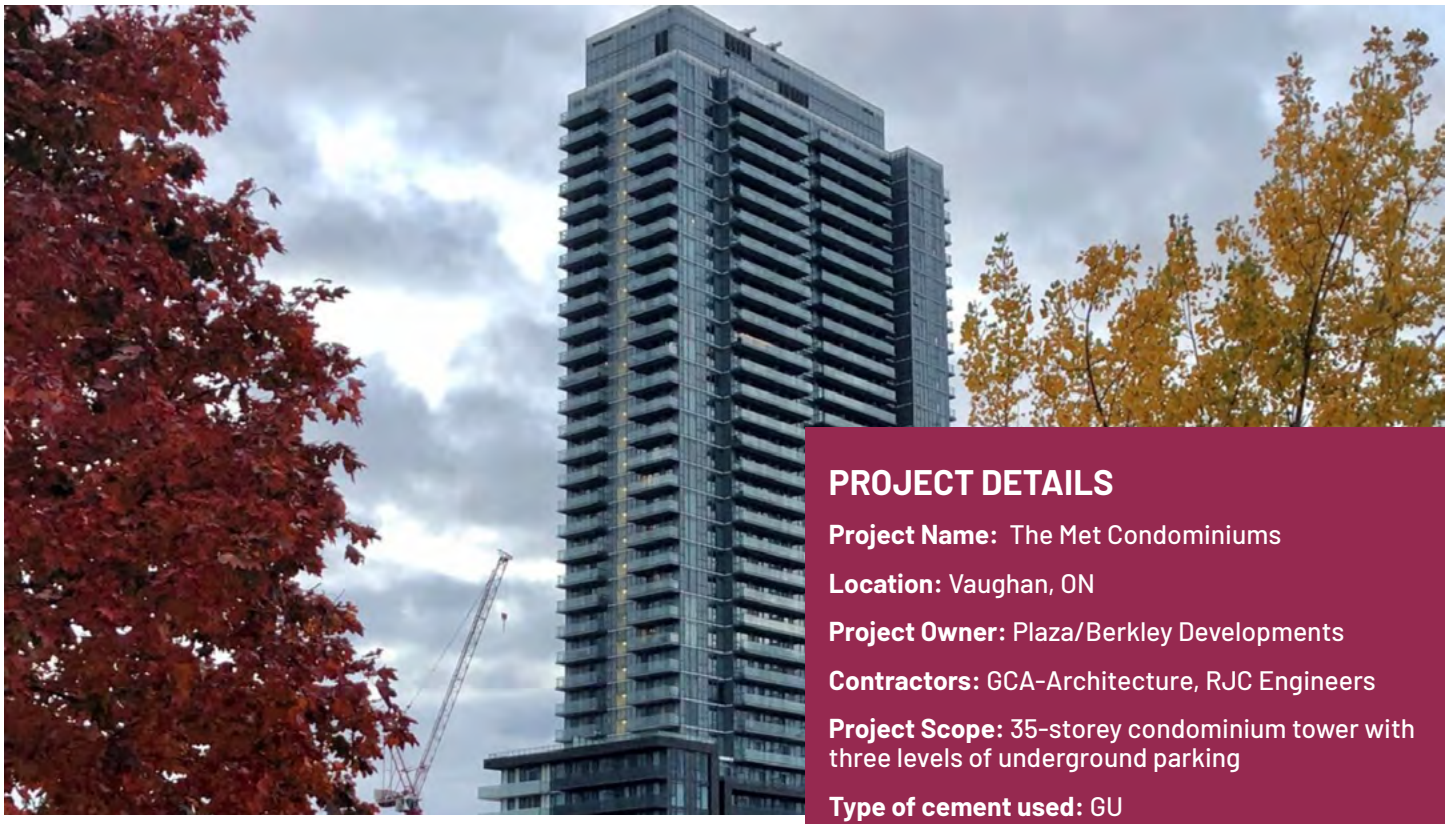
Cement Association of Canada

LOWER CARBON CONCRETE CASE STUDY: THE MET CONDOMINIUMS



PROJECT DETAILS

Project Name: The Met Condominiums

Location: Vaughan, ON

Project Owner: Plaza/Berkley Developments

Contractors: GCA-Architecture, RJC Engineers

Project Scope: 35-storey condominium tower with three levels of underground parking

Type of cement used: GU

SCMs: Slag, Silica fume

Exposure Class: F-1, F-2, C-1, C-4

Concrete Design Strength: Between 15-60 MPa (including some 75% at 24 or 48 hours)

Amount Used: 30,914 m^3

"The Met" is a 35-storey condominium tower in Vaughan developed by Plaza and Berkley Developments, featuring three levels of underground parking. This project demonstrates the importance of balancing carbon reduction goals with the project schedule.

As part of the mix design submittal and review process, approximately 20 mix designs were submitted by the ready mixed producer to the contractor over the course of the project. However, once the project schedule and cold weather concreting requirements were fully implemented by the contractor, approximately 140 different mix design variations were used.

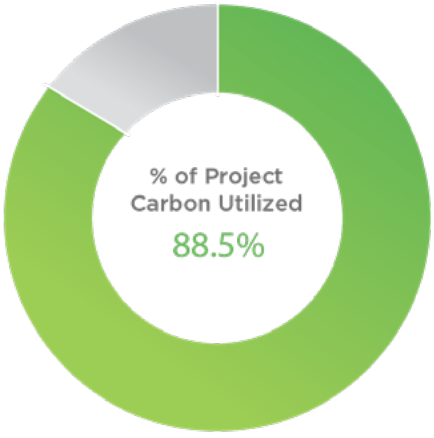
This increase in specialized mix designs had a significant impact on the overall embodied carbon of the concrete. It should be noted that the increase in the number of mix design numbers is typical for a project such as this, and it is attributable to the flexibility that concrete offers to accommodate the schedule, the structural requirements and the ease of placement under a variety of conditions.

Photos: Plaza/Berkley, Edward Skira, and DarksideDenizen.

Other project details:

- This project began in 2016, and carbon reduction was not the primary focus of designers and specifiers, meaning the mix designs were not optimized to ensure that low carbon concrete was achieved.
- The cement type for all concrete was either Type GU or Type GUbSF since Type GUL was not yet readily available.

Concrete Carbon Project Summary (Type GU)



Summary

Total Concrete Carbon Project Budget
10,661.9 tonnes CO_2

Total Carbon Project Impact
9,440.6 tonnes CO_2

Total Carbon Savings
1,221.3 tonnes CO_2

% GHG Reduction
11.5%

Source: Concrete Carbon: A Guideline for Specifying Low Carbon Ready Mixed Concrete in Canada, p.62