

Tremco, Inc. Headquarters LEED Gold Renovation

Beachwood, OH



Tremco Inc. headquarters undertook an extensive modernization of their headquarters. The primary focus of the project was to provide a “Green” makeover for their aging 40-year-old building. The energy consumption of the main headquarters building needed to be brought in line with current green and LEED standards using a combination of building upgrades and energy conservation measures.

Tremco selected O&S as the lead design professional heading up construction management for a team of consultants including MEP and Green Roof landscaping consultants. In 2012, the building was awarded LEED Gold Certification from the US Green Building Council, which is a rare accomplishment for the building that was renovated and not designed specifically to meet LEED standards. This project won the “Center for Environmental Innovation in Roofing’s (CEIR) 1st Annual RoofPoint Award for Advanced Sustainable Roofing” and the “2012 Award of Excellence in Design and Construction from the Cleveland Engineering Society.” Tremco Headquarters scored 72 out of 110 points, and amongst its highest-scoring categories were Energy & Atmosphere, Innovation, and Sustainable Sites.

Major components of the project included:

- Building façade re-design using insulated EIFS panels
- Vegetated Green Roof for the Main Building
- New energy efficient Windows and Glazing
- MEP modernization and re-design
- Rooftop Solar panels and on-site Wind Turbine
- Interior re-design for energy conservation

O&S was selected to lead a team of consultants for the comprehensive modernization of the Tremco headquarters complex. The renovations

OWNER/CLIENT:
Tremco, Inc.

COMPLETION DATE:
2010

CONSTRUCTION DATA:
\$5 million

O&S SERVICES USED:

- Surveying
- Structural Investigations
- Interior Design
- Architecture
- Structural Engineering
- Electrical/Mechanical Engineering

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and upgrades project finished within budget and on schedule. The confidence of our client in our firm results from a long-standing relationship based on our ability to deliver a diverse range of architectural, engineering and CM services. In addition to providing the traditional Architectural and Engineering services, O&S also provided lead consultant, design management and project coordination services. The design drawings were produced and delivered in BIM, Building Information Modeling format as part of bringing the building up to cutting edge A/E standards.

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Exterior Façade Re-Design: The old façade of the building consisted of hung slate panels and curtain walls. The goal of designing a more energy efficient façade was achieved by placement of new EIFS panels directly on the existing slate panels. This resulted in considerable cost savings for Tremco by allowing the existing façade to stay in place while achieving their goal of energy savings and aesthetic upgrades.

Window & Glazing Replacement: The existing windows were replaced with energy-efficient windows and glazing, which helps in achieving the goal of energy savings and sustainability.

HVAC Upgrades & Re-Design: Existing heavy MEP equipment was replaced with new. HVAC delivery and control systems were a major source of energy wastage in the buildings. The controls system has been redesigned to optimize energy performance and provide better controllability of systems for increased thermal comfort. The provision of solar and wind electric generation provided 40% of the building's energy. The MEP upgrades had a construction costs in excess of \$3 million.

Vegetated Green Roof: The existing roof which was approaching the end of its useful life was replaced with a new vegetated Green Roof system. This provides better energy performance for the building and helped in securing LEED credits for the building.

LEED Criteria: The objective for the project is to provide a High Performance Sustainable building. Our specific goals for the project were:

- Significantly increase energy efficiency of the building
- Reduce total life-cycle cost of ownership
- Provide a safe, healthy, and comfortable work environment
- Protect the natural environment through measures such as water conservation and other sustainability measures

Special Features

Tremco's goal for this project was to create a High Performance Sustainable Building. The specific objectives of Tremco were to improve energy efficiency and conserve water; reduce operational costs; provide a safer, healthier facility; and protect the natural environment by reducing carbon output, lowering the local heat island effect, and recycling and reusing material to keep it from being hauled to a landfill.

The renovation's most noteworthy sustainable features include:

- Four types of sustainable roofing systems.
 - A vegetated roof featuring local plants. Low impact lighting and a water capture

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system will be integrated with the roof, as will a pathway of recycled materials. Signs will describe the roof's features and provide information about the plant palette.

- ENERGY STAR qualified Rock-It roof surfacing system, composed of white gravel set in white adhesive.
- A white, reflective, single-ply system installed beneath a rooftop photovoltaic (PV) system.
- A thin-film rooftop PV system that will be used to generate electricity for the building. A second PV system on a white reflective roof was installed on the South building.
- A Dryvit EIFS exterior wall system. The system provides energy efficient, insulated façade and can be applied directly to the existing slate, eliminating the time and potential waste of removing the façade.
- High-performance, double pane, tinted windows that exceed minimum energy standards. Tremco sealants and gaskets were used to ensure an airtight transition from window to wall.
- New sidewalks, with decorative concrete from that are supported by gravel from one of the building's existing roofs.
- A 1.8kW wind turbine installed on the property to generate electricity.
- Numerous interior upgrades such as ADA-compliant restrooms, interior window treatments, elevator modernizations with eco-friendly technology and ADA compliance.
- MEP upgrades such as new control system that ensures an accurate operating schedule of HVAC and lighting as well as improved zone control; modifications to the central air handling system to enable variable flow, resulting in significant energy savings; and replacing the cooling tower with a variable speed model that eliminates the need for water treatment.

The Construction Phasing of the Project

This Design/Build project followed the following phasing plan.

Design – The design team gathers requirements from the Owner and/or Tenant in order to create construction documents. The documents are reviewed with the Government and approval is given for construction.

- Mobilization – Once the contracting officer gives the Notice-to-Proceed, the construction team prepares for construction by moving necessary equipment and materials to the site. In this case, since the buildings were occupied during construction, signing, fencing, and detours were put in place to ensure public safety.
- Construction – The construction work proceeds according to the approved documents. The order of work was:
 1. Façade demolition
 2. Façade reconstruction
 3. Interior demolition
 4. Reconstruction of lobby and interiors
 5. Replacement of HVAC, electrical, building controls, and plumbing
 6. Installation of wind turbine & solar panels
 7. Roof demolition
 8. Green Roof installation
- Close-out – The design and construction teams meet with the Owner and his inspectors to review the work. A punchlist is created of missing or incomplete items. After all of the punchlist items are remedied, the site is demobilized and returned to its original condition.