



Primus Builders completed a new refrigerated warehouse for United States Cold Storage in seven months. (Photo courtesy of Primus Builders, Inc.)



## SUCCESS IN SEVEN

*Primus design-builds USCS warehouse despite daunting deadline.*

By Keith Loria

**A**t the beginning of 2018, United States Cold Storage (USCS) found itself with an increased demand for its warehousing and logistics services in the Dallas-Fort Worth area, which required the addition of more cold storage space quickly.

United States Cold Storage closed on the land in Denton, Texas, for a new warehouse in early February. They needed to work with a builder with the caveat that the work would be completed by September 1 – just seven months later.

The company hired Primus Builders, Inc., to design and build a 262,555-square-foot facility in Denton, Texas. The company not only had the experience in building that United States Cold Storage was looking for, they had a reputation getting things done on time.

“United States Cold Storage is a recurring client and they came to us because we’ve done

very similar buildings for them,” says Grayson Long, Project Executive for Primus Builders. “Typically this type of building takes nine to 10 months, but they knew we knew the area and the subcontractor base, so they felt we were the people who could meet their tight deadline.”

### Communication Matters

For the project to finish in this timeframe, most everything had to go right and a lot of strong communication was needed.

Long notes having clear, meaningful communication from the get-go established a sense of trust and partnership that lasted through the project. This involved regular

on-site meetings and weekly calls with United States Cold Storage to keep them up to date on the progress.

“Primus’ ability to communicate the benefits of the new facility, as well as the urgency to begin work, encouraged the City of Denton to complete the permitting process quickly and keep the schedule on track,” Long says. “Primus also communicated regularly with its in-house design team to deliver thoughtful design solutions.”

### Up for the Challenge

The warehouse was designed using Revit, Primus’ BIM (Building Information Modeling) software, which allowed the architects, structural engineers and mechanical engineers to load all of their designs into one master model. By using this, Long says the team was able to work together to resolve any clashes before work began in the field.

As with any project, there were some hiccups along the way, but Long and his team were able to quickly find solutions.

For example, it was discovered the site contained expansive soils so the Primus team excavated all the soil and then moisture conditioned it and filled it back in lifts to get to the building pad elevation.

“We had run into a similar issue on a job we did for them and we ultimately had three crews working on this, which was a challenge to the schedule to get that built so we could start the foundation,” Long says.

The concrete pour for the shrink compensating floors took place in extreme heat, which required ice and chilled water mixed into the cement to slow the hydration reaction and ensure the integrity of the finished product.

“Weather was another issue and just coordinating subs on a daily and weekly basis,” Long says. “We were working night shifts, around-the-clock shifts during critical phases of the job, coordinating some to work early in the morning with light towers – stuff we wouldn’t normally do.”

For instance, the engine room had multiple large compressors and the underground plumbing and electrical looked like spaghetti, with hundreds of conduits underneath.

“Typically, when you have time, they dig that to the substrate you would need and put trenches in for all this,” Long explains. “Our superintendent just took it down another two feet, put everything on the ground and put flowable grout (instead of concrete), which cost more money but saved us probably three weeks.”

Also, in a warehouse like this, the company usually wants the electrical overhead for future maintenance issues, but because of the schedule, Long knew he would have to go underground with a lot of that electrical. That way, electricians could get main circuits and feeds in place weeks before normal.

### By Design

Primus’ in-house BIM/VDC Manager Allen Beveridge worked closely with the team’s architects, structural engineers and mechanical engineers to maximize the efficiency of the facility’s design process.

Long explains each discipline designed their components in Revit (Primus’ Building Information Modeling software) and uploaded them to a master model. Beveridge



The plumbing and electrical in the engine room was encased in flowable grout instead of concrete to save time. (Photo courtesy of Primus Builders, Inc.)



The loading dock at the award-winning build. (Courtesy of Primus Builders, Inc.)



The conference room in the two-story office area. (Photo courtesy of Primus Builders, Inc.)

then ran the model through Navisworks (Primus' clash detection software) to identify any interferences.

"These conflicts were resolved in the design phase before construction began, saving USCS time and money," he says. "Innovation in the field came down to good old-fashioned problem solving."

Long also credits the use of the management system Last Planner for keeping things on track. This required all subcontractors meeting weekly to plan things out and ensuring there were no schedule mistakes in a six-week look-ahead schedule.

Long notes managing multiple crews was a common occurrence and it was not out of the ordinary to have 300 to 400 people working on-site at the same time. For example, two steel erection teams worked simultaneously in two different zones from 7 a.m. to 3 p.m., while those installing the insulated panels worked from 2 a.m. to noon and three refrigeration teams worked around the clock shifts, as did a trio of racking crews.

The company's on-site safety coordinator provided daily oversight, and also provided training to Primus team members and subcontractors who needed additional guidance. Long is proud to report that the project was finished with no incidents.

#### Meeting the Deadline

When the first trucks came on September 1, Primus had the warehouse substantially complete and operational, just as United States Cold Storage had contracted.

They knew from the beginning that the office space would not be finished, but they had temporary trailers on-site to get everyone up and ready.

"The finished project overall is one of our better-looking buildings from a quality standpoint and a site standpoint," Long says. "They were very happy to get in when they needed."

The final project included multiple convertible rooms with temperatures ranging from -20°F to 60°F; 25,000 racked pallet positions; two dock doors and five rail dock

doors; a locker room; a two-story office; battery charging areas and maintenance area with mezzanine.

Primus also implemented numerous sustainability features to reduce water consumption and optimize energy consumption, including LED lights, low-flush toilets and other modifications.

For Primus' big effort and success, the project was a runner up in the CEBA 2019 Built by the Best competition.

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