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# GREEN *from the* GROUND Up

## Wineries commit to environmentally friendly design in their new buildings

BY DANA NIGRO

Perched high on Howell Mountain, Cade winery's airy, glass-walled tasting room and living room–like patio offer gorgeous views of the Napa Valley floor below and the Mayacamas Mountains on the other side.

Yet a closer look at the property is just as intriguing. From the electric vehicle charging stations in the parking lot to the untreated wood beams and fly-ash concrete walls that blend so beautifully into the surroundings, this is a winery that takes environmental care to a new level. Even the office of partner John Conover has a unique view: A portal on his wall shows off the building's insulation—which is made of shredded worn blue jeans.

Craig and Kathryn Hall's winery became the second in the U.S to earn Gold from LEED, receiving approval last summer.

Looking down into the valley, if you could pick out the Hall winery several miles away along Highway 29 in St. Helena, you might be able to see the 35,000 square feet of solar panels that top its new fermentation and barrel cellars. While those two buildings focus more on function than visual flair, they are equally notable for their design, representing the state of the art in winemaking efficiency.

Both of these Napa Valley Cabernet producers are aiming to be as green as possible inside and out, constructing their new facilities to standards set by the LEED (Leadership in Energy and Environmental Design) Green Building Rating System.

From left: John Conover, Tony Biagi and Gordon Getty of Cade. The Napa winery is on track for a Gold certification this spring.

"There a lot of words that people are attaching to being environmentally responsible," says Hall winery president Mike Reynolds, explaining why owners Kathryn and Craig Hall—a former U.S. ambassador to Austria and an entrepreneur, respectively—chose to pursue certification. "We thought in farming and building we would just pick the highest bar and go for that."

Developed by the U.S. Green Building Council (USGBC), introduced in 1998 and since adapted by Canada, the voluntary LEED certification is an international benchmark for buildings that are environmentally friendly and healthful places in which to work or live.

Hall's winery earned the prestigious Gold level certification in July 2009, joining only one other U.S. winery and just more than 100 other buildings in California to hold Gold ratings at the time. Cade—part of the PlumpJack Group owned by billionaire philanthropist Gordon Getty and San Francisco Mayor Gavin Newsom,

who is encouraging LEED development in the city—is likewise targeting Gold for its winery, tasting room and offices. Opened in spring 2009, Cade is still winding its way through the verification process, which may be completed this spring.

Located in the country's leading wine region and backed by big names, Hall and Cade may be the most prominent LEED-built wineries. But they're not alone.

Already, a handful of North American wineries have earned LEED certification for one or more of their buildings—Oregon's Sokol Blosser being the first, in 2002, with its barrel cellar. More than a dozen winery-related projects are in design, under construction or in the verification process—10 of them registered for LEED in 2009 alone, not only in California and Oregon, but also Florida, Michigan, New York, South Dakota, Vermont and Virginia. In addition to the commercial wineries, both the University of California, Davis, with its new teaching and research winery, and the Napa Valley Vintners association, with its new headquarters, are aiming to be models for the industry.

The number of wineries involved with LEED may seem small considering that about 35,000 projects across a variety of industries in all 50 states and 91 countries are participating. But they can have a huge impact, inspiring others to build green in a way that, say, an office building cannot. "Wineries have a significant role to play here by virtue of their large public presence through tourism and the significant opportunity to educate that this represents," says Bruce Hammond of the Redwood Empire Chapter of USGBC.

Vintners who have gone through the LEED process say they expect the number of wineries that follow suit to grow markedly, based on the interest they have seen from colleagues and tasting-room visitors. "It's amazing how LEED as a term has become so much more recognized in the last two years," says Charles Baker, sales and marketing director for Stratus, the first Canadian winery to earn LEED certification, at the Silver level, in 2005. "When you mention it now, people don't look at you with a blank stare. It's moved into other areas of building, not just municipal or corporate, but also residential."

As the attention of world leaders has become more focused on environmental issues, regulations encouraging green growth are likewise increasing. It's good to be ahead of the curve, notes Cade winemaker Tony Biagi: "In the next five to 10 years, there's not going to be a choice; you're going to have to build certain aspects of this into any building. So it feels good that we made a choice to do this."

LEED is a flexible, points-based system that allows a building owner to pick from a list of recommended practices those most suited to his site, budget and intended purpose. It operates on a 100-point scale, with credits weighted by their environmental impact. After satisfying certain prerequisites, the more recommendations that are met and documented, the greater the number of points and the higher the level of certification earned. Beyond the basic LEED certification (a minimum of 40 points) are the Silver (50 points), Gold (60) and Platinum (80) levels. (The points system differs slightly in Canada.)

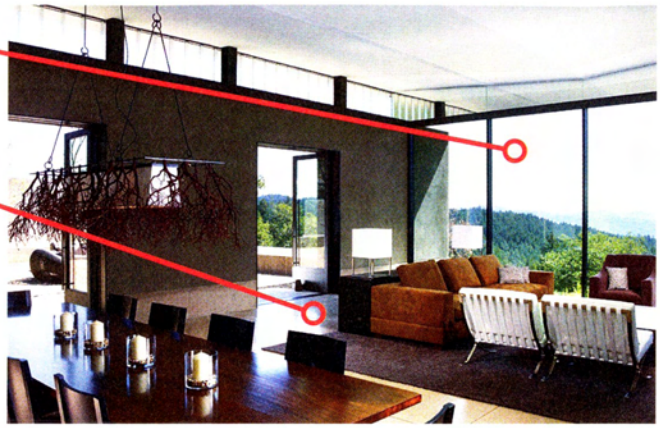
Crunching along the crushed rock that covers the patio and walkways around Cade's tasting room and offices, Conover, Biagi and architect Juan Carlos Fernandez of Lail Design Group discuss the features introduced to earn LEED credits. A fundamental area of LEED is the selection of a sustainable site that has minimal impact on the ecosystem. For Cade, they placed the buildings on an open knoll, taking out only four large trees. Pointing out the large manzanita tree used as Cade's logo, they note that about 60 percent

## CADE WINERY

### TASTING ROOM

**Natural Light**
Large windows and glass doors allow for natural light and ventilation, minimizing electricity needs

**Low in VOCs**
All furniture and flooring low in volatile organic compounds (VOCs), for healthy air quality



### UNDERGROUND BARREL CAVES

15,000 square feet of naturally cooled space under 200 feet of earth

**Efficient Lighting**
Adjustable-voltage lights

**Salvage**
Tasting table hammered out from steel salvaged from a WWII submarine and other metal from the decommissioned Mare Island Naval Shipyard in nearby Vallejo

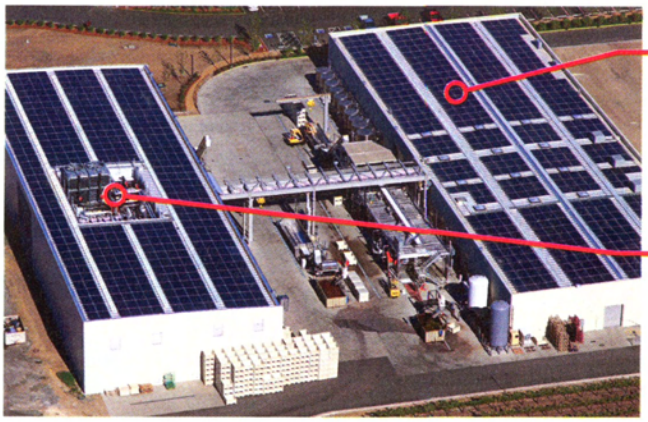
### THE BIG PICTURE

**Site Selection**
Placed offices and tasting room on open knoll to preserve forest and maintained 60 percent natural space on property to promote biodiversity and minimize need for irrigation, which is done with recycled water

**Concrete Walls**
Contain 30 fly ash—a waste byproduct from coal-fired power plants—to reduce amount of cement

**Cool Roof**
Reduces temperature swings with foam insulation and heat-reflecting color

# HALL WINERY



**ROOFTOP**

**Solar Panels**

35,000 square feet of panels cover the fermentation and barrel cellars, producing about 286 KV; expected to provide at least 40 percent of the winery's energy needs

**Processing Energy**

Sophisticated mechanical systems for boilers, refrigeration and electricity are all housed in one compact spot on roof to minimize noise and impact on neighbors

**WINERY**

**Lighting**

High-efficiency bulbs, along with skylights that provide natural lighting

**Radiant Flooring**

Hot or cold water is pumped through tubes through the floor slab, maintaining the barrel cellar at desired temperatures; water is about four times more effective than air in transmitting temperatures

of the property is kept as a natural landscape of evergreen forest and meadows seeded with native grasses. The stones under their feet help filter rainwater into the soil slowly, to prevent erosion.

Points are also earned for improvements in the indoor environment and in the category of construction and operations materials. The former is often the most visible to visitors; Cade's glass-walled tasting room, with creative architectural touches, lets in lots of natural daylight and fresh air, as well as providing fantastic views.

In the workspaces, recycled galvanized steel, polished concrete floors and glazed, textured glass that makes dirt less noticeable reduce the amount of cleaning and other maintenance needed. Well-insulated under 200 feet of earth, the caves, laid out in the shape of the PlumpJack shield logo, incorporate very simple materials but are visually striking. "Sitting down and being creative doesn't necessarily take money to do," says Conover. "You can think and come up with things that are really beautiful and functional."

Even more important than the actual materials chosen, Fernandez says, is minimizing construction waste; Cade was able to keep more than half of the materials out of landfills, implementing recycling and salvage programs for unused concrete, wood and metal debris. "I sent the crew out with a magnet just picking nails and wire from the leftovers," said Fernandez.

For wineries in particular, the two big LEED categories are reducing water use and improving energy efficiency and atmospheric emissions—both because wineries can save the largest amount of money in these areas and because that's often where the greatest environmental benefits are seen. "The big giant in the room is carbon emissions," says USGBC's Hammond; wineries should generate renewable energy on-site to meet any needs not met by saving energy through design and more efficient equipment. "In addition, wineries have a large ecological impact through their overall use of the water used for irrigation, as well as processing at the crush pad and during bottling."

In these areas, wineries face challenges not seen in most offices or homes. "The biggest thing that we face are the temperature requirements in the building," says Hall winery's Reynolds. "At harvest, we have very intense cooling and heating requirements to maintain appropriate temperatures for the wines as they go through fermentation."

To this end, Hall's St. Helena winery has radiant flooring, an efficient heating and cooling system that passes water (which conducts energy better than air does) through the floors to moderate temperatures in different areas.

To reduce reliance on wells and cut water use by 40 percent, Hall installed low-flow outlets and captures all water that goes through the facility, sending it to a treatment pond or their own sewage-treatment system. "One of the most shocking portions of this project is that we're reusing 100 percent of the water on the site, both process and sanitary, for landscape and vineyard irrigations. That's unusual for an industrial site," says Reynolds.

Once a LEED-registered project is completed, there's still a lot of work to be done. Extensive documentation must be provided, and the site must be audited by a third-party certifier to confirm that the energy systems perform as promised and that plans laid out to achieve goals such as water reduction and waste recycling are actually being followed.

While following the LEED program can add to costs, it has in fact become easier and more affordable in the past few years, according to vintners. When Sokol Blosser and Stratus started their projects, it was tough to find architects and contractors who were familiar with both LEED and winery requirements. Now, many firms have LEED-qualified staff on board. "I've really seen a difference in the last three years as an architect," says Fernandez. "When we started looking for materials, everything was really expensive. It was an elite field to play in." Now more suppliers are trying to get into it, and with more competition, the price is coming down.

Vintners who've participated believe the effort will pay off over time. "Energy is only going to become more expensive," says Reynolds. "The savings we're achieving today will increase over a period of time."

Conover finds it encouraging that Cade has already seen customers showing support with their pocketbooks. Cade can host small private events, and its first was a meeting for a Denver company. "I asked them, 'There are so many beautiful locations in Napa Valley, why did you choose Cade?' They said, 'We think you make great wines, we love the architecture, but we want to support green business.'"

"We believe the conversation is going to change," says Reynolds. "Today people ask, 'Are you organic, are you LEED-certified?' We believe the question in the not-too-distant future will be 'Why are you not?'"