

Case Study

Trinity's Oosting Gymnasium Mechanical System gets "Fiscally" Fit

The Assessment

The units in Trinity College's Oosting Gymnasium ran continuously to heat the building but leaders in the campus facilities department needed to know whether it was time to replace the units at a substantial cost or whether there were opportunities to revitalize the system.

Engineers and technicians from Tradesmen of New England (TNE) were commissioned to do a complete review of the system, make recommendations, secure incentives from the utilities and make it happen.

The Resolution

TNE recommended and implemented six Energy Efficiency Measures and refurbished four other components.

Original electric motors were upgraded to high efficiency ones with soft start / ramp up power delivered via new Variable Frequency Drives (VFD).

Direct Digital Controls (DDC) were installed along with carbon dioxide (CO₂) sensors to not only provide occupied / unoccupied scheduling, but also to only bring in unconditioned outside air when the level of CO₂ required them to be open versus a fixed amount.

Replacement of the steam traps and steam coils eliminated poor thermal transfer performance as did repairing several inoperable dampers and cleaning years of operation heavy dust out of the ducts.



View from the mechanical room—"above the rim." Catwalk shown descending is the only access

Revitalized mechanical room high above the gym floor



Highlights

Criteria

- Gym floor must be protected
- No interruption of scheduled events
- Retrofit steam coils and associated components
- Install high efficiency motors
- Install Variable Frequency Drives (VFD)
- Install new T8 lighting
- Install DDC controls, scheduling & CO₂ input
- Replace steam coils, steam traps and associated fittings
- Clean all ducts

Results

- Minimum occupant impact
- Professional installation
- Maximum reliability
- Utility incentives secured
- Seamless integration of automation controls
- Satisfied occupants and facilities personnel

SERVICES PROVIDED

- ✓ Engineering
- ✓ Installation
- ✓ Service
- ✓ Automation
- ✓ Project Management

Project Challenges & Resolutions

All projects have their unique challenges, and this project was no different. At TNE we take pride in our ability to affect a speedy resolution.

Challenge Number 1 – Tracking Results

Oosting Gym is on a central plant for steam and electricity making it impossible to see meter based proof of success.

Resolution Number 1

The measures implemented are tried and true. Each of these measures passed the scrutiny of the Connecticut Light and Power Co. to qualify for incentives. Presently, observations of the equipment's operation illustrate the savings as one can hear the unit slowly ramp up, operate for a period and then shut down. This is a major change from when the unit used to run continuously.

Challenge Number 2 – Gym Floor Damaged

This project was done way “above the rim”. The mechanical room is located above the main basket ball court used for collegiate play. Any leaks at all have devastating effects on the play below and the finish on the floor.

Resolution Number 2

During the project, a subcontractor caused water damage to the floor. TNE stepped up and fixed the floor, making it hassle free for the client.

Challenge Number 3 – Working over 30 feet Above the Gym Floor

The height of the mechanical room and its only access via a catwalk made the installation of equipment more difficult than most.

Resolution Number 3

TNE personnel maintained strict compliance to OSHA standards and carefully rigged in and out all required equipment, components and associated fittings.



Mechanical room shown high overhead. Catwalk access slopes down to the right at the far end



One of four steam coil & damper units replaced



One of four large fans. The full size door was the size of the access to the mechanical room without demolition

The Client Trinity College, Hartford, CT

Athletic Department Mission

Athletics contributes to the overall educational experience at Trinity College by providing comprehensive and varied athletic programs to all students. . . Trinity College embraces intercollegiate athletics as an educational experience that is an integral component of the academic mission of the College.

Feedback from Trinity College

Plant Engineer Ezra Brown felt that this project was very well executed. The project proved to be a true “turn key” requiring minimal oversight from his staff. The end result was quite satisfactory.