

Bay Area Green

Ten San Francisco Bay Area projects by local architecture firms exemplify sustainable design strategies tuned to the region's climate.

WITH ITS UNDULATING roof covered in native California plants, the new Renzo Piano–designed California Academy of Sciences building in San Francisco's Golden Gate Park may be the Bay Area's most recent poster child for sustainable design. But the region has a long track record of environmentally responsible architecture, bolstered by year-round mild temperatures and the population's passion for conserving natural resources. Perhaps it is easier for clients to com-

mission buildings that embrace the environment in a region that, despite its urbanity, retains a great deal of natural beauty.

The early-20th-century practitioners of what historian Lewis Mumford dubbed the Bay Region style celebrated indoor/outdoor living; Berkeley architect Bernard Maybeck's idea of the perfect home was a landscaped hillside with "a few rooms scattered around in case it rains." While some of the Bay Area's recent green build-

ings are designed by outside firms—such as New York City–based Richard Meier's San Jose City Hall and Los Angeles–based Morphosis's San Francisco Federal Building—ten notable examples completed in the past three years are designed by architects who live and work in the region and know intimately the climate, the light, and the landscape.

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1. Cathedral of Christ the Light

OAKLAND

To replace the Roman Catholic Diocese of Oakland's cathedral, which was damaged in the 1989 Loma Prieta earthquake, Skidmore, Owings & Merrill's San Francisco office designed a replacement meant to last for centuries—and to celebrate light as a sacred phenomenon. At the northwestern corner of Lake Merritt in Oakland's downtown, the massive poured-in-place concrete podium rests on base isolators to protect the building from earthquakes. The concrete incorporates waste byproducts such as fly ash and slag to reduce the amount of cement used; the podium's thermal mass helps moderate temperatures inside the building.

The sanctuary's inner structure is composed of sustainably harvested Douglas fir ribs and louvers. The exterior glass skin, made up of more than 1,000 panes of frit-coated, translucent, and clear low-emissivity glass, minimizes heat gain while letting in enough daylight that the building only needs artificial lighting at night. Completed in 2008, the cathedral has a landscaped public plaza with a variety of pedestrian connections to the downtown.



2. eBay Building 17

SAN JOSE

The newest building on the online auction company eBay's San Jose campus opened in 2008. When the 800 employees moving into the structure submitted naming suggestions for it, "Mint" won. Designed by Valerio Dewalt Train Associates' offices in Chicago and Palo Alto, the five-story structure earned its name—as well as a Gold rating from the Leadership in Energy and Environmental Design (LEED) program—for a variety of green strategies.

On the roof, a 650-kilowatt solar panel system covers an area larger than a football field. The building's long, linear form and expanses of double-glazed windows bring in plenty of natural light and give all occupants views to the outside. Occupancy sensors turn off lights when they are not needed, and automatic shades on the building's south side lower to control sunlight during the hottest times of the day. In the lobby, a monitor displays energy use in real time. A large reflecting pool outside the building provides evaporative cooling.



SILVIA HALL/HEIDICH-BLESSING



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3. Energy Foundation Offices

SAN FRANCISCO

When the Energy Foundation outgrew its office space in San Francisco's Presidio, it looked for a new location at the heart of downtown, close to public transit so its employees could easily come to work without driving. A partnership of donors dedicated to advancing energy efficiency and renewable energy, focusing on the United States and China, the organization needed a workplace that would embody its commitment to environmental responsibility. Local firm TannerHecht Architecture designed an office on the sixth floor of the financial district's historic Bently Reserve Building that earned a Silver rating under the LEED for Commercial Interiors program.

Exposing the space's historic steel, brick, and concrete structure minimized resource use. Interior windows abound—in office and conference room walls, as well as in workstation panels—to take advantage of the daylight streaming through the existing large windows. Low-volatile-organic-compound finishes and materials improve air quality. As a highly visible symbol of environmental responsibility, the boardroom table is made of recycled Douglas fir and decommissioned photovoltaic panels. The organization moved into its new quarters in 2008.

4. IDEAs Office Building

SAN JOSE

When David Kaneda, owner of the electrical engineering and lighting design firm Integrated Design Associates (IDEAs), bought a 1960s concrete tilt-up bank building in San Jose to renovate as his firm's new California home, he was originally aiming for a LEED Platinum rating. After San Francisco-based EHDD Architecture came on board, the aim went higher: to create a zero-energy building.

The rooftop building-integrated photovoltaic system is designed to supply all the energy used by the building. That required an array of energy-saving strategies. Occupancy sensors for light fixtures, the addition of skylights and operable windows to the largely windowless structure, high levels of insulation, and use of high-efficiency office equipment all help reduce electricity loads; in addition, the security system shuts off energy-draining devices after the last occupant leaves for the day. A radiant floor system provides heating and cooling with the aid of a ground-source heat pump. The renovation was completed in 2007.



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5. Madison @ 14th

OAKLAND

At the southwestern corner of downtown Oakland's Lake Merritt, not far from the Cathedral of Christ the Light, Madison @ 14th was designed by San Francisco-based Leddy Maytum Stacy Architects for Berkeley-based Affordable Housing Associates. Madison @ 14th, which opened in 2008, has 58 permanently affordable units for low-income residents and 20 set aside for youths who have aged out of the foster care system.

The eight-story building employs multiple sustainable design strategies. A rooftop photovoltaic system meets nearly half the power demand in the common areas, which include a shared kitchen and community rooms on the second floor, as well as a podium garden. The ground floor has commercial space and a 51-car parking garage with a three-level lift to conserve space. The upper six stories contain apartments with energy-efficient hydronic heating and full-height operable windows for natural light and ventilation. Recycled, recyclable, and natural-material products are used throughout the structure.

BRUCE DAMONIE

6. Portola Valley Town Center

PORTOLA VALLEY

When Portola Valley officials learned the town center—a 1950s-era former school building housing a library, town hall, and community hall—sat directly above one of the San Andreas Fault's most dangerous stretches, they initiated a master plan for a replacement. Siegel & Strain Architects and Goring & Straja Architects, both of Emeryville, clustered the new town center in one corner of the same 11-acre (4.5-ha) site, well away from the most seismically active areas and shaded by an existing redwood grove.

Completed in 2008, the design has a smaller footprint than its predecessor, allowing for more open space with restored native landscaping. Reclaimed wood makes up 25 percent of the project's wood, much of it salvaged from the old school and reused for cladding, interior paneling, ceiling slats, and sunscreens. Rooftop photovoltaic panels, daylighting, thermal mass, exterior shading, radiant heating, and natural ventilation cut energy use. Green strategies were essential in generating enthusiasm for private fundraising efforts, which paid 80 percent of project costs.



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7. Sava Pool

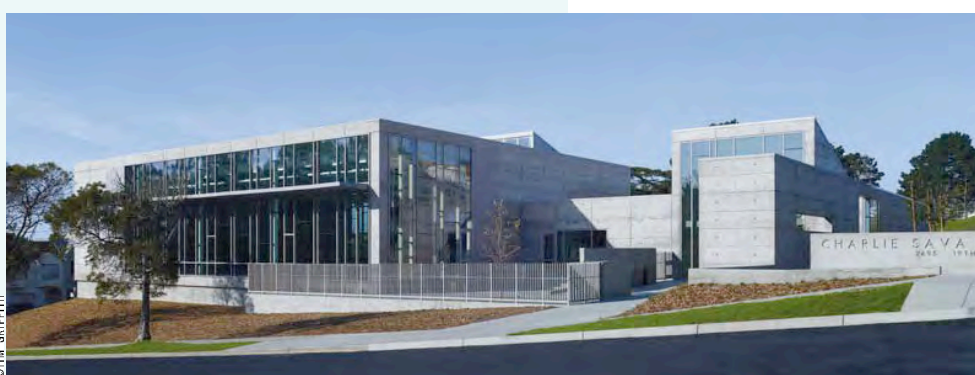
SAN FRANCISCO

Chlorine and salt-laden fog took their toll on a 1950s public pool structure in San Francisco's Sunset District, rotting wood and rusting steel. The new Sava Pool, which opened this year, replaces that building with one made of durable cast-in-place concrete and aluminum curtain walls. Exposing the concrete eliminated the threat of trapped moisture and saved on materials.

Unlike its predecessor, the new pool is oriented away from busy 19th Street and toward a nearby park, with expansive windows providing views. Skylights and roof monitors bring in even more natural light. Operable windows placed at floor and roof levels facilitate natural ventilation on temperate days, while the sunshade on the south-facing facade and the low-emissivity glass block solar heat gain. Roof-mounted solar hot water panels, along with heat from the dehumidifier, help keep the pool warm. San Francisco-based Mark Cavagnero Associates Architects and Paulett Taggart Architects designed the building.



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8. StopWaste Offices

OAKLAND

When StopWaste, Alameda County's waste management authority and recycling board, needed a larger headquarters, it bought an 80-year-old building close to two Bay Area Rapid Transit (BART) stations in downtown Oakland and set about transforming it to reflect the organization's values. Designed by local firm Komorous-Towey Architects and completed in 2007, the building uses 40 percent less energy and nearly 50 percent less potable water than a similar conventional building.

A kiosk in the lobby not only monitors and displays the building's energy use in real time, but also shows visitors the building's green strategies, which include daylighting through skylights and new windows, high-efficiency lighting, and concrete that incorporates fly ash. The high-efficiency heating, ventilation, and air-conditioning system notifies occupants when outside temperatures are optimal for opening windows. The reflective roof reduces heat gain, while a photovoltaic system meets 10 percent of energy needs. The project received a Platinum rating under the LEED for New Construction program.

9. 22nd Street Condominiums

SAN FRANCISCO

On a small lot in the Mission District, close to Valencia Street shops and restaurants, the 22nd Street Condominiums project puts new life into old barrels. Fifty-year-old olive oil barrels from Napa and Modesto were used for the building's rain screen and exterior trim, protecting the walls from sunlight and moisture. Flooring in the units is made of salvaged wood from Asian shipping pallets diverted from the landfill. Recycled denim insulation, double-insulated glazing, hydronic radiant-floor heat, and a high-efficiency boiler reduce energy costs, while a two-kilowatt photovoltaic system powers common areas.

Other sustainable touches include recycled glass tiles and slabs, finishes that emit low levels of volatile organic compounds, and concrete with a high volume of fly ash. The vegetated roof relies on native, drought-tolerant plants. Completed in 2007 and designed by John Maniscalco Architecture for Lorax Development—both based in San Francisco—the five-story building has three residences and ground-floor commercial space.



JOHN MANISCALCO ARCHITECTURE



FOREST CITY

10. Uptown Apartments

OAKLAND

Oakland's long-neglected Uptown neighborhood has been experiencing a resurgence in recent years with the recent restoration of the historic Fox Theater and the arrival of new restaurants, galleries, and nightclubs. A centerpiece of the area's redevelopment efforts is the Uptown apartments, a public/private partnership of Forest City Residential Development of Cleveland, Ohio; MacFarlane Partners of San Francisco; and the Oakland redevelopment agency. Designed by local firm McLarand Vasquez Emsiek & Partners and opened in 2008, the Uptown's three buildings contain a total of 665 rental units and 9,000 square feet (836 sq m) of neighborhood retail space.

Each building is organized around two landscaped internal courtyards, maximizing natural ventilation and enabling 90 percent of interior spaces to receive daylight. Close to BART and multiple bus lines, the development includes bicycle storage, a Zipcar shared vehicle, and preferred parking spaces for hybrid and alternative-fuel vehicles. Low-flow and waterless plumbing fixtures, drought-tolerant landscaping, and high-efficiency irrigation systems conserve water. Uptown received a LEED Silver rating. **UL**



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