



FOR IMMEDIATE RELEASE

**PANKOW BUILDERS COMPLETES THE FIRST BUILDING AT ANY UNIVERSITY
TO BE CERTIFIED NET ZERO ENERGY UNDER THE LIVING BUILDING CHALLENGE**

Jess S. Jackson Sustainable Winery Building at UC Davis Showcases
Sustainable Building Technologies and Practices

DAVIS, Calif., June 3, 2013 — On Wednesday, May 29, 2013, the design-build team of [Pankow Builders](#), [Siegel & Strain Architects](#), supporters and wine industry leaders gathered at the grand opening of the 8,500-square-foot Jess S. Jackson Sustainable Winery Building (JSWB) at UC Davis. It is expected to be the first building at any university to be certified Net Zero Energy under the Living Building Challenge and only the second such building in California. This building will use various green services to provide sustainable resources, such as water harvesting and filtration and power production, to the adjacent Teaching and Research winery and August A. Busch III Brewery and Food Science Laboratory. The JSWB will house equipment and systems that will allow the winery, brewery and food-processing facility to be the world's first self-sustaining, near zero-carbon footprint teaching and research facility. Together, Pankow Builders and Siegel & Strain Architects delivered proven passive design strategies -- with first-of-its kind sustainable design and construction practices and products -- to deliver a high-performance, completely passive building.

"One key to a building's long-term value is its ability to adapt to future uses," said Chik Brenneman, Winemaker and Winery manager with UC Davis. "The JSWB was designed and built to be a living building, leading by example as one of the lowest-energy buildings in the UC system."

Davis has a cooling-dominated climate with extreme summer temperatures that can reach 102 °F. Design strategies for making the JSWB a self-sustaining structure encompassed building orientation, building form and a super-insulated envelope to minimize heat gain, plus the use of thermal mass to help cool the building throughout the day and natural ventilation to flush the building at night. The building used a super-insulated envelope consisting of R-59.5 walls and an R-76 roof.

"Form and materials are used in the JSWB to help the building fit into the campus context as well as to enhance performance," said Nancy Malone, Principal and Lead Designer with Siegel & Strain. "It includes a number of forward-thinking features and technologies that highlight what's possible with sustainable, passive building design."

Technical highlights of the JSWB building include:

- It is considered 'tight' as designated by ASHRAE, which reduces energy use. Infiltration rates were reduced by ensuring a tight envelope and extremely tight roll-up doors. To verify this, JSWB was one of the first commercial buildings to use a blower door test to validate a low air infiltration rate (1950 cubic feet per minute at 50 Pascals) and showed that the building is as tight as a passive house.
- The roof form serves dual purposes. Deep porches at the east and west facades shade the building and provide reduced heat island effect. The roof area was increased for a photovoltaic array, which was designed to accommodate an expansion of up to (272) additional panels to

offset future energy usage of equipment installed in the building by the owner or to offset power needs of the adjacent BWF building.

- The project reduces carbon through its use of concrete. The JSWB building uses more than 2,500 specially manufactured concrete masonry units (CMUs) made using Carbon Cure technology, which permanently sequesters carbon dioxide into the units. This building was the first installation of CarbonCure by Basalite Concrete Products. The CarbonCure blocks, combined with the first use of Central Concrete's low-CO₂ 90% cement replacement mix, makes this the lowest-carbon CMU wall built to date. Fifty percent cement replacement was achieved in slab and foundations.
- Pre-installed process piping connects to future systems that will assist in achieving net-zero water and energy usage. The process piping supports reverse osmosis, carbon dioxide sequestration, clean-in-place and purified water systems, with filters for rain water and also to support the adjacent BWF building.
- The site is designed to be easy to maintain, due to elements that include a pollinator garden, no-mow grasses, lower albedo surfacing and Natural Pave driveways.
- The building includes means of adapting to increased loads in the future. For instance, the JSWB will eventually house a range of process equipment, which is likely to add internal heat gain. To dissipate this heat, radiant tubing was installed in the concrete slab and the building's duct and fan system, which assists with night flushing, was supplemented with two ducts for future connection to a rock bed that will be used at peak sun hours to create a cooling effect.
- The performance of the building's commissioned systems— such as electrical, HVAC and renewable energy technologies—were verified through a third-party Quality Assurance (QA) Manager, [Environmental Building Strategies](#). This rigorous QA process ensures that these systems are operated and maintained for net zero energy performance over time.

"The building's combination of good basic design, the integration of advanced technologies and a well-thought-out plan for the future have laid a path toward achieving Net Zero Energy Building Certification over the next year," said Jim Coyle, senior project manager, Pankow Builders. "Pankow appreciates the opportunity to be a part of UC Davis' vision of sustainability. We commend UC Davis for building a new facility that reaches a new level in conservation of water, energy and natural resources for an institutional building".

The \$4 million, one-story JSWB was made possible by a \$3 million pledge from the late Jess Jackson and his wife, Barbara Banke, proprietor of Jackson Family Wines. The project has been submitted for the Living Building Challenge: Net-Zero Energy Building Certification, which will verify that the building is truly operating as claimed – harnessing energy from the sun, wind and earth to exceed net annual demand.

Related Resources

- Jess S. Jackson Sustainable Winery Building Project Fact Sheet
- Team Members Backgrounder: Design team members and suppliers, team member contributions, and quotes
- Images for download: <http://www.pankow.com/Engage/Media.aspx>
- UC Davis press release: http://news.ucdavis.edu/search/news_detail.lasso?id=10608
- Separate press release on Concrete Milestones
- Read more about the project on the Siegel & Strain Website: <http://www.siegelstrain.com/>



About Pankow Builders

Pankow Builders (www.pankow.com) is pleased to celebrate 50 years as an industry leader; services include integrated project delivery, delivering a complete range of high quality construction services to clients in the office, retail, hospitality, residential, healthcare, military, education, tenant improvement and mixed-use market sectors. Pankow serves private and public developers, corporations, healthcare providers, universities, and institutional and not-for-profit entities. Founded in 1963, Pankow has 50 years of continuous presence in California in the cities of San Francisco, Santa Clara, Oakland, and Pasadena, and Honolulu, Hawaii.

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Note: Please see “Team Members Backgrounder” for contact information of all project team members.



A U.S. CONCRETE COMPANY 

For Immediate Release

**Jess S. Jackson Sustainable Winery Building at UC Davis Showcases
Breakthrough Sustainability Technologies and Implements Concrete Firsts**
*Winery is expected to be first building at any university to be certified net zero energy
under Living Building Challenge*

DAVIS, Calif., May 29, 2013 — Today, at the grand opening of the Jess S. Jackson Sustainable Winery (JSWB) at UC Davis, Central Concrete Supply, Inc., a U.S. Concrete, Inc. (NASDAQ-USCR) company, along with Basalite Concrete Products and CarbonCure Technologies, announced that the JSWB implemented many first-of-its-kind sustainable design and construction products, including two new concrete innovations.

UC Davis announced that the 8,500 square foot building is expected to be the first building at any university to be certified Net Zero Energy under the Living Building Challenge. This building will use various green services to provide sustainable resources, such as water harvesting and filtration and power production, to the adjacent Teaching and Research Winery and August A. Busch III Brewery and Food Science Laboratory.

Looking to reduce its carbon footprint, the JSWB and design team members looked to each of the concrete suppliers to provide high impact solutions. The project used more than 2,500 specially manufactured concrete masonry units (CMUs) made using CarbonCure technology, which permanently sequesters waste carbon dioxide into the units. This was the first project manufactured by Basalite Concrete Products utilizing the CarbonCure technology. The CarbonCure blocks, combined with the first use of Central Concrete's low CO₂ 90% cement replacement mix, makes this the lowest-carbon CMU wall built to date. Fifty percent cement replacement was achieved in slab and foundations.

"Central Concrete appreciated working with such a forward-thinking design team, interested in pursuing innovative, sustainable product solutions for the Jess. S. Jackson Winery Building", said Mike Donovan, director, quality and assurance, Central Concrete Supply. "Our combined efforts resulted in us producing an extremely low CO₂ concrete mix, with 90% cement replacement materials, for this project's blockfill applications."

Related Resources

- UC Davis press release available for download at:
http://news.ucdavis.edu/search/news_detail.lasso?id=10608
- Pankow Press Kit: <http://www.pankow.com/Engage/Media.aspx>
 - o Project images
 - o Pankow Builders Press Release

- Comprehensive Project Fact Sheet
- Team Members Backgrounder: Design team members and suppliers, team member contributions, and quotes
- Siegel and Strain Project Profile available at:
<http://www.siegelstrain.com/site/pdf/JSWB.pdf>

About the Jess S. Jackson Sustainable Winery Building (JSWB)

Located at the University of California, Davis, the 8,500-square-foot building will be used to explore new research areas, including ways to maximize water conservation in wine production and sequester carbon dioxide during fermentation. With the technology that the JSWB uses, the winery plans to produce wine with a net-zero carbon footprint and to develop and apply models that are workable for the larger wine industry.

About Central Concrete

Central Concrete Supply Co., Inc., a business unit of U.S. Concrete, Inc. (NASDAQ-USCR), has been serving the San Francisco Bay Area for more than 60 years. The company is recognized for engineering higher-performing concrete than traditional concrete, while significantly lowering the carbon footprint with its low CO₂ mixes. For more information visit: <http://centralconcrete.com>.

About Basalite Concrete Products

Basalite Concrete Products, acquired by Pacific Coast Building Products in 1979, has become one of the largest suppliers of concrete products in the Western United States. Product lines include structural block, interlocking paving stones, wall systems, retaining walls, garden products and a full range of packaged concrete products.

The use of Basalite concrete masonry units (CMUs) has grown rapidly in demand over the past couple of decades as a result of advances in building design and changes in architectural preference. Basalite presents a complete offering of colors, shapes and sizes and often works with architects to create custom effects that showcase a building's design. For more information, visit: www.basalite.com.

About CarbonCure Technologies

CarbonCure Technologies is a materials science innovator deploying CO₂-sequestration solutions to concrete products manufacturers. Concrete is the second most widely used material globally and is responsible for 6-8% of total greenhouse gas emissions. The Company's proprietary technology is an elegant method of repurposing waste CO₂ to make concrete less carbon-intensive. The Halifax, Nova Scotia-based Company is commercializing its construction products technology with market leaders in California (Basalite Concrete Products), Ontario (Atlas Block) and Nova Scotia (Shaw Group). These manufacturers offer architects attractive and affordable design options with "simply better concrete" for green building masonry projects. CarbonCure products were recognized by BuildingGreen.com as one of the Top 10 Building Products for 2013. For more information visit www.carboncure.com.

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Facts Sheet

Jess S. Jackson Sustainable Winery Building at UC Davis: A Showcase for First-of-its-Kind Sustainable Architectural and Building Practices

Overall Building Goals

1. Build a passive, self-sustaining building using the latest sustainable technologies for concrete, photovoltaics, and net-zero water and energy use
2. Support the client's future expansions and changes in energy loads
3. Design for easy maintenance

Project Team

Builder: [Pankow Builders](#)

Architect: [Siegel & Strain Architects](#)

Consultants:

- Structural Engineer : [Ingraham/DeJesse Associates](#)
- Mechanical/Electrical/Plumbing Engineer and Energy modeling: [Guttmann & Blavoet Consulting Engineers](#)
- Civil and Landscape: [Cunningham Engineering](#)
- Geotechnical : [Treadwell and Rollo](#)
- Quality Assurance Manager of Commissioned Systems: [Environmental Building Strategies](#)

Sub-contractors (trade partners):

- Mechanical/Plumbing: Arco
- Electrical : Collins Electric
- Fire Protection : Marquee

Suppliers:

- CarbonCure Technologies
- Central Concrete, A U.S. Concrete Company
- Prefab Metal Structure: BD Compton

Significant Innovations and Industry Firsts:

- The Jess S. Jackson Sustainable Winery Building (JSWB) was one of the first commercial buildings to use a blower door test to validate the low air infiltration rate of 1950 cubic feet per minute at 50 Pascals and showed that the building is as tight as a passive house.
- The project has been submitted for the Living Building Challenge: Net Zero Energy Building Certification from the Living Future Institute of the Cascadia Green Building Council.
- The building is a net-zero energy building that uses no active heating and cooling equipment.
- The building path to net-zero energy consisted of the following steps:
 - Reduce the internal loads as much as possible
 - Use passive cooling techniques
 - Generate electricity from a roof-mounted PV system to account for the remaining energy usage, at a minimum.

- The project reduces carbon through its use of concrete. A wall of 2,500 specially manufactured concrete masonry units (CMUs) was Basalite's first installation of Carbon Cure blocks, which permanently sequester carbon dioxide and maintain a consistent temperature free of fluctuations.

Other Project Highlights:

- The concrete used in the project was the first use of Central Concrete's low-CO₂ 90% replacement cement mix, which contributed to enabling the lowest-carbon CMU wall built to date.
- Fifty percent cement replacement was achieved in slab and foundations.
- The slab was designed to reduce air infiltration, contributing to the passive nature of the building.
- The roof design provides reduced heat island effect while being large enough to support a photovoltaic array.
- BD Compton provided a prefab raw metal structure, which led to cost savings as well as easy installation, because panels for the roof and walls could be popped on.
- A radiant floor with foam insulation and a vapor barrier below and on the edges of the slab heats efficiently.
- Pre-installed process piping stubbed up for future systems will connect to systems that treat water re-use and that will enable net-zero water and energy use.
- JSWB achieves 75% diversion rate for waste and recycles paper and bottles.
- Incentive plans compensate carpoolers' parking costs.
- A sign-in sheet tracked zip codes of construction crews to calculate the carbon used for transportation to the project.
- Native plants are used for landscaping.

Energy Highlights:

- Solar panels were installed to create a 5kw system – enough to support net-zero energy currently. The photovoltaic system can accommodate up to 30kw and will be sized up as needed to maintain net-zero energy over time.
- The building used a super insulated envelope consisting of R-59.5 walls and a R-76 roof. Because these R-values are outside the normal range of typical building wall R-values, and to accurately calculate these values, THERM software was used.
- The windows selected were high-performance, with a U-value of 0.21 and a SHGC of 0.24.
- Infiltration rates were reduced by ensuring a tight envelope and extremely tight roll-up doors so that the building is considered 'tight' as designated by ASHRAE. A blower door test was performed to validate the infiltration rate, and the result showed that the building is as tight as a passive house.
- Low-leakage insulated dampers were used on all outdoor air inlets.
- Thermal insulating pads were used on all structural steel member connections protruding out. Detailed heat transfer calculations were performed in order to justify the need for these pads. The calculations assumed the stagnant conditions (natural convection) and windy conditions (forced convection) over the protruding beams.
- Outdoor temperatures in Davis, California, can reach 102 °F in the summer. The cooling effect was achieved by taking advantage of the cool night delta breeze in the area (night temperature drops to about 60 °F) and thermal mass.
- A slab on grade floor and an 8-foot-high CMU wall, constructed within the thermal envelope, provide thermal mass throughout the building. Two 3,000 cfm fans turn on at night to charge

the concrete slab and CMU walls that were constructed throughout the building. The thermal discharge to these walls allows the building temperature to remain below 80 °F the next day.

- The building also has a duct and fan system with a future provision for a rock bed. Two ducts were installed for future connections to a bed of rocks that will be installed on the south side of the building. Once the thermal mass inside the building is fully charged, the building fans will be directed to blow cold air over the rocks to cool them. The cool rocks can be used the next day around peak sun hours to circulate air from the building, over the rocks and back to the building to create a cooling effect.
- A PV system was provided on the roof of the building consisting of 16 panels laid out in two circuits of 8 panels each – for a total of 5,232 Watts DC. The panels are installed flat on the roof, which has a 9.4° tilt and oriented with a 150° azimuth.
- The PV system generates more power than the estimated building energy consumption.
- The roof and the system are designed to accommodate an expansion of up to (272) additional panels to offset future energy usage of equipment installed in the building by the owner or to offset power needs of the adjacent teaching and research winery and the August A. Busch III Brewery and Food Science Laboratory building.

Team Members Backgrounder



Overview

The Pankow Blue™ sustainability group of Pankow Builders is committed to delivering sustainable value by demonstrably and profitably reducing the carbon emissions and resource use for our clients and ourselves. Pankow Builders, celebrating 50 years as an industry leader, provides services that include integrated project delivery of a complete range of high-quality construction services to clients in the office, retail, hospitality, residential, healthcare, military, education, tenant improvement and mixed-use market sectors. Founded in 1963, Pankow is one of the largest design-build contractors in the U.S., with 50 years of continuous presence in Honolulu, Hawaii, and California offices in Pasadena, San Francisco, Santa Clara and Oakland. For more information, please visit our website at www.pankow.com

Contribution to Jess S. Jackson Sustainable Winery Building

As the Design-Builder, Pankow hired and contracted with the architect and design consultants associated with the JSWB project. Because design-build facilitates a strong collaboration between all the owners, the builder and the architectural team from the early planning stages, Pankow was able to balance the often competing requirements of furthering advanced technologies with basic sustainable design.

Quote

"The building's combination of good basic design, the integration of advanced technologies and a well-thought-out plan for the future have laid a path toward achieving Net Zero Energy Certification over the next year," said Jim Coyle, senior project manager, Pankow Builders. "Pankow appreciates the opportunity to be a part of UC Davis' vision of sustainability. We commend UC Davis for building a new facility that reaches a new level in conservation of water, energy and natural resources for an institutional building".

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Overview

Siegel & Strain Architects is an innovative design firm with a commitment to environmentally sustainable design. The firm has won more than sixty design awards since the early 1990s for projects that range from institutional and historic to housing and residential. www.siegelstrain.com

Contribution to Jess S. Jackson Sustainable Winery Building

As the Design-Builder, Siegel & Strain designed the JSWB to be a completely passive support building for the adjacent Research Winery and August A. Busch III Brewery and Food Science Laboratory (BWF). The building houses equipment and renewable energy systems to help the BWF achieve its goals for net-zero energy and net-zero water. The JSWB is designed to fit into the campus context through form and materials.

Quote

“Form and materials are used in the JSWB to help the building fit into the campus context as well as to enhance performance,” said Nancy Malone, Principal and Lead Designer with Siegel & Strain. “It includes a number of forward-thinking features and technologies that highlight what’s possible with sustainable, passive building design.”

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Overview

Ingraham DeJesse Associates Inc. (IDA) is a consulting structural engineering firm originally established in 1986. Over the years, IDA has developed a reputation for exceptional professional engineering service based on providing technical expertise, sound professional judgment, and prompt, reliable, personal service to our clients. <http://ida-se.com>

Contribution to Jess S. Jackson Sustainable Winery Building

Ingraham DeJesse & Associates (IDA's) experience with many different structural systems for buildings of this type and size, gave the team immediate feedback on design alternatives. Key factors taken into account - cost, durability, maintenance, schedule.

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Overview

GUTTMANN & BLAEVOET has provided continuous engineering services to architects and building owners since 1956. We focus on creative, appropriate and cost-effective solutions, and we apply our expertise and knowledge through planning, design, and commissioning services. Sustainable design is a core value in our firm, and we vigorously seek opportunities for energy conservation and preservation of resources. Our projects have received many national and regional awards for sustainable design, technology, and energy efficiency. With offices in San Francisco and Sacramento, and registrations in eight states, we bring award-winning engineering services to clients throughout California and the nation. <http://www.gb-eng.com>

Contribution to Jess S. Jackson Sustainable Winery Building

Guttmann & Blaevoet provided advanced building performance modeling to identify the optimum combination of envelope performance, thermal mass, and volumetric flow rate of night flush air in order to meet the annual maximum and minimum temperature design criteria without active heating or cooling systems. Additional infrastructure design included electrical capacity for future experimental winery equipment, process fluid distribution systems, daylighting design, and PV system sizing for net-zero energy performance. The final design incorporates a number of strategies: a super-insulated, super-tight building envelope; high performance automated windows for daylight and night-flush air relief; exterior shading; thermal mass; and provisions for future rock bed cooling and radiant slab cooling systems.

Quotes

“The project was a unique project that constantly challenged our technical capabilities both in design and modeling” said Abdel K Darwich, Associate Principal and the Project Manager at Guttmann and Blaevoet Consulting Engineers. “It required us to literally dissect the building in order to fully understand its thermal physics to make sure the passive design will work. Our efforts crossed into an area where design and academic research intermingle. Jess Jackson is once in a lifetime project, and one that I would love to mimic on an even larger scale!”

“This project was an exceptional opportunity to use our knowledge of building physics, along with our advanced analytical tools, to create a building that met the owner’s temperature design goals while consuming the annual energy equivalent to three residential refrigerators” said Steven Guttmann, Principal in Charge of the project. “We especially enjoyed our collaboration with Professor Boulton and the entire team at UC Davis in creating this unique facility.”

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Overview

Environmental Building Strategies (EBS) is a High Performance Building consultancy that supports clients’ initiatives to make intelligent and sustainable design, construction and operations decisions through sound financial analyses and building science expertise. Established in 2008, EBS has guided more than 125 building projects to reduce environmental impact, improve occupant conditions and boost operational profitability. With offices in San Francisco, Los Angeles and New York, EBS works with architects, developers, contractors, municipalities, building owners and property managers to realize high-performing real estate assets. Services include sustainable engineering, consulting, education and building certification, with expertise in Net-Zero Energy consulting, LEED, Energy Modeling & Auditing,

Commissioning, Life Cycle Cost Analysis, ENERGY STAR, GreenPoint, HERS, incentives and rebates, and more. For more information, visit www.EBSconsultants.com.

Contribution

In stride with UC Davis' ambitious sustainability and building quality standards, [Environmental Building Strategies](#) (EBS) served as a quality assurance manager to verify that the installation and functional performance of the project's commissioned systems— such as electrical, HVAC and renewables—were on par with the winery's design. In doing so, EBS affirmed that the building is running correctly, which will help maximize energy efficiency to achieve net zero energy use. In addition, EBS created an Operations + Maintenance/Warranty Manual of all the building's commissioned equipment to train the winery's facility managers on how the equipment works, and how to best maintain it for optimal performance—all the way to net zero.

Quote

"Designing to net zero energy is a challenging and impressive feat, but the true achievement is *operating* at net zero energy," said Shane Mason, director of commissioning services for Environmental Building Strategies. "Commissioning and quality assurance are necessary in order for the building to run at net-zero energy, and we're thrilled to take part in making it happen."

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Overview

Basalite Concrete Products, acquired by Pacific Coast Building Products in 1979, has become one of the largest suppliers of concrete products in the Western United States.

Product lines include structural block, interlocking paving stones, wall systems, retaining walls, garden products and a full range of packaged concrete products.

The use of Basalite concrete masonry units (CMUs) has grown rapidly in demand over the past couple of decades as a result in advances in building design and changes in architectural preference. Basalite presents a complete offering of colors, shapes and sizes and often works with architects to create custom effects that showcase a building's design. For more information, visit: www.basalite.com.

Contribution to Jess S. Jackson Sustainable Winery Building

Basalite delivered more than 2,500 specially manufactured concrete masonry units to construct the winery facility located on the University of California, Davis, campus. The CMU blocks were made using Carbon Cure technology that injects carbon dioxide into the concrete mix used to manufacture the blocks. The technology permanently sequesters carbon dioxide into the units. Basalite Concrete Products is the first United States manufacturer to incorporate this technology, and the Jess S. Jackson Winery Building represents their first installation. Basalite sales representative Spencer Puccio worked

closely with installer Inland Masonry, Inc., from Pleasant Hill, Calif., to facilitate a seamless installation.

Quote

"We are excited to produce CarbonCure blocks for the Jess S. Jackson Winery Building, and about the potential of this new technology," said Dale Puskas, vice president of Basalite Concrete Products.



Overview

CarbonCure Technologies is a materials science innovator deploying CO₂-sequestration solutions to concrete products manufacturers. Concrete is the second most widely used material globally and is responsible for 6-8% of total greenhouse gas emissions. The Company's proprietary technology is an elegant method of repurposing waste CO₂ to make concrete less carbon-intensive. The Halifax, Nova Scotia-based Company is commercializing its construction products technology with market leaders in California (Basalite Concrete Products), Ontario (Atlas Block) and Nova Scotia (Shaw Group). These manufacturers offer architects attractive and affordable design options with "simply better concrete" for green building masonry projects. CarbonCure products were recognized by BuildingGreen.com as one of the Top 10 Building Products for 2013. For more information visit www.carboncure.com

Contribution to Jess S. Jackson Sustainable Winery

CarbonCure Technologies partnered with Basalite Concrete Products to install its technology at Basalite's Dixon, California production facility to sequester CO₂ into concrete masonry units during manufacturing. The CO₂ was chemically converted into stone (limestone) within the concrete, where it is permanently sequestered. The Jess S. Jackson Sustainable Winery project represents the first installation of *CarbonCure by Basalite Concrete Products'* concrete masonry units. The project also represents the first installation of any products using CarbonCure's technology in the United States.

Quote

"CarbonCure is thrilled to be involved in constructing this first-of-its-kind low-carbon masonry wall system that combines several innovative low-carbon approaches to concrete design," said Robert Niven, CEO and founder of CarbonCure Technologies.

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Overview

Central Concrete, a U.S. Concrete Company, has been serving the San Francisco Bay Area for over 60 years. The company is recognized for engineering higher-performing concrete than traditional concrete, while significantly lowering the carbon footprint with its low-CO₂ mixes. Central Concrete goes beyond conventional concrete suppliers, collaborating with owners, architects, structural engineers and contractors to evaluate project requirements and identify solutions that match each client's unique needs.

Central Concrete is recognized for supplying its low-CO₂ mixes to numerous projects, including the Cathedral of Christ the Light Church, Oakland; California Academy of Sciences, San Francisco – the world's greenest museum; NASA Ames Sustainability Base, Mountain View – the greenest federal building in the U.S.; David and Lucile Packard Foundation, Los Altos – largest net-zero building in Calif.; and the San Francisco Public Utilities Commission (SFPUC) headquarters – San Francisco's greenest office building. For more information visit www.centralconcrete.com.

Contribution to Jess S. Jackson Sustainable Winery

Central Concrete's low-CO₂ mix delivered carbon footprint savings to the Jess S. Jackson Sustainable Winery Building by significantly reducing the cement content of its concrete grout mix.

The production of cement is responsible for 6%-8% of human-generated CO₂ in the environment. Recognizing this, in 2006 Central Concrete sought to reduce the cement content within its concrete mixes. The result: All of Central Concrete's Environmentally Friendly (EF) branded mixes contain 50% or greater cement-replacement materials. Not only do these low-CO₂ products significantly reduce the carbon footprint of concrete, but they also outperform traditional concrete, producing a stronger-performing, more durable product.

After collaborating with the design team and building suppliers, Central's laboratory developed a new, innovative concrete grout, specifically designed for this project. This low-CO₂ concrete grout is Central's highest cement replacement and lowest CO₂ mix to date, replacing 90% of the cement content with alternative materials, delivering significant carbon savings.

Quote

"Central Concrete appreciated working with such a forward-thinking design team, interested in pursuing innovative, sustainable product solutions for the Jess. S. Jackson Winery Building", said Mike Donovan, director, quality and assurance, Central Concrete Supply. "Our combined efforts resulted in us producing an extremely low-CO₂ concrete mix, with 90% cement replacement materials, for this project's blockfill applications."

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Overview

Established at UC Berkeley in 1880 by California legislative mandate, what is now the UC Davis Department of Viticulture and Enology has been at the forefront of international grape and wine innovation for 130 years. The department partners with the California grape and wine industry through research, public service and equipping students with both scientific knowledge and practical skills. The department includes 14 faculty members and enrolls 100 undergraduate students and 40 graduate students.

More information about the department is available online at <http://wineserver.ucdavis.edu>.

Quote

“What you see in this building is the potential to achieve levels of sustainable operation never before seen in a commercial or research winery,” said David Block, chair of the UC Davis Department of Viticulture and Enology.

“We are extremely grateful to Barbara Banke, Jess Jackson and their family for sharing our vision for sustainable wine making and partnering with the university to make this building a reality,” he said.

“Because of the building’s flexible design, these and each of the other operating systems can be removed and updated as research advances become commercially available,” said Professor Roger Boulton, a winery-engineering expert and the Stephen Sinclair Scott Endowed Chair in Enology at UC Davis.

“This is intended to be a building that encourages the adoption of evolving technologies in the areas of energy, water, carbon and byproduct streams, while at the same time operating the winery in a self-sustainable manner,” he said.

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Jess Jackson Sustainable Winery Building opens

May 29, 2013

Supporters and wine industry leaders gathered today at the University of California, Davis, to celebrate the opening of the Jess S. Jackson Sustainable Winery Building.

This \$4 million state-of-the-art structure, when fully equipped, will enable the adjacent teaching and research winery, brewery and food-processing facility to operate in a self-sustainable manner through onsite capture of energy and water. It was made possible by a \$3 million pledge from the late Jess Jackson and his wife, Barbara Banke, proprietor of Jackson Family Wines.

The one-story, 8,500 square-foot building will eventually house equipment and systems for capturing and sequestering carbon dioxide from wine fermentation, and for filtering and recirculating water for wine, beer and food processing. It is expected to be the first building at any university to be certified Net Zero Energy under the Living Building Challenge and only the second such building in California.

"What you see in this building is the potential to achieve levels of sustainable operation never before seen in a commercial or research winery," said David Block, chair of the UC Davis Department of Viticulture and Enology.

"We are extremely grateful to Barbara Banke, Jess Jackson and their family for sharing our vision for sustainable wine making and partnering with the university to make this building a reality," Block said.

"My family and I are proud to support UC Davis to create the Jess S. Jackson Sustainable Winery Building and its ability to educate and inspire winemakers for generations to come," said Barbara Banke.

"The university continues to be one of the most important academic assets for our nation's winemaking community, and the opportunity to develop, build and share best practices in energy conservation, water management and other world-class sustainability standards was something we were honored to help bring to fruition," Banke said.

The new sustainable winery building is adjacent to UC Davis' nearly three-year-old Teaching and Research Winery and August A. Busch III Brewing and Food Science Laboratory. Both are located at the Robert Mondavi Institute for Wine and Food Science complex on the south side of the core campus and visible from Interstate 80.

The new building was constructed to include 10 dedicated, modular spaces that will accommodate equipment needed for a variety of processes including high-purity filtration of rainwater for use in cleaning fermentors and barrels in the winery. Ninety percent of the water and chemistry from each cleaning cycle will be captured, filtered through a semi-permeable membrane and reused in the next cleaning cycle, eventually being used as many as 10 times.

The water filtration and recirculation system is expected to be installed next year, and a system for sequestering carbon dioxide captured from all fermentations in the winery will follow. The carbon dioxide collected from the fermentations will be converted into calcium carbonate, or chalk, once the sequestration system is completed.

The new building also will be equipped to produce chilled water, using a solar-powered icemaker, and generate hydrogen gas by electrolysis, fueling a hydrogen fuel cell for nighttime energy use.

One room in the new building will house the control system and data hub for the many processing systems, and two areas will be held for future research projects and equipment trials related to any aspect of water and energy use or sustainable systems.

The building, which was constructed to be extremely "tight" and with exceptional thermal insulation to minimize temperature variation, was created by the design-build team of Pankow Builders, Siegel & Strain Architects and Guttman & Blaevoet Engineering, using environmentally sophisticated construction methods and materials.

For example, the roof overhangs on the east and west sides of the building form deep porches, protecting the structure against summer heat. And the roof area was increased to support a photovoltaic array that can be expanded to provide for future energy demands of the adjacent winery, brewery and food-processing plant.

Furthermore, the building is super-insulated, meeting R-59.5 insulation standards in the walls and R-76 in the roof, thus minimizing the impact of hot weather on the building's interior temperature. In the evening, natural ventilation is used to flush warm air from the interior.

The building's slab contains a tube system that will allow cold water to provide additional cooling in summer and hot water to provide winter heating, as well as pipework for a future, below-ground rock bed that will provide additional thermal mass to offset heat released from the various installed systems.

In order to decrease the carbon footprint of the new building, concrete blocks that permanently sequester — rather than emit — carbon dioxide were used, along with a 90-percent cement replacement mix. These techniques, intended to protect the atmosphere against emissions of this greenhouse gas, resulted in a 50-percent cement replacement in the building's slab and foundations.

"Because of the building's flexible design, these and each of the other operating systems can be removed and updated as research advances become commercially available," said Professor Roger Boulton, a winery-engineering expert and the Stephen Sinclair Scott Endowed Chair in Enology at UC Davis.

"This is intended to be a building that encourages the adoption of evolving technologies in the areas of energy, water, carbon and byproduct streams, while at the same time operating the winery in a self-sustainable manner," he said.

In December 2010, the Teaching and Research Winery became the first winery in the world to receive LEED platinum certification, the highest rating for environmental design and construction awarded by the U.S. Green Building Council. (LEED stands for Leadership in Energy and Environmental Design.) Located in the same building, the August A. Busch III Brewing and Food Science Laboratory also became the first such facility to achieve LEED platinum certification.

About the UC Davis Department of Viticulture and Enology

Established at UC Berkeley in 1880 by California legislative mandate, what is now the UC Davis Department of Viticulture and Enology has been at the forefront of international grape and wine innovation for more than 130 years. The department partners with the California grape and wine industry through research, public service and equipping students with both scientific knowledge and practical skills.

The department includes 14 faculty members and enrolls 100 undergraduate students and 40 graduate students.

[More information about the department.](#)

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Jackson and Banke Family



Barbara Banke