2019 U.S. FOOD ON DEMAND SERIES: COLD STORAGE DEVELOPMENT OPPORTUNITIES HEAT UP

CBRE RESEARCH
As detailed in the first report of this series, Cold Storage Logistics Unpacked, there is heightened demand for cold storage capacity in the U.S., driven by growing food sales (up 24% in the past five years) and the increased outsourcing of food storage and distribution.

Changing consumer preferences toward online grocery also will require more cold storage capacity in years ahead, as direct-to-consumer food delivery becomes more common.
This second installment of a three-part CBRE Research report series exploring the cold storage industry’s impact on industrial & logistics (I&L) real estate reveals the opportunities and challenges for developers.

ABOUT THIS REPORT

The cost to build and operate cold storage facilities can be prohibitive, especially for inexperienced developers, contractors and asset managers.

Development seldom occurs without having a tenant in place. As a result, there is little speculative development; just one spec cold storage project, totaling 300,000 sq. ft., was recently completed near Fort Worth, TX.

EXECUTIVE SUMMARY

Despite strong demand for cold storage space, there is very limited refrigerated warehouse development in the U.S. for five primary reasons:

COST

The cost to build and operate cold storage facilities can be prohibitive, especially for inexperienced developers, contractors and asset managers.

UNIQUE EXPERTISE

The number of refrigerated-warehouse developers and operators is small and fragmented. There is only a small pool of skilled contractors who can properly build these facilities.

RISK

Development seldom occurs without having a tenant in place. As a result, there is little speculative development; just one spec cold storage project, totaling 300,000 sq. ft., was recently completed near Fort Worth, TX.

COMPLEXITY

Traditional developers rarely venture into cold storage due to the complexity and cost of building temperature-controlled facilities.

INFLEXIBILITY

Although possible, it is difficult and costly to convert a cold storage warehouse to a dry warehouse.
Available cold storage space is very limited in the U.S.

CBRE Research estimates that the cold storage vacancy rate is in line with the historically low national industrial vacancy rate of 4.3%.

In some markets where cold storage demand is at an all-time high, the vacancy rate is much lower. Cold storage occupiers rarely vacate their space unless they are scaling back their business or moving to a new facility. Since there is a limited amount of new inventory, relocations happen infrequently.

**EXECUTIVE SUMMARY**

Construction costs vary widely based on many different factors such as land values, labor costs, project specification and customer needs. The cost per square foot to construct a refrigerated warehouse is typically double to triple the cost for a dry warehouse.

**WHAT SETS COLD STORAGE APART FROM A TRADITIONAL DRY WAREHOUSE?**

- **2-3X CONSTRUCTION COSTS**
  - The construction process for a cold storage facility also is more complex and time-consuming than a traditional dry warehouse, taking up to five months longer to build.

- **40-60 FEET BUILDING HEIGHT**
  - Other building features that set cold storage apart from a conventional warehouse include: industrial refrigeration systems (ammonia and/or freon) to control temperatures ranging from -25 to 55 degrees, fire protection, under-floor heating and enhanced dock leveler systems to control temperatures, among many others.

- **-25 to 55 DEGREES TEMPERATURE RANGE**
  - The standard clearance height for a modern freezer/cooler building ranges from 40 to 60 feet, compared with 34 to 36 feet for a dry warehouse.

- **+5 MONTHS CONSTRUCTION TIME**
  - IMP (insulated metal panel) construction, as opposed to traditional tilt-up construction, is a major differentiator.
CBRE estimates approximately 4.5 million sq. ft. of new cold storage construction has been recently completed or is underway nationally.

This accounts for just 1.5% of the current industrial construction in the U.S. as of Q2 2019.

Speculative development is rare, given the complexities of building cold storage, the lack of active developers and the difficulty in re-purposing these facilities for other uses.

Strong demand for cold storage space, along with growing investor interest and understanding of this property type, likely will spur more speculative development in the near future.
CLASS A COLD STORAGE FACILITIES BUILT SINCE 2016

Limited cold storage construction is occurring nationwide. The following representative projects include facilities for food producers and retail operators, as well as third-party public refrigerated warehouse companies like Americold and Lineage Logistics. Most of these buildings are already leased and/or occupied.

FT. WORTH, TX
A 300,000-sq.-ft. speculative cold storage development by Hunt Southwest and FCL Builders in July 2019, which can be operated as freezer or cooler. This modern facility has a building clearance height of 45 feet among other desirable features, including an 8-inch-thick shrinkage-compensating floor slab, penthouse design for the refrigeration system, with vertical storing levelers and abundant trailer parking.

BURLEY, ID (Twin Falls Area)
A 180,000-sq.-ft., fully automated cold storage warehouse developed by Netherlands-based NewCold. Conveyors and automated storage and retrieval systems handle the pallets with minimal manual interference into and from a large rack system. NewCold developed this type of automation for its European operations to cut labor, land and energy costs, and to meet strong customer demand for more efficient storage and shipping options.

ROCHELLE, IL (Chicago Area)
A 183,000-sq.-ft., 14-story cold storage facility built by Griffco Design Build for Americold Logistics in 2019. The facility contains a series of temperature-controlled rooms serviced by an automated storage and retrieval system. It is co-located with a conventional freezer building supplementing two other facilities that Americold has been operating since 1995.

OAKLAND, CA
A 266,000-sq.-ft. cold storage and logistics facility opened in 2018 and serving as a hub for temperature-controlled cargo transiting through Northern California. Lineage Logistics and Dreisbach Enterprises are the main operators in collaboration with the Port of Oakland.

MC DONOUGH, GA (Atlanta Area)
A 250,000-sq.-ft. public refrigerated warehouse 30 miles outside of Atlanta and completed in 2018. The facility is run by Burris Logistics, a family-owned-and-operated foodservice redistribution and retail specialty company.

DEVELOPMENT PIPELINE

ELIZABETH, NJ (Newark Area)
A 130,000-sq.-ft. expansion by Seafrigo, a French logistics company specializing in foodstuffs. Seafrigo increased its footprint by 74% in 2016 given strong demand from online food companies serving the New York metro population.

ROMULUS, MI (Detroit Area)
A 606,000-sq.-ft. cold storage distribution facility developed by Insite Real Estate (ARCO Design/Build was the contractor) adjacent to Detroit Metro Airport in November 2018. The facility includes 415,000 sq. ft. of freezer space ranging from 0 to 34 degrees, 60,000 sq. ft. of 55-degree produce cooler space, 14 banana-ripening rooms, 105 exterior truck doors and 17 electronically operated overhead doors. The clearance height is 34 feet. The building is leased to a national logistics provider for 10 years with annual rent escalators.

BURIEN, WA (Seattle Area)
The 241,140-sq.-ft. Puget Sound Commerce Center is the first cold storage facility built in the Seattle area in 10 years. It has a 40-foot clearance height, 32 truck bays and 150 parking spaces. The building is strategically located near the Port of Seattle and Seattle-Tacoma International Airport. Bridge Development Partners developed and sold the property to Bentall Kennedy in 2017. At the time of purchase, the building was 100% leased.

Photo Credit: FCL Builders, July 2019.

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Photo Credit: NewCold, June 2019.

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Photo Credit: Bridge Development, 2017.

Photo Credit: ARCO Design/Build, Inc. 2018.

Photo Credit: Victory Unlimited Construction for Preferred Freezer Services in 2018. The facility includes 32 dock doors and has a clearance height of 58 feet, 6 inches. This is Preferred Freezer’s seventh L.A. cold storage facility. The building is located near downtown and covers an entire city block.

Photo Credit: Seafrigo, 2016.
FIGURE 1: DEVELOPMENT PIPELINE MAP, 2019 COMPLETIONS AND UNDER CONSTRUCTION

Source: CBRE Research estimates; company reports, local newspapers, and discussions with brokers.
COLD STORAGE
DESIGN & CONSTRUCTION

DIFFERENCES BETWEEN COLD
STORAGE AND DRY WAREHOUSE

COST

Construction costs per sq. ft. for a temperature-controlled facility can be as much as triple the cost of constructing a traditional warehouse, and the timeframe to build a cold storage warehouse is typically four to five months longer given higher complexity and building standards. Cold storage facilities require a thermal envelope and insulated panels along with other expensive machinery not required in a dry warehouse.

In addition, construction costs tend to increase with lower temperature requirements and higher ceiling heights that increase the number of pallet positions. Given the relatively high construction costs and the required operational features of cold storage facilities, there is a higher barrier to entry in the temperature-controlled warehouse sector than in the standard warehouse sector.

There are many considerations when building cold storage. The following items impact the cost of construction:

- **IMP (insulated metal panel)** installation, as opposed to tilt-up construction that is typical of dry warehouses.
- Mechanical equipment.
- Premium concrete slab and under-floor heating.
- Different types of refrigeration and equipment (package units, ammonia systems, freon units, central engine room, etc.).
- Rooftop penthouse for equipment.
- Fire protection.
- Labor (skilled contractors).
- Number of pallets (rack plan).
- Above-standard features like packing rooms, blast freezing and fumigation.

MACHINERY & EQUIPMENT

Unlike conventional dry warehouses, cold storage facilities must have various structural and mechanical installations. Cooling systems include compressors, condensers and evaporators. To achieve efficient cooling, the cold storage design must also reduce air flow waste by insulation, temperature/air-proof doors and automatic temperature monitoring systems.

LAYOUT & DESIGN

Cold storage facilities are typically divided into several areas within the main building by prefabricated insulated panels. These rooms operate within distinct temperature and humidity ranges and sometimes feature separate docking, loading and sorting areas.

Another distinctive feature of cold storage facilities is temperature-controlled docks or speed bays. Sometimes occupying as much as 10% to 20% of total space in the facility, these areas serve as buffers to prevent a rapid change in temperature between storage and distribution.

FIGURE 2: INSTALLATIONS IN COLD STORAGE FACILITIES

Source: CBRE Research, July 2019.
Federal and local regulations have a significant impact on the maintenance of cold storage facilities. Property managers of these buildings must comply with EPA, OSHA, USDA and FDA (if it involves pharmaceutical products) standards; local building and fire protection codes; height restrictions and water supply requirements. This translates into increased complexity and cost in running these facilities. While these regulations must be considered from a development perspective, they don’t have a dramatic impact on the development process.

The Food Safety Modernization Act (FSMA) of 2011 made the first major changes to the FDA’s food safety authorities in more than 70 years. The law focuses on preventions, inspections, compliance, response, imports and enhanced partnerships. It also provides the FDA with enforcement authority designed to achieve higher rates of compliance and prevention.

Refrigerated warehouses that receive, store and distribute food products are required to register with the FDA and are subject to inspections. A prevention plan must be written and implemented by the cold storage operator, involving employee training programs.

Cloud-based technology can often help minimize the costs associated with adapting to new regulations. Warehouse management systems (WMS), for example, deliver capabilities like freshness tracking and proactive alert notifications, and can help cold storage operators manage the complexities of the law while keeping track of their goods in real time. Other cutting-edge tracking technologies are under development. In the pharmaceutical industry, for example, drones and AI are being tested to more efficiently track prescription drugs as they move through the supply chain.
COLD STORAGE
CHALLENGES & OPPORTUNITIES

The development and operation of cold storage facilities is challenging. Skilled subcontractors are limited and securing the necessary building materials is sometimes difficult.

These properties must adhere to strict thermal integrity, therefore storing and distributing perishable items with different shelf lives means that different climates must be controlled while workers move the product in and out. Finding workers to operate the facilities can be difficult considering the extreme conditions.

AUTOMATION

Considering the labor challenge along with improving other efficiencies, automation is a viable solution. When deciding whether to automate a facility, the developer/builder must determine how many pallets will move through the warehouse and weigh this against other costs. For a third-party logistics operator (3PL), flexibility is paramount and automated systems offer flexibility.

Automation also provides higher density, greater height, a smaller footprint and around-the-clock operation. The downside to automation is that significant capital investment is required, with costs running in the multiples of standard cold storage construction.

UPSIDE TO BUILDING COLD STORAGE

Despite high capital expenditures and operating expenses, cold storage facilities command higher rental premiums than dry warehouses. Occupiers tend to stay in the same facility for lengthy periods and are willing to commit to long lease terms (10 years or more).
COLD STORAGE LOOKING AHEAD

Expect to see three major shifts in the development and construction of cold storage facilities in years ahead.

1. **MORE SPECULATIVE DEVELOPMENT**

   As demand grows and more investors target cold storage assets, there will be an increase in projects without a tenant in place. This means there will be more entrants into this space, with specialized developers and contractors leading the way.

2. **MORE DEVELOPMENT ACTIVITY IN SMALL MARKETS**

   While major metro areas will capture much of the demand for cold storage development, rising land and construction costs will push activity toward smaller markets adjacent to ports, intermodal hubs and large population centers, such as Wilmington, NC, San Antonio, TX and Savannah, GA.

3. **GREATER AUTOMATION IN THE DESIGN AND OPERATION OF COLD STORAGE FACILITIES**

   Although robotics technology hasn’t fully infiltrated these spaces like it has in traditional warehousing, expect more high-tech implementation in cold storage facilities ahead. Large retailers that are already implementing automated systems will drive this trend.

REAL ESTATE IMPLICATIONS