

# Greenspun College of Urban Affairs, UNLV

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LEED Gold certified Greenspun's bioclimatic design is highly responsive to its surrounding desert conditions. Strategic building massing, efficient mechanical systems, and renewable energy significantly reduce energy cost by over 40%.

## DETAILS

LOCATION: LAS VEGAS, NV  
AREA: 120,000 SQ FT  
COST: \$39.7 MILLION  
DATE: 2008

## SERVICES

ENVIRONMENTAL DESIGN  
ENERGY ANALYSIS  
BENCHMARKING: LEED

**LEED GOLD**

This building, which contains classrooms, auditorium, and offices, doubles as an outdoor gathering space on campus. To suit these dual purposes, Atelier Ten helped the architects compose the daylit building wings surrounding a shaded, comfortable central courtyard. Ecotect was used to evaluate when the courtyard would be shaded by various shading options. The result is a 139 kW photovoltaic canopy that takes advantage of the plentiful year-round solar energy, making the courtyard comfortable while also generating 12.6% of the building's electricity.

In the building itself, the narrow floor plan allows daylight to penetrate deep into interior spaces while external shading prevents excessive solar heat gain from increasing cooling loads. Atelier Ten used iterative energy modeling to test the various façade insulation and shading strategies, mechanical system and lighting options for reducing energy consumption. The selected HVAC system includes active chilled beams in offices and displacement ventilation in the auditorium. Total energy savings is 42% below that of a comparable ASHRAE 90.1-2004 minimally compliant building.

### 1 SHADING STRATEGY

Atelier Ten recommended a combination of exterior shading and overhangs coupled with shade trees and the PV canopy to maximize daylight and minimize glare.

### 2 WATER SAVINGS

The onsite native vegetation is drought resistant and reduces irrigation water use by over 50%. The building's low flow fixtures achieve water savings of 38%.

### 3 CHILLED BEAMS

As compared to a typical ventilation and cooling system, the chilled beams save energy cost and reduce greenhouse gas emissions. They also reduce the floor to floor height, thus reducing construction cost and the size of the unsightly air handling units on the roof.