on Pier 15 and neighboring Pier 17 (which will be transformed into workshops for the institution) is filled with outdoor exhibits, including a fog bridge.

First-Floor Plan

Second-Floor Plan

Bay observatory
Bay observatory terrace
Teaching and research
Media and communications

Main office

Bayview walk (public)
Outdoor gallery

South gallery: creative experimentation

West gallery: human phenomena

Museum entrance
Theater and box office
Museum shop

Notes:
The new Bay Observatory at the end of Pier 15 is a two-story glazed structure that incorporates a restaurant on the ground floor and exhibit space on the top floor (seen here). A terrazzo connects to the main exhibit hall on Pier 15. The guardrail is inscribed with a pattern derived from phytoplankton native to the local ecosystem.

Adding another layer of complexity to the renovation of the drafty shed was an early goal to make the new facility net-zero. The new slab is embedded with more than 40 miles of plastic tubing for radiant heating and cooling systems. Fresh air is brought into the structure through a series of overhead ducts, and the roof is outfitted with a 1.3 megawatt photovoltaic array. Current projections show that the Exploratorium is on target to meet its energy goals. “But you don’t just hand over the keys and have it be net-zero,” L’Italien says, noting that the systems will continue to be fine-tuned to ensure that energy consumption doesn’t exceed production. For now, EHDD and the Exploratorium are basking in the early signs of success. Since the waterfront facility opened in April, the number of visitors has increased by 400 percent, and school buses filled with the next generation of San Francisco science enthusiasts are lining up out front.

“There were a number of skeptics along the way who didn’t really think it was possible to get beyond the Palace of Fine Arts,” L’Italien says. “But as soon as they got occupancy of the new facility, they didn’t look back.”

divers to repair nearly 1,200 of the pilings that support Pier 15, and build a series of 30 steel mega-piles to offer further bracing. EHDD also removed decking between the two piers, restoring the original two-finger layout while leaving some of the original wooden pilings in place to serve as anchors for outdoor exhibits. Once the under-pier structure was shored up, a new 8-inch concrete slab was placed on top of the existing pier slab. The structure is now so sound that L’Italien says, “If there’s an earthquake, you really want to be at the Exploratorium.”

The new Bay Observatory at the end of Pier 15 is a two-story glazed structure that incorporates a restaurant on the ground floor and exhibit space on the top floor (seen here). A terrazzo connects to the main exhibit hall on Pier 15. The guardrail is inscribed with a pattern derived from phytoplankton native to the local ecosystem.
Above: The Exploratorium lobby and ticketing area opens into the main exhibition hall on Pier 15. Opposite top: While much of the exhibit space is lit by clerestory windows that run the length of the shed, some exhibits required a more controlled level of light, and were strategically located in darker areas of the exhibit floor. Opposite bottom: Staff offices are accommodated in glazed bridges that span the exhibit space, such as the one seen from the lobby, offering employees views out over the exhibit floor. Classrooms are also located on this level.
Nearly all of the institution’s existing exhibits made the move to the renovated double-height shed on Pier 15. Large windows on the far northeastern end of the pier offer spectacular views out to the bay.