

RIDGE

LYTTON SPRINGS

An Ecologically Friendly Building Made of Straw

When Ridge decided it was time to renovate its Lytton Springs facility, Winemaker and CEO Paul Draper set the ambitious goal of creating a winery that would utilize as many environmentally friendly techniques as possible. From the beginning, energy conservation and environmentally sensitive building materials were key elements of the plan. Underground caves, a very traditional and efficient way of storing wine, were ruled out due to the underground “springs” at Lytton Springs.

After Paul visited a small winery constructed of straw bales, he knew this would be the right approach for Lytton Springs. The key decision made, a team was assembled to design and build this unique structure. Along the way, many environmentally friendly ideas were incorporated into the project to complement the basic straw bale design.



Straw Bales

During the design process, we realized this was going to be the largest commercial straw bale building (so far) in the United States. In order to satisfy building codes in earthquake-prone California, the straw bales role could not be structural; rather, they would provide a highly insulating “infill” for the post-and-beam structure. The bales themselves are rice straw from California’s Central Valley. Rice straw is high in silica, making it indigestible and very slow to decompose. Rice farmers traditionally burned the straw after each harvest. However, because of air pollution concerns, this practice is now forbidden. Using the straw as a building material not only saves energy, it saves the air.



Earthen Plaster



All of the exterior walls and many of the interior walls of the building are finished with a natural earthen plaster, mixed on-site using clay soil from our surrounding vineyards. Chopped rice straw was added for strength, and can be seen when the plaster is examined closely. The straw bales were covered with welded wire metal “lath”, then the earthen plaster was applied in multiple coats and hand finished. The resulting wall can “breathe,” allowing any moisture that might accumulate in the straw to transpire.

Recycled Lumber

Recycled Lumber was used throughout the project. Framing and construction-grade wood was salvaged when possible from the old facility and other outdated structures on Ridge's property. All of the building's oak flooring and the oak siding and trim used in the tasting room is recycled barn wood. The oak facing on the tasting bar is made of old tank staves from decommissioned fermentation tanks once used at the Lytton Springs winery.

Passive Solar Design & Night Air Cooling

Many aspects of the building design were formulated to complement the strong thermal properties of the straw bales. Large overhangs shade the building in summer, and high



ceilings allow warmer air to rise above the people and the wine. At night during the summer, louvers around the base of the building open to let in cool air, and louvers in the cupola on the roof open allowing warm air to escape. These louvers are controlled by a computer system that continuously monitors outside and inside air temperatures. As a result, no traditional air conditioning is used except as a back-up in the barrel storage room.

Solar Panels

When the energy crisis in California occurred it convinced us to generate as much of our own power as possible using a renewable source. In the midst of construction we switched the direction of the slope of the main roof from east/west to north/ south. This,



with the already-built shed roof, gave us our extensive south-facing structure on which to mount photovoltaic panels.

We chose PowerLight of Berkeley to design and install a system to generate electricity from sunlight. Almost 400 photovoltaic panels produce a maximum of 65 Kilowatts of electricity. When power generated by the system exceeds the winery's needs, the electricity "spins the meter backwards" and flows out onto the power grid. The system is expected to supply 75% of the winery's electricity needs over the course of a year.

Please come and visit us. The building is beautiful, and the surrounding hundred-year-old vineyards are spectacular.

Architects: Frebairn – Smith & Crane, San Francisco

General Contractor: Molofsky Builders, Glen Ellen

Straw Bale Builder: Vital Systems, Berkeley

Solar Contractor: PowerLight, Berkeley

Visiting Ridge Lytton Springs

Ridge Lytton Springs is located in Sonoma County, north of Healdsburg. We are open for tasting and sales seven days a week from 11 to 4. To reach the winery, take Highway 101 to the Lytton Springs Road exit. Go west one-half mile on Lytton Springs to Chiquita Road. The winery is on the corner.

707.433.7721