

STUDENT PAVILION



ASU is a **comprehensive public research university**, measured not by whom we exclude, but rather by **whom we include** and how they **succeed**; advancing **research and discovery** of public value; and assuming fundamental **responsibility** for the economic, social, cultural and **overall health** of the **communities** it serves.

01.

Vision

02.

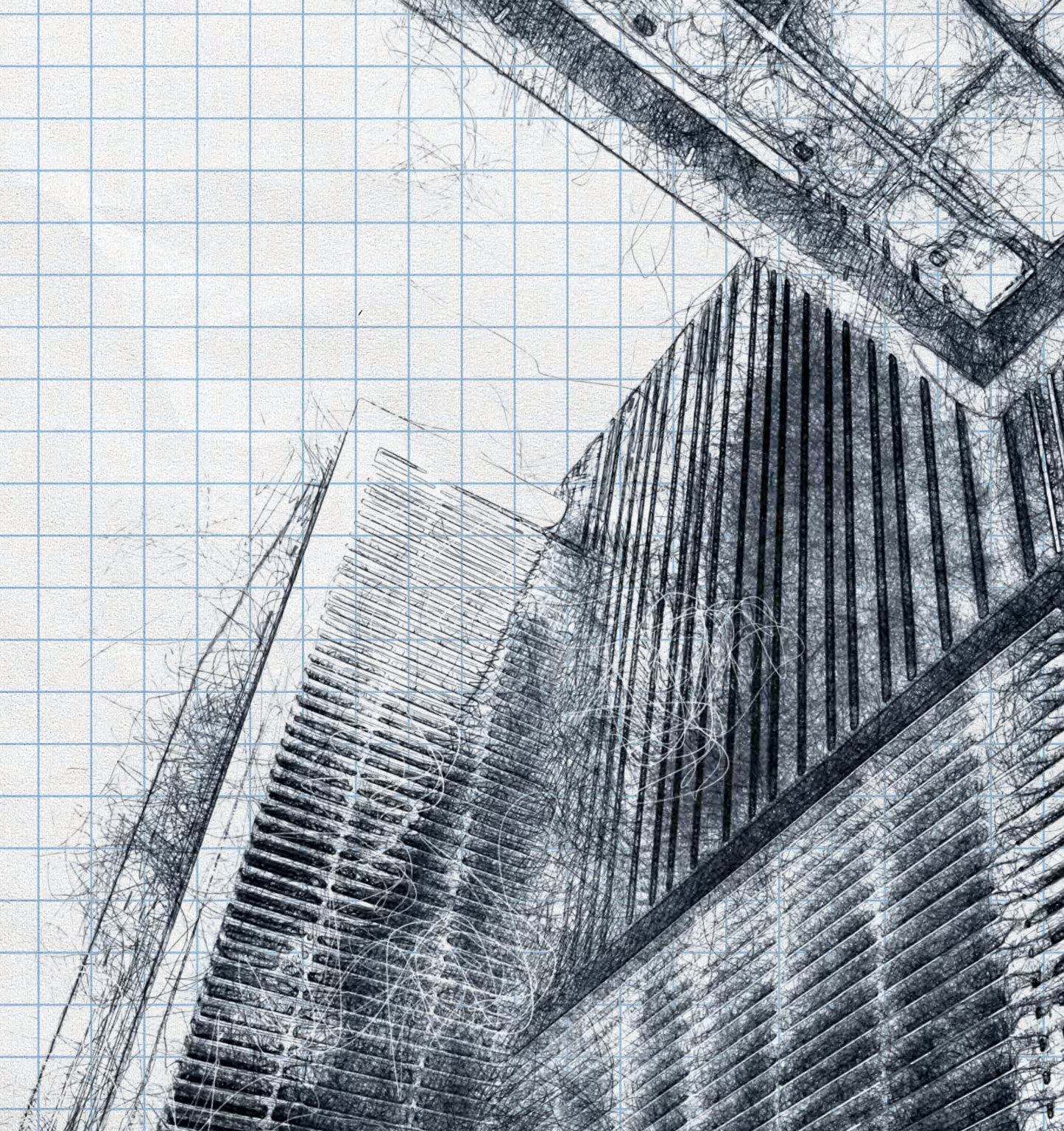
Sustainability
Features

03.

Sun Devils Achieving
Sustainability

01. Vision

**A hub for leadership
and sustainability.**







Vision

The ASU Student Pavilion is a hub of student life and hands-on sustainability engagement on the Tempe campus. Designed as a net zero energy building, the Pavilion will produce as much energy as it uses each year, complementing the larger university goal of climate net neutrality and sustainable building systems. It is an advancement of ASU's pioneering commitment to sustainability and is now the university's first and Arizona's largest net zero energy (NZE) building.

From visioning through completion, The Pavilion has been a student-led, student-funded initiative. The 74,653-square-foot space houses student organizations and student government offices, classrooms, a student success center and a 1,200-seat multi-purpose event space.

As a gathering space for the campus community, the ASU Student Pavilion will stand as a living example of the Sun Devil spirit of innovation, leadership and sustainability for years to come.

Project Details

Location

ASU Tempe Campus

Gross Square Footage

75,000

Total Project Cost

\$39,900,000

Architect

Weddle Gilmore Black Rock Studio
HGA Architects & Engineers

Construction Team

JE Dunn Construction

Project Start Date

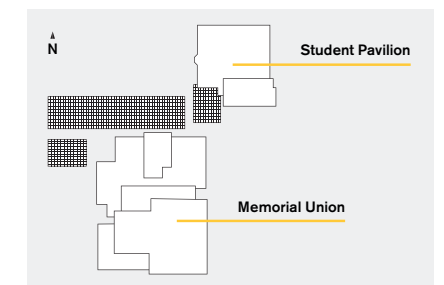
March 2016

Project Completion Date

August 2017

Funding Source

Student Facilities Fee





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This building showcases not only why ASU is number one in innovation for being the first net zero energy building on campus, but the power of a united student voice. The completion of the student pavilion is a landmark in Sun Devil student pride.

Located in the heart of the campus, the student pavilion acts as a foreground for leadership development, student engagement and academic success. I believe the student pavilion offers resources for students to engage in conversation which promotes civic engagement and the growth of each individual Sun Devil into a global leader.

— Navona Carter, President of the Black African Coalition, at the grand opening of the ASU Student Pavilion

02. Sustainability Features

**Innovative Details
and Highlights**







Daylighting

SolaTubes™

Similar to skylights, SolaTubes™ bring natural daylight to the interior of the building, reducing the need for electric lighting and overall energy consumption.

Daylighting

The use of sunlight for natural daylighting provided by SolaTubes throughout the building reduces the need for artificial lighting during the day, reducing energy use. Daylighting is indirect lighting from above or reflected off walls or ceilings to illuminate the space evenly without glare.



Winter—Summer

Windows

Shading of the Windows

The building's exterior windows are shaded, which reduces the amount of heat from the sun allowed into the building. With less heat entering, less cooling is required, the interior temperature is more comfortable and there is less glare.

Strategic Placement

Minimizing the windows while still providing daylight and views reduces the heat entering the building in summer and heat leaving the building in winter. This ensures that the building has a balance of temperature and lighting throughout different seasons.



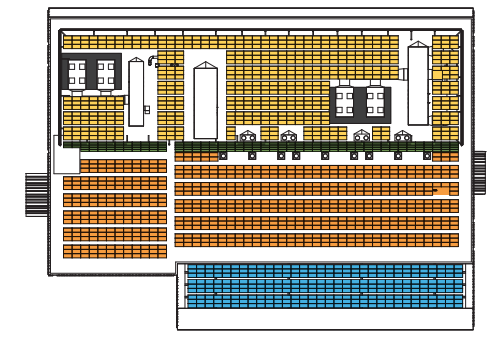
Solar Panels

Sustainable Energy

Taking advantage of Tempe's 300 days of sun per year, rooftop solar panels generate power for the Pavilion and offset the building's energy consumption and provide shading/cooling benefit.

As of June 2018, the Student Pavilion is ASU's 90th solar project, which includes 173,896 PV panels and generates 104,616,266 kWh (kilowatt). That is equal to powering 8,440 Arizona homes for an entire year. For more information, visit: cfo.asu.edu/solar

- MECHANICAL ARRAY**
585 PANELS
- SOUTH WALL ARRAY**
216 PANELS
- LOWER ROOF ARRAY**
698 PANELS
- TERRACE ARRAY**
288 PANELS





Water Reuse

Bioswales

Bioswales are landscape elements that filter runoff water. At the Pavilion, they allow water to slowly soak into the ground to replace underground water, instead of going down a drain where it cannot be immediately reused. Bioswales utilize stormwater and wastewater from HVAC system to supplement irrigation while cleaning, filtering and slowing runoff otherwise intended for the campus storm drain system and provide groundwater recharge.

Blowdown, or water drained from heating, ventilation and air conditioning (HVAC), is discharged into the sewer line, but piping has been installed for future capture of the blowdown water when ASU implements a campus wide strategy for collecting, treating and reuse of blowdown water.





Stairs

Stairs on the exterior for cooling benefit

Stairs are a great way to get up and down buildings without drawing extra electricity. However, indoor stairs take up a lot of space that Air Conditioners (ACs) have to cool.

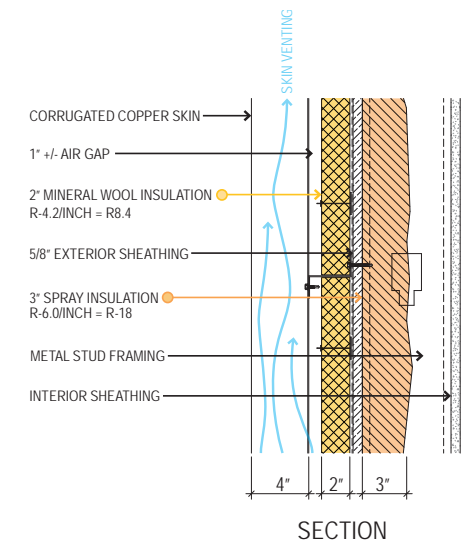
In the Student Pavilion, designers placed the majority of the stairs on the outside of the building, reducing the amount of space that needed air conditioned cooling.



Building Envelope

The building envelope separates the interior and exterior components of a building. The Pavilion's envelope is tightly sealed to better contain conditioned air and highly insulated to minimize heat transfer. Both of these features contribute to a reduced energy requirement and more efficient heating and cooling.

Copper is used in the building's envelope, not only for its timeless aesthetic, but as an homage to Arizona's five "C's": Copper, Cattle, Cotton, Citrus and Climate.





Heat Regulation

Chill beam

Chilled beams utilize chilled water run through piping at the ceiling level to absorb heat from the air and allow cooler air to drop into the space through natural convection. Pre-cooled air and chilled beams lead to low energy use for cooling, heating and ventilation. This is the first application of indirect evaporative cooling at ASU.

Indirect evaporative cooling

Four indirect evaporative cooling units are located on the roof of the Student Pavilion. By using evaporation (running air across a wet filter), the temperature of the air coming into the mechanical cooling system is reduced, resulting in a lower cooling required to bring the air down to the desired temperature.

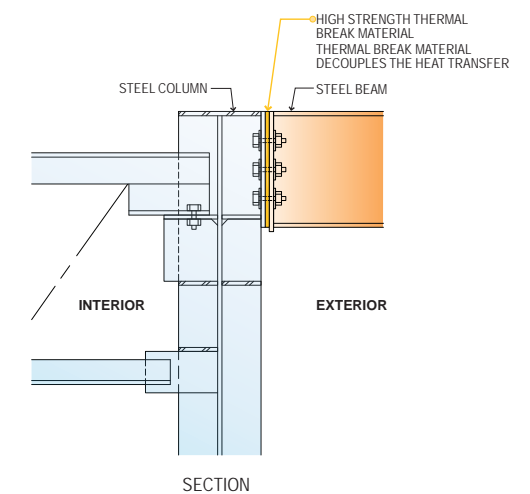
Thermal isolation

The Pavilion's exterior walls and roof contain a thermal barrier that slows the flow of heat. Thermal breaks are also included at metal window and door frames, structural steel, metal panel and steel stud connections, and other similar locations to reduce heat transfer and energy use.

Thermal Isolation

A thermal break (or thermal barrier) is an element of low thermal conductivity placed in the building exterior wall or roof assembly to reduce the flow of heat conductively through the building envelope. The barrier disconnects, and thereby slows, the flow of heat through a material.

Thermal breaks are added at metal window and door frames; structural steel, metal panel and steel stud connections; and other similar locations to reduce heat transfer and energy use.





03. Sun Devils Achieving Sustainability

Net Zero Energy,
Zero Waste.





Student Lead

The creation of the Student Pavilion is a result of strong student leadership and collaboration. The building's Net Zero Energy and Zero Waste status will similarly be achieved and maintained through a dedicated collective effort. The active support of the ASU students and staff who operate and use the building each day will contribute to these goals, and to the university's on-going commitment to sustainability.

A Sustainability Ambassador position will lead the on-going efforts monitor energy use and waste generations, and engage building occupants in creative approaches to conservation.

The Zero Waste goal extends to programmatic efforts in the building. Events hosted in the space are encouraged to demonstrate this commitment by utilizing materials that avoid waste or that can either be composted or recycled.



Student Focused

As a hub for engagement, the space houses Undergraduate Student Government (USG), the Programming and Activities Board (PAB) and ASU's Student Coalitions. The inclusion of these organizations aims to provide students greater access to resources and programming support in a unique workspace that fosters collaboration benefitting the entire community.

USG represents the concerns and needs of the students to the ASU Administration, the Arizona Board of Regents and the State Legislature. USG advocates for college affordability, voter registration, and ensuring that students have a voice.

PAB plans and delivers a wide array of activities and signature events. The organization is committed to increasing engagement and providing all students the best ASU experience through innovative programming and involvement opportunities.

ASU's Student Coalitions act as umbrella organizations for all registered cultural, ethnic and international student organizations university-wide. The seven identity-based coalitions promote and represent the voice of various cultures within the university.



Student Centric

Programming opportunities

The Student Pavilion provides organizations and the greater university community with new opportunities for programming and engagement. The building incorporates innovative spaces to host a diverse portfolio of events including: shows, productions and guest lecturers, banquets, music performances and more.

Open work spaces throughout the building aim to foster collaboration amongst students and clubs. In addition, reservable meeting and conference rooms also provide everyone with the opportunity to conduct business and planning sessions.

The Zero Waste goal extends to programmatic efforts in the building. Events hosted in the space are encouraged to demonstrate this commitment by utilizing materials that avoid waste or that can either be composted or recycled.

Net Zero Energy

As a Net Zero Energy building, the Student Pavilion will use no more energy annually than can be produced on-site. By leveraging the building's sustainable design features, its energy demand will be reduced by 35 percent and energy supply increased by 65 percent.

Net Zero Energy will be achieved through:

Design features like SolaTubes, solar panels, indirect evaporative cooling, blow down/bioswale and more

Building energy systems and load metering

Energy-efficient electrical equipment and lighting

High-efficiency heating, cooling and ventilation

Ambassador program to set examples and engage in creative approaches to conservation

Zero Waste



The ASU Zero Waste Program will operate at the highest level throughout the Student Pavilion, including events operations, student government and organization offices, the Student Success Center and University classroom.

Zero Waste will be achieved by:

Diverting 90 percent of solid waste through recycling, composting and surplus sale

Avoiding waste generation through sustainable purchasing practices and on-site reuse

Work with event planners to incorporate building goals into student events

