

SHADOW Industrial Infrared

CASE STUDY

WHITTLE LABORATORY

The Whittle Laboratory at the University of Cambridge is a world-leading research facility specialising in aerothermal science and technology for aviation and energy. Its researchers use advanced experimental facilities and computational methods to support the development of technologies including hydrogen aircraft, hybrid-electric propulsion and next-generation power systems.

To meet the laboratory's heating requirements, a combination of Shadow Infinity heaters, Shadow Industrial infrared heaters and the ShadowSmart control system was installed. Together, they provide responsive, targeted warmth across selected working areas.

The Challenge

Industrial and research environments can be difficult and expensive to heat effectively. Large internal spaces, high ceilings and changing occupancy levels can make conventional heating systems inefficient, particularly when only certain workstations or areas are in use.

The Whittle Laboratory required a heating solution that could deliver comfortable warmth precisely where it was needed. Different areas also needed to be managed independently, giving the facilities team clear control over individual heating zones while helping to avoid unnecessary energy use.



The Shadow Industrial Solution

Shadow Industrial supplied a combination of Shadow Infinity heaters and Shadow Industrial infrared heaters, supported by the ShadowSmart Controller and dedicated receivers.

Unlike conventional systems that heat large volumes of surrounding air, infrared heaters deliver radiant warmth directly towards people, surfaces and occupied working areas. This makes them particularly suitable for large industrial and research environments, where maintaining a uniform temperature throughout the entire building may be impractical and inefficient.

Shadow Infinity heaters were used to provide powerful, directional warmth across larger areas, while additional Shadow Industrial heaters were positioned to meet the heating requirements of specific locations within the laboratory.

Each group of heaters was connected to the ShadowSmart system through dedicated receivers, creating independently controlled heating zones throughout the facility.

The Result

The completed installation provides the Whittle Laboratory with a responsive and flexible heating system suited to the demands of a modern research environment.

Rather than relying on a single heating setting across a large space, the facilities team can direct warmth towards occupied areas and control each zone independently. This provides greater control over comfort while helping to reduce unnecessary energy consumption.

The combination of high-performance infrared heaters and intelligent digital controls also enables the laboratory to adapt its heating as activities, occupancy levels and working patterns change.

THE SYSTEM

The ShadowSmart Controller acts as the central control point for the heating system, giving the facilities team a clear and convenient way to manage multiple heaters and zones.

Using the touchscreen interface, staff can select individual zones, adjust the power output and view live information about the system's operation. This allows the heating to be matched more closely to the way different parts of the laboratory are being used.

The system can also support timed operation and integration with movement sensors, helping to ensure that heaters are not left running unnecessarily in unoccupied areas.

Smarter Heating for Complex Industrial Environments

The Whittle Laboratory installation demonstrates how infrared heating technology can be combined with intelligent controls to create an adaptable solution for large and technically demanding environments.

By directing warmth towards occupied areas instead of attempting to heat the entire volume of the building, Shadow Industrial systems can help organisations improve comfort, maintain greater control and use energy more efficiently.



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