



**MCC PHYSICAL SCIENCE
BUILDING
MESA, AZ**

52k Annual Energy Cost Savings

57% of Site has been Restored

63k Gallons of Building Water Saved Annually

LEED Facts

**MCC PHYSICAL SCIENCES
Mesa , AZ**

LEED for New Construction v2.2
Certification Awarded September 15, 2009

GOLD 43*

Sustainable Sites 9/14

Water Efficiency 3/5

Energy & Atmosphere 11/17

Materials & Resources 6/13

Indoor Environmental
Quality 9/15

Innovations & Design 5/5

*Out of a possible 69 points

Mesa Community College

Physical Sciences Building

PROJECT BACKGROUND

As one of the first buildings in the Maricopa Community College District to pursue certification, the Mesa Community College Physical Sciences Building will house six diverse disciplines – astronomy, chemistry, engineering, geology, physics and physical sciences and represents the largest science and engineering program in the district. The project consists of a two story, 64,500 square foot facility that contains laboratories, classrooms, faculty offices and conferencing spaces. The design approach reflects the core college values of providing an innovative and intellectual student-centered environment that is responsive, adaptable and inclusive.

SUSTAINABLE STRATEGIES

- **SS** - Removal of existing parking lot and restoration of site to maximize open space and reduce heat island effects, Storm water fully infiltrated on site to reduce impacts associated with run-off
- **WE** - Landscaping utilizing native plant species and high efficiency irrigation technology
- **EA** - Variable Air volume supply and demand controlled ventilation that responds to building occupancy therefore reducing energy costs and equipment sizes, 12kW photovoltaic array donated by a local utility company, as a demonstration project will help reduce grid source power.
- **MR** - Removal and reprocessing of existing asphalt parking lot for use as fill material for other projects, Resources conserved utilizing materials that contain recycled content
- **IEQ** - Variable ventilation strategy with carbon dioxide sensors to bring in the right amount of air and to avoid over-ventilation, Use of low emitting materials for improved air quality
- **ID** - Students and visitors can monitor building energy usage as well as understand the green features implemented in the design and construction of the building through a computer touch screen interface located in the building lobby. Implemented a campus wide green cleaning program.

MEASUREABLE RESULTS

- 57% of the site has been restored to promote greater biodiversity.
- \$52,000 in annual energy cost savings through energy conservation measures (predicted)
- 63,000 gallons saved annually or 56% reduction in potable water use through water conserving fixtures, 150,400 gallons saved annually or 62% reduction in potable water use for landscape irrigation through high-efficiency irrigation and native plants (predicted)
- Diverted over 850 tons or 78% of construction waste from conventional landfills
- 38% of materials manufactured contain recycled content
- 78% of all wood products come from sustainably managed forests

SUSTAINABLE DESIGN CHALLENGES

One of the main challenges to the project was that the college's decision to pursue certification occurred at the end of the design development phase after most of the building systems were designed, established and priced. Starting late in the process typically has an effect on project cost which is a direct reflection of necessary design changes required for the achievement of sustainable goals. An integrated design process involving the owner, design and construction teams was utilized from the beginning therefore reducing the need for major design changes that could affect cost and instilling a level of confidence that the current design was capable of meeting the basic level of certification. This was evident through conducting a cost estimate of the design development documents and only minor costs were incurred for providing additional systems monitoring. As the process moved forward and a LEED analysis was conducted, the team realized that the current design met the Silver certification level. Energy efficiencies realized from the utilization of the campus chilled water plant enabled the project to achieve the Gold certification level with no impact on cost.



Photo by Liam Frederick courtesy SmithGroup



Photo by Liam Frederick courtesy SmithGroup

PROJECT TEAM

Owner: Maricopa Community Colleges www.maricopa.edu
Architect: SmithGroup www.smithgroup.com
Civil Engineer: Dibble www.dibblecorp.com
Structural Engineer: KPFF www.kpff.com
Mechanical Engineer: SmithGroup www.smithgroup.com
Electrical Engineer: SmithGroup www.smithgroup.com
Landscape Architect: JJR/Floor www.floorassociates.com
Contractor or CM: Barton Malow www.bartonmalow.com
Commissioning Authority: TestMarc www.testmarc.com
Energy Modeling: Quest Energy Group www.questenergy.com

Project Size: 64,500 Square feet
Construction Cost: 15,200,000



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