

LAW AND ORDER AND HEAT

A GOVERNMENT
FACILITY CASE STUDY



The retrofit project has reduced the energy costs for the Hutton Hall site by £245,000 per year, and saved over 740 tonnes of CO₂ emissions per year.

“The equipment has paid for itself in just a year, and will continue to deliver cost savings throughout its life.”

Ed Palmer
Energy Manager

Hutton Hall, Lancashire Constabulary, UK

Armstrong designed and constructed four packaged plant rooms based around the MBS integrated heating system to replace an outdated oil-fired boiler house.

Background

The Lancashire Constabulary has responsibility for 220 buildings in the county, with an annual energy bill approaching £500,000 per year. Most of the buildings are of post-war construction with some older stations dating from the Victorian era.

In 2006, the system for supply of heating and hot water at the Hutton Hall Police Training Centre needed replacement. The central oil-fired boiler, with two calorifiers for hot water supply, no longer met the demand for heating, and it became necessary to install replacement systems for the remaining buildings at the site, including a sports hall, administrative centre, firing range, dining room and teaching block. The existing heating system struggled with substantial distribution losses, so the project engineers advised the Constabulary to consider an extensive retrofit/upgrade project.

The energy manager, Ed Palmer, who had developed the Constabulary's sustainability policy, wanted to capitalise on the opportunity to improve energy efficiencies and reduce the carbon footprint for the estate, and to position the site to meet increasingly stringent environmental legislation.

However, once the capital investment for the project was approved, there wasn't enough time to complete the installation using traditional on-site methods before the on-set of colder weather. Several weeks were required to install gas pipes, which meant that installation of a traditional boiler house couldn't begin until October. This lead managers at the Constabulary to consider alternative solutions.

When approached by the constabulary, Armstrong recommended four packaged plant rooms, constructed offsite, incorporating high-efficiency variable speed systems based around the Armstrong MBS integrated heating solution.

The MBS can achieve overall seasonal efficiencies of 94%, well in excess of the Part L requirement of 80% efficiency in existing buildings, so it was an

excellent option to help the Constabulary reach its carbon reduction targets.

Managers at the constabulary saw the value of the proposed solution and gave their approval to start construction.

Benefits

As expected, off-site manufacture, proved to be a key portion of the value provided. Constructing the system at an Armstrong facility shortened the timelines so that the overall project could be completed within the available schedule. It also meant that the existing system could continue to operate until the new boilers were ready, so the Hutton Hall facility could be kept open as normal. Lastly, the quick installation of the packaged boiler systems meant that contractor presence on site was substantially reduced, and there was minimal disruption to day-to-day activities.

With the upgraded systems in place, all of four facilities now enjoy consistent delivery and more thorough distribution of heat, leading to improved occupant comfort. Managers at the Constabulary are pleased with the results, noting that the new system has reduced both their operating costs and carbon footprint. The retrofit project resulted in energy savings of over £245,000 per year and a reduction in CO₂ emissions of 740 tonnes.

Tech Facts

Plant room 1: Firing range & Sports hall - Output: 160 kW LTHW and 49kW 368 litre storage hot water

Plant room 2: Lancastrian building - Output: 320 kW LTHW and 49kW 368 litre storage hot water

Plant room 3: Ellis building - Output: 320 kW

Plant room 4: Langdale building - Output: 240 kW

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