

The Metal Works, Bristol

Interim case study

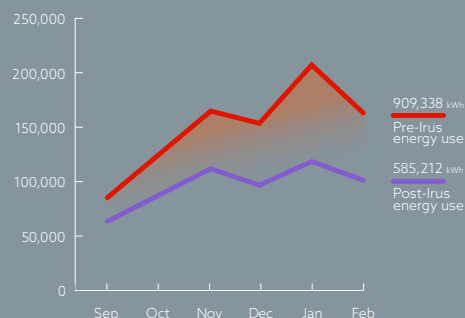
First 6-months following installation



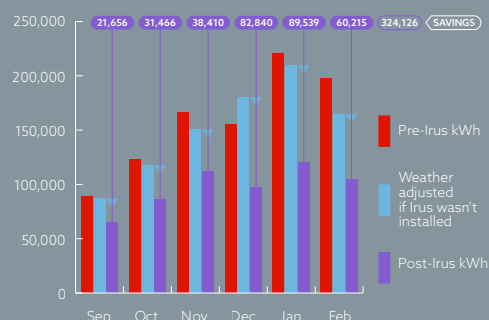
Prefect

Asset Manager:	inhabeo
Management:	Fresh Student Living
Constructed:	2023
Opened to residents:	September 2024
Number of bedrooms:	819
Irus installation completed:	September 2025
Number of controls/radiators:	945
Data period: (first 6 months)	Sep. 2025 - Feb. 2026

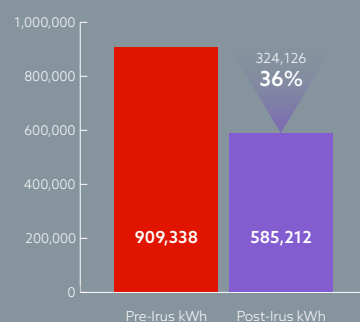
Energy use kWh (over the 6-month heating season)



Energy saving kWh (over the 6-month heating season)



6-month Total saving kWh



When the difference in weather conditions is accounted for over the 6-month heating season the total saving is:

36%

324,126 kWh saving/6-months

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The delivery of efficient, sustainable student accommodation is becoming increasingly important across the UK. At Metal Works in Bristol, a large-scale purpose-built student accommodation (PBSA) scheme, this challenge has been met through the installation of the Prefect Irus intelligent heating control system, which has achieved measurable and significant energy savings.

Project Overview

Metal Works is a newly developed PBSA scheme located in Bedminster, Bristol. Completed for the 2024 academic year, the development provides 819 student beds arranged into cluster flats of 5-12 bedrooms. Residents benefit from extensive amenities, including study spaces, a gym, and landscaped outdoor areas.

The project was forward funded by KKR, developed by Watkin Jones and operated by Fresh. Asset management is led by inhabeo, a fast-growing specialist in residential and student living sectors. inhabeo focuses on delivering long-term value while enhancing resident experience.

Helen Kings,

Managing Director, Asset Management commented.

"Prefect Controls were recommended by a colleague, and I liked the simplicity of their solution - effectively stopping heating from being used unnecessarily rather than restricting supply. Initially we conducted a trial on a single floor. The installation went really smoothly and when we had access to the portal, we realised it would give us all the information we needed in a very easy to use interface."

The Challenge:

Efficiency in a wet radiator heating system

Metal Works uses traditional wet radiators. While robust, such systems can often lead to inefficiencies due to limited room-level control, overheating, and needless energy consumption, particularly in student accommodation where occupancy patterns are variable.

Accommodation where room occupants aren't directly responsible for paying the bills are often exposed to nonessential energy costs. Residents may set thermostats to maximum and unchecked they can remain there all year round. Often windows are opened and closed to regulate the room temperature!

To address this, Prefect Controls' Irus system was selected to provide intelligent, room-level heating control. A Valve Actuator was connected to each radiator with a Control Unit installed close by. Mains Borne Signalling transports packages of data along the Neutral and Earth cables of the building's existing electrical wiring system to the central control hub. This in turn, connected via the internet, provides operators with data from every room within the building and profiles that can control individual room heat input.

Irus enables precise, remotely controlled management of each radiator. Pre-determined parameters for room temperature and timeframes are allocated to profiles for - typically 'Normal', also known as 'Setback' which is the default comfort mode (e.g. 16°C); 'Boost' - the increased warmth mode (e.g. 23°C/45-mins.); 'Off/Frost' - the mode that switches energy input to an off/low setting (e.g. 10°C), that helps prevent condensation/damp forming. These settings reduce avoidable energy demand without compromising occupant comfort. Additional profiles can be made and assigned to specific rooms for special requirements e.g. international students that may be used to warmer climates etc.

The room controls also monitor occupancy, humidity, light, and sound pressure with an option for CO2.

Data transferred to the portal is automatically analysed and interpreted, with alerts generated for unusual conditions. Where appropriate, the system auto-responds to maintain consistencies in alignment with the operator's policies.

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Examples of individual oversight include reducing energy input to unoccupied rooms, or spaces with open windows, identifying rooms where supplementary heaters may be in operation, and highlighting high users of energy.

Implementation

The rollout at the Metal Works began with a test floor to control 54 radiators. Following successful installation and validation of the system's operation, a full deployment was completed across the site in September 2025.

Results

An initial performance review comparing pre- and post-installation data demonstrates a 36% reduction in district heating energy consumption.

Analysis Periods:

- Pre-installation: September 2024 – February 2025
- Post-installation: September 2025 – February 2026

Two complementary evaluation methods were applied:

- Direct before/after consumption comparison
- Weather-normalised analysis to account for seasonal variation

Both approaches confirmed a consistent reduction. Weather conditions across both periods were similar, strengthening the reliability of the findings.



Key Drivers of Saving

The performance improvements are attributed to several core capabilities of the Irus system:

- Accurate time and temperature control
 - based on occupancy
- Reduction of overheating in underused spaces
- Minimisation of wasteful energy input
- Automated setback temperatures during low occupancy periods (e.g. overnight, holidays, term breaks)
- Remote monitoring and control, reducing the need for manual intervention and allowing rapid optimisation
- Data-driven performance insights enabling ongoing fine-tuning of heating schedules and setpoints
- Reduction in tenant-driven overheating (e.g. windows open with heating on) through centralised set parameters
- Enhanced fault detection and maintenance planning, preventing inefficiencies from undetected system issues

Importantly, the highest consumption months in the pre-installation period (January–March 2025) suggest further savings potential, when data for a full winter heating season is available.

Impact

For inhabeo, the results align with their pragmatic and solution-orientated philosophy, demonstrating how targeted technology investments can deliver both environmental and financial benefits. The immediate reduction in energy consumption translates directly into lower operating costs and improved sustainability performance for the asset.

This fact sheet covers only the first six months post-installation; the consistency of results and comparable weather conditions provide strong evidence of Irus' effectiveness. With a full heating season yet to be analysed, there is clear potential for even greater savings.

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Helen is happy with the results from the first 6-months analysis and concluded.

*"This project highlights how Irus can unlock substantial efficiencies in a traditional wet heating system. By retrofitting state-of-the-art control technology, we have achieved a significant **36% reduction** in energy use, supporting both cost savings and carbon reduction goals. We look forward to tweaking the system over time to improve this building's performance even more!"*

As PBSA schemes continue to scale, this case demonstrates a practical and replicable approach to improving energy performance without requiring major system overhauls.

Side Note: Retrofit Vs New-build specification

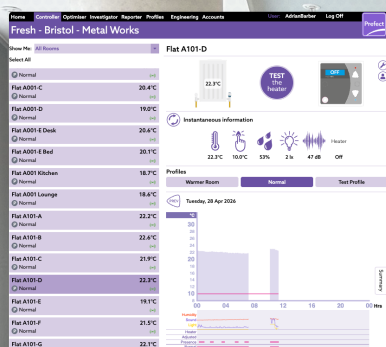
Irus is a highly effective solution for retrofit projects, as it utilises the existing electrical wiring system to connect rooms to the control hub. This is quick to install, and eliminates the need for extensive additional data cabling. As a result, installation is cheaper, faster and causes minimal disruption for occupants.

With many 'wet' heating sites, power sources may not be located close to radiators. Consequently, retrofitting involves longer and more complex cable runs and additional installation cost.

However, If Irus is included in the original specification, this would be anticipated. Power supplies would be positioned adjacent to heat sources and wiring concealed within wall cavities, significantly reducing installation time and cost.

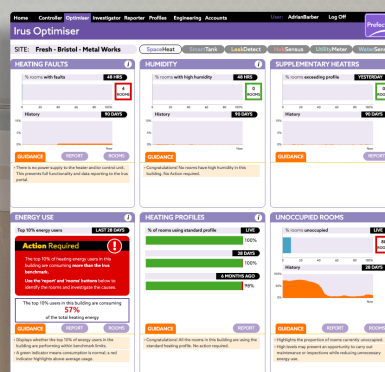
Calculations for a hypothetical new-build project based on the Metal Works, show that if Irus was included from the outset, installation costs could be as much as 24% lower, shortening the ROI by around a year.

The Irus Portal tools



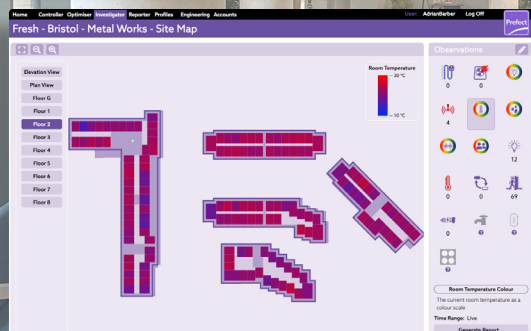
Controller

Controller displays real-time environmental data and enables control within individual rooms.



Optimiser

Optimiser analyses data and generates a prioritised 'to-do' list to enhance performance immediately.



Investigator

Investigator provides a birdseye view of the site and highlights different observations which can then be zoomed in on.

Reporter

Reporter enables bespoke reports to be generated for greater analysis from single sites to multiples across user selected time-periods.

