



FISHER CONSTRUCTION GROUP AND TI COLD WIN 2023 BUILT BY THE BEST AWARDS

Top cold storage design competition recognizes two best-in-industry projects.

By Keith Loria

Recognizing the increased level of competition and outstanding work submitted for 2023, the Built by the Best awards, created by the Controlled Environment Building Association (CEBA), a core partner of the Global Cold Chain Alliance (GCCA), honored two winners – one for a project under \$35 million and one for a more than \$35 million project.

The winners were announced at the 2023 CEBA Conference with Fisher Construction Group taking first place in the over \$35 million project category and Ti Cold went home with first place in the under \$35 million group.



Ti Cold's 2023 Built by the Best award-winning project for Core X. The facility's tight proximity is evident in an aerial shot. (Photo courtesy of Ti Cold.)

Under \$35M Winner – Ti Cold

Core X Complete is noted for providing frozen and refrigerated warehousing and truckload shipping solutions throughout New England and the entire Northeast of the United States. When it was time to expand, the company hired Ti Cold to master plan a high-density, 83,000-square-foot cold storage facility with 17,700 pallet positions in Sturbridge, Massachusetts.

Challenges From the Start

“They started kicking around a site in Massachusetts that was compact and tight, and they needed to get as many pallets as they could,” says Rob Adams, Executive Vice President of Ti Cold. “We looked at a traditional layout but we just couldn’t get that many pallets, so we needed to make the facility as dense as we could, and we ended up with mobile racking.”

The \$28.5 million facility was selected as the winner of the Built by the Best due to Ti Cold’s investigative and creative engineering team, fine-tuned implementation from project management, and commitment to excellence, all of which resulted in a facility that will contribute to the supply chain for decades to come.

“Every square foot of this project is simply well built; from the installation of major components like the mobile racking down to the minute details of curbs,” Adams says. “When you walk into Core X, you know you are standing in something solid.”

The project was not without its challenges. From a timeline standpoint, there were some initial issues. As it had to be built on only 7.05 acres, that created some logistical pressure. Plus, the project site was next to a busy highway with

a number of residential and industrial areas nearby.

COVID-induced supply chain shortages demanded proactivity to ensure switchgear delivery, so the project schedule stayed intact.

Plus, being in Massachusetts, which is known for its rocky earth, blasting was required on the site. Add to that the fact that winter conditions froze the subgrade, it required a high level of coordination to progress permitting.

“Construction on such a tight site resulted in two off-site storage locations and their ensuing logistics coordination, as well as complex storm drain construction in lieu of a retention pond,” Adams says. “COVID-induced supply chain shortages demanded proactivity to ensure switchgear delivery, so the project schedule stayed intact.”

Additionally, spot-on sequencing was necessary for intricate concrete and rail installation for mobile racking and coordination with pre-punched beams for in-rack sprinklers.

“We had a timeline, but we needed to deal with all of these things,” Adams says. “The project was also halted by the Massachusetts Department of Transportation. But we overcame all challenges, including supply chain disturbances, and the budget was sustained.”



M&M Carnot's Transcritical Co2 Refrigeration System. (Photo courtesy of Ti Cold.)

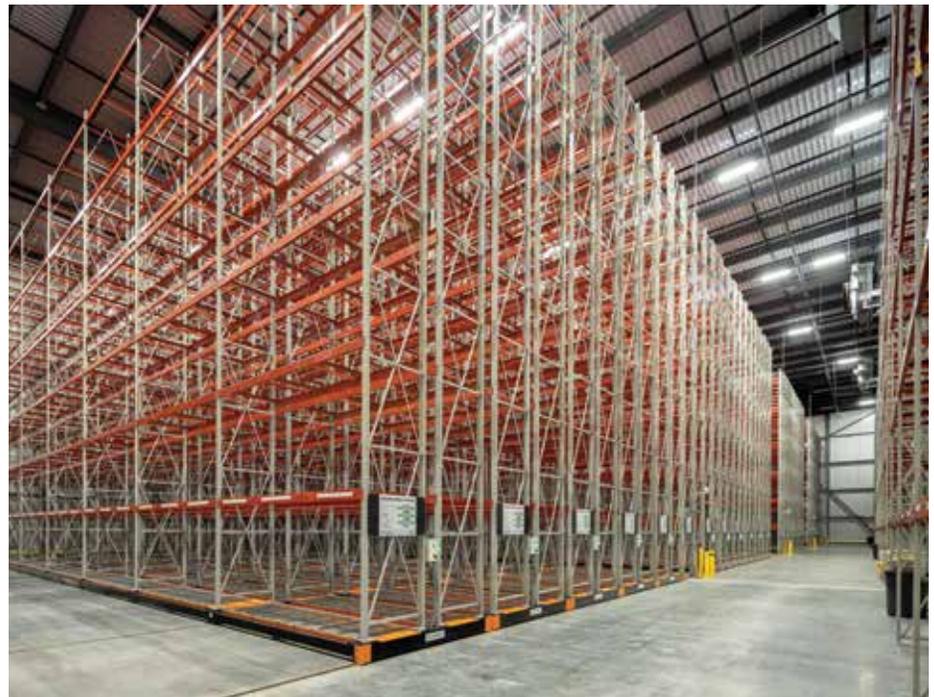
Advanced Design

Some of the innovative features include convertible rooms cooled by transcritical CO2 refrigeration, which allow for easy adaptation to the client's needs. Three underground storm basins were engineered in order to coordinate the necessary above-ground space (truck parking, employee parking, fire loop, and water tower) while maximizing the facility's square feet. And also installing convertible cooler/freezer rooms that are adaptable at very low cost and allow the facility to meet future needs without having to add on to its footprint.

“It was the mobile racking that was probably the biggest accomplishment,” Adams says. “The facility hosts 17,700 pallet positions, compared to less than 10,000 pallets with standard stationary racking.”

Ti Cold has built many similar facilities, but Adams believes the craftsmanship for this project is one of its best.

“When you just look at this facility, the fit and finish of this building is just over the top,” he says. “It was a very intricate building and really fits within the landscape of the community.”



Flex space mobile racking in the finished facility. (Photo courtesy of Ti Cold.)

2023 Built by the Best Award-Winning Supplier Profiles

These are the companies integral to the success of the Ti Cold winning project.

Albany - Dynaco High Performance Doors.

All Weather Insulated Panels

Coldbox Builders

Colmac Coil Manufacturing Inc.

CSI of Virginia

Fastener Systems Inc.

Frank Door Company

FREEZ Construction

Jamison Door Company

M&M Carnot

Metl-span

Puga Thermal Services

Rite-Hite

Shambaugh & Son, L.P.

The Fricks Company

Ti Cold



The racking rails, seen here pre-pour, had to be precision calibrated. (Photo courtesy of Ti Cold.)



Underground storm drainage basins were used because of the tight site space. (Photo courtesy of Ti Cold.)



MSM CARNOT

The natural solution.

Cold, chilled or frozen. It's a packaged deal.

For over 50 years, we've pioneered the design and production of industrial refrigeration products, systems and controls. Now, we're leading the way with natural refrigerant-based packaged systems that are safe, sustainable, and energy efficient in all climates.



Pure

Packaged Systems

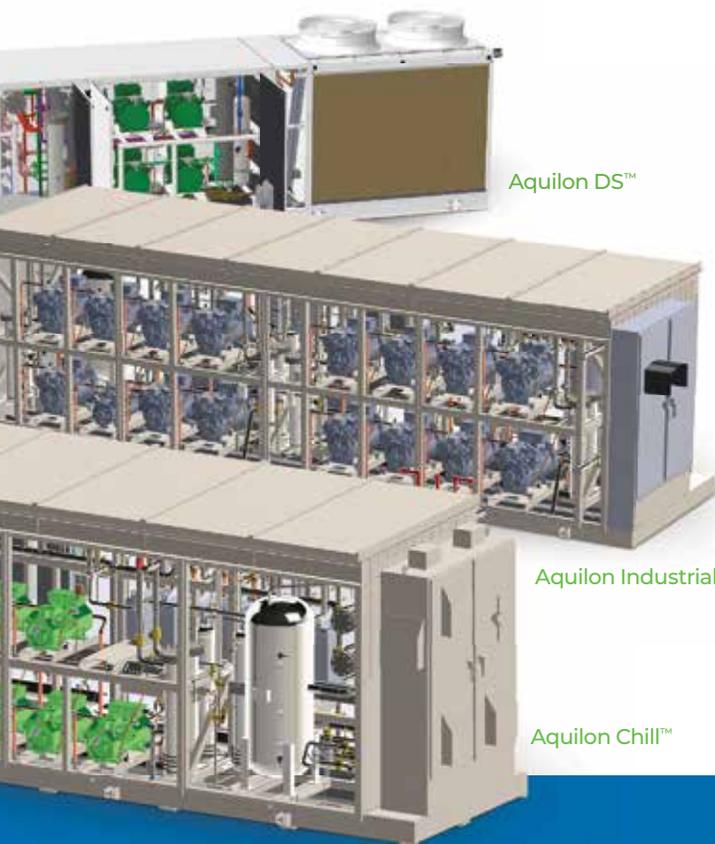
- Low charge ammonia packaged chillers from 40–400 tons at 5°F to 50°F outlet fluid
- Low charge ammonia condensing units from 30–160 tons at -20°F to 45°F SST
- Packaged cascade ammonia/CO₂ Systems from 40–200 tons at -20°F to -60°F pumped CO₂



Pure Chill™

Pure Cold™

Pure Freeze™



Aquilon DS™

Aquilon Industrial™

Aquilon Chill™



Aquilon

Packaged Systems

- Transcritical CO₂ industrial chillers from 50–500 tons at -40°F to 40°F outlet fluid
- Transcritical CO₂ condensing units from 10–85 tons at -40°F to 40°F SST
- Transcritical CO₂ industrial racks from 50–400 tons at 40°F to -50°F SST or 50°F to -40°F fluid temperature

mmcarnot.com • 410-754-8005

Contact us to learn how you can increase operational efficiency.





Fisher Construction built an automated cold storage facility for NewCold that won the 2023 Built by the Best award in its category. (Photo courtesy of Fisher Construction Group.)

Over \$35M Winner – Fisher Construction Group

When Netherlands-based NewCold, which specializes in temperature-controlled warehousing and distribution, was seeking to have built the largest automated cold storage facility in Indiana, it turned to Fisher Construction Group.

“This was our third negotiated high-rise cold storage in the United States with NewCold,” says Christopher Wright, Project Manager for the job. “NewCold was looking for a partner it could count on, and it trusted and selected Fisher for its third-consecutive project. Fisher’s strategy is to provide NewCold – and all of our customers – with the best value and best service on all their projects to help them meet their customers’ needs.”

The \$62.3 million job was selected as the winner of the Built by the Best award in the over \$35 million category. The completed 464,646-square-foot Indianapolis cold storage facility was designed with state-of-the-art technology, including automated storage and retrieval systems (ASRS) to automatically move and store products in the dark high-bay warehouse.

“Like many others, the project started during the pandemic, which required our team to pivot from a LEAN Construction just-in-time approach to a batch and queue process to ensure procurement aligned with our client and construction needs,” Wright says. “The primary portion of the building was done on time, but our racking, on the other hand, was directly impacted by global

supply chain challenges and arrived after the anticipated start date.”

To ensure it was able to meet the needs of NewCold and their client, the Fisher team needed to crash the racking construction schedule.

“For approximately four months, our site was open from 4:30 a.m. to 2:30 a.m., seven days a week, with a 250,000-square-foot area fully illuminated to ensure preassembly measures could occur during the hours of darkness,” Wright says. “The hard work and efforts of both Voestalpine and Global Metal Construction truly allowed the project to be

delivered on time for NewCold and its client’s “first pallet in” date.”

Overcoming Challenges

The project was divided into three sections, the 250,000-square-foot highbay, dispatch area and layer pick area, and each presented its challenges.

“Ordering material well ahead of time was a constant challenge,” Wright says. “On NewCold Phase I, our roofing division, Fisher Roofing Services, spearheaded by Darrell Kidwell with alignment and agreement amongst our team members and shareholders, purchased



The rack-supported building, which allows for greater storage heights, is 130-feet tall. (Photo courtesy of Fisher Construction Group.)

Bring on the cold



MovUTM atlas

Fully automated high-density storage

- Efficient, fast and reliable
- Optimal use of storage space
- Designed to work in temperatures from -20°F upwards



MovUTM ifollow

Autonomous Mobile Robots (AMRs)

- Slimline design 17cm high
- Operable in temps from -13°F with no condensation or battery degradation
- Shifting loads of up to 2,645 lbs

No warehouse left behind.





Once a pallet is unloaded, it is placed on an inbound conveyor where the system tracks each pallet and designates it a position in the freezer. (Photo courtesy of Fisher Construction Group.)

approximately two football fields of under-floor insulation,” Wright says. “During this period, many projects were impacted by the global challenges and lull in production of insulation.”

Kidwell looked ahead, identified this early on, and made a substantial purchase long before it became an issue on the project.

“In my opinion, all challenges have solutions; this example is just one of many that was identified, mitigated and addressed long before becoming a true challenge to the project schedule and deliverable to NewCold,” Wright says.

In addition, in the Midwest, at the time, this was the largest project as it related to the needs and requirements of concrete reinforcement.

“Tyler Vuurman from B&B Site Maintenance looked ahead at the issue and pulled as much rebar as he could out of local facilities,” Wright says. “When they were depleted, he moved to the next resource. During the construction of NewCold Phase I, by the end of the required procurement process, we were pulling rebar out of South Carolina 630 miles away from the project site.”

For Wright, all challenges have solutions, the driver is how badly one wants to address the challenge.

Another challenge was the thermal principles separating areas by zones. With multiple elevations connecting separate portions of the building and environments, ranging from -19 F to chilled 40 F environments to an exterior that can often have a heat index well over 100 F, it took a lot to ensure everything was done perfectly.

To solve this, Fisher’s thermal team designers and onsite team conducted multiple thermal detail reviews prior to construction, collecting insight from various members of both companies to create a working value engineered solution that made sense to both parties.

Innovative Features

Unlike typical large storage spaces, the NewCold facility is innovative in several key areas. For example, the structure that carries the weight of the walls and roof, also doubles as the racking for the product stored on pallets.

“Traditional storage facilities usually comprise a steel supported building, with stand-alone racking independent of the structure,” Wright says. “Rack-supported buildings allow for far greater storage heights. This project in particular is 130-foot tall. Typical cold storage facilities rarely crest 50 feet in height.”

Fire protection within the freezer was accomplished by lowering the concentration of oxygen and replacing it with nitrogen, so any fire that potentially starts quickly is snuffed out by lack of oxygen to sustain burning. This method is used as an alternative to traditional water sprinkler systems.

“Because of the low oxygen nature of the freezer, all pallets in and out of the freezer are handled by an automation system comprised of conveyors, monorails and cranes,” Wright says. “Forklifts are only used to unload and load the trucks. Once a pallet is unloaded from a truck, it is placed on an inbound conveyor. From there, the system tracks each pallet, designating a position in the freezer where through a system of conveyors, mono-

rails and cranes, a pallet is delivered. The process is reversed when the pallet is designated to be loaded onto an outbound truck.”

The NewCold facility was unique in its design for the sheer size and scale of the facility. Other elements include the almost total automation of product storage and retrieval with 17 ASRS cranes; the requirements set forth with a layer picking building with a chilled environment and a -19 F environment; and for the alternative method used for fire protection within the freezer environment that replaced traditional water sprinklers with a low oxygen system provided by Wagner Fire Protection.

A Top Team

At 141-foot high, half the size of the mammoth Lucas Oil stadium, home of the Indianapolis Colts football team, the completed facility offers more than 100,000 pallet positions and its advanced cold chain solution ensures that processes are sustainable and traceable.

Wright believes that the largest accomplishment behind any project is the people, and the Fisher team helped make this project award winning.

“Working as a traveling project manager requires a personal investment in communities and the ability to quickly build relationships with trade partners,” Wright says. “On NewCold Phase I, more than 425,000 hours were worked and at peak times, over 140 men and women were on the project. Building a team from all walks of life, from the laborer to the structural engineers and architects, and putting a goal in place that all parties can get behind is by far the largest accomplishment. I am personally proud of all of the work that went into achieving this goal, and the successful completion of NewCold Phase I.”



Because of the low oxygen nature of the freezer, all pallets in and out of the freezer are handled by an automation system comprised of conveyors, monorails and cranes. (Photo courtesy of Fisher Construction Group.)

Among those who played a big part in the project were Jeff Coville, Senior Superintendent; Anthony Prus, Project Superintendent; Travis Fernandez, Onsite Safety Manager; and Josh King, Project Engineer.

The Fisher motto is “Builders First,” meaning that when a challenge occurs, the solution or start of a solution lies in front of them with its onsite team, coordination and assistance as needed from industry experts, and a hands-on approach, often involving whiteboards and team calls, to ensure all parties agree, are aligned, and can support the works, according to Wright.

“Our company, which is based out of the Pacific Northwest, is made up of like-minded individuals spearheaded by leaders within the company who believe no matter what the client’s needs are, that it is important to address the needs and challenges of a project head on,” Wright says. “Dan Powers’ leadership has and continues to exemplify that no project is too small nor too large and that solutions can always be found when working together as a team.”

2023 Built by the Best Award-Winning Supplier Profiles

These are the companies integral to the success of the Fisher Construction Group winning project.

Baltimore Air Coil

Colmac Coil Manufacturing Inc

Fastner Systems Inc

M&M Carnot

Mayekawa USA Inc

Nucor

Open Concepts

Republic Refrigeration

Ricker Thermline

Rite-Hite

Shadco LLC

Wagner Fire Safety

KEITH LORIA is an award-winning journalist who writes on topics as diverse as sports, business and technology.

EMAIL: freelancekeith@gmail.com



FOOD SAFETY IS ALWAYS IMPORTANT ... BUT EVEN MORE SO IN A PANDEMIC.

FIND OUT HOW THE COLD CARRIER CERTIFICATION PROGRAM CAN:

IMPROVE YOUR OPERATIONS:

Guides your review & improvement of company practices for the sanitary and safe shipment of perishables.

DEMONSTRATE YOUR COMMITMENT:

Shows your customers that you're doing your utmost to ensure the safety and sanitation of perishable shipments, protecting their brand.

DIFFERENTIATE FROM YOUR COMPETITORS:

The Certification shows your status as a leader and your commitment to improving the cold chain.

gccca.org/certifiedcoldcarrier



Winchester Cold Storage, Winchester, Virginia

If you want to be green and reduce your plant’s carbon footprint, use natural refrigerants, evaporative condensers, and minimize the number of compressors and condenser fans in your system. *The facts are:* for every 5-pound reduction in head pressure using evaporative condensers, you save 2% in compressor power.

That can be a 30% reduction in power!



Call Hank Bonar today!
904-631-8966
hank@bonarengineering.com

Bonar Engineering, Inc.
PO Box 60009, Jacksonville, FL 32236