



Thoreau Did Not Like Wine

By Joe Chauncey, Architect

This may come as a surprise to some since the world is buzzing about making everything “green”, but many of the founding principles of sustainability are not new. Recorded environmentalism began in the 1800s with the published works of Emerson and Thoreau who viewed nature as a teacher. Emerson wrote of Thoreau that “he did not like the taste of wine... he chose to become a bachelor of thought and nature.” The ideas and concepts born 200 years ago have been enhanced through a series of individual champions who, in the 1992 Earth Summit in Rio de Janeiro, opened the eyes of more than 100 world leaders to sustainability. The strength of the movement is growing exponentially and we are learning more about how we live and what we are doing to our planet each year. To this end, Boxwood has focused on sustainable solu-

tions for all of the buildings we design and have specifically succeeded in applying many of these principles to winery design.

I was raised in the Midwest – Illinois, Kansas, Missouri and Iowa. In fact everyone that works in my office in Seattle is from the Midwest – it wasn’t purposeful, it just happened.

Most of my formative years were in Mason City where I became acquainted with architecture of Frank Lloyd Wright, Walter Burley Griffin, Barry Byrne and Curtis Bessinger. Over the years, my family lived in three of the prairie homes in the Rock Crest/Rock Glen neighborhood where these world famous architects designed some of their finest projects.

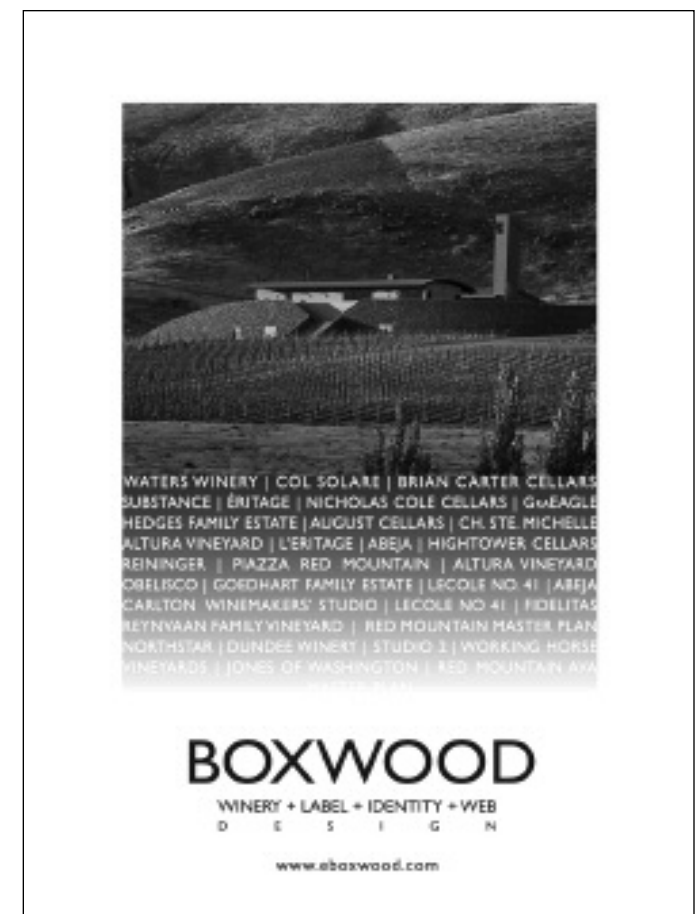
Thick masonry walls rose out of the earth and large horizontal expanses of operable windows offered panoramic views of the landscape. When clerestory windows and skylights were used there was plenty of daylight, enough to move throughout the house without turning on the lights during daytime hours. This is where I learned the basics of sustainability: the benefits of daylighting and how thick masonry walls, deep overhangs, porches, breezeways, and deciduous trees help keep buildings cool in the summer. When those beautiful oak trees drop their leaves and the winter sun is low in the sky, warm rays stream in under the broad overhangs through windows to make spaces more comfortable during the coldest of months.

From agricultural buildings we all learned the benefits of shuttered windows, high ceilings and sliding doors. Closing shutters on windows in the hot summer months allows less sunlight to penetrate the structure, keeping its rays from striking building components and the floor. Dirt and concrete floors in a barn, if kept shaded, provide several tons of natural cooling to a space. When the building needs to be open high ceilings allow heat to rise where it can exit through an open mow door. This process starts a natural ventilation cycle as the vacuum that is created pulls in cooler ground level air through the open sliding barn door keeping the barn cool.

These principles learned at an early age affect our design process today. Sustainable architecture relies on a system of balanced components designed specifically to reduce energy consumption and the use of natural resources while improving working environments. Located on a piece of flat farmland in Walla Walla, WA, is the 5,000 case Waters Winery we completed for Jason Huntley in the fall of 2007. It embodies many of the sustainable principles we absorbed by growing up in the Midwest. Portions of the winery have thick masonry walls and high ceilings. We reduced the number of openings, kept barrel room walls shaded by using porches and breezeways, and provided daylighting and views through skylights and large barn-like working openings. To further support our sustainable efforts, we ganged residential style wood trusses together to achieve a girder truss effect and framed the walls with engineered lumber. Both were made from small, low grade trees instead of large, high grade trees. The weathered steel siding and the steel roof trusses over the fermentation area contain as much as 60% recycled content which reduces their overall embodied energy and greenhouse gas production.

Thick Masonry Walls, Porches and Breezeways

We located the barrel rooms on the north side of the building and surrounded them with 17” masonry walls. These walls are double wythe separated by a cavity containing four inches of rigid insulation and two inches of air space. The outer structural wythe absorbs heat all day long while the air space and insulation keep the heat from passing to the inner wythe. To further protect the rooms, the walls are shaded by a covered crush pad “porch” on the west side, a covered breezeway on the east, and the fermentation room to the south. Surrounding barrel rooms with mass reduces the need for mechanical cool-



ing. Air movement from the fan coil units that cool most barrel rooms dries out the barrels and increases evaporation. To counteract this many winemakers humidify their spaces which can have its own detrimental affects. A barrel room that uses less mechanical cooling will save energy costs and reduce the amount of wine that evaporates from each barrel. Any wine saved from evaporation returns profit directly to the bottom line.

High Ceilings

Jason loves old agriculture buildings which provided the perfect model for his new winery. Large 8:12 pitch trusses spanning 57 feet rise to 34 feet above the winery floor and support a double skinned roofing/ceiling system. An outer layer of metal roofing is supported on sleepers set on top of eight inches of rigid insulation and an inner skin of metal or wood depending on whether it is in wine making or guest service areas. Warm air naturally rises leaving a blanket of cooler air in the lower third of the winery where barrels are stored, tanks are located, and people are working.

Daylighting and Views

We placed a large Kalwall skylight over the full length of the fermentation and barrel rooms that dumps light into both spaces. This allows winemaking staff to work in processing and storage areas without the need for artificial light. The

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obvious benefit here is a reduced electric bill. Daylit wineries can reduce lighting watts by as much as 66%. The less obvious benefit is that it improves staff attitude and efficiency and reduces sick days.

We utilized large insulated glass roll up doors to provide additional daylight and views to the outdoors. The ability to rest one's eyes by looking at a distance and being able to see outside throughout the day achieves the same spin-off benefit as daylighting.

In the tasting room large wood and glass doors with transoms provide daylight and a welcome environment with views of the agrarian valley and Blue Mountains beyond. Studies have shown that products displayed with natural light sell better than products displayed under artificial light – another economic benefit of design using daylighting.

These are just a few of the dozens of design principles that we employed in the design of Waters Winery. The long term operational savings of each of these measures helps offset some of the initial cost of the more expensive sustainable options. Many do not add any initial cost yet offer long-term savings through reduced energy use.

If the improved operating economics of the winery and the

increased profit margin on every bottle sold is not enough of a benefit to design sustainably, think about the improved working environments, healthier staffs, higher productivities and increased retail sales. By considering our planet's ecology, its effect on our long term economics and taking our part in the development of an equitable community, there is a benefit for everyone. These are not new ideas - they have a long history...Thoreau may not have liked the taste of wine but he might appreciate the thought we put into the design of our wineries.

Waters Winery - Walla Walla, WA

www.waterswinery.com

Owner Jason Huntley
Winemaker Jamie Brown
Design Team Joe Chauncey & Jeremy Reding, Boxwood

Joe Chauncey founded Boxwood, a Seattle architectural firm specializing in holistic design solutions, in 1989. Joe and his staff regularly work in the Midwest and currently have projects in Nebraska. The firm has completed wineries in Washington and Oregon and the entire professional staff is LEED (Leadership in Energy and Environmental Design) certified by the U.S. Green Building Council.

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