

Science & Engineering 1



The Science and Engineering Building provides laboratories, laboratory support space, teaching laboratories and offices for the Schools of Natural Sciences and Engineering.

A typical laboratory building uses far more energy and water per square foot than the typical office building, due primarily to intensive ventilation requirements and the need for tight climate control in support of sensitive research. Because the requirements of the Science and Engineering Building differ so dramatically from other campus buildings, UC Merced saw a clear need for sustainability initiatives, including LEED.

UC Merced's Science and Engineering Building earned an Honorable Mention in the new construction category at the Go Beyond Awards, which honor individuals, organizations, projects and laboratory manufacturers that "go beyond" the status quo to minimize the environmental impacts of laboratory and other high-tech facilities and lab equipment. R&D Magazine announced the award in their November 2008 issue.

Size

174,105 square feet

Construction Cost

\$54.9 million

Completion Date

February 2006

Awards

LEED-NC Gold

2009 UC, CSU, CC
Sustainability Conference
Best Practice Award
"Honorable Mention" for
Best Overall Sustainable Design

Project Team

Campus Architect: Jim Smith

Project Director: Steve Rabedeaux

Hallmark Project Manager: Gary Knox

Campus LEED Coordinators:
Cynthia Hughes and Mark Maxwell

Architect & Engineers:
EHDD Architects &
Rutherford and Chekene

Contractor: Flintco Inc.

LEED Consultant:
Lynn Simon & Associates

Building Highlights

- The Science and Engineering Building achieves water savings of 44 percent over a comparable building through the use of automated faucets, low flow laboratory fixtures, low flow toilets and waterless urinals.
- 93 percent of wood in the building comes from sources certified as responsibly-managed forests.
- Building materials contain 48 percent recycled content, earning an extra LEED point for exemplary performance.
- 43 percent of the project's building materials were manufactured regionally and earned an extra LEED point in exemplary performance.
- The building's massive concrete structure helps temper Merced's hot summer climate, delaying heat transfer on hot afternoons from the exterior until night, when temperatures are cooler. This help with the building's overall energy performance by reducing the need for cooling on hot days.
- 70 percent of construction waste was recycled and diverted from the local landfill. Wood waste was chipped and reused for other products or was composted or burned as energy-generating biomass. Concrete waste was used as road base locally and metal was recycled.
- Exterior sun shades on windows and insulated, low-e glass plank glazing reduces heat gain inside the building while providing excellent natural light to reduce electricity use.

Scorecard



6/10/2008

LEED-NC Version 2.1 Registered Project Checklist
 University of California, Merced Science & Engineering
 Application Guide Multiple Building and On-Campus Building Projects (AGMBC)

7 Sustainable Sites 14 Points

Y	Prereq 1	Erosion & Sedimentation Control	AGMBC Prototype Credit	Required
	Credit 1	Site Selection		1
	Credit 2	Development Density		1
	Credit 3	Brownfield Redevelopment		1
X	Credit 4.1	Alternative Transportation, Public Trans. Access	AGMBC Prototype Credit	1
X	Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms		1
	Credit 4.3	Alternative Transportation, Alternative Fuel Vehicles		1
X	Credit 4.4	Alternative Transportation, Park Cap & Carpool	AGMBC Prototype Credit	1
	Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space		1
X	Credit 5.2	Reduced Site Disturbance, Develop Footprint	AGMBC Prototype Credit	1
X	Credit 6.1	Stormwater Management, Rate and Quantity	AGMBC Prototype Credit	1
X	Credit 6.2	Stormwater Management, Treatment	AGMBC Prototype Credit	1
	Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof		1
	Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof		1
X	Credit 8	Light Pollution Reduction (Version 2.0)	AGMBC Prototype Credit	1

3 Water Efficiency 5 Points

X	Credit 1.1	Water Efficient Landscaping, Reduce by 50%	AGMBC Prototype Credit	1
	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation		1
	Credit 2	Innovative Wastewater Technologies		1
X	Credit 3.1	Water Use Reduction, 20% Reduction		1
X	Credit 3.2	Water Use Reduction, 30% Reduction		1

8 Energy & Atmosphere 17 Points

Y	Prereq 1	Fundamental Building Systems Commissioning		Required
Y	Prereq 2	Minimum Energy Performance		Required
Y	Prereq 3	CFC Reduction in HVAC&R Equipment		Required
6	Credit 1	Optimize Energy Performance		1 to 10
	Credit 2.1	Renewable Energy, 5%		1
	Credit 2.2	Renewable Energy, 10%		1
	Credit 2.3	Renewable Energy, 20%		1
X	Credit 3	Additional Commissioning		1
X	Credit 4	Ozone Depletion		1
	Credit 5	Measurement & Verification		1
	Credit 6	Green Power		1

7 Materials & Resources 13 Points

Y	Prereq 1	Storage & Collection of Recyclables		Required
	Credit 1.1	Building Reuse, Maintain 75% of Existing Shell		1
	Credit 1.2	Building Reuse, Maintain 100% of Shell		1
	Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell		1
X	Credit 2.1	Construction Waste Management, Divert 50%		1
X	Credit 2.2	Construction Waste Management, Divert 75%		1
	Credit 3.1	Resource Reuse, Specify 5%		1
	Credit 3.2	Resource Reuse, Specify 10%		1
X	Credit 4.1	Recycled Content, Specify 5% (post-consumer + ½ post-industrial)		1
X	Credit 4.2	Recycled Content, Specify 10% (post-consumer + ½ post-industrial)		1
X	Credit 5.1	Local/Regional Materials, 20% Manufactured Locally		1
X	Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally		1
	Credit 6	Rapidly Renewable Materials		1
X	Credit 7	Certified Wood		1

10 Indoor Environmental Quality 15 Points

Y	Prereq 1	Minimum IAQ Performance		Required
Y	Prereq 2	Environmental Tobacco Smoke (ETS) Control	AGMBC Prototype Credit	Required
X	Credit 1	Carbon Dioxide (CO ₂) Monitoring		1
	Credit 2	Ventilation Effectiveness		1
X	Credit 3.1	Construction IAQ Management Plan, During Construction		1
X	Credit 3.2	Construction IAQ Management Plan, Before Occupancy		1
X	Credit 4.1	Low-Emitting Materials, Adhesives & Sealants		1
X	Credit 4.2	Low-Emitting Materials, Paints		1
X	Credit 4.3	Low-Emitting Materials, Carpet		1
X	Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber		1
X	Credit 5	Indoor Chemical & Pollutant Source Control		1
	Credit 6.1	Controllability of Systems, Perimeter		1
	Credit 6.2	Controllability of Systems, Non-Perimeter		1
X	Credit 7.1	Thermal Comfort, Comply with ASHRAE 55-1992		1
	Credit 7.2	Thermal Comfort, Permanent Monitoring System		1
	Credit 8.1	Daylight & Views, Daylight 75% of Spaces		1
X	Credit 8.2	Daylight & Views, Views for 90% of Spaces		1

5 Innovation & Design Process 5 Points

X	Credit 1.1	I.D.: Campus as Teaching Tool	AGMBC Prototype Credit	1
X	Credit 1.2	I.D.: Exemplary Perform. Max. Open Space	AGMBC Prototype Credit	1
X	Credit 1.3	Exemplary Performance In Recycled Content (36.06%)		1
X	Credit 1.4	Exemplary Performance Local Regional Manufacture (44.41%)		1
X	Credit 2	LEED™ Accredited Professional	AGMBC Prototype Credit	1

39 Project Totals For AGMBC Prototype Credits 69 Points

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

UC Merced's Triple Zero Commitment

Since its inception, UC Merced has been a leader in sustainable planning and environmental design.

As the campus grows, new development will be designed, planned and sited to demonstrate innovation and minimize impacts on the environment.

UC Merced's Long Range Development Plan establishes a "triple zero commitment" to eventually consume zero net energy, and produce zero waste and zero net emissions. For more details on the plan, visit <http://lr.dp.ucmerced.edu>.

UC Merced's Triple Zero Commitment

1. To consume zero net energy

UC Merced's goal is to reach zero net energy through efficiency and renewable energy production.

2. To produce zero landfill waste.

UC Merced's goal is to divert from landfill all campus waste by reducing excess consumption and recycling to the maximum extent feasible.

3. To produce zero net carbon emissions

UC Merced's goal is to prevent as much carbon emissions as it produces.