



Leed Platinum Hillside House



Project Name: LEED Platinum Hillside House, Mill Valley, CA

Application: Residential

Owner: Tracy & Scott Lee

Architect: SB Architects

General Contractor: MCD Construction & Development

Contractor: SDI Insulation

Insulation System: Bayseal® Open Cell (OC) and Closed-Cell (CC) SPF Insulation

At 120 ft x 80 ft and with a 49% grade, the lot for this house just outside of San Francisco dictated the design approach. The home has four stories and totals 2,116 square feet. Thanks to comprehensive sustainable and energyefficiency considerations, the home is the first LEED Platinum certified home in Marin County, CA. The ground floor contains the garage and a wine cellar. The first floor includes a guest room and kids' bedrooms. The second floor houses the master suite and a large outdoor terrace. The top floor features vaulted ceilings and an open plan kitchen/living area with two outdoor living spaces.

Given the lot's slope, 20% of house is below grade and able to take advantage of the ground's natural insulating properties. The house is designed to maximize passive heating and cooling and optimize solar orientation for the roof and trellis-mounted 3.75kW photovoltaic panels. Other sustainable features including a solar hot water system, radiant floor heating, a whole-house automation and lighting system, LED lighting, super-insulated doors and windows, water-conserving plumbing fixtures, locally sourced recycled-content materials, zero-VOC paint, and native, droughttolerant landscaping.

The major design challenge was the need to keep the roof assembly profile as thin as possible to achieve the high vaulted ceilings in the upper floor yet stay under building height restrictions mandated by local codes. Spray polyurethane foam (SPF) insulation contractor SDI Insulation installed a hybrid insulation system of Bayseal® Open Cell (OC) and Closed Cell (CC) SPF to achieve superior R-value in the roof while also meeting the design intent. The hybrid approach allowed SDI to insert the SPF into the wall cavity from above, thereby eliminating almost all air pockets in the envelope.

The architect chose Bayseal® OC insulation for all exterior walls above grade. Below grade, Bayseal® CC is used on the exterior of all walls to maintain a more constant indoor air temperature, provide moisture resistance and mitigate moisture from the outdoor marine environment. All mechanical equipment is located on the ground floor.

Bayseal® OC SPF is also used within some interior walls for added benefits. It is used on walls around the wine cellar to help maintain the cooler temperature. It is used between the floors to mitigate noise. The Hillside House received national acclaim and media coverage, including a cover feature in the prestigious Sunset magazine. It is also the winner of the EcoHome magazine 2010 Grand Award for custom homes between 2,000-4,000 s.f.



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