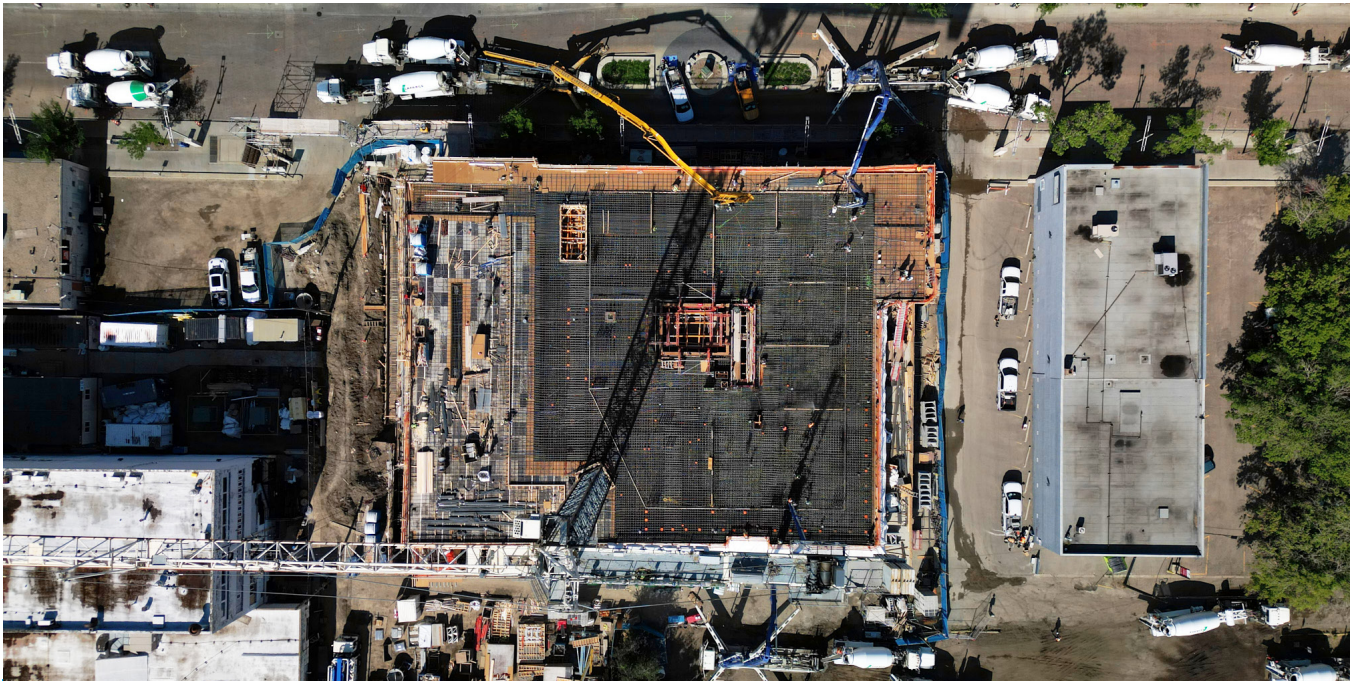


The Parks Project Phase 1

A LAFARGE DIGITAL SOLUTIONS CASE STUDY



SUMMARY

Location: Edmonton, AB
Customer: Ledcor
Project Timeline: April, 2022 - present

Materials Supplied:
 ECOPact - 3,700 m³,
 Chronolia and Agilia -
 21,300m³

Technology Leveraged:
 Lafarge Digital Concrete
 Solutions (LDCS), EXACT's
 Match-Cure

THE PROJECT

The Parks project, a high-rise residential/mixed-use development, features two high-rise towers and is being constructed in two phases. Phase 1 includes the construction of the first tower, which will have 37 floors and 5 levels of underground parkade space for 363 residential units, accommodating around 1,300 residents. Hence, Ledcor sought a building materials supplier capable of providing ready-mix concrete with the required strength, durability, and flexibility while maintaining CO₂ emissions lower than the industry average.

THE CHALLENGE

Lafarge was selected to supply its low-carbon concrete, ECOPact, for the transfer slab and raft slab, and Chronolia and Agilia for vertical structures like interior columns, architecturally exposed interior columns, and interior walls for 37 storeys, and a crane base. Meeting these core requirements was essential, but the challenge was for Lafarge to demonstrate its superior suitability for the project by exceeding expectations in cost efficiency and timeline acceleration.

THE SOLUTION

Lafarge's approach leveraged advanced digital solutions to optimize cost and time, showcasing commitment to sustainability and innovation.

Digitization for Cost and Time Optimization

Lafarge's team implemented a cost-saving plan and streamlined logistics through Lafarge Digital Concrete Solutions (LDCS). The team utilized SMARTherm for heat of hydration modelling, SMARTCast sensors for mass concrete temperature monitoring and EXACT's Match-Cure Box technologies to track real-time strengths and temperature curves on various concrete elements.

This technology enabled real-time tracking of when the mix reached the required strength of 40MPa, eliminating the need to wait until the end of the process to conduct testing.

Digital Delivery Solution

Lafarge also leveraged ConcreteDirect, its cloud-based solution for delivery optimization, to enhance accuracy and streamline pour schedules. When combined with the project team's expertise, this innovative application ensured precise timing for transport and pours, leading to optimal project results.

THE RESULT

Leveraging Lafarge's digital solutions, including SMARTherm, SMARTCast, and ConcreteDirect, enabled significant advancements in monitoring and optimizing concrete performance. Integrating these technologies and EXACT's Match-Cure allowed the team to complete the transfer slab two weeks ahead of schedule, achieving higher accuracy and consistency in real-time monitoring and saving \$600K.

Additionally, using Lafarge's ECOPact concrete contributed to a 252,600 kg reduction in project emissions (147,000 kg CO₂ eq. for raft slabs and 105,600 kg CO₂ eq. for transfer slabs) during the first phase, underscoring Lafarge's commitment to sustainability, efficiency, and innovation.



Learn more at:
www.lafarge.ca