

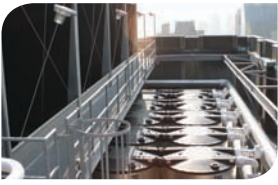
TIAA-CREF

New chiller plant with ice storage saving \$765,000 per year • New York City

TIAA-CREF has improved the comfort, reliability and efficiency of its headquarters building by replacing aging steam absorption chillers with Trane high efficiency chillers, upgrading its cooling towers, and installing an ice thermal storage system. The thermal storage system shifts energy use to off-peak hours, saving approximately \$765,000 per year in operating costs, energy use and demand charges. TIAA-CREF is using Trane proprietary optimization control logic to maximize the chiller and cooling tower efficiency. The Trane New York-New Jersey Energy Services team completed this turnkey project for TIAA-CREF.



For over 90 years, TIAA-CREF has been helping those in the academic, medical, cultural and research fields plan for, and live in, retirement. TIAA-CREF provides a full array of financial products and services to help people live to, and through, retirement and invest for life's other goals along the way. In keeping with its strong nonprofit heritage, TIAA-CREF offers low fees, a long-term approach to investing, and a full line of financial products and services.



Ice storage shifts energy use to off-peak, saving demand charges and easing grid strain.

Systems installed

- Trane 1,000-ton capacity high efficiency EarthWise™ CenTraVac™ chiller
- Trane 900-ton dual duty CenTraVac™ chiller for ice making
- TIAA-CREF is utilizing Trane proprietary optimization control logic to maximize the chiller and cooling tower efficiency

Challenge

TIAA-CREF had two 1,000-ton cooling capacity high pressure steam absorption chillers. The failure of one of the absorption chillers left TIAA-CREF with an urgent need for 1,400 tons of cooling capacity.

Solution

TIAA-CREF engaged the Trane New York-New Jersey Energy Services team to evaluate the existing HVAC systems and develop innovative, high performance infrastructure solutions to improve the building's energy efficiency. The Trane solution was divided into two phases.

Phase One: Remove the existing steam absorption chillers and replace with a 1,000-ton Trane high-efficiency CenTraVac™ electric chiller, a 400-ton Trane IntelliPak™ air conditioning unit, and a thermal ice storage system. The ice storage system includes thirty CALMAC tanks totaling 6,000 ton-hours of thermal storage.

Phase Two: The existing cooling tower needed to be replaced. Since the cooling tower and ice storage system are on the top of the building, Trane worked with Severud Associates to engineer a steel structure that would support the cooling tower and ice tanks that weigh nearly a million pounds.

Results

Trane New York-New Jersey provided the chillers, ice storage system and new cooling tower as a turnkey installation that is saving TIAA-CREF \$765,000 in annual operating expenses. The project is generating a 25 percent internal rate of return for TIAA-CREF. The project also qualified for a \$219,000 rebate from the New York State Energy Research and Development Authority (NYSERDA).

The efficiency improvements are avoiding 6.1 million pounds of carbon dioxide emissions -- the equivalent of removing 560 cars from the road, or planting 828 acres of trees.

Jeff Meaney, TIAA-CREF Senior Vice-President, said, "TIAA-CREF is dedicated to promoting long-term value for participants through sound governance policies and corporate social responsibility in areas ranging from the environment to human rights. These principles guide both our investment strategy and the way we do business.

"We partnered with Trane. They came in and looked at our building and not just our heating, ventilating and air conditioning, but our whole building and put together a plan that made sense. We were able to meet our energy goals, stay true to our mission, and we're now better equipped to deal with rising energy costs than we were two years ago. It was such a productive partnership that we continue to work with Trane to ensure that we continue to get the most out of our system."



Trane optimizes the performance of homes and buildings around the world. A business of Ingersoll Rand, the leader in creating and sustaining safe, comfortable and energy efficient environments, Trane offers a broad portfolio of advanced controls and HVAC systems, comprehensive building services, and parts. For more information, visit www.Trane.com.