

Case Study

Keeping the rhino's safe and warm



Chester Zoo opened in 1931 and is one of the UK's largest zoos. The 128-acre site in Cheshire, is home to more than 37,000 animals and more than 500 species.

This world-leading conservation and education charity is committed to preventing extinction and dedicated to raising awareness of conservation and environmental challenges.

CHESTER
ZOO

At the same time, the Zoo needs to guarantee that each species is kept in a controlled environment that matches its natural habitat and this means using energy to heat and sometimes cool the animal habitats.



“We know that we can’t be part of the problem that we’re trying to solve, so we need to develop sustainable plans that help the Zoo reduce carbon emissions and achieve net zero,” explains Jennifer Kelly, Head of Sustainability at Chester Zoo.

To demonstrate what can be achieved, the Zoo is partnering with Mitsubishi Electric and has recently announced the use of air source heat pumps to keep the Eastern Black Rhinos warm and cosy all year round.

Black rhinos are considered critically endangered by the International Union for Conservation of Nature (IUCN), with fewer than 5,000 black rhinos remaining across their range in the wild, and of these approximately 1,000 are the critically endangered Eastern black subspecies.

“We need to keep our indoor rhino habitat temperatures between 18 and 24 degrees, but their home has big open doors, allowing the animals free movement to their outdoor habitat, which can lead to significant heat loss,” explains Jen Kelly. “The air source heat pump solution deployed shows the potential for heat pumps to be successful in challenging and unique environments.”

Mitsubishi Electric’s experts worked closely with the zoo’s facilities and design teams to replace the previous fossil-fuel heating with six Ecodan air source heat pumps.



“The air source heat pumps are one of the low carbon technologies we’re employing here at Chester Zoo, and we chose Ecodan because they work in a cascade system which gives us a resilient solution,” added Rob Arathoon, Mechanical and Electrical Projects Manager at Chester Zoo.



“These heat pumps are keeping the rhino habitat warm all year round so these units help provide that and the cascade solution is what works best for the Zoo because if one unit is in defrost, or needs maintenance, the others step in to keep the temperatures constant.”

Chester Zoo is aiming to be net zero in its scope 1 and 2 emissions by 2030 and net zero in its scope 3 emissions by 2050 at the latest. As part of this, it is actively working to reduce its reliance on fossil fuels. Each of its buildings have very different requirements, based on their use, including the animals and species cared for in them.

The Zoo has now announced a strategic Partnership with Mitsubishi Electric which will provide heating, cooling and ventilation equipment in other buildings across the 128-acre site while helping the Zoo’s Design Team to reduce the charity’s carbon emissions.

“We’re facing a global biodiversity and climate crisis, so the time for action is now. That’s why it’s vitally important that, as a conservation charity that’s working to prevent the extinction of species worldwide, we lift our focus on sustainability to new heights,” explains Jen Kelly.

“That’s where partnerships on sustainability are so important; collaborating to showcase best practice and inspiring others to act,”



Chester Zoo is the most visited zoo in the UK, attracting around two million visitors each year, and was recently named as the best zoo in the UK by Tripadvisor.



Tripadvisor



“We are absolutely delighted to be working with Chester Zoo as a key sustainability Partner, and we see so many synergies with their ethos, especially on the sustainability and educational fronts,” comments Chris Newman, Net Zero Design Manager at Mitsubishi Electric.

“We’re working with the Zoo’s facilities teams to reduce carbon emissions and deliver energy efficient comfort across a diverse range of buildings with internal climates from African savannahs to South American rainforests, which shows beyond doubt that there is a renewable solution that can help all of us get to net zero.”

As a not-for-profit organisation, the zoo ploughs everything into its conservation mission, both in the UK and around the world and works with more than 3,000 species globally, including hundreds of international animal conservation breeding and habitat programmes, which are ensuring the survival of species on the very brink of extinction.

Experts from the zoo are recognised by governments and NGOs across the world as leaders within the global conservation community.

You can find out more about the important conservation work undertaken at the zoo by visiting their website: www.chesterzoo.org

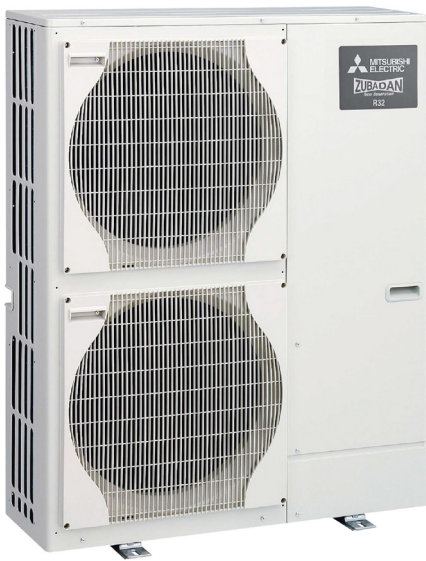
Further information on the sustainable solutions available from Mitsubishi Electric can be found by visiting les.mitsubishielectric.co.uk

Installation Summary



Outdoor Units:

- 6 x Ecodan R32 Zubadan PUZ monobloc air source heat pump working in a Cascade system



Click to watch the video: Keeping the rhino's warm at Chester Zoo



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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:650), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of July 2024



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