

Liquor Distribution Center

St. Albert, AB, Canada (2018)

PRODUCT USED:
Hard-Cem®

OWNER:

Alberta Gaming, Liquor and Cannabis Commission

ENGINEER:

BPTEC Engineering Ltd.

CONTRACTOR:

Dawson Wallace Construction Ltd.

READY-MIX SUPPLIER:

Lafarge

BACKGROUND

Back in 2018, the Alberta Gaming, Liquor and Cannabis Commission (AGLC) opened their \$142 million liquor distribution center. This facility came with around 43,664 m² (470,000 ft²) of space, which included a multi-level main floor and a two-story shipping office. All of which has enabled it to supply over 1,300 liquor stores in Alberta. With over 30,000 liquor products to manage for these stores, the distribution center receives and stores them from over 70 countries and ships them to over 320 Alberta communities.

Much like other distribution warehouses, it's an active center with constant incoming and outgoing traffic. Because of that, its concrete flooring is exposed to abrasive wear from forklift forks, pallets, pallet jacks, and foreign particles from tire traffic. This abrasive wear on the concrete surface can reduce the load-carrying capacity and result in a loss of riding surface where people and equipment cannot safely navigate worn concrete surfaces. Moreover, this wear can cause equipment tipping, tripping hazards, equipment wear and tear, and cleaning risks, which further decreases operational efficiency and increases maintenance costs.

SOLUTION

Luckily, the AGLC's construction team prepared for this situation beforehand. As a result, they had a way to make the concrete used for the liquor distribution center resistant to abrasion and erosion. This resulted in using Hard-Cem, an integral concrete hardener. This durable admixture solution doubles a concrete's wear life and provides significant abrasion and erosion protection. It's also compatible with conventional admixtures and air-entrained concrete. To add to that, it's a best-in-class hardener for high-volume, high-traffic distribution facilities. With that in mind, the construction team was confident and followed their design plan. This plan called for a 406-millimeter (16-inch) structural slab with 35 MPa (5,076 psi) concrete and Hard-Cem pours in 15 slabs of 400 m³ (14,126 ft³) each. That allowed Hard-Cem's full-depth concrete hardening to extend the service life of the concrete in high-traffic areas that are subjected to abrasion while maintaining riding surface and reducing facility repairs and downtime.

