

A large-scale photograph of the Denver Federal Center's roof, which is covered in a vast array of solar panels. The panels are arranged in a grid pattern, and the image is taken from a high angle, looking across the roof.

Denver Federal Center Go Green Fact Sheet

Sustainability is an economic, social and environmental concept. It is a means of configuring civilization and human activity so society and its members are able to meet their needs and express their greatest potential in the present, while preserving natural ecosystems for the future.

The Denver Federal Center (DFC) is committed to becoming one of the most sustainable Federal Campus' in the United States. We have completed numerous projects and upgrades that allow us to be more eco-friendly.

Solar

The DFC has reduced its electrical energy consumption by 40 percent since 2003.

- The DFC's 8 megawatt solar system consists of 34,464 photovoltaic (PV) panels that produce 22 percent of the DFC's electrical needs annually. The combined capacity of all the solar arrays is enough to power around 1,064 residential homes. The 39,000 panel 8 megawatt DFC PV system generates 11 gigawatt hours per year, and reduces GHG pollution by 9.5 billion metric tons per year. The combined GHG effect is equivalent to 19,094,663.34 US tons of CO₂.
- Installed solar carports in four large parking lots to help reduce the urban heat island effect. Parking lot lights were replaced with LED fixtures mounted under the carports to reduce nighttime light pollution that can disrupt migratory bird patterns.
- Replaced traditional lights with solar path lights reducing maintenance costs and saving \$10,000 annually in electricity costs.
- Put in solar hot water systems in Building 50 and the Daycare Center.

Energy Conservation

Since 2004, the DFC reduced its natural gas consumption by 50 percent. Projects that have contributed to this are:

- Reduced GHG emissions from heating by approximately 60 percent with new low nox/high efficiency boilers.
- Decreased the DFC's environmental footprint with campus-wide HVAC equipment replacement including high efficiency motors and chillers.
- Conserving at least 25 percent more energy per ton than a traditional high efficiency air-conditioning system would through the use of three Coolerado Cooler™ (indirect evaporative cooling) units in Building 41 that provide six tons of cooling each.

Water Conservation

Since 2007, the DFC reduced water consumption by 50 percent. This has been possible because of the following projects.

- Completed campus-wide water infrastructure replacement that included replacing the 75-year-old water supply system and all campus water using fixtures (i.e., showers, toilets, sinks and urinals).
- Finished a new water treatment in Building 25's cooling tower to reduce the water drained to the sewer system, saving at least 800,000 gallons of water per year.
- Installed three more prior successful cooling tower systems in buildings that in the past year have saved close to two million gallons of water. Combined with the first two pilot buildings, the DFC will save close to 4.5 million gallons of water annually.

- Installed a new site wide irrigation control system. Water sensors monitor moisture conditions in soils and only permit watering when needed.
- Re-landscaped large turf areas with drought-resistant vegetation, known as xeriscaping, to reduce water consumption.
 - GSA's newest xeriscape project is located on the northwest side of Building 53. By the end of the 2015 growing season, GSA will have removed up to a third of the existing turf and once completed, more than half of an acre will be replaced with low water-use plantings and wood mulch. Water use will be reduced by more than half.

Storm Water

- Installed a pervious concrete parking lot that is more than 100,000 square feet to support a campus green storm water program.

Transportation

- Replaced regular, fuel-powered vehicles with zero-emissions vehicles. The DFC has full sized electric vehicle, another 29 Slow Speed Electric Vehicles and two golf carts on site. Additionally there are 30 level one electric vehicle charging stations and GSA is installing 11 dual output (level one and level two) electric vehicle charging stations.
- Implemented a bike sharing program with 50 B-cycles.
- Collaborated with the Regional Transportation District to have a light rail stop on site.

Outreach

- Experience a virtual tour of the DFC PV systems by going to www.dfcpv.com. Self-guided tours are also available onsite.

Other Green Practices

- Launched a recycling program in 2006 and in May 2015. Single stream recycling and composting services were added to six additional buildings. GSA targets to have a 70 percent waste diversion by 2020.
- Provided a robust recycling program that includes construction materials, e-waste, compost and single stream recycling.
- GSA has four Certified Energy Managers and dozens of DFC associates that have various LEED certifications.
- The 75-year-old Building 41 is now a LEED Certified Existing Building that delivers a 98 out of 100 energy performance rating. A couple of ways this was achieved is through reducing the building's water usage by 32% and adding a roof coating that reduces the heat island effect.
- Hosts the only weekday farmers market in Lakewood, Colorado.
- Reduced the urban heat island effect and HVAC loads by replacing many of the larger building roofs with R-50 cool roofs.
- Received a gold leader designation from the Colorado Environmental Leadership Program for the DFC's environmental management system. The system focuses on identifying, prioritizing, controlling, and improving those elements of an organization that interact with the environment.
- Implemented an ISO 50001 Energy Management System which is similar to the above EMS system above except it focuses on energy efficiency.
- Completed three Energy Savings Performance Contracts since 2000. The first replaced the water fixtures site wide in 2001. The most recent contract was a site wide energy project. These projects leveraged the savings (to be measured and verified yearly) of:
 - Lighting/lighting control upgrades
 - Building control systems optimizations
 - Pump/fan upgrades
 - Pump/fan variable drives and many other aggregate energy savings opportunities in order to finance the upfront cost of all project design, implementation and ongoing verification.

These projects are showing projected, and in some cases, excess savings throughout the buildings within the scope.