



Industrial

Plattsburgh International Airport



Above; photos of the SolarWall® 2-Stage solar air heating systems at Plattsburgh International Airport.

Background

The Plattsburgh International Airport (PIA) is located in Plattsburgh New York. The airport is a former military installation (Plattsburgh Airport Base) that was converted to private sector use in 2008. PIA was looking for a project to reduce their heating bills in order to keep rental costs competitive. The solution; SolarWall 2-Stage solar air heating systems, which qualified for funding by the New York State Energy Research & Development Authority (NYSERDA), originated from the US Department of Energy and the American Recovery and Reinvestment Act of 2009.

Solution

PIA installed SolarWall 2-Stage solar air heating systems on four existing buildings in 2011. The buildings include three 28,000 ft² hangars and a 26,500 ft² industrial facility. The size of the custom engineered black SolarWall 2-Stage systems were 3500 ft², 3500 ft², 6000 ft², and 4840 ft² respectively.

The SolarWall 2-Stage system uses the standard unglazed SolarWall for the lower portion of the wall, with the top SolarWall portion of the unit (2nd stage) covered by polycarbonate glazing. It is attached to the walls by framing materials, which are spaced to provide optimized channels for air flow between the SolarWall and the wall. Outside air is drawn across the SolarWall system from the

bottom to the top and into the building by ventilation fans. The air is heated as it passes across the unglazed SolarWall and heated even more as it passes through the glazed portion. This air is then ducted into the building's existing air distribution network or directly into the space.

Results

The system provides solar heated air whenever there is sunshine and there is a need to heat the ventilation air. The systems generally heat the air to a temperature of 36F to 85F above ambient; recent monitored data shows gains of over 120F above ambient. In addition to providing solar heated air, the system helps recapture heat that would ordinarily be lost through the walls. It has been observed by Tom Long (Airport Manager) that "the buildings now takes only 45 minutes to re-heat versus 3 hours before the system was installed". In the summer months the SolarWall system shields the wall from the sun.

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