

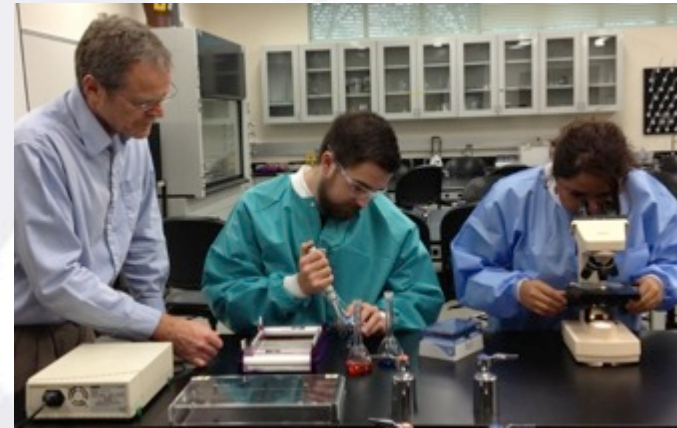


WASHINGTON STATE UNIVERSITY

Viticulture & Enology Program



WSU can do for the
Pacific Northwest
what U.C. Davis
did for California.



"Every great wine industry in the world
has a cornerstone institute for research
and education.

It's time for us to close the gap
and move into the 21st century."

— Ted Baseler, CEO
Ste. Michelle Wine Estates
Tri-City Herald, June 2011

Economic impact of wine and grapes

Item	Value to State	Growth since 2001
Wine Sales	\$1,471,263,000	26%
Grape Crop Value	\$1,666,400,000	161%
Wine-related Tourism Expenditures	\$1,059,217,000	460%
Washington Tax Revenues	\$237,725,000	227%
Full Annual Economic Impact of Washington State Wine	\$8,600,000,000	256%

Stonebridge Research 2011: The Economic Impact of WA State Wine and Grapes

Industry Growth



~50,000 acres



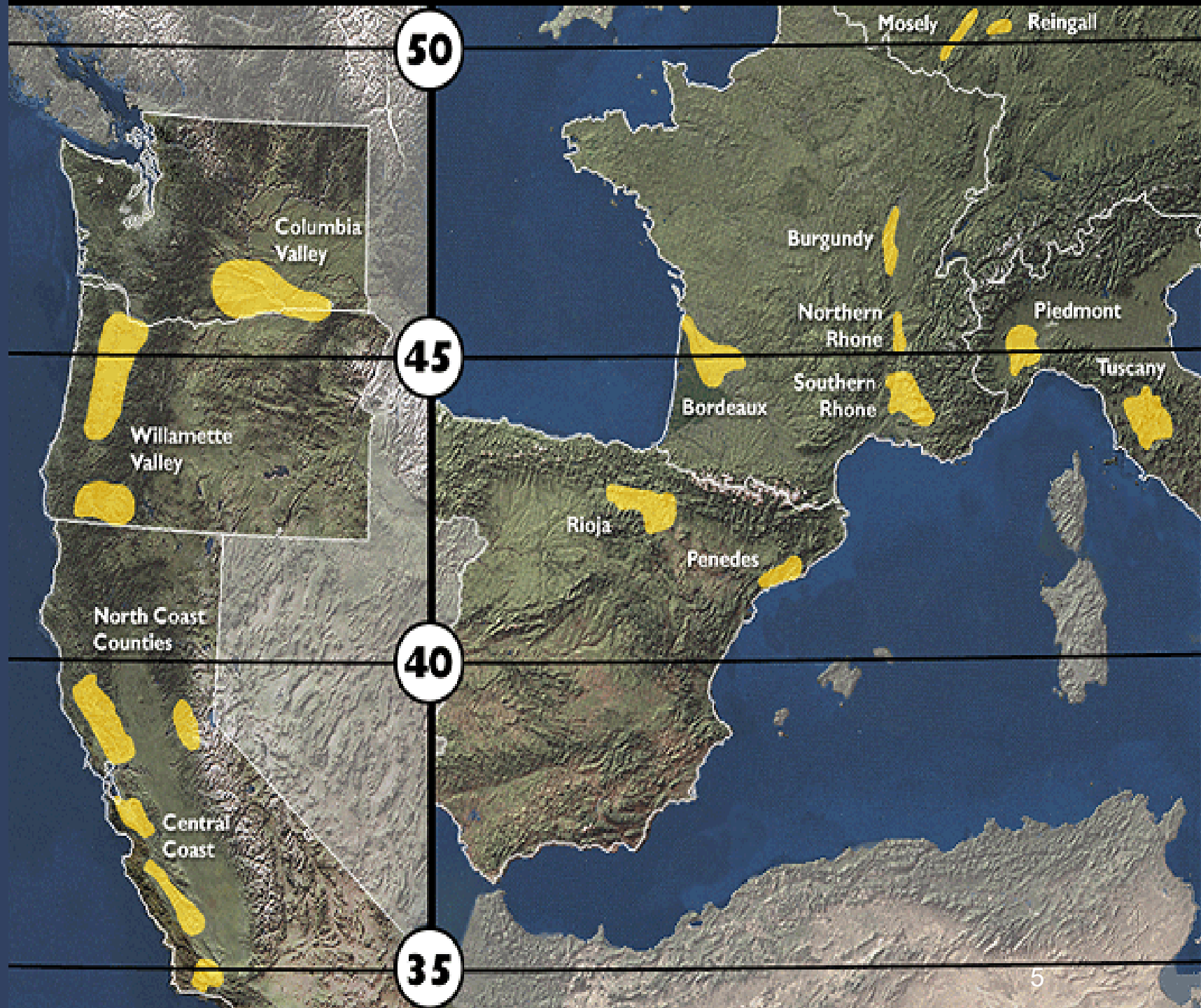
20+ million gallons



~790 wineries

In 2013 we harvested approximately 204,000 tons of wine grapes harvested:
52% white, 48% red

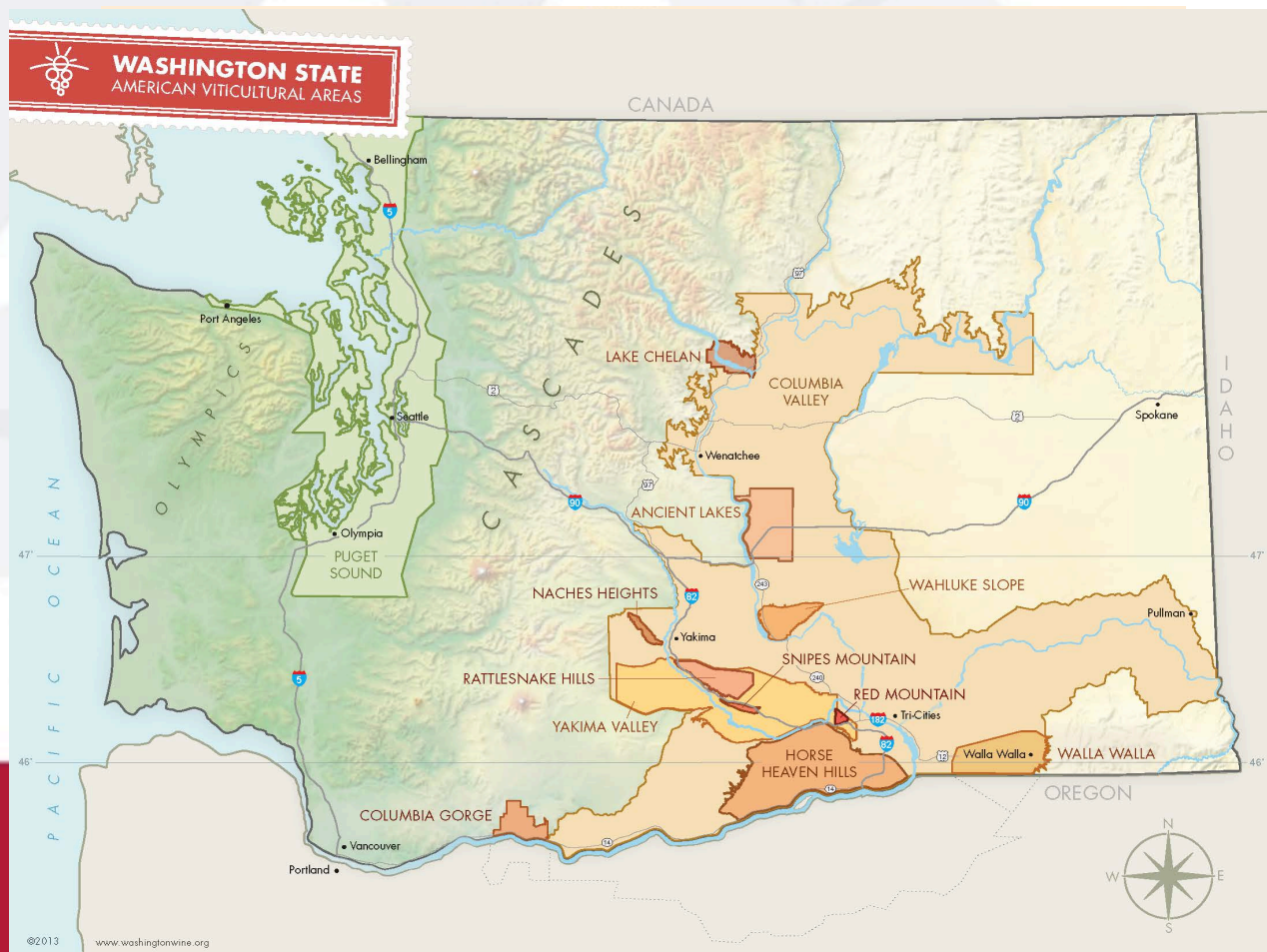
Stonebridge Research 2011: The Economic Impact of WA State Wine and Grapes





Terroir

Washington State's geography offers many different growing environments and sites. This provides the opportunity to create distinct, high-quality products.



Research Priorities

Identified by the Washington wine and grape industry

Vineyard Development

Plant Improvement

Water Management

Pest and Disease Management

Mechanization

Plant Health and Nutrition

Phenolic Management

Processing – Receiving Practices
Affecting Grape and Wine Quality

Microbiology

Stabilization/Clarification

Product Quality/Sensory
Measurement

Technology Transfer, Education,
Implementation



Wine Flavor and Sustainability

Vine and Environment



- Grape vine response to environment
 - vine physiology - water and heat
 - vineyard management and fruit quality
 - vine and grape diseases
 - grape vine genetics, adaptation to the environment, genetic diversity
- Soil quality
 - vine nutrition and fruit quality
 - sustainability
- Water management for grape yield and quality
 - controlled deficit irrigation
 - water cycle and water quality in the vineyard
 - climate change and water allocations

Grape and Wine Quality



Free of defects • Varietal Flavors • Regional Flavors

- Cultivar Selection
 - matching cultivar and site
 - matching cultivar and vineyard management
- Fruit Quality
 - flavor development in the fruit
 - microbial quality
- Vinification and Wine Aging
 - fruit processing
 - fermentation control
 - fermentation tank design
 - temperature control
 - microbiological control
- Sensory Science and Consumer Studies

A Vintage Partnership: Teaching, Research and Extension

In response to industry needs...

Teaching

- Only 4-year Bachelor's degree program in Pacific Northwest
- Viticulture & Enology
- Wine Business Management
- Only professional certificate programs in PNW
- Graduate programs

Research

- Multidisciplinary research
- From molecule to market
- Science-based solutions for complex problems
- Research centers in heart of wine country and throughout state

Extension

- Transferring technology and cutting-edge science to Washington's vineyards and wineries
- In-person contact with and on-line resources for industry

A Vintage Partnership: National and International Collaborations



- U.C. Davis
- Cornell University
- Oregon State University
- Germany
- France
- Switzerland
- Italy
- Australia

Wine Science Center

AT WSU TRI-CITIES

A partnership of:

Wine Science Center
DEVELOPMENT AUTHORITY



wine.wsu.edu

WASHINGTON STATE
UNIVERSITY
VITICULTURE & ENOLOGY

WSCDA Board Members

- **Rob McKinney, Ste. Michelle Wine Estates** (Chair)
 - construction/project management/value engineering
- **David Forsyth, Zirkle Fruit Company** (Vice-Chair)
 - wine making
- **Bob Tippet, Tippet Companies** (Secretary)
 - real estate development
- **Bruce Schwan, SCM Engineering**
 - architecture and engineering
- **Tim Kennedy, Don Carlo Vineyards**
 - business development/entrepreneur
- **Pat Dineen, Dineen Vineyards**
 - finance and banking
- **Coke Roth, Coke Roth Law**
 - legal

Research Lab Space Needs



The building is to be designed around core labs, shared laboratory space.

Labs should be separated from shared instrumentation, freezers, etc. by a corridor.

Locate freezers and incubators outside of the laboratories to accommodate heating and cooling and backup electricity.



Plant physiology laboratory

"Dirty" lab should be separated and segregated from all others.
Easy access from outside to bring in and take out plant and soil materials. Close to greenhouses and loading dock.
Space for up to 12 people working at a time - 660 sq ft

Molecular laboratory (microbiology, biochemistry)

Space for up to 20 people working at one time - 1,650 sq ft

Analytical laboratory (chemistry)

Space for 16 people - 11,320 sq ft

Instrument room

up to 4 people - 990 sq ft
HPLCs, GC, GC-MS, spectrophotometers.
Draft layout for the Core Instrument Laboratory and GCO Room.

Sensory laboratory

Includes six sensory evaluation booths, storage and prep area - 990 sq ft.
This room and the GCO room need clean (odor-free) air and positive pressure.
Separate from all other labs to avoid odor contamination.

GCO lab

Needs to accommodate 2 GCO / MS - 140 sq ft separate, odor free air,
locate GCO and sensory lab as far away from other labs as possible.



Research & Teaching Winery

Students will get practical winemaking experience with research projects carried out in commercial vineyards and wineries.



- Grape receiving area needs to have high ceiling (12 ft)
- Covered crush area storage
- Cold storage for grape receiving, allow cooling of all grapes before processing
- Main processing area, 12,500 sq ft, ceiling 16 ft
- Accommodate 192 fermenters (200 L capacity)
- Tank cleaning area with floor drains
- Passively accommodate the efflux of CO₂
- CO₂ capture at fermenters
- Use hot and cold water for temperature control
- 3 temperature controlled rooms for fermentations & wine storage
- Wine production storage space
- Wine library
- Equipment storage space
- Production juice & wine analysis lab
- Sensory lab accommodating up to 10 people to evaluate wine production samples

Classrooms



Life science teaching lab

For instruction in microbiology/molecular, chemistry, and general plant science.

Life science teaching lab, 30 students - 1,660 sq ft

Step-down auditorium

(tiered classroom)

Seat 60 - 1,200 sq ft



Conference room

accommodate 20 - 350 sq ft

Meeting Spaces



Public Space

- General meeting space
- Atrium-like area for meetings, poster presentations (min. 20 posters), student gatherings
- Capacity for 120+ people

Seating areas for undergrad students and visitors
Located in the atrium and in hallways



Other Special Spaces

Rooms for incubators, refrigerators, freezers

Include walk-in refrigerator and freezer (-20°C)

Microbial and molecular culture room

Attached to molecular lab, space for 2-4 people.

Microscope room

Close to molecular lab, space for 2-4 people.

Hazardous waste collection area

This room should include space for storing strong smelling chemicals (ventilated cabinets) and (clo) concentrated smells. Waste from work in biosafety level 1.

Growth Chambers

Room with electricity, water, floor drains, internet connection.

Need outside access, large doorway for moving plants and soil in and out.

Initial estimate of minimum of four modular chambers.

This room should be able to accommodate a mixture of sizes of growth chambers, possibly up to 10 large ones.

Greenhouse Space

One head house connecting two greenhouses is the basic requirement. Estimate 40 x 60.

Greenhouse facilities will be separate but in close proximity to the Wine Science Center.



Main Entry



Aerial View



Iconic Design: Exploded Wine Barrel



Classroom Wing



Lobby & Banquet Seating

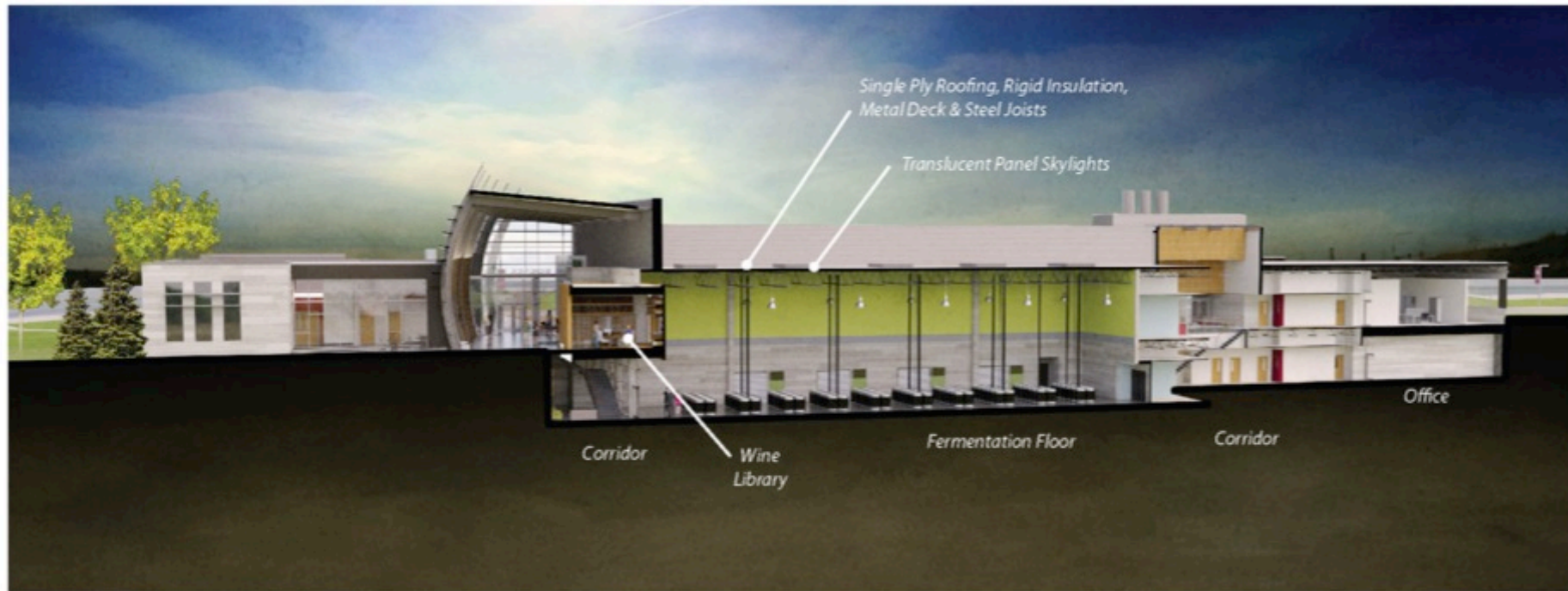




Fermentation Hall & Wine Library



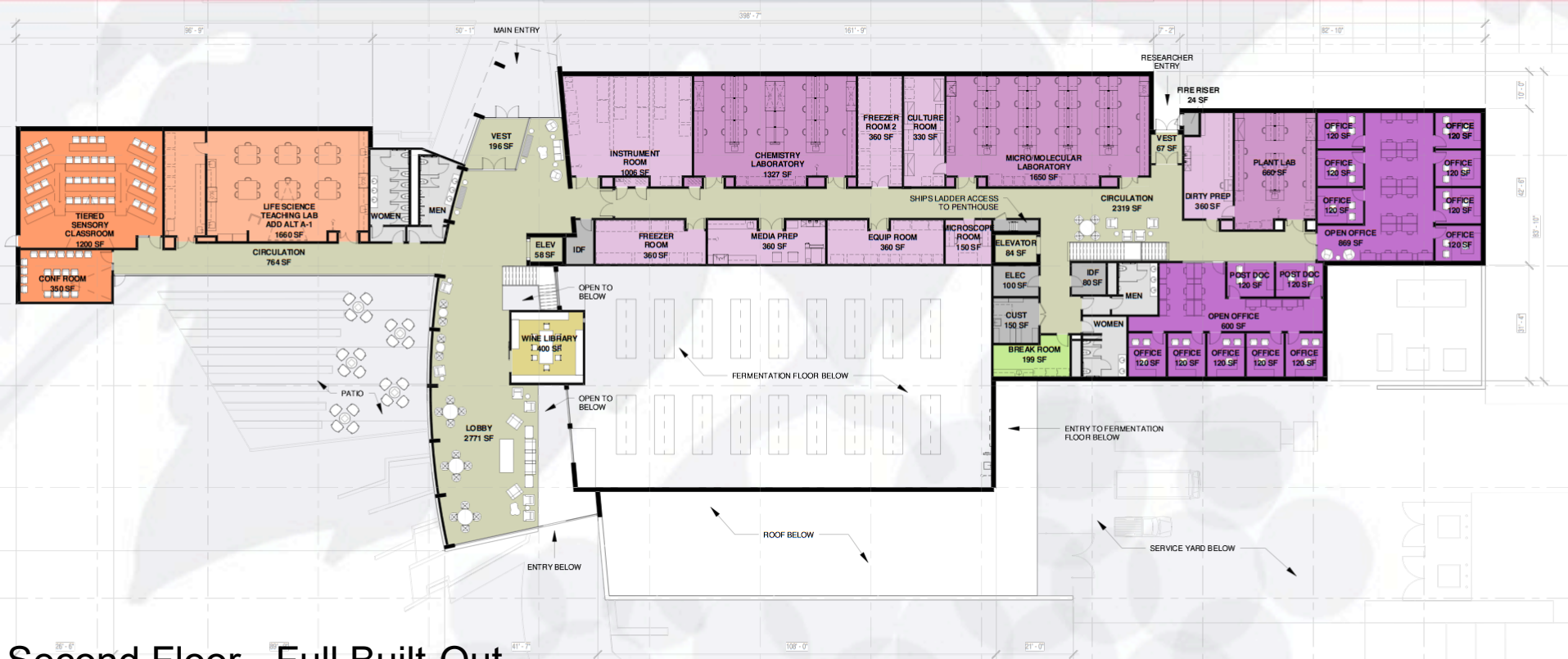
Building Sections





Building Cut-Away

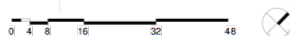




Second Floor - Full Built-Out Lydig Construction / ALSC Architects Conceptual Rendering, Spring 2013

1 Second Floor Level 02

SCALE: 1/16" = 1'-0"



Project Costs

Project Budget:	
Direct Construction (including construction contingency and sales tax)	\$ 15,556,954
Other Costs (including field and coordination costs, Builders' insurance)	501,198
Professional Design Services	545,000
Project Management/Agency Fee	346,848
Subtotal - Facility	16,950,000
Furnishings & Moveable Equip. (includes sales tax)	6,060,000
Total Project Budget	\$ 23,010,000

Latest News...

Cypress Semiconductor to provide \$4.2 million in state-of-the-art wireless fermentation system



- Positions WSU as one of two facilities in world with such equipment
- Allows for comparative research collaborations with UC Davis
- T.J. Rodgers, CEO, is also funding Rodgers Graduate Research Fellow for development of continued cutting-edge research applications

Donors to date*

Washington State Wine Commission (\$7.4 million)

State of Washington (\$5 million)

U.S. Economic Development Administration (\$2.06 million)

Spokane Industries

Anonymous Donor

Port of Benton

Northwest Farm Credit Services

City of Richland

Ste. Michelle Wine Estates/Altria

Ted & JoAnne Baseler

Tom & Anne Marie Hedges

Mercer Canyons

Zirkle Fruit

Terrence Thornhill & Associates

Anderson & Middleton Company

Hanford Area Economic Investment Fund

John & Dorothy Anderson

Martin & Megan Clubb/L'Ecole No. 41

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Washington Trust Bank

Gregg McConnell, Tri-City Herald

Russ & Stacie Hamilton

Lyn Tangen

Nils & Kathryn Gunther

PixelSoft Films

* Financial support received or pledged as of February 2013

Wine Campaign Committee Members

Ted Baseler, Ste. Michelle Wine Estates (chair)

Steve Burns, O'Donnell Lane

Marty Clubb, L'Ecole No. 41

Michael Corlis, Corliss Estates

Dennis DeYoung, Grand Slam Licensing, Inc.

Jeff Gordon, Gordon Wines; Kamiak Wines

Stacie Hamilton, Hamilton Cellars

Matt Haskins, Southern Wine and Spirits

Tom Hedges, American Wine Trade, Inc.

Lane Hoss, Mad Anthony's Inc.

Janet LeDuc, Washington Wine Country Consortium

Greg & Stacy Lill, DeLille Cellers; O wines; Cashmere Corporation

Jesse Lyon, Davis Wright Tremain, LLP

Norm McKibben, Pepper Bridge Winery

Reed McKinlay, Wyckoff Farms; Coventry Vale Winery

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Don Transeth, School of the Legends

Eileen Votteler, Ste. Michelle Wine Estates

Don & Lori Watts, Swiftwater Cellars

[Click here to watch the video](#)

