

Bishop Henry Whipple Federal Building Provides Brighter, More Efficient Space



The Bishop Henry Whipple Federal Building near historic Fort Snelling in Minneapolis, Minnesota provides centralized, accessible immigration and veterans services to those in need. It is located near the Veterans Affairs Hospital and includes a VA clinic to serve as a one-stop shop for veterans' services.

Originally built in 1969, the building was dated, inefficient and insufficient for the growing number of veterans requiring services. The project team assembled by the U.S. General Services Administration, the building owner, worked to modernize the facility, upgrade the mechanical systems and focus on energy reduction, sustainability and public access.

Some of the building's systems were also breaking down, making it necessary not only to update the building but to update the technology as well.

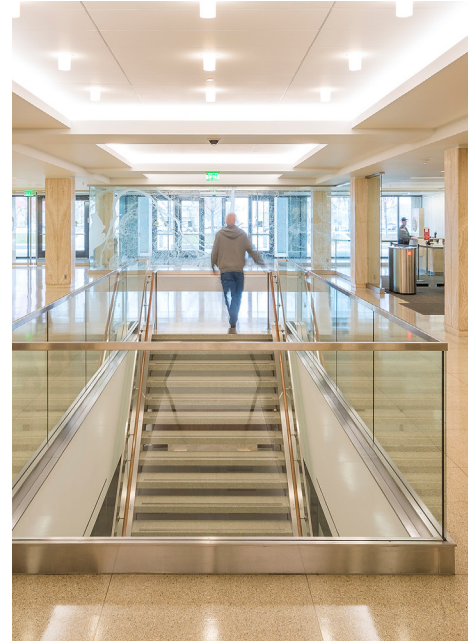
Study funding and stimulus money

Through Xcel Energy's Energy Design Assistance program, engineers performed an HVAC study to determine the most efficient heating and cooling system for the building. Installing a new, high-efficiency system provided a significant rebate and there were additional dollars to be awarded.

The Bishop Henry Whipple Federal Building renovation was funded through the American Recovery and Reinvestment Act (ARRA), an economic stimulus package enacted by the U.S. Congress in 2009. The primary objective for ARRA was to save and create new jobs and invest in infrastructure, education, health and renewable energy and to provide tax cuts.

The ARRA project called for the removal of existing mechanical, plumbing, fire-protection and electrical systems and replacement with new, high-efficiency, sustainable mechanical and electrical systems. Among the most effective energy efficiency measures implemented were:

- A geothermal system, with 800 wells drilled to 250 feet deep, supplies a water loop heat pump and provides heating and cooling for the entire 600,000 square foot building
- Reduced lighting power density: by arranging fixtures and using the most energy-efficient lighting, energy use was reduced to \$0.69 per square foot, which is 26 percent better than building to code



Efficiency highlights

- Estimated annual energy savings: 5,588,529 kWh
- Estimated peak energy reduction: 23%
- Estimated annual energy cost savings: \$485,461

- Occupancy sensors
- Daylighting
- Heat recovery
- High-efficiency transformers which reduced the plug loads by 10 percent
- CO₂ sensors

In addition to efficiency, it was important to preserve the mid-century design elements of the 1960s building. Travertine panels, terrazzo flooring and ash trees that were repurposed for wood paneling and doors on the interior of the building played a major role in design.

Worth the effort

The building modernization and additional sustainable measures were well worth the effort, resulting in a 42% overall energy savings. The building is estimated to save \$485,461 in energy costs per year and Xcel Energy awarded them more than \$142,000 in rebates to offset the cost of the new equipment.

In addition, the Department of Energy issued the project a Federal Energy and Water Management award.

The building is also more user friendly than it used to be. The architects studied the specific public and tenant needs to determine how the building should be designed.

There is now consistency throughout the building. Double doors mark each agency and an open floor plan and added daylight makes it easier for anyone to find their way around.

The operations team also installed tighter controls to increase tenant comfort and an improved ventilation system to improve the air quality and provide a healthier building, all while reducing energy consumption.

By the numbers

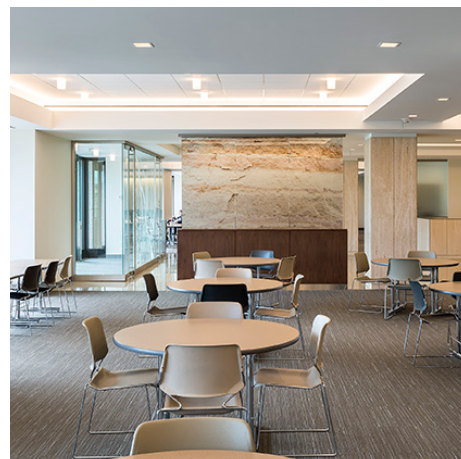
Through a collaborative effort, the team was able to exceed guidelines set by the government.

- The building's energy performance is roughly 26 percent below the pre-renovation 2003 baseline. A 20 percent reduction is required.
- A geothermal ground source piping system, building air-to-air heat recovery systems, carbon dioxide demand controls and fully automated HVAC systems reduce energy usage significantly.
- There is a 40% reduction in wasted water due to high-efficiency plumbing fixtures.
- There is a 50 percent reduction in potable water use due to storm water system design and native, low maintenance landscaping.
- A photovoltaic system offsets up to one percent of the building's power usage.

Room to grow

The entire multi-year renovation happened while 800 occupants were still working at the building every day. It took many phases and significant planning to get it all done.

But now, the investments put into this facility ensure that it will serve both tenants and the public well for the next 50 years.



For more about Xcel Energy's Energy Design Assistance program and rebate offerings, visit **XcelEnergy.com/Business** or call the Business Solutions Center at **1-855-839-8862**.