



# SAV WATCHMAN PROVIDES aM&T FROM METERING TO BILLING

The launch of SAV's new Watchman services meets an urgent need to track energy use to ensure systems work at peak efficiency.

Designed to meet all Automatic Monitoring and Targeting (aM&T) requirements, SAV Watchman provides a 24/7 sentinel - reducing consumption by continuously monitoring performance against target. External weather conditions, flow and return water temperatures are key Watchman focal points.

Energy Savings of between 20-50% are possible, saving money and dramatically reducing a building's carbon footprint.

The service is inexpensive, and inclusion of aM&T services will give the building a better energy rating under the new Part L legislation.

Watchman operates rather like a fly-by-

wire aircraft - concentrating on the controls serving the building's environmental systems to ensure that flow temperatures, circulation through the building and return temperatures are continuously trimmed for optimum performance.

Watchman has been carefully designed - and competitively priced- to provide an economic solution for every type of application.

### Three-tier package

It's a three-tier package. Clients may opt for simple **Watchman energy metering** in line with CIBSE TM39; **Watchman Report aM&T** to provide regular monthly energy accounting, or **Watchman 24 aM&T** alarmed surveillance over the building's energy performance combined with an interactive BEMS. "Watchman makes a perfect synergy with SAV's Modular

FloCon and AquaCon solutions for distribution within heating, cooling and domestic hot water systems," explains SAV Managing Director Lars Fabricius.

"Energy meters can be integrated into the Modules at any stage during the life of the project. Data from the meters is transmitted to aM&T processing equipment for performance monitoring and billing where required.

CIBSE believes that at least 5-10% of the energy used in non-commercial buildings can be saved by acting upon metered data, so Watchman makes the perfect choice for apartment blocks."

### Watchman Report

For buildings of all types Watchman Report offers a low cost over-view of the performance of every facet of the system - including the BMS itself!

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## REPORTING FOR WATCHMAN DUTY

Britain's drive for a low carbon economy has created a minefield of requirements - ranging from enacted or proposed legislation to best practice recommendations - that all impact on buildings and building services.

Coping with the demands affecting new build projects can be testing for the professional team, but for the owner of existing commercial or public sector properties life can be even more complicated. Building Regulations call for aM&T to be applied to buildings with a useful floor area over 1000m<sup>2</sup> and building certification is just around the corner.

Parsloe Consulting Ltd is typical of the Energy Consultancy practices now working with SAV in the new Watchman Report service.

The consultancy is managed by Chris Parsloe a member of CIBSE and a man with many years experience of the building services industry as both a system designer and as a Senior

Research Engineer at BSRIA.

He is an accredited member of CIBSE's Low Carbon Consultants scheme.

Parsloe Consulting has already established a reputation for designing (and troubleshooting) specialist pipework systems and is now working closely with SAV Modules on the Watchman aM&T package.

Services include SAP and SBEM calculations and air leakage testing. The company will also help to define monitoring and data collection targets and advise on optimum meter location. Crucially for existing buildings Chris Parsloe's team can set up benchmark comparison and, if necessary, develop an action plan to bring the building's energy consumption back in line.



# HOME WIN AT HIGHBURY

## SAV Modules provide instant, metered hot water for new flats on historic stadium site

SAV systems are watching over energy consumption in new apartments built at the heart of football history.

Highbury was home to Arsenal from before World War 1 until the club relocated to the new 60,000-seat Emirates Stadium - just 500 metres away - in 2006.

But, unlike many old football stadiums, Highbury's listed art deco East and West stands were spared the bulldozer. Instead they were used to form the centrepiece of a unique development.

Architects Allies and Morrison have created over 700 studio, one, two and three bedroom apartments within four 7-storey glass-fronted blocks.

Even the old pitch area has been put to new use - transformed into a new garden square.

Heating for the new Highbury Square apartments is provided from central plant. An SAV AquaCon Indirect Module, manufactured by the Sub Stations Division of Danfoss, and configured to the specific requirements of the project, is installed in each flat. Indirect versions feature a second heat exchange module, which acts as an interface between the hot water main supply from the boiler and the circuit within the dwelling. In this way heat energy can be taken efficiently from the central boiler, while maintaining a "sealed system" condition for the individual apartment.

### Energy automatically diverted

When a variation in pressure is detected - as a result of an opening tap - the thermostatically controlled system ensures an instant supply of DHW. Energy is also automatically diverted via the heat exchanger from the underfloor heating circuits to the hot water supply - reverting back to the original setting when demand ceases. The system is designed to run smoothly - with no wild fluctuations in temperature or pressure on either heating or hot water circuits.

At Highbury Square the AquaCon Modules incorporate built in Differential Pressure Controls (DPCV's). The DPCV maintains optimum pressure



Testing, testing - SAV's Ian Stripp checks the remote reading facility for the energy meters at Highbury Corner.

conditions in the hot water and heating circuits - maximizing the energy exchange at times of hot water demand and enabling better individual room control via actuators at the manifold of the underfloor heating system.

Every SAV AquaCon unit at Highbury Square features an in-built energy meter. These will be used to monitor the energy consumption of each apartment, providing accurate data for billing and fault finding.

But no-one will ever call to read the meter! Added sophistication is provided in the form of an integral radio link, which enables remote data collection via a hand-held blue tooth receiver.

The SAV AquaCon systems used at Highbury Square were installed by mechanical and electrical contractors N.G. Bailey.

Building Services Consultants were Crofton Design and Hoare Lea and Partners.



# Energy Saving In View



### Watchman Report:

SAV Watchman automatically logs the building's meters at 30-minute intervals.

Based on this data, monthly SAV Watchman Reports are prepared to analyse the building's energy usage against various benchmarks.

Watchman Reports will typically help to identify potential energy savings of 20.0% - and more.

### Watchman 24:

Watchman 24 is fully interactive with weather compensation, set points and controls for remote monitoring and adjustment of the building's flow temperatures.

"Trimming" of building controls can significantly reduce energy consumption and identify system issues such as poor balancing and poor control valve authority.

SAV can continuously remotely monitor the building's "vital statistics" and facilities managers can also view the building's energy screens via the internet.

Watchman 24 also offers an automatic alarm generation facility that permits rapid response to any detected system failures.

### Field-proven technology

The systems used by SAV Watchman have been adapted for the UK market from field-proven technology. The service utilises software programmes developed by EMT Nordic, a subsidiary of Danish energy giant NRGi. These include systems for collection and processing of raw energy data, monitoring and optimisation of heating systems, handling energy and function alarms and data import/export.

EMT's Energy Monitoring Portal (EMP) is an internet-based protocol developed in liaison with Danfoss, one of the world's leading control manufacturers.

As a result EMP interfaces easily with a range of Danfoss aM&T controls including ECL heating system controllers and Sonometer energy meters, which combine to form a cost-efficient BEMS. The Danfoss Sonometer energy meter can accept up to two pulsed outputs from other meters - therefore readings from gas, electricity or water meters can be simply and easily added onto the data network via a direct connection into the Sonometer.

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Watchman data collected every 30 minutes is collated into a monthly report prepared by a qualified energy consultant. The report will compare actual consumption against budget and/or benchmark buildings, adjusted to take fluctuations in annual weather patterns or degree days into consideration. The monthly report will address issues relating to the building's performance and will include recommendations for reducing the carbon footprint.

### Watchman 24

Projects can now meet energy saving targets by using the new Watchman 24 service.

Watchman 24 uses specially developed energy control equipment including weather compensation, temperature sensors and pressure-independent controls. Watchman engineers can remotely monitor the performance of the central plant 24 hours a day through a web browser. The building's facility manager can also view the central plant in the same way. Trimming of the heating and cooling systems' set points can be carried out remotely.

The Watchman 24 service is designed to issue alarm reports if flow temperature and pressure parameters move outside set point ranges. The alarm service is an inexpensive way of continuously monitoring the building's energy performance as well as ensuring a quick reaction to plant failures.

# Low Energy Living in Milton Keynes

Individual metering of energy consumption in domestic dwellings such as apartment buildings is a major new requirement.

Providing visible means of reading the amount of energy used by their heating

Accurate information for billing purposes can be downloaded from the Data Station by the site operator.

At Lakeside the AquaCon Modules incorporate built in Differential Pressure Controls (DPCV's). The DPCV maintains



and hot water systems to occupants puts those who pay in control. SAV Modules provides a perfect solution to this need - with the technology for both accurate metering and overcoming local pressure differentials.

Caldecotte Lakeside at Milton Keynes provides a fine example of the service in action.

The latest phase of this imaginative development by fast growing local specialists McCann Homes Ltd comprises two apartment blocks.

Derwent House offers 54 two and three-bedroom apartments in a mixture of homes for private sale and shared ownership. Nearby Windemere House has 21, one and two-bedroom units all available for rent.

### Heat Exchange Modules

All the flats are equipped with SAV AquaCon Direct Type Heat Exchange Modules served by central gas-fired condensing boiler plant.

Each AquaCon Module is fitted with a Sonometer heat meter and a Madalenna water meter to monitor cold water usage. The consumption logged by the meters can be read by the occupant at any time, but data is also transmitted to an SAV Watchman Data Station located in each boiler house.

optimum pressure conditions in the hot water and heating circuits - maximizing



Neil Parry of SAV Modules downloads information from one of the integral meters in a Lakeside apartment on to a PC

the energy exchange at times of hot water demand and enabling better individual room control of the radiator heating system.

Moreover, constant modulating control ensures energy is directed in exact proportion to demand - from a single tap in the kitchen to simultaneous use

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