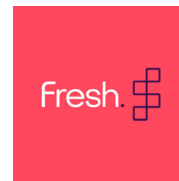


The Refinery, Leeds

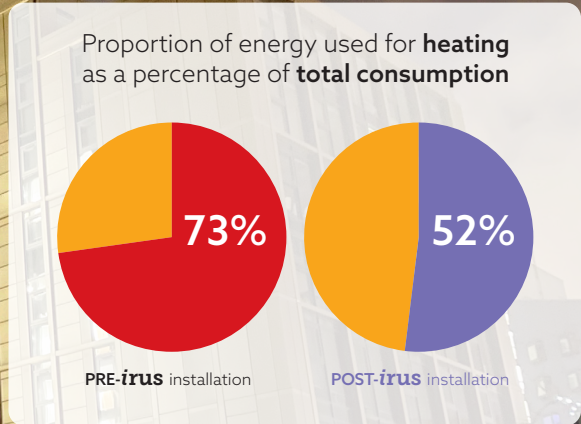
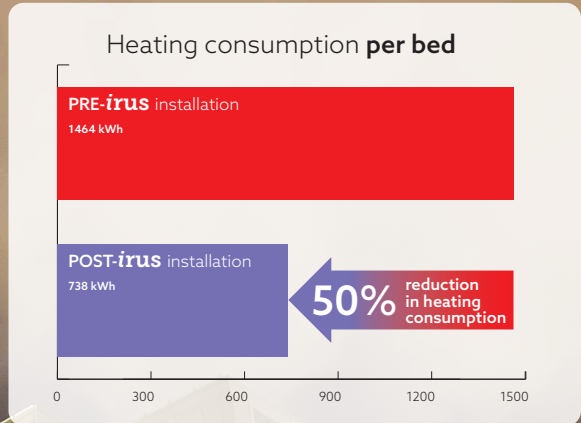
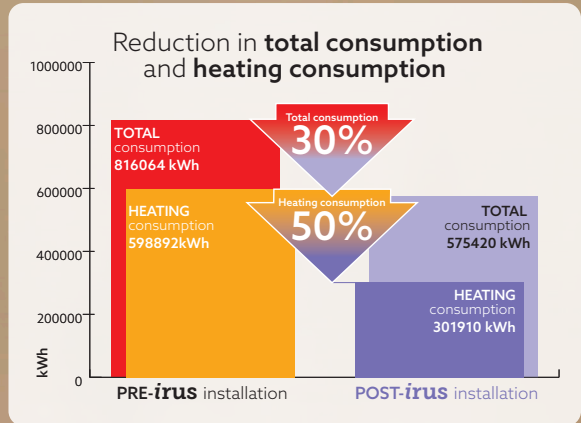
Energy savings fact sheet

CURLEW



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Owner/operator:	Curlwe Capital
Management:	Fresh Student Living
Constructed:	2019 - 2021
Opened to residents:	September 2021
Number of rooms:	407
Irus installation completed:	April 2023
Number of controls/heaters:	493
Data period: (first 12 months)	May 2023 - April 2024



When the difference in weather conditions is accounted for:

Total consumption reduction 29%
Heating consumption reduction 49.6%

Cost saving: **£68,920** (@30p/kWh)

ROI: **3 years**



Comparisons are based on data collected between 5 May 2023 and 4 May 2024 and the preceding year.

The Refinery, Leeds

Case study



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Kristian Mills explains how Irus has significantly reduced operational costs at Curlew Capital's property in Leeds.

The Refinery is located on a prominent site in Bingley Street, close to Leeds city centre. The £30m+ purpose-built student accommodation development (PBSA) opened its doors to students for the academic year 2021/22. A combination of studio and bedroom cluster flats accommodate 407 residents over 11-storeys. Amenities include shared social hubs, a cinema, gym, and games room.

Fresh Student Living manages the scheme on behalf of specialist investment company Curlew Capital.

Although completed on time, the construction process wasn't without its challenges, having taken place during the pandemic. Then shortly after opening, the energy crisis hit hard and running costs began to soar.

Kristian Mills, Director of Asset Management at Curlew Capital is responsible for the mobilisation of properties, stabilising the assets and ensuring they are operated effectively by third party management companies. Budget and rent setting are part of his remit and ultimately ensuring properties perform against NOI (Net Operating Income).

He explains, "Over the first two of years of operation we found that we were spending more on utilities than we had expected for a property of this size. An unusually high number of the original heater panels were failing. The issue was that students were able to override the programming on the heaters, turn them up to 30°C and leave them running continuously. This was contributing to the high failure rate. To exacerbate the high use of electricity, windows would be opened and closed as a

method of temperature control. We were witnessing huge wastage. This is not only costly in monetary terms, but as a company fully committed to its 2030 net-zero targets we needed to seriously consider this impact. Reducing consumption on site is one of those targets, as well as moving away from fossil fuels and lowering scope one and two emissions. One of the big things we identified, within our capability, is the control of energy for heating".

At the time, modelling suggests that heating accounted for 73% of electricity used at The Refinery.

Kristian began to look for a solution, "From an ESG perspective we were looking at various systems to help us monitor how rooms were being used. That knowledge would contribute to our GRESB report. There were several solutions where sensors are placed in the bedrooms. They provide information on humidity, CO₂, light etc. and had PIRs so you could see how people were coming and going. But there weren't many that actually controlled what was going on in the rooms. I've been in student accommodation for 20 years and have come across many heater panels with boosted control functions. I'd never come across anything where you can centrally control the heating system."

Kristian discovered Irus and contacted Prefect Controls towards the end of 2022.

The company was confident its Irus system could sort the problem and return results promptly.

Irus is a Building Energy Management System (BeMS) developed specifically for student accommodation. Control units in each room monitor conditions, and switch heaters on and off. The control units communicate with a central hub, which is connected

The Refinery, Leeds

Case study



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to the web based Irus Portal. This enables managers to monitor and control individual rooms remotely.

There are 3 modes – Frost/Off, Setback, and Boost. Temperature and time limits are programmed for each mode on the portal. Setback maintains a comfortable temperature within the room, typically this is 18°C with a time limit of 6-12 hours. Boost increases the heat input for a specified time, typically 23°C for 45 minutes. Frost/Off is engaged when the room is unoccupied for longer periods. It prevents condensation by switching the heater on and off to a minimal level, keeping the room temperature just above the dew point which prevents damp or mould.

Irus does not restrict the heat available. It avoids unnecessary energy consumption by always striving to reduce heat input i.e. when rooms are unoccupied, when windows are opened and when occupants leave a room with the system in Boost mode. If residents require a warmer room, a conversation with accommodation managers can see personal preferences satisfied at any time.

“There were three distinct factors that made us decide to deploy Irus in our buildings”, Kristian continues, “The availability of data on how the bedrooms are being used; The lowering of energy costs; and the reduction to our carbon footprint.”

Irus was fully operational at The Refinery at the beginning of May 2023 and the first year’s performance is very impressive.

- Heating energy halved 598,892kWh to 301,910kWh
- Total electricity 816,064kWh down to 575,420kWh
- Proportion of electricity for heating – 73% down to 52%
- 50% reduction per bedroom (1,464kwh to 738kWh)
- Almost £70,000 saved
- Return on investment predicted to be just over 3 years.

Kristian is very pleased, “I was confident we would see a reduction following installation, but these figures are tremendous. As operations personnel become more tactical with Irus, we are hoping to fully optimise the system in year 2.”



The Refinery, Leeds

Case study



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The Head of Energy and Sustainability at Prefect Controls has been analysing data harvested from the site, Gareth Chaplin explains, "Although first year figures are impressive, I can see potential for even greater savings. As operators familiarise themselves with Irus and become more confident in its capabilities, there are tweaks they can make to settings and profiles that will maximise performance. For example, reducing Setback from 12 to 6 hours would mean empty rooms weren't drawing energy. There is also a 'Warmer Profile' set at 25°C for 1.5 hours, which is quite generous. About 20% of rooms are set to this which should be reviewed and returned to the standard profile where possible. Also, I surmise some supplementary heaters are being used, these should be discouraged. Irus can identify rooms that may be using them and alert managers. If just these 3 changes are implemented over the next 12 months, additional savings will be made."

Supplementary heaters are a concern for all accommodation providers, not only are they costly to run compared with the managed system, but they can also be dangerous, particularly in unoccupied rooms. Kristian is clear about residents' comfort, "It is important to emphasise that there is no restriction in the provision of heating for our guests and therefore no need for additional heating apparatus. If residents aren't warm enough, the accommodation manager can soon increase temperature and lengthen boost times etc. It is essential that residents are comfortable and safe while staying here. But to run an efficient property and avoid waste, we must be able to monitor energy input and control delivery."

The installation of Irus took just under 4 weeks. In total there are 493 control units and heaters throughout the bedrooms, kitchens and communal areas. Kristian was surprised by the smooth operation, "I was a little sceptical of the schedule at first, averaging 30 minutes per room would be impressive! But the team really delivered. The system uses the existing electrical wiring circuit for communication, so there is no need for additional data cabling and the cost, time, and disruption that can entail. The building was fully occupied and operational, so installing the central infrastructure and fitting it out in the tight timeframe was remarkable!" He continues, "Going forward, we want to make Irus the standard specification for each property. We don't want to have to retrofit heating systems, just make sure that the best possible system is installed, one that provides most information and control."

He concludes, "The Refinery is perhaps an unusual site because of the panel heaters that Irus replaced. But performance has been fantastic! To see a 50% reduction in heating load and close to £70K saved in year 1 is phenomenal. We anticipate a return on investment of just over 3 years. These results highlight just how effective Irus has been."

