



# TAT house

## SUSTAINABLE FEATURES

The design of this 5,600 square foot single family home in Santa Monica was rooted in a keen awareness of site and landscape and a dedication to sustainable architecture. After living in the neighborhood for over 30 years, the clients decided to build a new house that would more completely engage the landscape while seeking the highest certification offered by the U.S. Green Building Council. Designed as a linear sequence, the house unfolds as a series of spaces that are completely open to the landscape. Large expanses of glass walls pocket away allowing rooms to blur the distinction between outside and in. Fleetwood / Fernandez was responsible for the architecture as well as the interior design, which in addition to the sustainable finishes inherent to this type of project, features a curated selection of furnishings with many vintage pieces that extend the spirit of reuse.

The house seeks Platinum Certification in the U.S. Green Building Council's LEED for Homes program. Sustainable features of the home include:

- Photovoltaic Panel array that is designed to collect 8,250 kilowatt hours per year of electricity.
- An "Earth Tube" mechanical duct cooling system that allows forced air to be delivered into the home at 5 degrees cooler than outside air temperatures without the use of any refrigerant.
- A thermal chimney that ventilates the home utilizing natural breezes and airflow across the site in conjunction with a continuous central stairwell that pulls warm air vertically out of the house by way of an operable skylight.
- State of the art LED lighting that diminishes the electrical consumption of the house to less than a third of what a similar sized home would consume in lighting demand.
- The house was designed to perform 59.6% better than what the California Energy Code (Title 24) requires.
- A Graywater system that contributes 15% of the total irrigation demand.
- A Rainwater harvesting system that collects all rainfall for irrigation.

- A storm water infiltration system that allows all rainfall to percolate on site rather than draining onto the City streets and into the Santa Monica Bay.
- A concrete thermal mass “trombe” wall that absorbs heat from the sun during the day and releases it in the evening, lessening the total heating energy load consumed by the house.
- The landscape features 100% drought tolerant plant species that drastically reduce the water needed for irrigation.
- An aggressively efficient smart irrigation system that utilizes rain sensors, multiple zones and extensive areas of drip irrigation to utilize significantly less water.
- A permeable hardscape design that includes less than 12% non-permeable surfaces allowing all rainwater to be utilized and contained on site.
- The most efficient plumbing fixtures, that use considerably less water at every wet location. Toilets all average 1.1 gallons per flush. Lavatories use less than 1.5 gallons per minute and showers use less than 2 gallons per minute.
- The water heating for the house was planned to be split into two autonomous systems that allow for a compact design thereby lessening the amount of energy loss in delivery of hot water.
- High efficiency, Energy Star rated appliances were selected to significantly reduce energy demand.
- FSC certification for all the wood framing in the house including the walls, floor and roof structure as well as the wood rainscreen.
- All paints used on the home emit zero Volatile Organic Compounds into the air.
- 90% of construction waste was diverted away from a landfill and into reusable or recycled content.
- Wall insulation that contains 20% recycled content.
- Whole- house radiant floor heating that significantly reduces energy consumption in heating load over a forced air system.

## PROJECT TEAM

The project team was assembled to leverage some of the most innovative consultants working in sustainable building design. Glumac was hired to assist in designing all of the mechanical, electrical and plumbing systems according to the strict standards the LEED for Homes Program stipulates. The project team was led by principal Edwin Lee and mechanical engineer Henry Lam. Taylor & Syfan was hired as the structural engineer. They were led by principal Garrett Mills and Joel Micek. The Landscape Architect on the team was GSLA headed by principals Joe Sturges and Ryan Gutierrez. Leigh Jerrard at Grey Water Corporation designed the gray water system. The lighting in the home was designed by Horton Lees and Brogden led by principal Teal Brogden and designer Alexis Schlemer. Finally, Glen Boldt served as the Green Rater for the project.