Cement Association of Canada

LOWER CARBON CONCRETE CASE STUDY: HENRY HUDSON ELEMENTARY SCHOOL

PROJECT DETAILS

Project Name: Henry Hudson Elementary School

Location: Vancouver, BC

Project Owner: Vancouver School Board

Contractors: Heatherbrae Builders

Project Scope: Three-storey school building

Type of concrete used: EvoBuild™ low carbon concrete

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

Concrete Design Strength: 25-35 MPa

Amount Used: 2,700 m^3

The Henry Hudson Elementary School project consists of a three-storey building, with the first two levels dedicated to school use and the third level designated as a "neighbourhood learning centre." This innovative space will serve as a major childcare facility, accommodating 400 students and providing 69 childcare spaces to meet the needs of the local community.

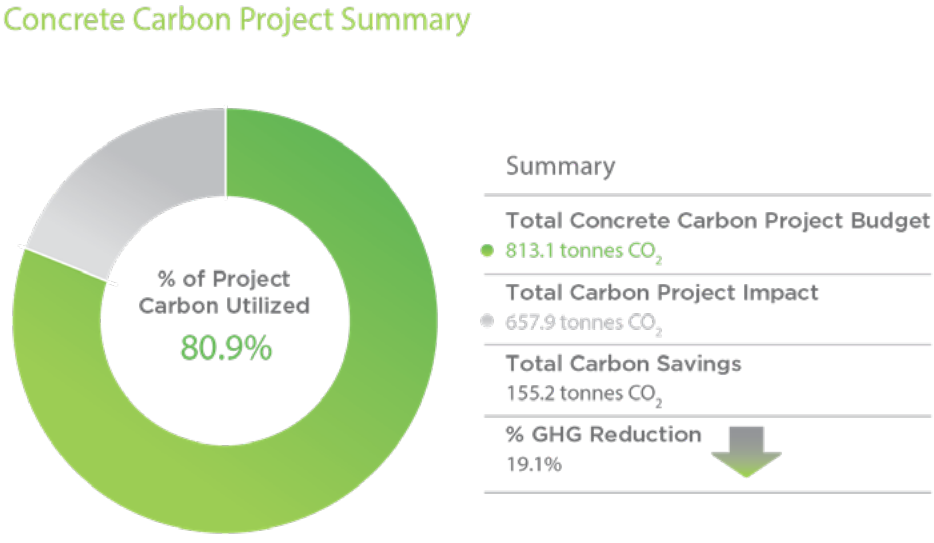
The School Board in Vancouver, British Columbia, made a strategic decision to transition from a prescriptive specification to a performance-based approach for the Henry Hudson Elementary School project. This shift aims to achieve a seismically- upgraded and authentically sustainable solution for their new three-storey building.

In collaboration with Heidelberg Materials representatives and contractor Heatherbrae Builders, the Vancouver Project Office reviewed and approved the use of approximately 2,700 m3 of EvoBuild™ low carbon concrete. This decision aligns with the City of Vancouver's specifications, particularly focusing on Global Warming Potential (GWP) values for each concrete element, ensuring sustainability and performance goals are met.

Photos: hcma architecture + design | WHM Structural Engineers

Despite using a higher volume of higher-specified strength concrete than initially planned, the overall Concrete Carbon Project Budget (CCPB) was successfully reduced by 19%. Importantly, this reduction was achieved without major alterations to the project schedule or scope, highlighting the feasibility and benefits of using low carbon concrete in construction projects and the importance of:

- The use of CSA Performance-Based specifications which allowed the ready-mixed producer to effectively use SCMs, admixtures, GUL, and other levers to lower carbon in their own innovative approach, and
- Collaborative dialogue between the project team and the ready-mixed concrete supplier before and during the project.



Source: Concrete Carbon: A Guideline for Specifying Low Carbon Ready Mixed Concrete in Canada, p.84