

MID TO HIGH RISE RESIDENTIAL Cast-In-Place SUSTAINABLE CONCRETE CONSTRUCTION

RIVER CITY PHASE 3



PROJECT CREDITS

OWNER

Urban Capital

ARCHITECT OF RECORD

Saucier+Perrotte Architectes / ZAS Architects

ENGINEER OF RECORD

RJC Engineers

GENERAL CONTRACTOR

Bluescape Construction Management

FORMING CONTRACTOR

Avenue Building Corporation

MATERIAL SUPPLIER

St Marys CBM

ADDITIONAL PARTICIPANTS

- Aluma Systems Inc.
- BASF Canada Inc.
- Carpenters Union Local 27
- Ironworkers Local 721
- IUOE Local 793
- LiUNA Local 183

PROJECT FACTS

LOCATION

Toronto, Ontario

PROJECT FACTS

1 x 29 Storey Tower & 1 x Seven Storey Podium Tower

Foot Plate 3000m²

Start Date October/2015

Completion Date October/2018

Contract Value \$68,000,000

Total Concrete 17,700m³





Project Summary

River City Phase 3 is the third phase of a 1200-unit residential development by Urban Capital in the west Donlands neighborhood.

The third phase consists of a 29 storey, 333-unit tower surrounded by three remarkable public spaces: Corktown Common, Harris Square and Underpass Park.

It boasts 149 residential vehicle parking spaces, one electric charging station, 18 visitor spots and 4-car share locations.

Sustainability

The project was targeted LEED Gold – it features:

- Energy efficient lighting
- Energy Star rated appliances
- Dual flush toilets & water efficient faucets

With efficiency in mind, occupancy sensors were placed in all corridors and common areas. Water efficient faucets & shower heads were installed with the aim of reducing water usage by 45%.

The 7th floor is an outdoor amenity space with a lap pool, a sloped grassy lawn and oversized planters. At least 50% of all roofs are ventilated green roofs. The building contains a rainwater storage system used for onsite irrigation which helps reduce run off water into the cities storm water systems.

Specific Structural Engineering Challenges Posed by the Design:

- Concrete placement and forming procedures were difficult in constructing the loft style condominium units

- Architecturally exposed concrete was used within all ceilings and columns in each unit and common areas
- The building is constructed on a series of caissons. There is no basement or underground parking in the building, and the ground floor has a vapour barrier. The concrete mix used on the ground floor slab was a 35MPa C-1 .40 W/C and combined with reinforcing steel is designed to eliminate cracking to the slab on grade
- Residential parking extends upward to the 6th floor and the residential units surround the parking area

Architectural Merit

Designed by the Architectural team of Saucier+Perrotte, the River City team had just completed the first two phases of the development in the west Donlands.

The third phase of the 300-million-dollar project by developer Urban Capital includes a 29-storey 333 unit tower and a 7-storey podium tower.

Merging with the Matte Black Design of Phase 1, and the cantilevered white boxes of Phase 2, River City Phase 3's 29-storeys of stacked cubes is a unique condominium design.

Many of the condo units in River City 3 are a series of separately stacked cubes randomly jutting in and out of the tower. It has a 2-storey designed common room, games room, theatre area & party room. It also showcases lofts and penthouses with 9'2" ceilings.

It features a 2,000 sq/ft fitness facility, an outdoor lap pool, outdoor dining area/ kitchen prep station, inhouse pet spa and guest suite.

Achieving LEED Gold brings a high-performance energy efficient building with many sustainable features for occupant comfort.

Material Development, Innovation & Specialty Concrete Construction

The project involved construction of architecturally exposed concrete units on each floor level. Many of the units featured unique shapes and high level of surface finish which required a superior concrete mix and specialized forming techniques to achieve the owner's unique vision.

Included in the many challenges was the pouring of accelerated concrete throughout the forming stage and on most structural slabs while achieving the desired finish. Most notably throughout the winter months, the efforts coordinated with the team met with excellent results.

The project was delivered using high-performance concrete mixes with a quality ready mix supplier. St. Mary's/CBM First Up™ and GetSet™ accelerated mixes were selected to assist with the unique forming and loading challenges while continuing to meet with the schedule during winter months.

With concrete using FirstUp™, forms can be removed sooner, and concrete can bear construction loads earlier than with traditional concrete. It is designed to accelerate concrete strength gain and various formulations make it easier to customize the concrete mix to the construction schedule.

Concrete using GetSet™ allows for different formulations in ready mix concrete to achieve quicker and more predictable set times in cold winter months. This was an asset within the project as it required an architectural exposed finish in specific areas. With GetSet™ they could achieve excellent surface appearance while speeding up the set time by up to 35%.

Included in this project was a concrete which incorporated RustGuard™, a corrosion inhibitor. RustGuard™ chemically inhibits the corrosive action of chlorides in reinforcing steel and pre-stressed strands in concrete. This product greatly increases the durability and service life within the structure area.

