Northern Arizona University has accepted the challenge to take a leadership role in creating a healthy, thriving, just, and sustainable world. This commitment is demonstrated in the curriculum, the construction of high-efficiency buildings, the use of reclaimed water, the implementation of a recycling program, the adoption of a sustainability plan, and the university’s participation in the American College and University President’s Climate Commitment. The Applied Research and Development Building showcases the latest innovations in high performance construction technology, energy efficient design, and use of renewable energy resources. It is designed to meet the highest “Platinum” rating of the U.S. Green Building Council’s Leadership in Energy and Environmental Design system. The Applied Research and Development building is one of three campus buildings under consideration for LEED certification.

**Energy efficiency**

- A 160-kilowatt photovoltaic system donated by APS provides at least 20 percent of the electricity for the building.
- A back-up heating system uses roof mounted solar thermal panels.
- Unique “enthalpy wheels” installed in the air handling units extract heat from the exhaust air to pre-heat fresh air from the outside.
- A heat exchanger installed between the out going air handlers and incoming air ventilation captures heat from the building that otherwise would be lost.
- Sunlight provides more than 75 percent of the lighting for occupied spaces.
- Automated shade controls regulate solar gain at different times of year and day to keep building temperatures within a comfortable range.
- All result in reducing energy needs by 40 percent.

**Construction**

- 75 percent of waste materials generated from the construction of the building were recycled instead of being sent to the landfill.
- More than 10 percent of the materials used were made from recycled materials including insulation made from recycled denim jeans.
- 20 percent of the materials used were produced, manufactured, or harvested locally. Wood used in the building was certified to be harvested from a renewable forest management system.
- The building’s concrete is mixed from 40 percent fly ash (waste from coal-fired electric plants), keeping this material out of landfills and reducing the need for cement. Cement manufacturing is a significant source of greenhouse gas emissions, accounting for approximately 7 to 8 percent of carbon dioxide globally.

**Reduced building impact**

- Site preparation minimized disturbance to the local landscape.
- Storm water runoff is reduced with the use of innovative porous concrete paving.
- To reduce erosion from and contaminants in runoff, storm water for this building and adjacent commercial business is captured and held on site.
- Landscaping is designed to collect and filter pollutants.
- The living or “green” roof on the conference unit is designed to insulate the building, reduce the “heat island” effect typical of large roofs, and maintain a vegetated cover with native vegetation requiring little or no supplemental irrigation after initial establishment.

**Water efficiency**

- Indigenous landscaping reduces irrigation requirements by 50 percent.
- Reclaimed water replaces potable water for landscaping irrigation and flushing toilets.
- Low pressure faucets, waterless urinals, and low volume toilets reduce water needs by 30 percent.