



Morgan Stanley

2000 Westchester Ave, New York

Turnkey Thermal Storage Project

Built in 1983, 2000 Westchester Avenue, located at the intersection of the Cross Westchester Expressway (Route 287) and the Hutchinson River Parkway, was the former headquarters of Texaco Oil Company. Morgan Stanley purchased the 750,000 square foot facility in 2001 for use as a critical facility containing a data center, trading floor and general office space. Morgan Stanley is one the world's largest diversified financial services companies, with a reputation for excellence in advice and execution on a global scale. The firm has leading franchises in three businesses; Global Securities, Global Asset Management and Global Credit Card Services.



Building Type: 750,000 square foot facility containing a data center trading floor and general office space

Challenge

Morgan Stanley faced the dual challenges of an aging cooling infrastructure as well as increased cooling capacity requirements of its critical operations. They decided to pursue a high performance infrastructure solution with the goals of energy efficiency, increased site resiliency and environmental responsibility.

Solution

Morgan Stanley engaged the Trane New York / New Jersey Energy Services team to evaluate the building's needs and develop innovative, high performance solutions. Using Trace 700, the team developed multiple energy models of the facility for a variety of potential solutions. Ultimately, the team proposed a thermal storage solution that would shift the building's electric load from day to night. Electric produced during night (off-peak) hours is more plentiful, less expensive and generated more efficiently. The solution included the replacement of a 17 year old chiller with a new, more efficient and inherently more reliable non-CFC chiller.

This turnkey project is expected to lower the facility's peak energy usage by 740kW, reduce electric usage by 900,000 kWh and reduce overall site fuel consumption by 15,000 MBtu.

The Project Team

- **Morgan Stanley**
- **Trane** – HVAC system design expertise, project management, chillers
- **Hines Property Management**—Building Operations Expertise
- **CALMAC Manufacturing Corp** – Ice Storage tanks
- **ECM Energy Management Service** – Building modeling
- **NYSERDA** – Project analysis and funding



CASE STUDY



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Results

Trane New York / New Jersey provided the turnkey installation of a 1400 ton Trane CentraVac centrifugal chiller, which replaced a 17 year old, 1000 ton, direct fired absorption chiller. Trane also installed 48 CALMAC IceBank tanks to store up to 9000 ton-hours of ice produced by the chiller. The system makes ice at night during off-peak hours to provide cooling the next day during on-peak hours. The system is expected to lower the facility's peak energy usage by 740 kW, reduce overall electric usage by 900,000 kWh and reduce overall site fuel consumption by 15,000 MBtu while improving the resiliency of the site. All work was completed without disrupting the critical operations of Morgan Stanley. Energy savings, combined with a substantial incentive from the New York State Energy Research & Development Authority (NYSERDA), delivered a significant return on investment to Morgan Stanley while providing some valuable operating benefits. The system has the flexibility to run on chiller only, ice only or a combined operation. There is also an emergency mode that can provide comfort cooling while making ice in the evening. The system includes a crossover plate and frame heat exchanger, which added redundancy to the existing data cooling loop and extended the free cooling season for the facility. The environmental benefit of this project is the equivalent of planting 373 acres of trees or removing 274 cars from Westchester County roads. The new chiller uses environmentally responsible HCFC-123 refrigerant. Thermal storage systems have been recognized for improving the reliability of the electric grid by permanently shifting peak cooling loads from on-peak to off-peak.

CASE STUDY

- Systems Installed**
- Trane 1400 ton CentraVac high-efficiency centrifugal chiller
 - 48 CALMAC ice storage tanks
 - Plate and frame heat exchangers, pumps and related equipment



Trane 1400 ton CentraVac centrifugal chiller is part of a thermal storage system



48 CALMAC ice storage tanks

Transforming the aging infrastructure of our clients

“Aging equipment and the need for additional cooling capacity and site resiliency motivated us to have Trane investigate environmentally responsible solutions”, said James P. McAleer, vice president of facilities for Morgan Stanley. “In addition to being recognized by NYSERDA and Westchester County, the Purchase site will be the model for similar projects at Morgan Stanley facilities around the globe.”

“The Trane New York / New Jersey Energy services group is transforming the aging infrastructure of their clients through their unwavering dedication to the account management process”, said Rich Halley, District Manager of Trane New York / New Jersey. “They are leading our marketplace with proven high performance customer solutions that are developed with the use of sophisticated Trane energy and financial modeling tools.”