



Sustainable Design Guidelines

The ASU Sustainable Design Guidelines (SDG's) incorporate and expand upon ASU's Leadership in Energy and Environmental Design (LEED) Silver certification requirements and individual project sustainability goals. Design Professionals (DP's) and Contractors shall incorporate the guidelines into their projects to the greatest extent practicable and also refer to sustainability specifications within the [Technical Guidelines](#) (Section 3 of ASU's Project Guidelines), the Solar Energy (SE) Design Guidelines, the Engineering Design Guidelines, Zero Waste (ZW) Program, and the Climate Neutral New Construction Guidelines within the Design Guidelines (Section 2 of ASU's Project Guidelines).

Sustainable Design Priorities and Approach

ASU is a recognized leader in sustainability, higher education and society. All projects are to reflect the responsibility this leadership carries as well as to further this leadership. The ASU Office of the University Architect (OUA) and the Sustainable Design Advisory Committee (SDAC) will work with the project team to maximize sustainability opportunities, assist with analyzing tradeoffs between different sustainable options, and review all projects for compliance with the guidelines.

Integrating sustainability in the earliest stages of the project is imperative. Integrated design from the beginning allows for achievement of the optimal environmental and financial benefits of sustainability. Adding sustainability considerations late in the design and construction process typically involves added cost and re-work, while also compromising the benefits.

For new construction and major renovations*, the sustainable design priorities for a project are to be set on an individual project basis in a kick-off meeting with the project team and the Sustainable Design Advisory Committee (SDAC) early in the project design process. For all other projects, the project's designated design and project manager in coordination with the project team shall determine priorities in the project kick-off meeting.

The International Living Futures Institute's (ILFI) Standards for regenerative buildings and communities should provide aspirational stretch goals, if not explicit certification goals, for project teams. Certification under this initiative will be evaluated on a project-per-project basis vis-à-vis available project budget and long term operational goals. Final recommendations shall be made by the Office of the University Architect and final approval by the Capital Projects Review Committee. Sustainable design and construction for ASU means high performance and regenerative buildings with a strong emphasis on:

1. **Passive Solar Design:** Passive solar design emphasis means prioritizing orientation, shape, form, surface-to-volume ratios, regionally-appropriate exterior envelope design, biomimetic, biophilic and low-maintenance solutions to mitigate climate-related impacts and energy use over that of reliance on mechanical systems. It is about designing for and leveraging climatic conditions and cycles to minimize the need to overcome them through powered and mechanical systems.
2. **Sense of Place (in terms of climate, habitat and community):** Sense of place means leveraging, celebrating and responding to the specific climatic conditions and cycles, natural habitat, history and community culture in which the project is located.
3. **Integration with Broader Campus and Community Systems:** Few ASU projects are standalone. Almost all reside within a campus or within a broader community or municipal context. Integration means recognizing that the most sustainable solution for a given functional or programmatic need may exist at the project, campus or municipal infrastructure level. The project design should also fit within the context of the existing and planned future facilities around it.



Finding the optimal system solution involves evaluating options not just on first-cost, but incorporating Life Cycle Cost Analysis (LCCA) as well as the value of using standardized parts and systems, future infrastructure trends and plans, and resilience. Additionally, the optimal solution may shift over time as technology advances. Nature tends to rely on distributed and nested systems, abundance, and redundancy to provide resilience. Technology is trending similarly and project teams should consider this while integrating with campus and municipal systems and planning for the life cycle of the project.

4. Designing and Building for Resilience: Climate change is already taking place in Arizona and the urban heat island effect is a longstanding trend in the Valley of the Sun that compounds forecasted heat-related climate change impacts. Arizona's climate is forecasted to include rising temperatures, more extreme weather events, less precipitation in the winter (which will increasingly occur in the form of rain rather than snow), and more rain in the summer in concentrated storms. Designing for resilience means incorporating these future climate forecasts into designs in order to future-proof facilities and not solely relying on historical weather data.

Project teams are to design projects to support achievement of ASU's Sustainability Goals and Vision:

1. Circular Resource System
2. Climate Positive
3. Collaborative Action
4. Community Success
5. Food Reconnection
6. Optimized Water
7. Personal Action
8. Resilience and Regeneration

The State of Arizona Governor's Executive Order 2005-05 mandates that all new state facilities achieve LEED Silver certification. LEED Silver is the minimum standard for ASU new construction and major renovation projects with Platinum certification as the goal. ASU has pre-determined LEED credits it usually obtains to assist in building design efficiency, as outlined in Section 3: 01 81 13. Compliance with certain LEED credits and sustainability specifications is required for all projects regardless of whether the project is required to achieve LEED Silver certification. All landscape projects are to pursue qualification for Sustainable Sites certification and seek certification when OUA determines it to be appropriate. All parking garages are to pursue qualification for ParkSmart certification and seek certification when OUA and Parking and Transit Services determine it to be appropriate.

Additional Specific Sustainable Design Guidelines

A. Programming and Design

A1. Innovation, Creativity and Aesthetics: Innovation and creativity in achieving sustainable design goals are encouraged. Sustainability and aesthetics are not opposing forces that lead to compromise. Innovation and creativity are the tools to leverage synergies and unlock stunning and sustainable design solutions.

A2. Building Size: Project teams are to minimize the overall building size (square footage) while meeting the building program requirements. The goal is efficient use of space to reduce overall resource consumption, including embodied energy, operational energy, and building materials.



A3. Surface-to-Volume and Surface-to-Floor Area ratios: The overall goal is to reduce surface area requirements for conditioned space square footage so as to minimize the intense insolation prevalent in this region.

A4. Design for Future Use: Project teams are to plan for a “100-year building” through flexibility of use and future reuse; no “throw away” buildings. Design interior spaces that are flexible and allow for changes in use. Use standard furniture wherever possible. Minimize use of custom millwork, custom building systems (doorframes, doors, interior windows etc.) to maximize reuse in the future. For retrofits, analyze current space requirements for space efficiency, function, and use proximity.

A5. Programming and Space Planning: Project teams are to group spaces or activities with similar program requirements and times of use to allow for zoning efficiency of passive and mechanical energy systems. In essence, plan for the integration of non-occupied spaces as additional thermal buffers. The goal is to reduce energy demand and optimize operational efficiency.

A6. Transition Spaces: Project teams are to provide sufficient exterior screening, graduated shade transition courtyards, exterior atrium spaces, shade trellises, etc., to allow the building occupant the opportunity for thermal decompression and eye adjustment.

B. Construction & Finish Materials

Project teams are to seek out materials that comply with the LBC Red List and/or have a Declare Label and/or Living Product Challenge certification. Resources include [Mindful Materials](#) and the [AIA's Materials Matter Initiative](#).

C. Building Education

Project teams are to create educational opportunities to engage building occupants with information about their impact on the building's resource consumption and actionable measures to minimize resource waste. The goal is to create real-time dashboards to engage building occupants in understanding their impact on the daily energy “footprint” of the facility.

**Major renovation is defined by The Arizona Board of Regents as projects over 5,000,000 dollars.*