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Denver Zoo

Waste-conscious zoo employs INSULPEX piping to transfer energy from converted waste, saving thousands per year in energy and hauling costs.

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INSULPEX delivers energy efficient comfort to animals at waste-conscious zoo

Occupying 10 acres, the Denver Zoo's Asian Tropics complex allows visitors to explore the rich history of animals in Asian culture. Designed to provide an appealing environment for the animals, the complex also features numerous aspects of sustainable design to move closer to the zoo's goal of becoming a zero-waste facility.

INSULPEX was used to distribute a significant amount of energy from a supplemental system of four gas-fired 500,000 Btu/h condensing boilers. The project uses nearly 3,000 ft (914 m) of large-diameter REHAU INSULPEX pre-insulated PEXa piping to distribute heated fluid to various areas and buildings within the complex. The large-diameter INSULPEX was installed using REHAU FUSAPEX, an innovative new electrically fused fitting system.

In the Asian Tropics complex, the INSULPEX pipe serves as a supply to REHAU radiant heating and snow and ice melting systems. "The flexible nature of INSULPEX, particularly when compared with alternative materials like insulated copper and steel, was crucial when working around the zoo's existing utilities," said Porter May of Heating & Plumbing Engineers. "A rigid piping system would just not have been an option, given the gains and losses of elevation, as well as the severe angles to which the underground piping needed to conform."

Nearly 15,000 ft (4,572 m) of 1/2 in. RAUPEX O₂ Barrier crosslinked polyethylene (PEXa) pipe was used for the radiant systems in the rhino and elephant holding buildings, which will provide a warm, familiar climate for the animals during the Colorado winter season.

More than 13,000 ft (3,962 m) of 5/8 in. RAUPEX pipe was also used for the snow and ice melting systems installed in all pedestrian walkways, bridges and exhibit entryways, as well as in the complex's facilities management dock area, to provide a safe, clear path for visitors and zoo employees during snowy months.

The overall design is expected to save \$150,000 a year in energy and waste hauling costs by converting more than 90% of the zoo's waste into clean, usable onsite energy and to reduce the zoo's annual landfill contributions by 1.5 million pounds.



Project: Denver Zoo Asian Tropics Complex, Denver, CO

Construction type: Zoo exhibit, completed 2012

Project scope: 10-acre complex; 3,000 ft (915 m) of INSULPEX pipe; 28,000 ft (8,534 m) of RAUPEX pipe.

Engineer: RMH Group, Inc.

Mechanical contractor: Heating & Plumbing Engineers, Inc. Architect: clr Design

REHAU systems used: Pre-insulated PEXa piping (INSULPEX® pipe, FUSAPEX fittings), radiant heating and snow and ice melting systems (RAUPEX® pipe, PRO-BALANCE® manifolds, compression-sleeve fitting system)

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