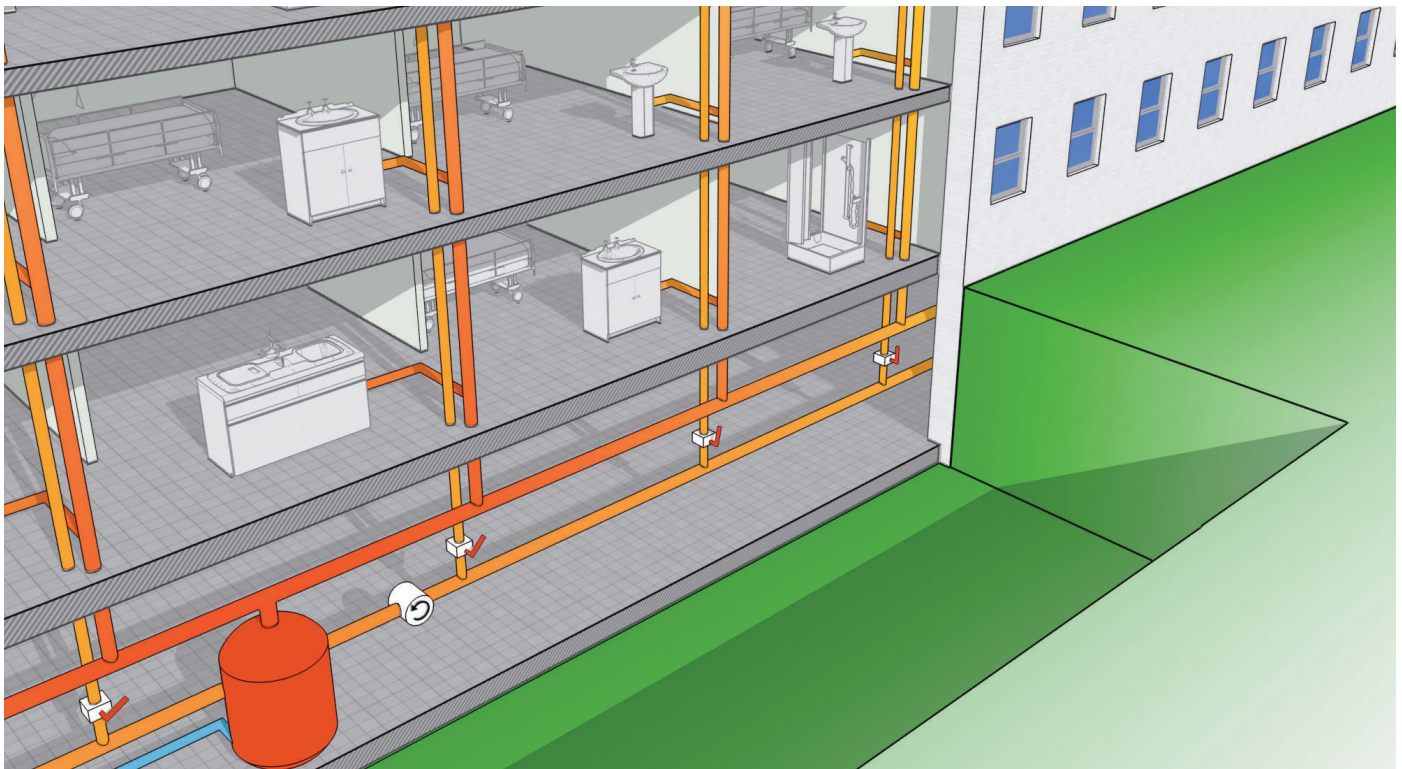


HMP SHOTTS

PROJECT DETAILS

Client:	Scottish Prison Services
Location:	Shotts, Scotland, UK
Completion Date:	August 2010
Contract Scope:	Design, Supply, Installation
Applications:	Electric heat-tracing for hot water distribution system
Technology:	nVent RAYCHEM HWAT-R cable with HWAT-ECO controllers



KEY CHALLENGES

When consultants reviewed the options for providing a domestic hot water distribution system for a proposed extension to the maximum security prison at Shotts in Scotland, the disadvantages of the existing, conventional recirculation system became clear. They realised that what they needed was a system that could easily be extended for further planned developments; that would take up less space, be more energy-efficient, easier to install and, particularly, to eliminate problematical balancing issues. The system also had to be low-maintenance, due to the sensitive nature of the building.

SOLUTION

The solution was provided by nVent, with the design and installation of a single-pipe distribution system based around its RAYCHEM HWAT-R self-regulating heating system supported by RAYCHEM HWAT-ECO controllers. The system comprised 1.2 kilometres of HWAT-R cable and 13 HWAT-ECO controllers.

As the system uses half the pipework of a conventional recirculation system, on-site installation time was cut dramatically and this was enhanced further by the use of the company's RayClic connection systems. It also meant that space savings could be made in walls and ceiling voids. The HWAT-ECO control solution also provided a means to offer 'tap time' energy savings and set-back temperatures within the system for efficient running of the system without sacrificing user comfort.



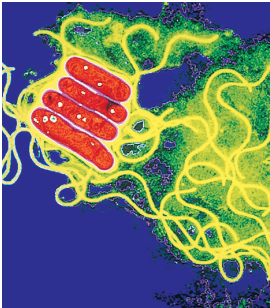
PRODUCTS

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.

The RAYCHEM RayClic connection system is a simple, fast and reliable set of connection kits which requires no wire stripping because the insulation displacement connector makes the electrical connection. Easy-to-install, it reduces installation time, lowering the total installed cost of the heating cable system.



BENEFITS

- Faster and more economical system to install than recirculation systems
- Easy extension for future developments
- Overall reduction in running and maintenance costs
- Balancing issues eliminated
- Space saving

HMP Shotts is a high security prison holding all male prisoners with a maximum security classification. For the new extension the project's consultants comprised N G Bailey and Jacobs Engineering with the products being supplied and installed by nVent' partners Newey & Eyre and Cable Services.

A system that can easily be extended for further developments, take up less space, be more energy-efficient, easier to install and eliminate problematical balancing issues.

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