

## EPHING FOREST COLLEGE

### PROJECT DETAILS

<b>Client:</b>	Epping Forest College
<b>Location:</b>	Loughton, Essex, England, UK
<b>Completion Date:</b>	July 2006
<b>Contract Scope:</b>	Design, Supply, Installation
<b>Applications:</b>	Hot water temperature maintenance for single pipe heating systems
<b>Technology:</b>	nVent RAYCHEM HWAT-R cable with HWAT-ECO controllers



### KEY CHALLENGES

The existing campus at Epping Forest College was to be redeveloped to create new academic, technology and theatre buildings for sixth form pupils. Architects Morgan Sindall were charged with creating state-of-the-art education facilities to high levels of energy efficiency and this included the hot water distribution system. A specific requirement was for the system to have the ability to raise temperatures monthly for the prevention of legionella disease. The new system was to be installed over three floors for the main educational building and five floors for the theatre. Fast, safe installation was paramount as the new buildings were to be created in a live campus environment.

### SOLUTION

Close collaboration between nVent product engineering team, the system manufacturer, designer and installer created an electrically heat-traced single-pipe distribution solution based around the company's nVent RAYCHEM HWAT-R self-regulating heating cables. Some 1.8 km of cabling was deployed on the distribution pipework within the buildings to maintain water temperatures at 60°C and deliver instant hot water throughout the complex.

The system is controlled by 15 nVent RAYCHEM HWAT-ECO smart controllers, which not only enable the necessary legionella prevention cycles but also allow pipe temperatures to be varied to provide setback temperature savings as well as a thermal boost to 65°C during times of non-occupancy.

Eliminating the need for the secondary pipework of a conventional recirculation system achieved cost savings of between five and ten percent in material, space and installation time. In addition, the single-pipe system is expected to achieve energy savings of up to 50% in comparison with a traditional system.



## PRODUCTS

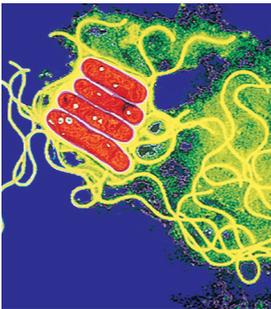
RAYCHEM HWAT are self-regulating heating cables that adjust their power output to compensate for variations in water and ambient temperatures. They replace supply-pipe heat losses at the point where the heat loss occurs, providing continuous, energy-efficient hot water temperature maintenance and eliminating the need for a recirculation system.

Installation of the HWAT system is simple. The heating cable can be cut to length, spliced, tee-branched, and terminated at the job site, reducing installation costs. Fewer plumbing components are needed; recirculation piping, pumps, and balancing valves are all eliminated. The HWAT system maintains hot water temperature continuously at every point along the supply pipe. Unlike conventional recirculation systems, they do not require overheating of supply water to allow for cooling. The HWAT system reduces the energy requirements of typical hot water systems with reduced heat loss from supply piping, no heat loss from recirculation piping and no pump to run.

The HWAT-ECO electronic controller provides flexible temperature control, energy savings, heat-up cycle function, BMS interface, and nine predefined programs that can be customized by the user.

## BENEFITS

- Faster and more economical system to install than recirculation systems
- Overall reduction in running and maintenance costs
- Space saving
- Smart control
- Energy savings of up to 50%



The £38 million redevelopment of Epping Forest College has provided students with an inspirational educational facility fit for the 21st Century. The new 15,000m<sup>2</sup> buildings were designed by Morgan Sindall in conjunction with Aecom consultants. The M&E contractor was Aqua Mechanical Services and the hot water distribution system was supplied and installed by nVent partner Astec mechanical Services.

Energy savings of up to 50% have been achieved in comparison with a conventional recirculation system.

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