

The Spirit of “The Bow”

Inland Concrete Limited Makes History in Calgary, Alberta



An extraordinary development in downtown Calgary made history in May, 2008, and Inland Concrete Limited was an integral part of the teamwork, preparation and focus that led to this record-breaking achievement.

The Bow Tower is Canada’s first “trussed-tube” skyscraper and will be the tallest single-tenant office tower in Western Canada. As the first major mixed-use project east of Centre Street in downtown Calgary, it sets the pace of progress for this up-and-coming area.

Not only was this the largest pour in Canada, but it also ranks third in the World – trailing only the Venetian hotel in Las Vegas and the Al Attar Sky Spiral Project in Dubai.

Named for the Bow River that flows through downtown Calgary, Bow Towers will be completed in 2011 and serve as the new, environmentally sustainable headquarters for EnCana, providing space for over 3,000 employees.

The unique crescent-shape design absorbs the sun’s power and provides a “tempered buffer zone” which heats the tower. The structure will stand 775 feet high with 59 stories, 22 elevators, three sky gardens and a six-floor parking garage. It will offer 200,000 square feet of social space for Calgary including a public plaza for shops and leisure facilities.

To accomplish something of this magnitude, every detail had to be painstakingly and carefully planned out. Everything had to be taken into consideration, from weather to the consistency of the ground under the foundation. Inland not only ensured the supply and delivery of the concrete, but also provided the quality control services. This project required a great deal of project management and attention paid to scheduling and timing.

Working for 36 hours straight, Inland broke previous records by successfully completing the country’s biggest continuous pour. Over 13,000m³ of concrete was unloaded into The Bow Tower site, requiring the coordination of four batch plants and over 90 trucks. The raft slab is 4,600m² and runs about three meters deep. This is roughly two to three times larger than a typical slab for a shorter skyscraper. The larger slab was necessary to spread the load across a wider area, ensure the foundation settled properly and secure the structure against uplift from wind load. The Bow’s unique shape and the way it reacts to the wind conditions were determining factors in the decision for a larger structural base.

The workers faced a number of challenges such as the concrete’s high heat of hydration, having to avoid cold joints and ensuring stable bonding. Heavy traffic while delivering raw materials to the plants and the finished product to the site was a major problem.

Harold Boldt, Marketing and Sales Manager for Inland, noted that one of Inland’s key roles was handling sophisticated scheduling and logistics for the large fleet of up to 95 concrete mixer trucks used during the almost 40-hour pour.

“We used Inland trucks and drivers from Calgary and brought in additional company drivers from around the province, including Grande Prairie, Fort McMurray, Medicine Hat, Red Deer and Edmonton. This was quite a challenge, but our advance groundwork paid off and helped to ensure that the rate of pour stayed on schedule.”

The pour went off virtually without a hitch even when two of the eleven required concrete pumps broke down. Thanks to excellent risk-management by Dynamic Concrete Pumping there were pumps on standby as quick replacements.

“There was great morale and a special spirit to this project,” stated Jay Likely, Area Manager – Calgary for Inland Concrete Ltd. “We not only

worked jointly with Ledcor, but some of the work involved working alongside some of our competitors. The level of cooperation amongst all players was considerable.”

One of those competitors included Burnco, who supplied trucks as well as one of the four plants required to produce the concrete. “If companies aren’t willing to work together to make projects like this possible, then the whole industry suffers,” said Boldt.

In the end, the people make achievements like this possible. There were over 150 Inland employees involved with the project and the sense of anticipation was clear.

“Everybody came ready to work,” said Boldt. “They knew there would be a real feeling of accomplishment when the job was finished. Anytime you face a challenge, people rise to it. Inland employees did just that.”

A history of innovative solutions helped Inland win the bid for The Bow contract. Valuable experience with large-scale raft slabs includes the recently poured 8,000m³ slab for the Calgary Courts Centre and the 9,000m³ slab for the Bankers Hall complex in the late 1980s.

The focus has now turned to completing the project. As the supplier of concrete for the entire development, Inland has created a unique concrete mixture for the structure’s 60-foot steel columns – to be filled by pumping from the bottom up. Said Likely, “The self-leveling, 85 MPA blend of high-flow concrete was designed to run like water, maintaining its consistency while the column fills, and then hardening like steel. It was a big risk for Inland and an even bigger accomplishment.”

This record-breaking build was the result of the coordination of hundreds of workers who came together as a team to make this historic project a success.

- Owner: H&R REIT
- Development Manager: Matthews Development (Alberta) Inc.
- Construction Manager: Ledcor Construction Limited
- Architect: Foster + Partners.
- Working architects: Zeidler Partnership
- Structural: Holcrow Yolles
- Concrete Supply: Lehigh Inland Concrete Limited
- Concrete Pumping and Placing: Dynamic Concrete Pumping Inc.
- Formwork: Newway Concrete Forming Limited
- Reinforcing Steel: Harris Steel Services Ltd.