

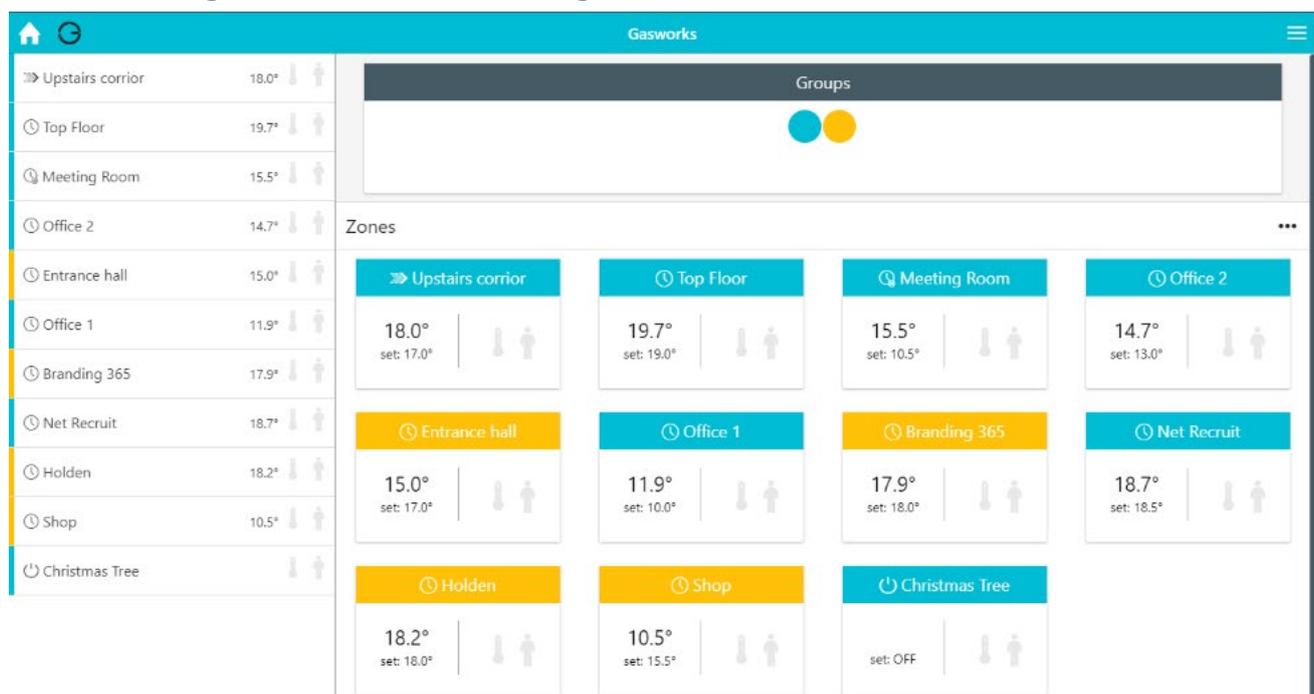
## Case Study – Glossop Gasworks

Glossop Gasworks is an iconic building that has been converted to serviced offices and shared workspaces. A DE-Carbonise carbon reduction visit recommended improvements to heating, secondary glazing, lighting and installing electric vehicle charging points. Duncan Wright, the co-owner was keen to address the efficiency of the heating system including controlling the heating to respond to different use patterns: some rooms are used every day while others are only used occasionally.



Glossop Gasworks building

### Zoned heating for a multi-user building



The screenshot shows the Genius Hub App interface for 'Gasworks'. On the left is a vertical list of rooms with their current temperatures and set-points. On the right is a grid of zone control cards for each room, showing the current temperature, set-point, and occupancy icons.

Room	Current Temp	Set-Point
Upstairs corrior	18.0°	17.0°
Top Floor	19.7°	19.0°
Meeting Room	15.5°	10.5°
Office 2	14.7°	13.0°
Entrance hall	15.0°	17.0°
Office 1	11.9°	10.0°
Branding 365	17.9°	18.0°
Net Recruit	18.7°	18.5°
Holden	18.2°	18.0°
Shop	10.5°	15.5°
Christmas Tree	-	OFF

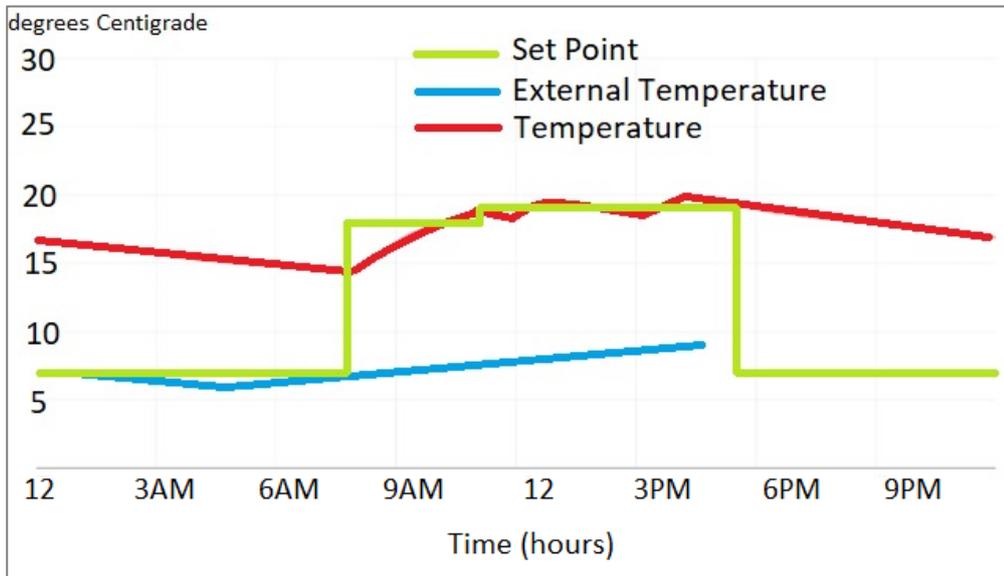
#### Zone control in the Genius Hub App

Duncan discussed various advanced control systems with the DE-Carbonise technical consultants, and after researching installation practicalities, chose the Genius Hub. This smart control system creates several heating zones in a building without changes to the pipework. Each zone uses a thermostat to control the radiators in the area to the same temperature set-point.

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### Different regimes for each zone

Rather than just having an on / off setting, the building manager can set a different temperature for each room for different times of the week – and change it remotely via an app. This is perfect for the varying use patterns of the Glossop Gasworks.



Temperature charts are available for each zone within the App

### Better comfort and control for users

The Genius Hub also allows individual tenants to control the temperature in their office through a stylish, easy to use room stat while the building manager controls the overall settings. Each radiator had a new wireless thermostat fitted; depending on the age of the radiator these may require a replacement valve head, which was simple for the Gasworks.



Room thermostat

### Fully connected wireless system

To get the wireless signal through the building, a couple of wired extenders were fitted into the electrical trunking. This creates a solid 'mesh' wireless network and gives a good signal strength between the thermostats, valves and the main controller. "Range and connectivity were a major concern for us" explains Duncan. "Being an old building with thick walls means that wireless range can be limited. As the system works on a flexible z-wave mesh network we have been able to set it up to reliably cover the whole building".



Smart thermostatic radiator valve

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In the meeting room Duncan used an occupancy sensor so that heating only comes on when the room is used. A further option (not included at the Gasworks) is to include electric heaters by using smart plugs.

### Maximising condensing boiler performance

Smart controllers can use ‘weather compensation’ to reduce the boiler temperature on warmer days, which keeps the system operating efficiently. Condensing boilers boost their efficiency by passing hot combustion air through a chamber to pre-heat water returning from the radiators. The hot air cools and water vapour condenses, which transfers more heat into the water. However, condensation can only occur if the return flow from the radiators is cool enough. If a boiler doesn’t operate in condensing mode it will waste at least 8% of the energy it consumes.

With the help of DE-Carbonise, two old gas boilers were also replaced with new condensing ones, removing the need for several poorly controlled electric heaters at the same time. The controls added about 10% to the total cost and are expected to save an additional 25% in gas use through improved monitoring and control. Duncan can now control the heating without visiting the building, for example if a room booking is cancelled at short notice.

### A positive result

Duncan was very pleased about how the work has gone. “It wasn’t too technical – just a case of linking all the different parts of the system through the app. These systems should be used a lot more and it should be much easier to find installers who are aware of the technology and who promote it to customers so that it becomes more normal.”

**Total cost £14,893 + VAT with a 40% grant of £5,957. Estimated carbon savings of 3.4 tonnes per year.**