

LIFO (last-in/first-out), FIFO, expired date control and more.”

These programmers consolidated everything into one flexible program that can generate results in Access. Special modules programmed into the system allow the company to turn around any customized work (such as tempering, which is the safe warming of frozen food into refrigerator items) in 24 hours, without having to call on specialist programmers.

#### Finding a framework

For its redesign, Liberty also needed good equipment. In selecting this, Diduck drew heavily on his own experience and Redirack's expertise.

The racking vendor provided the site's entire storage system, building a layout designed to maximize cube while preventing bottlenecks. Its racking includes pallet-flow and pushback to complement the Pallet Runner module.

“I travelled extensively for two years looking at different types of systems and equipment operating in both temperature-controlled and ambient environments,” Diduck explains. “I knew we needed some degree of automation for reasons of productivity and labour management, but I was also aware that we needed flexibility.”

The physical specs of the building factored into the decision. Receiving is on one side, order staging and shipping on the other. The two sides are linked by a 15-strong lift truck fleet, with double-reach trucks from Crown and counterbalanced lift trucks from Linde, all electrically powered. There is also a selection of pallet trucks, including four “long johns”, which are built to handle double loads and extra-long beer pallets.

Outbound loads are on a shipping schedule, on a carrier-by-carrier basis, all based on client instructions.

“We perform a high percentage of case picks at the facility,” Diduck says. “It will easily handle 65 percent order assembly, because of the way that it has been set up and designed and the kind of equipment that it uses.”

Much of the product handled at the warehouse requires special handling. For example, in the beer section—a big part of the cooler zone—many hefty shipments of the Labatt brand must be shipped out to the US, often on a tight deadline. This demands careful planning on Liberty's part.

“It is 80 percent case-pick and is highly seasonal, and it is an area where we have opted for a basic setup, with bulk storage and some standard racking for items with sensitive packaging,” Diduck explains.

“The US deals with SKUs (stock-keeping units) that are up to four times larger than ours. As well, there can't be more than 45 days from manufacturer to distributor, so with transit times, we have to turn every three weeks. It's a very heavy product, with up to 3,400 pounds (1,550 kg) on some loads, which is hard on equipment and dock-plates.”

To help the building smoothly accommodate conditions like this, Diduck had a choice of automation options: low-level (lift trucks, single selective racking and bulk storage), medium (a high-density system that integrates some level of automation with more basic equipment) or high (full-blown automated storage/retrieval systems, black-box automated sortation and mechanized order-picking). In the end, the moderate option won out.

“We are ‘medium,’ which gives the highest level of productivity with flexibility,” he says. “We can react more quickly. Fully automated may be



This picture illustrates the depth of the storage module and how densely palletloads of product may be stored—up to 15 pallet positions deep, in fact. Storage and retrieval may be performed on both sides of the module.

faster where consistency in volumes and pick rates is assured, but it has its limitations in peaks and valleys. At our facilities, if we are slammed with 50 rush orders, we can respond with rezoning, cross-docking and other measures.”

As the thermometer drops...

The frozen section is where this level of automation really gels with innovation. In this heavyweight area, loads are supported by hot-rolled structural steel Konstant racking from Redirack, which has lever-action bolt connections that help it to hold up to 22,700 kg (50,000 pounds) per level.

“I am a big fan of structural [steel],” Diduck says. “It is much sturdier and thicker than conventional roll-formed.”

“We handle loads upward of 3,000 pounds (1,360 kg) in the freezer so we need the extra strength, plus structural withstands virtually any contact by lift trucks. We worked with Redirack to ensure that our version has specially strengthened end-frames and half-inch (12 mm) plate for end-of-aisle protection.”

The freezer space also has some pallet-flow racking. This section inclines at floor level toward the order-pickers in the picking aisle. Once a pallet has been picked clean and removed, the pallet behind automatically ‘flows’ forward to take its place. This eliminates empty pickfaces, because any vacant slot in the row is immediately visible at the rear and can be replenished from the pushback racking above.

The pushback racking is located on three levels above the pallet-flow racking and, like the pallet-flow racking, is four palletloads deep. It provides the reserve storage locations for the pallet-flow.