

The Leadenhall Building

London, England

BGIS award-winning install focused on **emissions reduction** and **reporting**. This site upgraded the boiler plant to increase efficiency, **reduce fuel costs** and **withstand seasonal variations** in conditions within the **uniquely situated plant room**, located on the 47th floor with no defined roof.

Figures: **ROI in under 2 years** with **£60,000 per annum in energy savings** and a reduction of over **180 tonnes of CO2 per annum**.



THE PROBLEM

- Inefficiency of pre-existing equipment caused **unscheduled downtime** and **increased fuel bills**.
- The client was were unsatisfied with their current figures of harmful emissions and wanted to **reduce their environmental impact**.
- The existing burners were **susceptible to seasonal variations in conditions** and therefore **unreliable** in this **high elevation, open air boiler room**.



THE GOALS

1. To **increase overall the performance** of the plant and **reduce harmful emissions** such as NOx, SO and CO2.
2. To **increase reliability** of existing burners to cope with seasonal variations in conditions.
3. To be able to **track and log emissions data** for **reporting** purposes, towards their journey of meeting the **environmental goals** of the site.



THE RESULTS

This high-efficiency install was awarded the **'2023 BGIS Global Supplier Innovation Award'** for its thought leadership and innovation that drive **economic, social and environmental sustainability improvements** for BGIS and their clients.

Quick Figures:

- **£60,000** per year in fuel savings
- **ROI** within 2 years
- Reduced **180 tonnes of CO2** per annum

Installed by the engineering team, the equipment was **up and running within a week**. The reliability of the plant has been vastly improved and the site has reported **immediate energy savings** via reduced downtime and a decrease in fuel bills. The central London landmark now serves as a blueprint for other BGIS sites to **reduce their emissions and fuel bills overnight** with intelligent, controlled combustion.



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THE STRATEGY

To understand the site's **energy requirements** and how pre-existing equipment was performing, our team conducted an **energy audit**. This involved gas samples being taken from the flue and analysed, utilising Autoflame's in-house **Emissions Calculator software**.

A **custom-made, high-efficiency Limpsfield burner** was chosen for its **robust**, unique and **adaptable** design. Many Limpsfield burners operate in **extreme environments** across the world, therefore it's perfectly suited to **reliably meet the heat demands** of this site within the elevated, exposed environment. Multi-fuel firing, **hydrogen ready**, and with a standard performance of 3% O₂ across the firing range, its benefits include reduced fuel consumption, **decreased environmental impact**, and increased **fuel savings** per annum.

Safety is increased by the pod mounted Autoflame Mini Mk8. This comprehensive burner controller **reduces CO emissions by 10%** and fuel consumption by 5-7% over traditional linkage systems, all via its **7-inch touchscreen**. Through **analysis of flue gases** and communication links to the Mini Mk8 MM, Autoflame's exhaust gas analyser, the **Mk8 EGA EVO**, automatically trims fuel-air ratios via the **3-parameter-trim of O₂, CO₂ and CO**. This not only increases efficiency but also reduces the level of emissions produced. Combined, the products installed **burn minimal levels of fuel** to ensure the **highest performance**, whilst producing **minimal emissions**.

The Mk8 EGA EVO also provides the opportunity to **log and report emissions**, so a plant can prove that they are **complying with regulations**, such as the **Medium Combustion Plant Directive (MCPD)**, whilst achieving their **emissions reduction targets**.

Apart from the **quick installation** and **bespoke design** to fit the site's needs, the equipment also **supports emerging technologies** for energy optimisation.

Most importantly, it is **flexible to fuel supply changes: from natural gas today to hydrogen tomorrow, infrastructure pending**.



Limpsfield LC Burner



Mk8 MM Controller



Mk8 EGA EVO

THE EQUIPMENT

Pre-Existing

1 x ICI Caldaie (Stokvik) 1600kW boiler 1 x Riello burner

Newly Installed

- 1 x Limpsfield LCNO30 burner, custom wrapped with the union jack
- 1 x Pod mounted Mini Mk8 combustion controller
- 1 x Autoflame Mk8 EGA EVO, exhaust gas analyser
- 1 x variable speed drive (VSD)