MITSUBISHI ELECTRIC

Case Study

Sports Hub benefits from low carbon, renewable hot water

A new community grassroots Sports Hub in Leeds is getting renewable hot water from two low carbon, commercial air source heat pumps.

Case Study

Bodington Football Club
Leeds

The Bodington Football Hub has been made possible thanks to a £4.3m grant from the Football Foundation which is a charity supported by the Premier League, the Football Association and the Government.

Located at the Sports Park Bodington - part of the University of Leeds - the new Hub, which was designed by low carbon consultancy, Couch, Perry Wilkes, includes three full-size, artificial 3G floodlit football pitches, car parking and a pavilion with changing facilities and a café.

The Hub has been a real partnership between the University, the Football Foundation, Leeds City Council, and West Riding County FA and provides a much needed service to both the local and University footballing community.

The brand-new pavilion has changing and shower capacity for four-teams at a time, which is just as well as the centre will host over 100 community teams across the year. The building also includes a community café and meeting spaces.

As well as supporting the local community, the scheme will be an important home to the University's sports programmes and support the Leeds United Foundation and West Riding County FA to help deliver a broad range of recreational programmes and activities for the wider community.

"We needed to create this facility while taking into account the University's detailed Net Zero plans and so it was important that this system met low carbon targets," explained Bob Douglas, Mechanical Services Manager at the University of Leeds, "we really needed an all-electric solution that would cope with the high demand for showers".

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The answer was the installation of two Mitsubishi Electric QAHV CO_2 air source heat pumps which provide the domestic hot water for the showering facilities, toilets and kitchen. In addition to these, twin split air conditioning is providing heating and cooling in the social area and bar, and a dedicated wall mounted air conditioning unit also cools the kitchen area.

The QAHV monobloc heat pump is specifically designed for commercial sanitary hot water applications, producing water up to 90°C. The heat pump uses R744 or CO_2 as a refrigerant, which has a global warming potential (GWP) of 1. This makes it the ideal low carbon solution for leisure centres, hospitals, hotels, student accommodation and other applications where renewable, high-temperature water is required.

QAHV heat pumps offer high efficiency at high flow temperatures and include a unique twisted and spiral gas cooler to enhance energy efficiency. With super-low noise levels, the units offer full heating capacity down to -3°C outdoor temperatures and operate down to -25°C, so they will continue working through the worst of a West Yorkshire winter.

“Using the QAHV heat pumps to deliver high temperature water has helped meet the University’s Net Zero plans,” commented Matthew Dodson, a Director at M&E Contractor, Vic Coupland Ltd, who designed and installed the building services. “This new Sports Hub is leading by example as the electrification of heat is becoming a major trend commercially and we will continue to see this rapid shift away from traditional boilers,” he added.

Using the QAHV heat pump on projects also make them eligible for up to three BREEAM points. The impact of refrigerants is undertaken through credit POL 1 in BREEAM and two points are available by default for any system with a refrigerant GWP under 10. Another point is also available as the QAHV is a hermetically sealed unit.

R744

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"The QAHV units are installed in conjunction with domestic hot water-only heat interface units manufactured by Oventrop,"

"This indirect method helps to protect the unit's plate heat exchanger from poor water quality and scale issues, helping maintain high efficiency levels and prolonging equipment life. It also minimises legionella risks and enables the system standing losses and the associated domestic hot water return system to be heated via the QAHV systems." explains Paul Binns, Consultant account manager at Mitsubishi Electric.

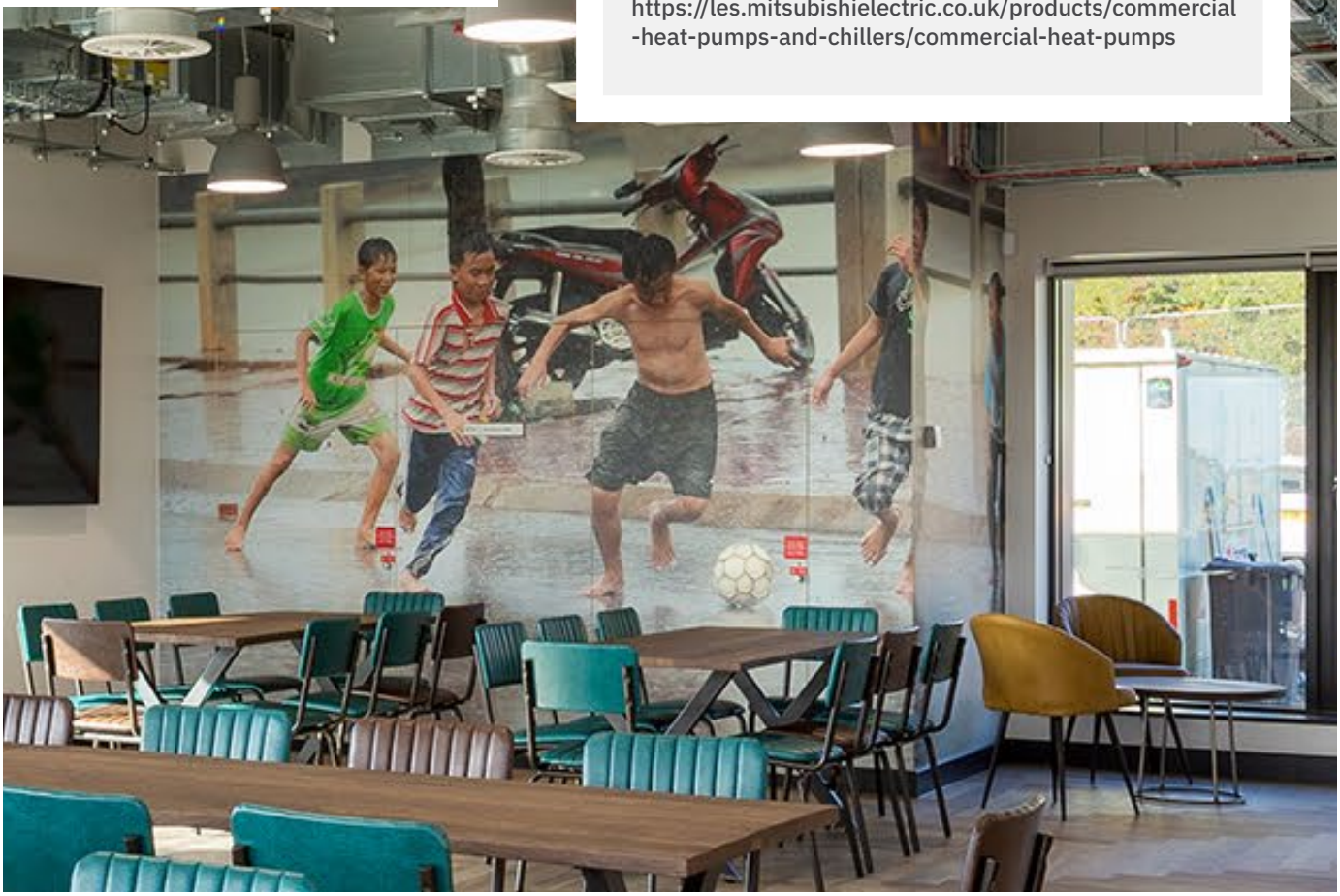
With the opening of the Bodington Football Hub, the community around Leeds has a fantastic, state-of-the-art facility. The use of renewable, high temperature heat pumps also helps ensure that the Hub can deliver the hot water needed while helping the University of Leeds hit its carbon reduction targets.

For more details on the Sports Hub and for booking information, please visit

https://sport.leeds.ac.uk/facilities/bodington-football-hub

Further details on the QAHV air source heat pump are available on Mitsubishi Electric's commercial heating website:

https://les.mitsubishielectric.co.uk/products/commercial-heat-pumps-and-chillers/commercial-heat-pumps



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Installation Summary

Outdoor Units:

2 x Ecodan QAHV-N560YA-HPB CO_2
Commercial Monobloc Air Source Heat Pumps

ecodan®

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Changes for the Better

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Note: The fuse rating is for guidance only and please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R290 (GWP:3), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R454C (GWP:148), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of February 2024

Green Gateway greengateway.mitsubishielectric.co.uk