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HEATING

COMMERCIAL



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Hawthorn
Primary School

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HYBRID COMMERCIAL HEATING SYSTEM

HAWTHORN PRIMARY SCHOOL,
DONCASTER

CASE STUDY



This hybrid heating system is designed to balance low carbon operation with dependable performance. Comprising two ECOMOD 290HT commercial heat pumps located outside the plant room and three Evomax 2 condensing boilers, operating in cascade.

HYBRID SYSTEM DELIVERS EFFICIENT, LOWER CARBON HEATING FOR SCHOOL

Hawthorn Primary School is a co-educational primary academy located in Cantley, Doncaster, providing education for children from early years through Year 6. The site comprises multiple buildings of differing ages and construction types, which together accommodate classrooms, shared learning spaces and support facilities.

ADDRESSING LONG-STANDING HEATING ISSUES

As with many existing school estates, maintaining consistent internal temperatures across all areas of the site had become increasingly difficult due to variations in building fabric and an ageing heating infrastructure consisting of two outdated open flued boilers with forced draft burners, alongside undersized

pipework, making for poor efficiency and excessive gas use. For several years, the school had struggled to achieve reliable comfort levels, particularly during colder periods.

As a result, the system needed a complete redesign to ensure it could reliably and efficiently serve the entire school.

A TAILORED HYBRID HEATING SOLUTION

Long standing Ideal Commercial Heating customer Service 2 (HVAC) Limited was contracted to replace the heating system at Hawthorn Primary School with a more efficient, reliable and sustainable system.

John Burke of K.J Plumbing Factors & Heating Spares in Bury

CASE STUDY FACTS: **LOCATION:** HAWTHORN PRIMARY SCHOOL, DONCASTER | **BUILDING TYPE:** PRIMARY SCHOOL
EQUIPMENT: HYBRID INSTALLATION FEATURING TWO ECOMOD 290HT 50KW HEAT PUMPS IN CASCADE OUTSIDE THE SCHOOL WITH THREE EVOMAX 2 150KW BOILERS IN CASCADE MOUNTED ON FRAME AND HEADER KIT WITH PLATE HEAT EXCHANGER AND PREFORMED INSULATION KITS IN THE PLANT ROOM.



Three Evomax 2 150kW condensing boilers, operating in cascade providing 450kW of output.

supplied the equipment and acted as a consultant on this project, providing Service 2 with assistance on system design. The two companies have developed an excellent working relationship over the years, regularly collaborating on projects of this nature to ensure the most effective outcome.

The new installation features a hybrid heating system designed to balance low carbon operation with dependable performance. It comprises two Ideal Commercial Heating 50kW ECOMOD 290HT air source heat pumps featuring R290 natural refrigerant feeding buffer vessels, plus three wall-mounted Evomax 2 150kW commercial condensing boilers, operating in cascade providing 450kW of output. The Evomax 2 boilers have been installed within the existing plant room, onto a standard height frame and header kit, with preformed

insulation kits and plate heat exchanger making cascading appliances quick and simple. The heat pumps are located externally, adjacent to the plant room.

The hybrid approach ensures that the heat pumps can meet demand for much of the year, with the boilers providing support during colder conditions.

INTELLIGENT CONTROL FOR YEAR-ROUND EFFICIENCY

A building management system (BMS) plays a central role in maximising efficiency by automatically selecting the most appropriate heat source depending on external conditions.

Chris Snowden, Technical Operations Manager at Service 2 (HVAC), explains: *"So what the building management system does is, during the spring and the autumn months the heat pump will do the duty of all the hot water and the heating throughout the school. However, during the depths of winter when it's really cold outside, the BMS will actually switch across to the boilers to do the work to get the best efficiency out of the systems."*

This intelligent control strategy ensures comfort for pupils and staff while optimising running costs and energy use throughout the year.

DESIGNED FOR AN EXISTING SCHOOL BUILDING

As Hawthorn Primary School is not a new-build, the system needed to integrate with much of the existing



EVOMAX 2
BOILER



ECOMOD 290HT
50kW COMMERCIAL
AIR SOURCE HEAT PUMPS



Suitable for
commercial
properties



Cascade for
higher output



Free
commissioning



5-year warranty*

Terms and conditions apply:
* 2 year warranty extended to 5 years if
commissioned by Ideal Heating.

"It's easy to deal with Ideal. You're talking to like-minded people who appear to be ex-engineers, or ex-gas engineers, and they know what they're talking about."

Chris Snowden, Technical Operations Manager at Service 2 (HVAC)

distribution infrastructure. *"The benefit of using the ECOMOD 290HT heat pumps within the system"* Chris states *"is we can create up to 75°C hot water, which means you don't have to change radiators. We can still run on the original system."* Fan coil units specially designed to run at optimum temperature to achieve the heat pump's maximum efficiency were installed in most areas.

To provide separation between the primary and secondary circuits, preventing potential dirty system water from circulating through the new equipment, an Ideal Heating plate heat exchanger (PHEx) was installed.

INSTALLATION, COMMISSIONING AND SUPPORT

Despite the physical challenges associated with installing large heat pump equipment in a school environment, which included building a concrete base and constructing a fence around the heat pumps to meet the school's health and safety requirements, the project benefitted from straightforward system design and strong manufacturer support.

"The control is built into the system, which makes it very easy for commissioning purposes and setting up" states Chris, who is

also keen to highlight the value of working with Ideal Commercial Heating throughout the project: *"It's just easy to deal with Ideal. You're talking to like-minded people on the other end of the phone who appear to be ex-engineers, or ex-gas engineers, and they know what they're talking about."*

Service 2 (HVAC) Limited also benefitted from the Ideal Commercial Heating's free commissioning on the ECOMOD heat pumps and Evomax 2 boilers. This not only ensures the appliance has been installed, configured and set up correctly, but also automatically applies a five-year warranty at no extra cost.

A PRACTICAL ROUTE TO LOWER-CARBON HEATING

The completed project at Hawthorn Primary School demonstrates how hybrid heating systems can provide an effective, realistic route to improved efficiency and reduced carbon emissions in existing education buildings. By combining high temperature heat pumps with proven condensing boiler technology, the school now benefits from a resilient, future-ready heating solution that delivers comfort, efficiency and peace of mind.

"The benefit of using the ECOMOD 290HT heat pumps within the system, is we can create up to 75°C hot water, which means you don't have to change radiators. We can still run on the original system."

Chris Snowden, Technical Operations Manager at Service 2 (HVAC)



Two 50kW ECOMOD 290HT commercial heat pumps running in cascade are located externally, adjacent to the plant room.



IDEAL HEATING COMMERCIAL PRODUCTS

Sales, orders, availability, literature and pricing

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Calls cost no more than calls to geographic numbers (01 or 02) and will be included in any inclusive minutes you have with your telephone service provider.