Niner Wine Estates – LEED Silver certified

Case Study

March 2011 – Niner Wine Estates recently announced that their new state-of-the art winery has earned LEED Silver certification, using LEED NC, v2.2. The certification is for all three buildings totaling over 75,000 SF and the related 32 acres of site improvements. Energy efficiency, water conservation, and excellent daylight throughout the buildings are a few of the sustainable design features.

The project team included Pults & Associates, Brummel, Myrick & Associates, Thoma Engineering, Caminiti Landscape, North Coast Engineering, Wallace Group, The Palt Company, and Specialty Construction. In Balance Green Consulting provided LEED certification services.

Program

The project is a 50,000 case estate winery located in Templeton, CA, including the production and tank area, barrel storage, bottling and distribution areas, and administrative offices. There is a smaller boutique winery for specialty wine production and events. In addition, the project includes a visitor serving hospitality center for direct sales of products produced by Niner Wine Estates. The hospitality center programming includes a tasting room, break-out tasting room, commercial kitchen, owner's apartment, administrative offices, as well as support and storage spaces.

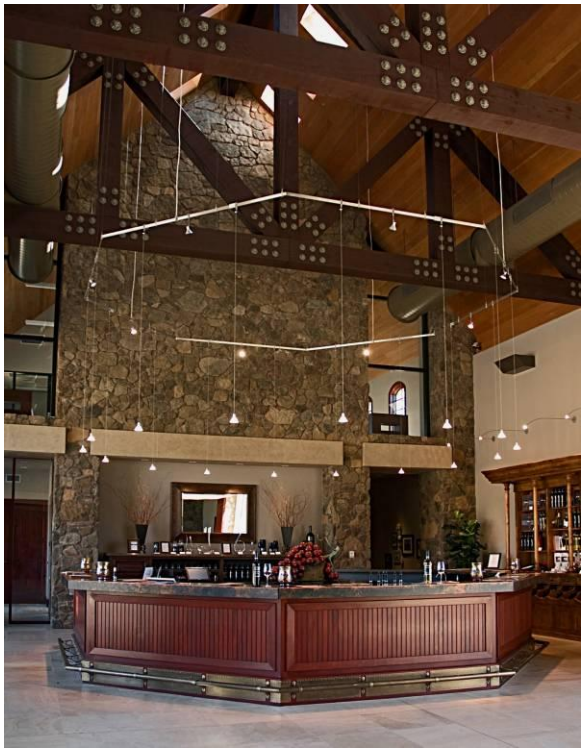
Siting and Aesthetics

The owners' desire for the production winery was to create a functionally state-of-the-art and unique facility, with building placement and forms following that function. Specifically, the winery was to be a principally gravity flow, largely subterranean facility, with incoming fruit entering the structure on an upper mezzanine, for sorting and initial processing, and be delivered, via gravity, without the use of electrical or mechanical pumps or other devices to the main winery floor below. This was based upon the need for the gentlest possible handling of fruit to maximize wine quality, but also to save energy within the facility wherever possible. The building form, which grew out of these functions, resulted in a partially subterranean structure, with sloping roof forms which follow the natural hillside terrain of the property.

Sustainable Design Features

Sustainable Sites

- Site Selection: Selected site is not a protected habitat, near a wetlands, or in a flood plane; winery use supports local agriculture and maintaining urban growth boundaries.
- Alternative Transportation:
  - Bicycle users are provided bike racks and showers
  - Low-emitting and fuel efficient vehicles are provided preferred parking
  - Company vehicle is on site so that employees do not need personal vehicles during the work day
  - An on-site residence reduces vehicle trip miles when owner visits the winery
- Open Space: 60% of the winery site (excludes the actual vineyards) is landscaped open space (20% is the LEED threshold, 40% for 'exemplary performance')
- Stormwater: The stormwater design mimics historic patterns, so that no more rain leaves the site now than before the winery was built. Rainwater is either captured for reuse, or filtered through natural 'bioswales' where feasible.
- Reduce Heat Island Effect: To reduce heat retention on site, more than 75% of the roof is a 'cool roof', and more than 50% of the site hardscape is either light colored, porous, or shaded by trees.



Water Efficiency

- Landscape: Most of the landscape areas are natural grasses that require no irrigation, and the remaining landscape areas use native and adapted species with efficient drip irrigation, reducing overall water demand by 86% when compared to typical landscape design. The water that is required is provided entirely by captured rainwater and recycled process water, so that zero gallons of potable water are used for the landscape, saving 1 million gallons of water every year. The remaining non-potable water is used for the vineyards.
- Indoor Water Use: Water conserving lavatories, sinks, showers and toilets result in 30% savings in indoor water use.

Energy & Atmosphere

- Commissioning: To ensure that all energy systems (lighting, mechanical, water), are operating at peak efficiency, fundamental commissioning was conducted by a 3rd party at project completion. Variances were identified and corrective actions taken.
- Optimize Energy Performance: Energy efficient strategies resulted in savings of 18% in building and wine production energy costs over a standard California winery. Strategies included excellent building insulation, strategic selection of window, overhangs, night venting, high-efficiency lighting, and efficient mechanical equipment. Night venting and high thermal mass in the wine processing areas greatly reduced the need for mechanical cooling. Electric lights are automatically shut off when sufficient daylight is available. Winery production and process loads make up almost 65% of the electric demand and are also efficient, particularly in the use of gravity-fed fermentation tanks and a reduced cold stabilization/cold soak period due to the initially low temperatures of the grapes which are harvested at night.
- Refrigerant: Cooling equipment includes refrigerant that minimizes the contribution to ozone depletion and global warming.
- Green Power: 35% of the electricity required to operate the buildings is purchased from renewable energy sources, such as wind and solar.

Materials and Resources

- Construction Waste: Over 80% of construction waste was recycled during construction.
- Materials: Environmentally-preferred materials were selected where possible
  - Over 15% of materials contain recycled content
  - Over 25% of materials were harvested and processed within 500 miles

Indoor Environmental Quality

- Indoor Air Quality: IAQ complies with ASHRAE standard, and ventilation rates in occupied areas are increased to 30% over standard.
- IAQ during Construction: Best practices were used during construction to reduce contaminants, risks of water intrusion, and exposure to off-gassing materials. Occupied spaces were 'flushed out' with fresh air for approximately 2 weeks prior to occupancy.
- Low-emitting Materials: Materials for the building interiors were selected to be low-emitting:
  - Low- or no-VOC (volatile organic compounds) adhesives, sealants, paints and coatings
  - Low-emitting carpet, that meets the Green Label Plus standard
  - Composite wood with no added urea-formaldehyde.
- Controllability of Systems: Occupants are provided with a high level of control for their work spaces, included lighting, thermostats, operable windows, and sun shades
- Thermal Comfort: Regularly occupied spaces are designed to meet strict thermal comfort standards. A survey process is used for 18 months after occupancy to evaluate comfort and make the necessary adjustments.
- Daylight: Almost all spaces are lit by daylight, through windows and skylights, and over 75% of the regularly occupied spaces need no electric lights during the day. Glare is reduced through sun shades and overhangs.
- Green Cleaning: The facilities are maintained using sustainable, non-toxic cleaning practices.