Tipton Meeting House, UCSB Sedgwick Reserve

Santa Ynez, California

Green Features

Project Overview-

The Tipton House was designed to provide offices and meeting rooms for the UC Sedgwick Nature Reserve, the first new building of a number of support facilities planned for the site. The donor, university representatives, and the design and construction team met in 2007 to brainstorm strategies to make this one of the greenest buildings in California. The overall goal was to be certified by the USGBC at the Platinum level for Leadership in Energy and Environmental Design (LEED).

Platinum Certification, the highest possible, was achieved, with the project earning every achievable LEED design point. The building was designed and constructed to minimize impacts to the site; maximize harvesting of sun, rain, and wind; minimize use of energy and water; maximize use of local, natural, and recycled materials; and to maximize user comfort and health. Due to its low energy use and its use of available geothermal heat sinks and onsite solar photovoltaic panels, the building is designed to use 60 percent less energy: no natural gas is used, and on onsite solar photovoltaic tracking system supplies a large portion of the building's electricity use.

Site-

- Building sited to minimize disturbance to oaks and other sensitive areas
- Erosion and sedimentation control incorporated in construction process
- All storm water is captured for reuse or retained on site
- Light colored terrace and site paving designed to reduce "heat island" effect
- Access road built using a petroleum-free natural resin pavement
- Exterior lighting is shielded to reduce light pollution

Energy-

- Passive solar space heating in south-facing rooms (which convert to screened porches in summer)
- Geo-thermal heating and cooling (using the thermal mass of water in an existing underground cistern)
- Solar domestic hot water system generates hot water for the building
- High efficiency heating equipment and controls with third-party inspection
- Demand control ventilation and economizer controls for maximum ventilation efficiency
- High levels of spray foam insulation for thermal efficiency and air-tight construction
- 'Cool' reflective roofing
- High-performance windows
- Solar Shading devices
- Designed for natural cross ventilation
- Ceiling fans
- Day lighting (no lights should be needed during the day)
- Energy-Star appliances
- High efficacy lighting
- Daylight sensors limit the use of electric light on sunny days
- Time clocks and motion sensors limit electric light usage when the building is not being used
- Very efficient Rumford type fireplace

- Solar Photovoltaic panels supply 11% of the building's electricity needs

Water-

- Roof rain water collected , stored and used for flushing toilets
- Very efficient water fixtures
- Waterless urinals
- Drought-tolerant native landscaping (requires no irrigation)

Materials-

- Metal roofing for durability, fire resistance and solar reflectivity.
- Fiber-cement siding for durability and fire resistance.
- Sustainably-harvested framing and finish lumber, windows and doors
- 20% fly ash substituted for cement in concrete
- Exposed, polished and stained concrete floor slabs for low maintenance and durability
- Reclaimed interior finish wood (wainscots and ceiling)
- Natural clay interior wall finish
- Recycled paper solid surface countertops
- Natural linoleum countertops
- Recycled content ceramic tile
- 20% locally-sourced materials

Indoor Environmental Quality-

- All occupied rooms have good daylight, views, and natural ventilation
- Low-emitting indoor materials (no added urea-formaldehyde or volatile organic compounds)
- Carbon dioxide monitoring incorporated in HVAC system
- 2 week flushout of building to allow for finishes to off-gas before occupancy

Construction Phase-

- Nearby oak trees fenced and protected
- Construction timed to avoid bird nesting season
- Construction parking and dumping of liquids strictly controlled
- Construction waste minimized through use of pre-cut framing members
- 90% of construction waste was recycled and diverted from landfills
- Air distribution system protected during construction

Project Design Team-

- Donors- Nancy, Joe and Nelle Byrne
- Architect- Thompson Naylor Architects (Dennis Thompson and Jeff King)
- Civil Engineer- Above Grade Engineering (Harry Hamilton)
- Structural Engineer- Howard Structural Engineering (Lynn Howard, Bill Hanna, Greg Stork)
- Mechanical Engineer- Mechanical Engineering Consultants (Tom Hughes and Linda Altomare)
- Electrical Engineer- JMPE Electrical Engineering (John Maloney and Sal Melendez)
- LEED Consultants- (Paladino Associates, Jordan Sager/UCSB)

General Contractors-

- Exterior shell and green design collaborator- Allen Associates
- Interior- Melchiori Construction