



**Institutional**

## CANMET - Materials Technology Laboratory



The grey SolarWall® system on CANMET's Materials Technology Laboratory at Hamilton's McMaster Innovation Park—at a 53 degree angle on the south façade of the new facility

### Background

CANMET (Canadian Centre for Mineral and Energy Technology) is Canada's premier research institution, employing 450 scientists and engineers who are dedicated to clean energy research and technology development. CANMET's new laboratory is located at Hamilton's McMaster University, representing the "crown jewel" in their new Innovation Park (MIP).

Natural Resources Canada (NRCAN) was a sponsor of the new facility and clearly prioritized their goals for the complex, including the mandate to showcase sustainable technology in the heart of the Canada's steel sector. The lab strives to be a center of metallurgical research and development to support industry. With an ambitious target of becoming *LEED® Platinum*, one of the most striking renewable energy technologies incorporated into the facility is the large roof-mounted SolarWall® solar air heating system, part of a larger portfolio consisting of solar thermal water heaters and ground source energy. NRCAN has been a long time supporter of the SolarWall® technology; two other CANMET buildings feature SolarWall® systems.

The globally-renown architecture firm of **Diamond + Schmitt** was hired to design the building. They have won numerous awards for their projects around the world, which include Four Seasons Centre for the Performing Arts in Toronto, the Ontario Science Centre, and the New Mariinsky Theatre in St. Petersburg.

### Solution

Diamond + Schmitt designed the SolarWall® system on a 53 degreed tilt from the roof on the south façade of the building. The angle was chosen for maximum system performance (responds to the sun's azimuth during the winter months) and also to contrast with the wall-façade below.

The SolarWall® system's color is grey and spans 7,590 ft<sup>2</sup>. It will provide pre-heated ventilation air for the 174,000 ft<sup>2</sup> laboratory.

### Results

The first field report on the performance of the SolarWall® system was taken in January of 2011 and it showed an average temperature rise of 16 C (30 F), which exceeded expectations. The accreditation of the building's LEED Platinum status is hoped to be achieved by the end of 2011.

*"The SolarWall® provides a greater portion of the usable heating load than I had originally thought based on simulated testing using RETScreen and SWIFT... This is because the ventilation load is so large and runs at full [mode] during the day and at half during evenings and weekends"*

Mike Luben, NRCAN, Energy Modeller  
(Member of the Integrated Design Process)

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