



Government

NREL - Research Support Facility



NREL's LEED® Platinum Plus Research Support Facility showcasing innovative green technologies such as the SolarWall® solar air heating system (above; the two south facing charcoal SolarWall® systems)

Background

The National Renewable Energy Laboratory (NREL) is the preeminent national laboratory of the U.S. Department of Energy. When their Office of Energy Efficiency and Renewable Energy was tasked with building their next sustainable green building, a new Research Support Facility (RSF), it was decided the 222,000 ft² office building would be a showcase for energy efficiency and renewable energy technologies.

NREL's RSF is the largest Net Zero building in the US with 800+ staff and aiming for LEED® Platinum Plus rating from the USGBC. The RSF was designed to use 50% less energy than a standard office building, and incorporates a number of green innovations such as day lighting, natural ventilation, building integrated PV and a SolarWall® solar air heating system.

Solution

Incorporating the SolarWall® technology into the new building was a natural fit because NREL was involved with the development of the SolarWall® technology, and had officially referred to it as being *"the most reliable, best performing, and lowest cost solar heating system for commercial and industrial buildings."*

Two SolarWall® systems were incorporated into the south façade of the building. The charcoal colored solar collectors span over 8,640ft² and pre-heat the fresh ventilation air using the sun, reducing heating costs and GHG emissions.

Results

The SolarWall® systems at the RSF is projected to deliver over 238 MWh (856 GJ) of thermal energy each year. The estimated reductions in GHG emissions is over 53 tones of CO₂ per year. The new NREL facility was also the winner of a prestigious 2013 ASHRAE Technology Award for its use of innovative technology.



Aerial view of NREL's Research Support Facility, the two SolarWall systems are visible in the bottom left of the photo

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