

Winery Design: The “Come Hither” Factor

Part Two: Where Design and Marketing Meet

Story by Dr. Bruce Zoecklein

The following is the second in a series adapted from *Winery Planning and Design, Zoecklein (2007)*, available in CD format; for more details contact the author at bzoeckle@vt.edu.

A unique feature of the wine industry is that each winery, regardless of size, is a specialized operation. A particular winery may place importance on young, fresh screw-cap bottled whites, another on aged reds, selected varietal wines, etc. As such, there is a great deal of diversity in both products and physical layout from one winery to the next. Despite the variability, winery design goals usually include:

- Establishing a positive image
- Efficient use of raw materials, manpower, and energy
- Acceptable environmental impact
- An efficient, functional, flexible, and expandable design

WINERY DESIGN AND TOURISM

Years ago a revolution began as both established and new wineries discovered the dual marketing advantage of coupling branding and architecture with winery tourism. Tourism is now such a large factor that winery designs must not only

integrate the above goals, but also optimize the tourist experience. Indeed, contemporary winery design may be as much about winery tourism as about wine production. The challenge is the integration of design considerations with winery tourism. This is the age of the star architect creating an aesthetic product that represents the ultimate in branding, the signature winery.

Certainly, the desire to maximize on-site sales and, therefore,

unit profitability is not new. Wineries are growing increasingly dependent on direct sales to earn profits. Wine is a readily available commodity sold in grocery stores and convenience shops in most states.

The late Dr. **Maynard Amerine** suggested that all tourist wineries must create what he called the “come hither” factor, that is, reason(s) why people would be compelled to visit the winery. The “come hither” can be any factor that separates the winery experience from merely buying wine from the local 7-Eleven, bottle shops, and grocery stores. It can be a unique wine education, culinary tourism, a green image, etc. Certainly, an important component of the “come hither” factor can be architectural appeal, which helps to create a positive image.

ENVIRONMENTAL IMPACT, ENERGY COSTS AND WINERY DESIGN

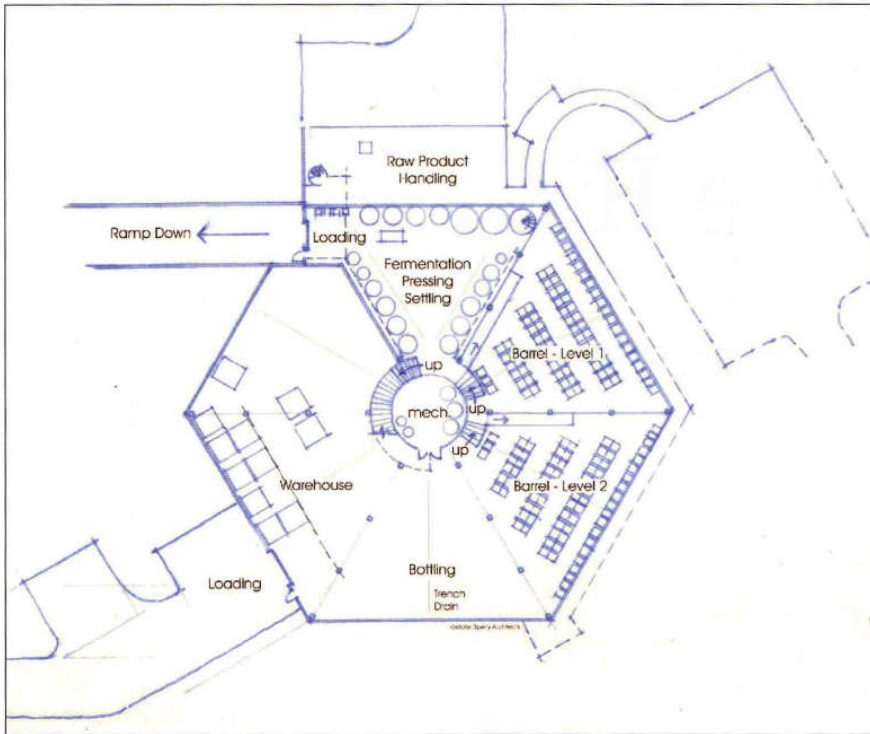
Efficient use of raw materials, manpower and energy are modern day business requirements.

BRUCE ZOECKLEIN is head of the Enology—Grape Chemistry Group at Virginia Tech University. For information regarding programs and activities, including receiving their free electronic technical brief, *Enology Notes*, go to www.vtwines.info.

At a Glance

- ▶ Tourism and brand image are now not only accepted, but also integral considerations in winery design.
- ▶ Each winery is unique, and integration of production with environmental and tourism priorities must be scaled to each winery’s needs.
- ▶ All wineries selling on-site must create the “come hither” factor, or reasons visitors should come to the winery, that should be reflected in design.
- ▶ Efficient use of raw materials, manpower and energy should be reflected in winery design.
- ▶ Achieving acceptable environmental impact is an important planning goal.
- ▶ Part of the winery design challenge includes flexibility for expansion.

WINERY DESIGN



This is the lower level of a gravity flow winery design by Dr. Bruce Zoecklein. The winery encompasses 7 winery design principles: adequate space, shortest routes, centralized processing control, deliberate simplicity, ability to expand, sustainable building materials/energy use, and sanitation ease.

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Issues in Winery Layout and Design

Coordinated by Dr. Bruce Zoecklein, Head, Enology-Grape Chemistry Group, Virginia Tech. This day-long program will cover practical topics of interest to those starting a new winery, or expanding an existing facility. Industry and winery architects will discuss and review issues under these topics:

- **Winery Design & Examples**
- **Integration of Winery Process Equipment, Layout and Design**
- **Green Design Considerations**

Fri. March 7th, 2008 at Wineries Unlimited

Register online at: www.wineriesunlimited.com

WINERY DESIGN

Creating an efficient, functional and expandable design is also a vital winery establishment goal.

While the wine industry likes to promote a natural and "green" image, that image does not always depict reality. Sources of energy consumption in the winery (from *A Guide to Energy Efficiency Innovation in Australian Wineries*) include:

- Refrigeration: 40-60%
- Pumps, fans, drives: 10-35%
- Lighting: 8-20%
- Compressed air: 3-10%
- Packaging and bottling: 8-30%
- Other consumptions: 3-15%

Mapping the whole winemaking process correctly, and integration of a water and energy use plan into the initial planning and design stages, saves energy and money. Energy efficiency depends on many factors, including the following:


- Proper sizing of equipment for winery capacity
- Building design and orientation (see Part One)
- Building insulation
- Type of refrigeration system
- Refrigeration line insulation
- Tank type(s) and insulation
- Water usage, water recovery efficiency, and hot water line insulation
 - Type of lighting, layout, and night-lighting used
- Utilities use and sources
 - Electrical
 - Water
 - Sewage
 - Ventilation
 - Air conditioning
 - Heating
 - Refrigeration

EFFICIENT CONSUMPTION AND SUSTAINABILITY

Achieving acceptable environmental impact is an important planning goal. Sustainable winegrowing practices have been outlined by the California Sustainable Winegrowing Alliance (www.sustainablewinegrowing.org). Sustainable practices may soon become part of the "come hither" as consumer awareness and interest continues. Such "green" branding can have many facets, including organic, biodynamics, sustainable architecture (discussed in Part One), as well as fair-trade practices, purchase and supply regionalism, etc.

These so-called "ethical consumer" issues have been around for some time, but may not be well understood. Although awareness of features such as organic farming and fair trade may be high, currently this does not seem to translate into significant purchasing power. However, this certainly may change as these practices become more mainstream. An aim of the wine

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WINERY DESIGN

Contrasting Production Methods Past, Current and Future

- Interventionist winemaking; minimalist winemaking
- Estate production; custom crush and alternating premises
- Regional market concerns; international market concerns
- Indiscriminate energy and water use; integrated energy and water monitoring and use plans
- Conventional energy; cogeneration, solar, geothermal
- Conventional buildings; sustainable building materials and designs
- Conventional farming; sustainable winegrowing practices, tools to improve environmental management
- General QC programs; specific HACCP-like plans from grapes to glass
- Harvest of large varietal blocks; harvest based on terroir features, per acre contracts vs. per ton
- Harvest based on primary metabolites; harvest based also on secondary metabolites, IR technology, measuring grape attributes that relate to consumer wine preferences
- Sensory monitoring of juice and wine taints; electronic nose technology
- Screw conveyors; belt conveyors
- Hand fruit sorting; mechanical sorting, post-destemming sorting, electronic sorting
- Relatively aerobic processing; hyper-reduction of some varieties, oxygen monitoring
- Screw-type press; bladder presses, membrane, tank and the new generation of basket presses
- Simple destemmers; destemmers with variable speed and adjustable rollers
- Tall tanks; conical shaped tanks, seed removal/delestage tanks, controlled permeability (CP) vessels, new generation of concrete tanks
- Tank pump-over systems; mechanical cap punch-down, gentle cap management tools, delestage
- Fixed tanks and refrigeration lines; mobile tanks and quick-release refrigeration lines
- Glycol chillers; glycol chillers and heaters
- Carbon dioxide and volatile organic compounds (VOC) release into the environment; capture and return
- Splash racking; micro-oxygenation
- Conventional tanks; controlled permeability vessels
- Conventional barrels and barrel storage; barrel alternatives, cigar shaped barrels, AXO-type storage methods
- Simple in-house lab analysis; complex lab analysis, testing kits, contract lab services, analysis of wine attributes that directly relate to consumer preferences
- Paper records; electronic recording and monitoring systems, barrel tracking, bar-coding, scanning, PDA and radio frequency identification (RFID) systems
- Chlorine-based sanitizers; peroxide-based sanitizers, ozone, PST, UV-light systems, high power ultrasound (HPU)
- DE filtration; cross flow-type filtration, RO
- In-house warehousing; specialized wine warehousing facilities
- In-house bottling lines; mobile bottling lines
- Cork closures; synthetic and screw-cap closures
- Generic bottle molds; designer molds for specific producers

industry is to secure the industry's long-term sustainability and competitiveness. The benefits of efficient consumption include:

- Valuable resources conserved
- Future supplies ensured
- Greenhouse gas emissions reduced
- Overall economics
- Positive image

KEY DESIGN PRIORITIES

Creating an efficient, functional and expandable design is also a vital winery establishment goal. A key component is flexibility. A review of merely a few changes in the production philosophy and practices that have governed winemaking over a relatively short time period highlights the importance of winery design, which allows for such changes.

Part of the design challenge includes incorporating flexibil-

ity. Examples of optimizing flexibility include:

- Quick-disconnect glycol fittings and drop lines
- Hot and cold glycol systems
- Moveable fermenters and cat walks caster-mounted, cat walks that are gang able
- Electricity from point-grid ceiling-mounted retractable reels
- Moveable barrel pallets

We know what we are, but know not what we may be. – William Shakespeare

Bruce Zoecklein will coordinate a day-long program titled *Issues in Winery Layout and Design* on March 7, 2008, as part of Wineries Unlimited. This session is designed for prospective winery owners and those considering expanding their facilities. Architects and planners from throughout the US will lead discussions on a host of practical features including:

- Winery expansion and design issues
 - Numerous examples of winery designs and design case studies
 - Integration of winery process equipment
 - Sustainable expansion and design considerations
 - Integrating wine tourism
- For additional information see www.wineriesunlimited.com or www.vtwines.info. 

Questions or Comments?

Please send your replies to feedback@wvm-online.com.