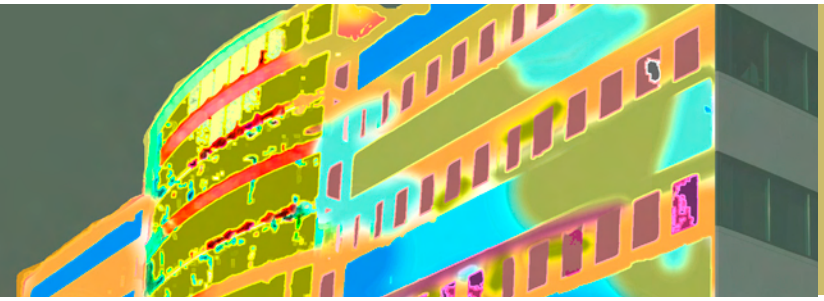
Testing Facility Fact Sheet



TREMCO®
Commercial Sealants & Waterproofing

The Tremco Sustainable Building Solutions Test Facility is a state-of-the-art facility for controlled testing of uncontrolled air and moisture infiltration/exfiltration in air barrier systems and building enclosures, which can lead to energy loss, structural deterioration and poor indoor air quality.

Developed in collaboration with the Air Barrier Association of America (ABAA) and with input from the building science community, Tremco's testing facility is a cutting edge, technically advanced and automated laboratory designed for the measurement of air leakage contributing to energy loss and sustainability of the built environment.

Test findings will support the research being done at Oak Ridge National Laboratory (ORNL) in building technologies to achieve Department of Energy (DOE) energy efficiency goals. Interaction is also being explored with Lawrence Berkeley National Laboratory in conjunction with their efforts to help architects and engineers design more energy-efficient buildings. No other air barrier or waterproofing manufacturer has a facility as technically advanced to be able to provide this in-depth collaboration.

In addition, working with ABAA and ORNL, the data collected on the performance characteristics of specific materials and air and vapor permeability during a three-year period will be used in the development of a collective database. This information source will then be used as a learning tool for the industry helping to eliminate some of the trial and error that is present today.

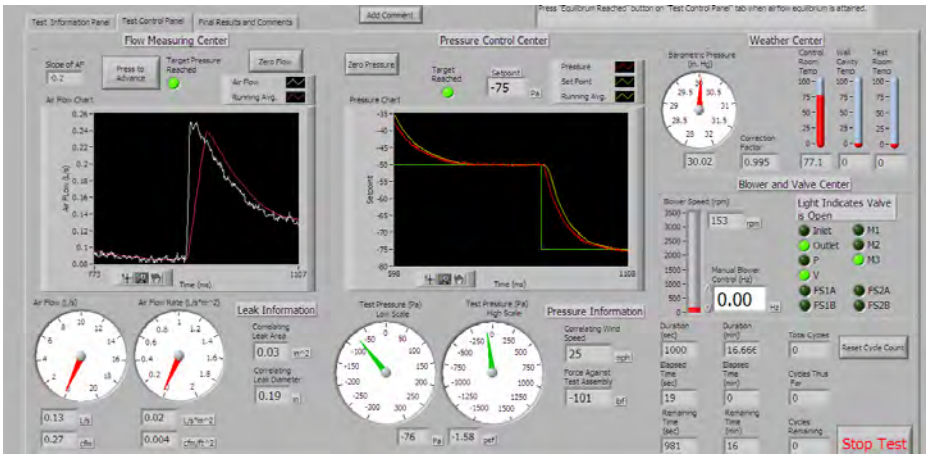
What Will Be Tested

Air barrier system components and integration techniques used in building design will be tested to measure performance characteristics combating energy loss.

Components will be exposed to different levels of wind conditioning as well as moisture to determine resistance to specific elements including rain, high winds and other environmental exposures.

In addition to testing air barrier assemblies, the facility has the capability to test the following connection points between air/vapor building protection systems to assure continuity throughout the building enclosure:

- Roof-to-wall tie-ins
- Foundation-to-wall tie-ins
- Corners
- Window-to-wall interfaces
- Penetrations



Test Facility Components

The following technical components will be featured in this fully automated testing facility to ensure accurate and precise measures:

- Multiple input/output channels for simultaneous data control and measurement
- State-of-the-art measurement devices
- Deflection measurement during load sequences
- Infrared photography to identify areas of air leakage and moisture infiltration that can lead to energy loss, condensation of moisture vapor in wall cavities and the potential for mold, degradation and deterioration of structural members, poor indoor air quality and occupant discomfort

The testing chamber consists of the following elements:
- Controlled positive and negative air flow for pressure and vacuum exposure conditions
- Full internal and external visibility to the wall system during testing to allow for visual inspection while testing

Additional environmental factors built into the testing program:
- A water recycling system designed to capture the water from rain leakage testing for reuse in the spray grid testing
- Recycling program for materials used in the construction of wall assemblies for testing

Why The Tremco Testing Facility

Most building envelope problems are moisture-related, caused either by air leakage or exterior moisture penetration. Project specifications must not only be in compliance with current standards, but also need to analyze building envelope or air barrier assembly configuration in addition to performance of building materials themselves to ensure optimal performance and long-term sustainability.

Tremco's commitment to sustainability of the built environment required not only the development of technologies, products and techniques but testing to ensure documented, proven solutions. This will help eliminate trial and error as well as some of the risk associated with building design and construction.

Beyond durability of the built environment and improvement of the indoor air quality, buildings consume 40 percent of the energy and represent 40 percent of the carbon emission in the United States, according to President Obama and U.S. Energy Secretary Steven Chu. Innovations in energy-efficient building envelopes, coupled with this integrated design approach to the building enclosure, have the potential to optimize the interaction between systems and components. This can dramatically transform today's buildings, enabling them to use considerably less energy and reduce emissions.

Tremco's commitment to sustainability and heritage of product innovation and unmatched customer support made this facility a natural evolution of the company's building envelope solutions positioning.

General Facility Information

Location:
4475 East 175th Street
Cleveland, OH 44128

Facility Manager
Tim Mattox, Manager-Testing, Codes and Standards,
Tremco Commercial Sealants & Waterproofing

Tests Conducted
ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference