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Quantified energy and carbon savings

HAMPSTEAD HEATH HOSPITAL ENERGY CENTRE

Live thermal insulation upgrade on critical plant

A thermal survey of the Energy Centre at Hampstead Heath Hospital identified significant heat loss across boilers, valves, pipework and a process vessel, with surface temperatures recorded up to 276°C.

The plant was operating continuously within a live hospital environment, supplying heat and hot water to the site. Over time, maintenance works had left sections of the system uninsulated or stripped back, allowing paid-for energy to be lost directly into the plant room.

Alltask carried out a full survey, modelling and insulation upgrade without taking any part of the system offline. The works delivered an indicated annual saving of £21,295 against an install cost of £20,126, with a payback period of under 12 months

The project covered the hospital's Energy Centre, including three boilers (B1, B2 and B3), the heat recovery stack, gantry areas, basement plant, and pipework and valves outside the control room.

Alltask undertook the survey, design, modelling and installation in-house. Each item was assessed individually and specified in accordance with BS 5422, with heat-loss calculations carried out to ISO 12241 using PAROC Calculus.

The Requirement

The Energy Centre operates continuously, and the plant could not be shut down at any stage. The brief required:

- A live installation with no disruption to heat or hot water supply
- Retention of access to valves, flanges and boiler doors for ongoing maintenance
- Quantified savings based on measured data, not assumptions
- Full verification and sign-off in line with the client and Trust requirements



CLIENT	•	MITRE CONSTRUCTION
PROJECT	•	HAMPSTEAD HEATH HOSPITAL ENERGY CENTRE
LOCATION	•	LONDON NW3

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A detailed thermal survey recorded 104 items across the plant, identifying areas of significant heat loss including:

- A bare boiler wall reaching 276°C
- Boiler doors operating between 150°C and 167°C
- A 219mm steam valve at 156°C
- A 3-metre process vessel losing 29.2kW on its own

Solution
Alltask installed a tailored insulation system across the plant including:

- Removable silicone jackets for valves, flanges and boiler doors
- Paroc sections to pipework
- Icerock applied to the process vessel

Each of the 80 priced items was modelled individually to reflect actual operating conditions.

Delivery Challenges
The works were completed on live, high-temperature plant within an occupied hospital.

Installation was carefully sequenced to maintain continuous service, with no loss of heat or hot water. The varied plant layout required bespoke solutions for each item.

Results
The project was delivered at an install cost of £20,126, with an indicated annual saving of £21,295. This equates to a carbon reduction of 217 tonnes of CO^2 per year and a payback period of under 12 months.

All works were completed with no plant downtime. The largest single saving was achieved by insulating the process vessel, with an indicated annual saving of approximately £4,800.

Project Outcome
The project highlights the value of detailed thermal surveying combined with item-specific modelling.

All works were delivered without disruption, with full maintenance access retained through the use of removable insulation systems. Savings were modelled conservatively at 2p/kWh, meaning actual performance is likely to exceed the stated figures.

Key Benefits
The works were completed live, with no interruption to operations, and supported by individually modelled, evidence-based savings.

The project achieved a payback within 12 months while maintaining full access for future inspection and maintenance. Carbon savings are quantified and suitable for reporting purposes.

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