



High Performance Buildings Program

TIAA-CREF Fact Sheet

Situation

The 578,000 square-foot TIAA-CREF headquarters at 730 Third Avenue is located between 45th Street and 46th Street. This 30-story, Class A building features a granite facade, aluminum mullions and glass spandrels as well as a two-story atrium lobby and ground floor retail space.

Inside, TIAA-CREF had two 1,000-ton high pressure steam absorption chillers that had reached the end of their useful life. The unexpected failure of one of the chillers left TIAA-CREF with an urgent need to find a replacement option that would help them meet their summertime peak air conditioning load of 1,400 tons. To accomplish its mission of improving the comfort, reliability and efficiency of its headquarters building, TIAA-CREF turned to Trane to develop a plan to replace and update the building's heating, ventilation and air conditioning (HVAC) systems.

Approach

On TIAA-CREF's high performance buildings journey, the company engaged the Trane Energy Services Team to evaluate the existing HVAC infrastructure to develop an innovative, high performance solution to improve the financial performance of the building and to simultaneously enhance the reliability of its operation. The Trane solution was divided into two phases:

Phase one involved removing the existing steam absorption chillers and replacing them with a 1,000-ton Trane high-efficiency CenTraVac™ electric chiller, a 900-ton Dual Duty CenTraVac™ electric chiller and a thermal ice storage system. The ice storage system included 30 CALMAC tanks totaling 6,000 ton-hours of thermal storage capacity.

In phase two, the existing cooling tower needed to be replaced. However, because the cooling tower and ice storage system are located on the top of the building, Trane worked with Severud Associates to engineer a steel structure to support the cooling tower and ice tanks, which weigh nearly a million pounds.

Results

Positioned 28 stories above the 730 Third Avenue company headquarters, TIAA-CREF's new high performance building solution features a high efficiency chilled water/central plant and a uniquely located rooftop thermal storage system. The ice storage system shifts energy use to off-peak hours, saving TIAA-CREF significant demand charges, easing the strain on the NYC's electric grid. Additional costs savings are achieved through use of the high efficiency chillers and several Trane designed control strategies, which help maximize the operating efficiencies in the chiller and cooling tower systems.

Trane provided the chillers, ice storage system and new cooling tower as a turnkey installation to help TIAA-CREF save \$765,000 in annual operating expenses, resulting in a 25 percent internal rate of return on the investment in the high performance systems. The project also qualified for a \$219,000 rebate from the New York State Energy Research and Development Authority (NYSERDA).

The efficiency improvements help TIAA-CREF save 6.1 million pounds of carbon dioxide emissions from being released into the air -- the equivalent of removing 560 cars from the road or planting 828 acres of trees.

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Building

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About 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.

About Trane

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