Department of Viticulture & Enology
Teaching & Research Winery

UCDAVIS
ARCHITECTS & ENGINEERS

September 30, 2008

Vision for a Sustainable Winery

“The new Winery and its focus on sustainability and green practices will be another indicator that the Department of Viticulture and Enology is one of the leading grape and wine programs in the world and has an unique ability to perform precisely-controlled winemaking experiments,” said Chair Andrew Waterhouse.

“We want to provide an exceptional environment that will promote learning opportunities for our students and members of the grape and wine community through our curriculum and ongoing education activities. We need to employ very exact scientific practices in the winemaking of our research projects if we are to enhance our understanding of grape and wine flavor and we need to demonstrate and illustrate these activities in an advanced and sustainable manner,” Waterhouse added.

“The establishment of our new Teaching Vineyard adjacent to the Winery fulfills a long-term dream of walking between our viticulture and enology classes. The potential for solar panels to be distributed along the vineyard perimeter and the move to an all-electric fleet provide further interconnections that were not previously possible.”

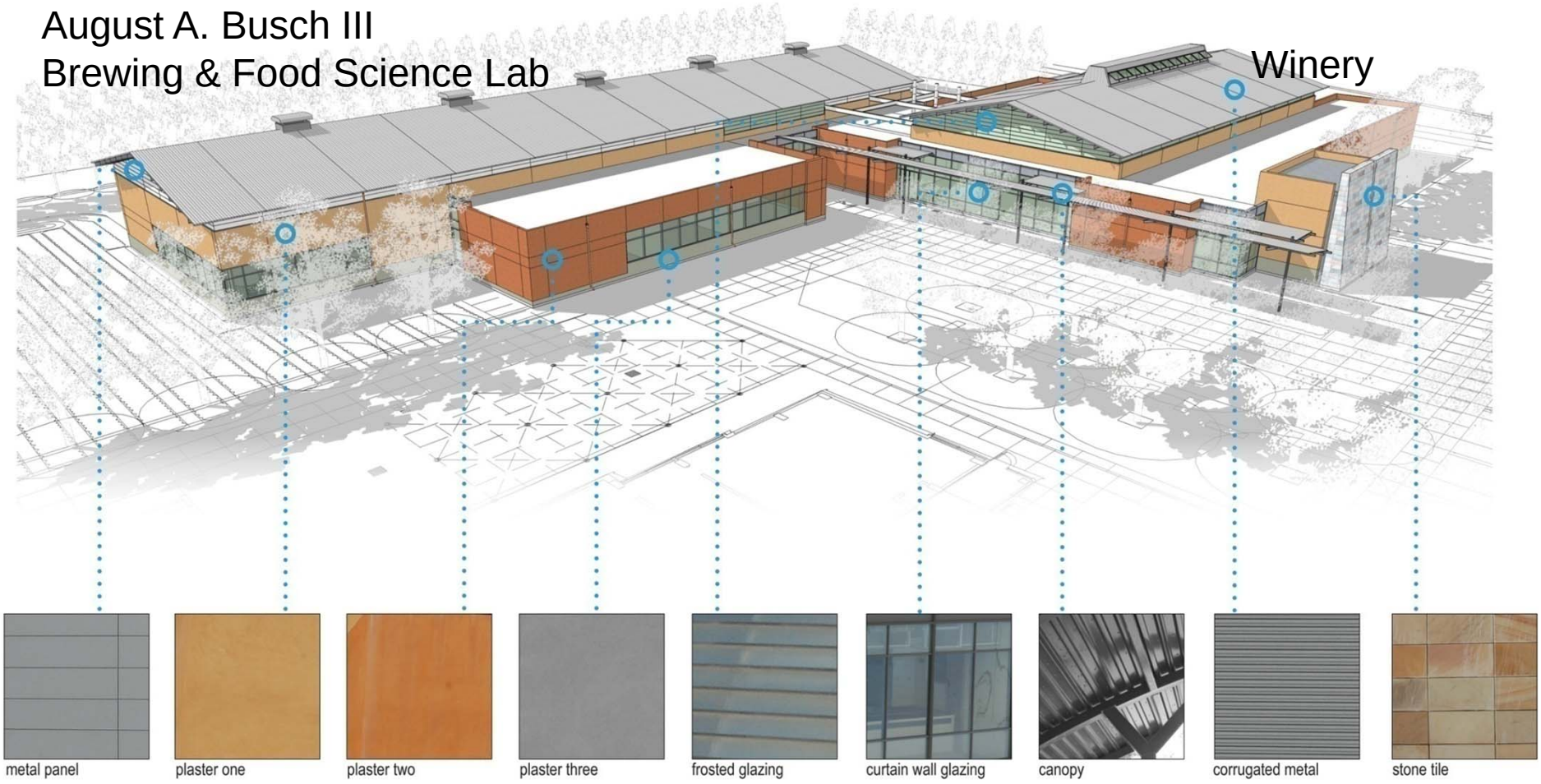
The new Winery could become a living, web-based, on-line example of how various sustainable systems perform for both building operations and winemaking activities. This LIVE Winery would be able to display the performance of all of its air, energy and water systems and to calculate a series of sustainable indexes on an hourly or daily basis and the ability to observe experiments in process across the world wide web.

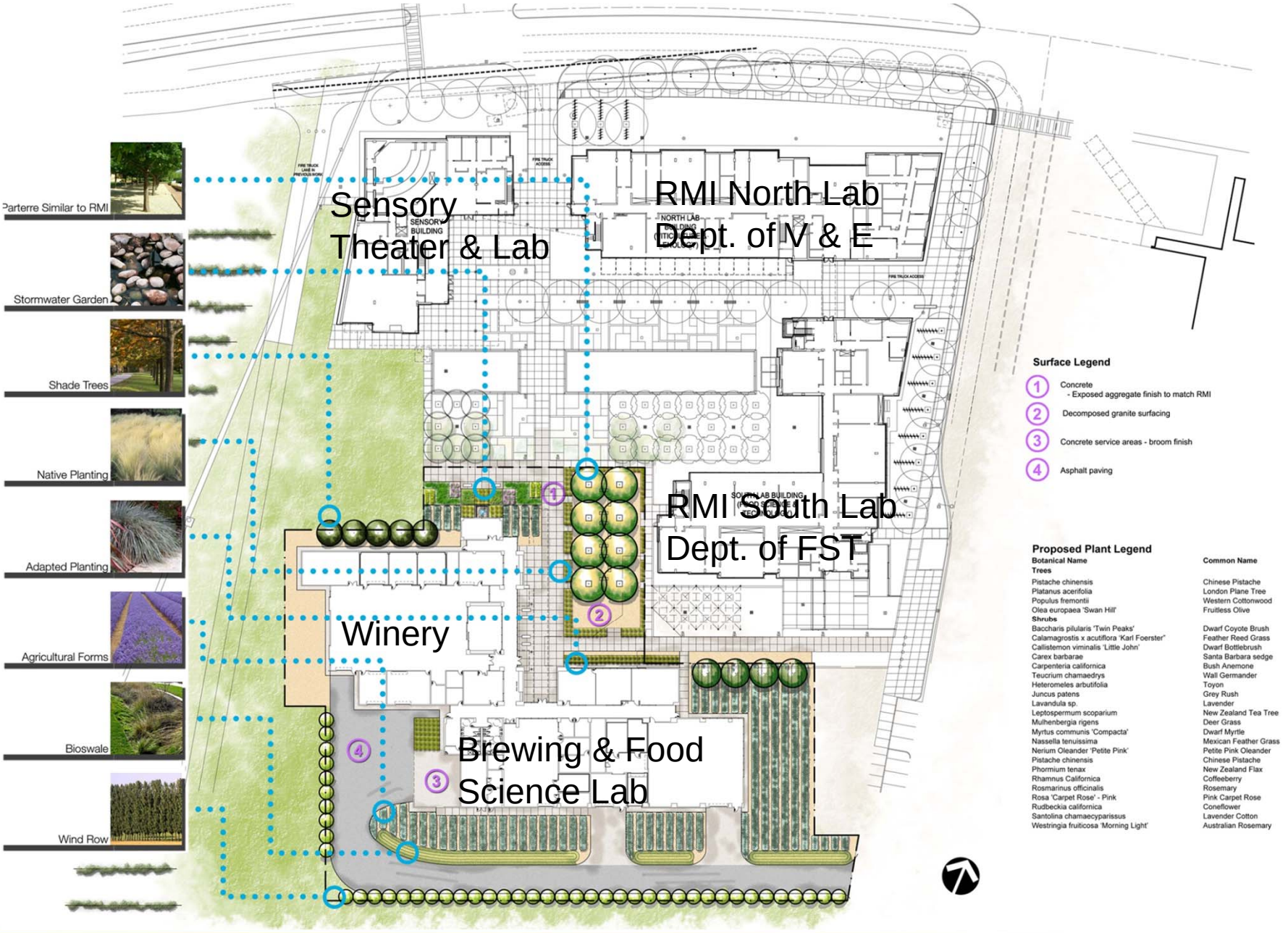
The Winery plans include a 100 KW photovoltaic array, a passive solar reflector for hot water and a hydrogen fuel cell for evening generation and backup purposes which also provide additional heat in a cogeneration format. The hydrogen fuel cell ensures no carbon dioxide release from power and while initially operated using cylinders, the possibility exists for onsite hydrogen generation in the near future. The photovoltaics would provide full operating power making one of the first fully-solar wineries in the world.

Having the highest efficiency building is the centerpiece of this sustainable winery vision. We are in the final stages of development to bring the existing plan for a LEED Gold building to that of a LEED Platinum building*.

*There are only 60 LEED Platinum certified buildings in the world.

August A. Busch III
Brewing & Food Science Lab





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Site/Landscape Plan

Winery Program

Special Collections	400 sf
Research Bottle Storage	710 sf
Cellar	440 sf each
Data	190 sf
Long Term Barrel	710 sf
Fermentation	6,100 sf
Classroom	860 sf
Fruit Cellar	440 sf
Equipment	700 sf
CIP	230 sf
Office	130 sf each
Lab	600 sf

Total Winery 12,520 asf

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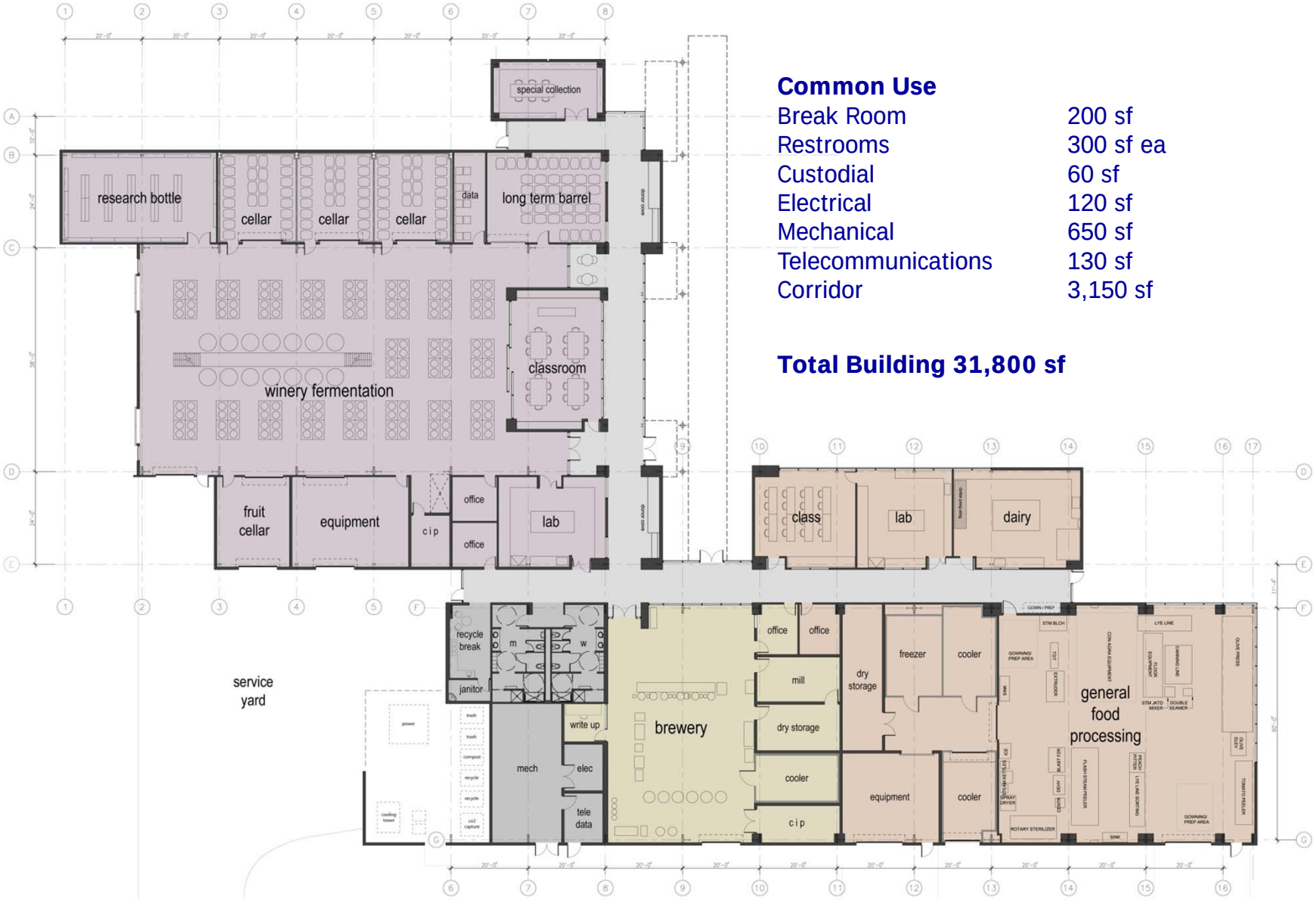
Floor Plan



Common Use

Break Room	200 sf
Restrooms	300 sf ea
Custodial	60 sf
Electrical	120 sf
Mechanical	650 sf
Telecommunications	130 sf
Corridor	3,150 sf

Total Building 31,800 sf

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Floor Plan

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From Vineyards

Sustainability & Green Building Design

SUSTAINABLE SITES

SSP Construction Activity Pollution Prevention
SS1 Site Selection
SS2 Development Density & Community Connectivity
SS3 Brownfield Redevelopment
SS4.1 Alt Transportation-Public Transportation Access
SS4.2 Alt Transportation-Bicycle Storage & Changing Rooms
SS4.3 Alt Transportation-Low Emitting & Fuel Efficient Vehicles
SS4.4 Alt Transportation-Parking Capacity
SS5.1 Site Development-Protect or Restore Habitat
SS5.2 Site Development-Maximize Open Space
SS6.1 Stormwater Design-Quantity Control
SS6.2 Stormwater Design-Quality Control
SS7.1 Heat Island Effect-Non-Roof
SS7.2 Heat Island Effect-Roof
SS8 Light Pollution Reduction

Total Points Achieved: 8
Total Points Needed for Platinum: 10

WATER EFFICIENCY

WE1.1 Water Efficient Landscaping-Reduce by 50%
WE1.2 Water Efficient Landscaping-No Potable Use or No Irrigation
WE2 Innovative Wastewater Technologies
WE3.1 Water Use Reduction 20%
WE3.2 Water Use Reduction 30%

Total Points Achieved: 3
Total Points Needed for Platinum: 5

ENERGY & ATMOSPHERE

EAP1 Fundamental Commissioning of the Building Energy Systems
EAP2 Minimum Energy Performance
EAP3 Fundamental Refrigerant Management
EA1 Optimize Energy Performance (7 points)
EA2 On-Site Renewable Energy, 2.5%
EA2 On-Site Renewable Energy, 7.5%
EA2 On-Site Renewable Energy, 12.5%
EA3 Enhanced Commissioning
EA4 Enhanced Refrigerant Management
EA5 Measurement & Verification
EA6 Green Power

Total Points Achieved: 10
Total Points Needed for Platinum: 13

MATERIALS & RESOURCES

MRP Storage & Collection of Recyclables
MR1.1 Building Reuse-Maintain 75% Existing Walls, Floors & Roof
MR1.2 Building Reuse-Maintain 95% Existing Walls, Floors & Roof
MR1.3 Building Reuse-Maintain 50% Interior Non-Structural Elements
MR2.1 Construction Waste Management-Divert 50% from Disposal
MR2.2 Construction Waste Management-Divert 50% from Disposal
MR3.1 Materials Reuse 5%
MR3.2 Materials Reuse 10%
MR4.1 Recycled Content 10% (post-consumer+1/2 pre-consumer)
MR4.2 Recycled Content 20% (post-consumer+1/2 pre-consumer)
MR5.1 Regional Materials 10% Extracted, Processed & Manufact.
MR5.2 Regional Materials 20% Extracted, Processed & Manufact.
MR6 Rapidly Renewable Materials
MR7 Certified Wood

Total Points Achieved: 5
Total Points Needed for Platinum: 7

INDOOR ENVIRONMENTAL QUALITY

EQP1 Minimum IAQ Performance
EQP2 Environmental Tobacco Smoke (ETS) Control
EQ1 Outdoor Air Delivery Monitoring
EQ2 Increased Ventilation
EQ3.1 Construction IAQ Management Plan-During Construction
EQ3.2 Construction IAQ Management Plan-Before Occupancy
EQ4.1 Low-Emitting Materials-Adhesives & Sealants
EQ4.2 Low-Emitting Materials-Paints & Coatings
EQ4.3 Low-Emitting Materials-Carpet Systems
EQ4.4 Low-Emitting Materials-Composite Wood & Agrifiber Products
EQ5 Indoor Chemical & Pollutant Source Control
EQ6.1 Controllability of Systems-Lighting
EQ6.2 Controllability of Systems-Thermal Comfort
EQ7.1 Thermal Comfort-Design
EQ7.2 Thermal Comfort-Verification
EQ8.1 Daylight & Views-Daylight of 75% of Spaces
EQ8.2 Daylight & Views-Views for 90% of Spaces

Total Points Achieved: 14
Total Points Needed for Platinum: 15 (carpet not in project)

INNOVATION & DESIGN PROCESS

Innovations previously recognized by USGBC:

ID1.1 Organic Landscaping / Integrated Pest Management
ID1.2 Construct Full-Scale Mock-up
ID1.3 Exceed Credit 7.2 Heat Island Effect-Roof (100% of Roof)
ID1.4 Conduct Post-Occupancy Survey

ID2 LEED Accredited Professional

Total Points Achieved: 5
Total Points Available: 5

Consider innovations that pertain to the winery such as CO2 capture and scrubber systems and reuse of process water.

SUMMARY

	LEED Gold	LEED Platinum
Sustainable Sites	8	10
Water Efficiency	3	5
Energy & Atmosphere	10	13
Materials & Resources	5	7
Indoor Environmental Quality	14	15
Innovation & Design Process	5	5
Total Points	**45**	**55**

Certified 26-32 points
Silver 33-38 points
Gold 39-51 points
Platinum 52-69 points

THE TEAM

- General Contractor: BNB NorCal, Inc.
- Architect: Flad Architects
- MEP Consultants: Gayner Engineering
- Structural: KPW Structural Engineers
- Landscape: HLA Landscape Architects
- Civil: Creegan+D'Angelo

NEXT STEPS

- Decision on LEED Platinum, November 1, 2008
- Design Development Phase, Oct-Dec 2008
  Further develop the details of the project for mechanical, electrical, plumbing, structural, civil, telecommunications, landscape, architecture, etc.
- Construction Documents Phase, Jan-June 2009
  Completion of documents for bidding
- Construction, July 2009-June 2010
- Occupancy, July 2010