

AIA Dayton

A Chapter of the American Institute of Architects

P.O. Box 2324, Dayton, OH 45401-2324



2008 AIA Dayton Student Design Competition

The following are a few key Sustainable Design Strategies that should be incorporated into your designs:

Architectural Expression that Embraces the Ethics of Sustainability

The design solution should demonstrate sustainable design as an integral element of an architecture that is aesthetically delightful and contextually sensitive to people, place, and time. Consider allowing the building to become a learning tool that invites and engages the community to see and experience sustainable design and thereby increase awareness of the ecological impact of buildings.

Minimal Ecological Impact

The design solution should achieve energy and performance goals that significantly reduce energy use and environmental impact compared to standard practices. To this end, the project should adopt a *whole-building design process* (see definition below) that appropriately integrates building systems for performance. The project should consider life-cycle costs and benefits in adopting green-design strategies pertaining to energy use, water conservation, and materials.

A whole-building design process refers to the process where designers with various expertise collaborate to achieve a common objective. The fundamental challenge in this is to understand that all building systems are interdependent, and that the result of each set of decisions has a cascading impact on other design decisions. For example, the design of a daylighting system is the result of an architect designing a window system, working with an engineer designing a lighting and lighting control system and an interior designer selecting wall color and interior finishes and furnishings. The result of this collaborative decision process is then used by the mechanical engineer when sizing the heating and cooling system and specifying duct sizes. The goal of the process is to lead to a building design where the building works as one integrated system.

Design for Human Comfort

The design solution should support the comfort of the occupants, achieved through high levels of indoor quality pertaining to ergonomics, thermal comfort, visual quality, acoustic performance and indoor air quality.

Design for Flexibility, Adaptability and Passive Performance

The design solution should allow for changes in programmatic needs and configurations (e.g. future expansion), by using modular design and flexible utility distributions. To the greatest extent possible, designs should utilize low energy, passive systems to reduce operational and maintenance costs.

Exceptional Design Innovation

Special credit will be given to competitors that incorporate particularly innovative ideas in their design solutions- ideas that achieve results beyond the expectations of the sponsors.

The attached is a Sustainable Strategies Checklist, based upon USGBC's LEED for New Construction v2.2. For more information and strategies, go to www.usgbc.org

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Sustainability Strategies Checklist**

1 Sustainable Site	
A	Site Development Protect or Restore Habitat
B	Storm Water Design Permeable Hardscaping Rainwater Collection/ Cisterns Landscaping
C	Heat Island Effect Light-Colored Roof Vegetated Roof
D	Light Pollution Reduction
2 Water Efficiency	
A	Innovative Wastewater Technologies Re-Use of Rainwater/ Building Graywater Ultra-High Efficiency Water Closets/ Waterless Urinals Tankless Water Heaters
3 Energy and Atmosphere	
A	On-Site Renewable Energy Solar Power Wind Power Water Power
B	Glazing and Daylighting Solar Shade Devices Skylights/ Light Pipes
4 Materials and Resources	
A	Rapidly Renewable Materials FSC Certified Wood, Bamboo
B	Regional Materials Locally Produced Stone, Brick
C	Recycled Construction Material Content
D	Designated Recycling Area
5 Indoor Environmental Quality	
A	Non-Toxic and Environmentally Safe Products Low VOC Carpet and Carpet Tiles Low VOC Paint and Primers Composite Woods- Non-Added Urea Formaldehyde Resins
B	Daylight and Views Amount/ Placement of Windows
C	Controllability of Systems Operable Windows Infrared/ Timer Controlled Lighting/ HVAC Systems
6 Innovation and Design Process	
A	Architectural Expression that Embraces the Ethics of Sustainability Minimal Ecological Impact Reduce Greenhouse Emissions Design for Human Comfort Design for Flexibility and Adaptability Design for Passive Performance
B	Innovative Construction Rammed Earth Construction Straw Bale Construction
C	Creative Use of Site Relation to River, Bikepath, Existing Gardens, Hillside Creation of Millpond