ARSENAL EMIRATES STADIUM

PROJECT DETAILS

Client:	Arsenal Football Club
Location:	Highbury, London, England, UK
Completion Date:	July 2006
Contract Scope:	Design, Supply, Installation
Applications:	Hot water temperature maintenance and frost protection for pipes
Technology:	nVent RAYCHEM HWAT-M with RayClic connections and HWAT-ECO, WinterGard cabling with Raystat-ECO-10 controllers

KEY CHALLENGES

The Emirates Stadium is a brand new 60,000 seater, premiership standard football stadium in North London for Arsenal Football club and, as such, a high profile development. The stadium developer's requirement was for an energy-efficient frost protection system to exposed cold water feeds, catering sites and fire sprinklers that would be easy to install due to the scale of the task. In addition there was a need for an efficient hot water system to corporate boxes and the catering centre in place of a more conventional recirculation system. Both systems had to be able to demonstrate considerable energy savings for the project.

SOLUTION

Consultants Buro Happold were convinced to design in a nVent RAYCHEM HWAT single-pipe hot water distribution system over a more traditional recirculation system due to its energy savings, lack of balancing issues and savings in capital costs. Some 2.5 kilometers of RAYCHEM HWAT-M cable have been installed. The incorporation of HWAT-ECO controllers provided intelligent, easy control and made sure the system is maintenance free. The advanced single-pipe system has provided considerable savings in materials and installation time and on-going energy savings as high as 50% compared to a conventional recirculation system. The use of RayClic connections provided safe, secure connections as well as a quick installation over old style heat shrink technology.

For frost protection the consultants and owners needed to be sure they were getting a reliable system preventing any pipe freeze problems in the future, especially on game day which could have disastrous results. The WinterGard self-regulating heating cable met this requirement easily with 5.5 kilometres installed throughout the stadium.

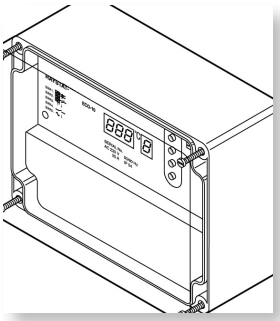
Raystat-ECO-10 controllers allow the building owners to switch on the trace heating only when absolutely necessary, to make considerable energy savings. The Proportional Ambient Sensing Control (PASC) algorithm within the RayStat-ECO-10 control has enabled the frost protection system to benefit from energy savings in excess of 50% when compared with standard ambient temperature control options.

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.

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.



RAYCHEM WinterGard heat trace cable is a self-regulating electrical cable that can be used for pipe freeze protection on small and medium pipes. It offers a number of benefits; it can be overlapped, cut to length, will not burn out and saves energy.

The RAYSTAT-ECO-10 temperature controller is designed to control heating cables used for frost protection applications. It continuously adjusts the heat-tracing output based on the ambient temperature.

BENEFITS

- Energy efficient, economical DHW system
- Robust, efefctive frost control system
- Overall reduction in running and maintenance costs
- Responsive smart control systems
- Fast installation

The Emirates stadium was one of the UK's highest-profile sports arena developments of the early 21st century, providing a new home for the world-renowned Arsenal Football Club. It was designed by HOK Associates, built by Sir Robert McAlpine Ltd in conjunction with consultants Buro Happold. The heat-traced hot water and frost protection systems were supplied by nVent distribution partner Jointing Technologies.

The Proportional Ambient Sensing Control algorithm within the RayStat-ECO-10 control has provided massive savings for frost protection

North America
Tel +1.800.545.6258
Fax +1.800.527.5703
thermal.info@nvent.com

Europe, Middle East, Africa
Tel +32.16.213.511
Fax +32.16.213.604
thermal.info@nvent.com

Asia Pacific
Tel +86.21.2412.1688
Fax +86.21.5426.3167
cn.thermal.info@nvent.com

Latin America
Tel +1.713.868.4800
Fax +1.713.868.2333
thermal.info@nvent.com