

smart care success story

Texas Frio Cold Storage



eco-friendly refrigeration system designed for cold storage warehouse

The demand for efficient and reliable cold storage solutions has never been more critical, especially in the food distribution sector. Texas Frio Cold Storage, a prominent meat distribution facility in Houston, TX, sought to expand its capabilities with a state-of-the-art refrigeration system for its new 45,000 square foot facility.



Refrigerated Warehouse Construction (RWC), a Smart Care Company, was selected for this project based on their previous work with the general contractor, KDW, and their reputation for delivering innovative refrigeration solutions.

project scope

RWC was tasked with designing and building a refrigeration system for Texas Frio's warehouse, which includes 37,000 square feet of freezer space, a 2,116 square foot meat cooler, and a 6,600 square foot dock, totaling 45,000 square feet of refrigerated space.

The project's challenge was to implement a system that could efficiently operate in Texas's warm climate, which led RWC to opt for a subcritical CO₂ cascade system paired with ammonia.

**the system needed to
operate efficiently in
texas's warm climate.**



Within the motor room pictured above, there are various colors of piping. The silver coated piping contains ammonia, while the white piping houses CO₂, and the green piping is dedicated to glycol.

design and construction

RWC took six weeks to finalize the design, focusing on a cascade system using ammonia on the high side and CO₂ for evaporators and cooling. The choice was influenced by the need for a low-temp solution in Texas' warm climate and the benefits of subcritical CO₂ systems, which operate at pressures below the critical point, and are more efficient in such conditions.



The unique combination of ammonia, CO₂, and glycol (created as a by-product and used to heat the floors) ensured an environmentally friendly solution and cost savings for Texas Frio.

Construction commenced in November of 2019, with RWC handling everything from design to equipment installation and startup. Stainless steel piping was used throughout the facility to ensure longevity and to prevent corrosion, a critical consideration for systems using ammonia and CO₂.

challenges and solutions

Building a refrigeration system using both ammonia and CO₂ in a cascade setup presented unique challenges. It's an uncommon solution in the region, which necessitated specific approvals from Texas Frio.

Additionally, as the only system of its kind in Houston, there was a steep learning curve in making it operate efficiently. Texas Frio relied on RWC's expertise and innovative approach to overcome the challenges, ensuring the system's successful implementation.

outcome

The project was completed in November 2020, making it a year-long endeavor from design to startup. This customized refrigeration solution not only stands as a testament to RWC's engineering prowess, but also as a unique and pioneering system within Texas.

The use of ammonia, CO₂, and glycol in a cascade configuration showcases a significant advancement in refrigeration technology, especially in regions facing the challenge of high (and increasing) ambient temperatures.

"Our experience with RWC has been excellent," said Esmeralda De La Cruz, Managing Member of Texas Frio Cold Storage. "We have always been very happy with their professionalism and customer service. They are extremely knowledgeable on the refrigeration industry."

conclusion

RWC's successful design and implementation of the refrigeration system for Texas Frio's cold storage warehouse highlights the importance of innovation, technical expertise, and client-provider relationships in tackling unique industry challenges. The project not only serves Texas Frio's operational needs but also sets a new standard for refrigeration systems in the meat distribution industry, potentially inspiring future projects in Texas and beyond.

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about refrigerated warehouse construction

RWC is a refrigerated warehouse construction & mechanical company offering design, build, and consult services. Specific expertise lies in commercial and industrial refrigeration applications and installation, supermarket planning and installation, refrigerated cases, and processing room planning and installation.



**REFRIGERATED
WAREHOUSE
CONSTRUCTION**

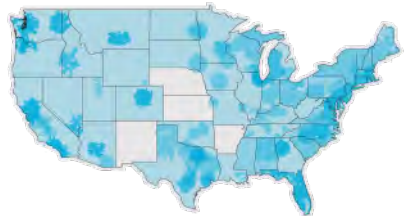
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about smart care

Smart Care is the largest provider of comprehensive commercial mechanical services, including complex rack refrigeration and HVAC, stand-alone refrigeration, hot-side cooking equipment, and specialty coffee and beverage equipment.

Smart Care's strong reputation and leading customer service have been built on the foundation of a high-quality technician base, an unmatched breadth of services and quick response times.

Smart Care is OEM-agnostic with the ability to service more than 10,000 types of equipment for food, retail, restaurants, convenience stores, warehouse operators and other institutions. The company is headquartered in Chicago, Ill. with operations in all 50 states.



Additional information about Smart Care is available at www.smartcaresolutions.com.