

The upgrades to Atrium II, an office building in Secaucus, NJ, include the practical applications of the Hartz Mountain Industries Sustainable Initiative Program. It begins with evaluating energy consumption in existing buildings, and moving forward with energy saving measures - both technical and institutional. This project focuses on strategies that lower energy use and monitor water usage. The 260,000 SF building was originally built in 1983.



Atrium II - Hartz Corp. Secaucus, NJ





Location of Project: Secaucus, NJ

Owner: Hartz Corp.

Overview

Hartz Mountain took their company-wide approach to implement policies and green building strategies that could have practical application for other buildings within their portfolio. They determined those which had the highest impact and benefit in lowering energy use, and benchmarked best practices that could be converted to action plans through consistent monitoring of results. After conducting an ENERGY STAR analysis which determined that the building exceeded the minimum requirements a Building Enhancement Plan was implemented while pursuing LEED Certification.

Process

Design

The approach to the energy analysis of this office building was as follows:

1. Determine the areas that were deficient using a LEED checklist
2. Establish a budget for all items on the checklist along with a payback period
3. Decide items that could be practical applications for the building
4. Determine cost impact vs. achievable benefits
5. Implement a plan for established goals

The team also used the LEED Guidelines to determine all objectives, establish baselines and prepare a cost analysis that achieves the goals set for the project. It is anticipated that the LEED Certification process will be completed early in 2011.

Finance

The building modifications for the project were not completed at time of this report.

Project Team

Architect: *Vincent Antonacci Jr., Hartz Mountain Industries, Inc.*

Property Manager: *Rico Pagliei*

General Contractor: *Hartz Mountain Industries, Inc.*

Sustainable Design Consultant: *Jason Kliwinski, AIA, LEED AP, Spiezle Architectural Group, Inc.*

Landscape Architect: *Bill Lyons Jr., A-L Services, Inc.*

Engineers: *UP&M*

Commissioning Agent: *Christopher Angerame, UP&M*

Energy Auditor: *Peter Clarke, ICF International*

Performance

Energy: Before upgrade

One task of the project was to replace the existing Andover Building Management 256 control with new Andover Continuum system. The new system provides expanded control and monitoring of numerous energy components and points within the hot water plant and four rooftop HVAC units. Previously energy information was not readily available. The previous system lacked the ability to provide supply air reset based on space conditions, and true optimal start time based on interior loads in preparation for occupancy. Additionally, the existing Andover Building Management 256 control provided only rudimentary alarm conditions.

Energy: After Upgrade

Installation and commissioning of the new Andover Continuum system was continuing at the time of report. Once optimized, the new system will provide out-of-tolerance alarming, and sensors will continually monitor space conditions to indicate when operating parameters are beyond normal operating limits. Trend logs are used to determine when equipment is in need of adjustment or repair. Utility meter data will be captured for real-time reporting of energy consumption. The Andover Continuum system will provide a user interface to utiliVisor, a web-based, advisory service that will provide significant operating cost savings by metering, monitoring and logging performance data of the HVAC equipment. Cost savings are achieved through:

- Maximizing free cooling (economizer) operation
- Monitoring unit start times





- Eliminating low supply air temperature set points
- Preventing over cooling/over heating of tenant space
- Saving fan energy by monitoring high static pressures
- Informing the building staff how to notice improper boiler operation

Water: Before Upgrade

Prior to upgrade, water performance was monitored through domestic water meter and dedicated irrigation system meter only. There was limited ability to optimize the system.

Water: After Upgrade

Water consumption data from the main building water meter is now collected in real-time through a new Building Management System. Additionally, sub-meters were installed in each of the four Mammoth rooftop units to monitor cooling system make-up water use. Consumption data is logged into the system and alarm parameters are set in order to report any anomalies that could indicate excessive water use. Several water conservation projects were completed within the core building restrooms including installation of 0.5 gallons per minute (gpm) aerators on all faucets and replacement of all urinals with waterless urinals. Additionally, all exterior landscaping was replaced with native, adapted plants, which will not require irrigation once established. Significant water savings are expected to be achieved upon completion of these projects.

Lessons and Trade-offs

A pleasant surprise was discovering that several of initiatives that Hartz Mountain took on over the years to lower building operating expenses resulted in this building being well-positioned to achieve significant status in sustainability (ex. LEED). Examples include: retrofitting fluorescent lighting to T-8 fixtures, incorporating lighting controls such as timers, photocells and motion-sensors, and installing HVAC controls to optimize operation.

The team also learned that in order to achieve a significant status in sustainability, one must look beyond basic building mechanical operations and analyze areas such as cleaning, purchasing, and waste disposal.

List of Green Strategies

Envelope Upgrade

- Roof upgrade-insulation
- Daylighting

HVAC and Lighting Upgrade

- Upgrade to T-5 or T-8 lamps
- Occupancy Sensors
- ENERGY STAR® Appliances
- Variable Frequency Drives (VFD)

Building Performance and Operations

- Smart Metering
- Retro-commissioning: Benchmarking
- Retro-commissioning: Energy Audits
- Green Cleaning
- Day Cleaning
- Education & Training
- Rapidly Renewable Materials
- Certified wood
- Recycled Content
- Regional Materials
- Salvaged Materials
- Low-emitting Materials
- Waste reduction & recycling program
- Construction & Demolition waste recycling program

