

Hawthorne Village Public School

Modular Classroom Addition Milton, Ontario, Canada



The project consists of a new self contained 1020 sq m (11,000 sq ft) addition consisting of 10 classroom plus toilets and a teacher's room that is directly connected to the existing school. All of the structural components above the foundations were precast ahead of time and delivered to the site for fast installation:



Exterior walls were insulated sandwich wall panels with a two tone sandblasted exterior finish. Ledges were provided on the back of the load bearing panels to support the hollow core roof slabs.

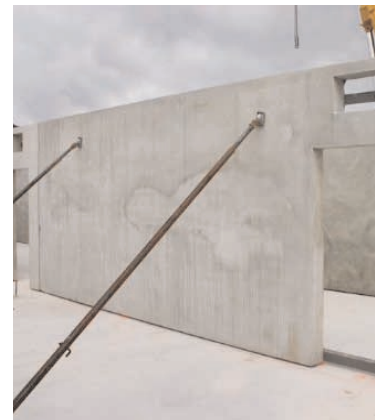
Two window openings were provided for each classroom. Windows can be opened in good weather.

Interior load bearing walls had ducts and classroom door openings cast in. These panels support the hollow core roof slabs spanning across the classrooms and corridors.

Hollow core roof slabs are 254 mm deep, 1220 mm wide, with 5 interior cores, and span 9.8 m across the classrooms and 3.68 m across the corridor.

Energy Efficient

The heating and cooling of the addition is provided using the Termodeck system (www.termodeck.ca). In winter, heated outside air from rooftop gas fired furnaces is circulated through the three centre hollow core cores in each classroom. Heat is stored in the roof slabs and released as needed.





This system is highly efficient requiring half the energy used in conventional construction. All supply air is fresh from the outside with no recirculation. Return air is passed through a heat recovery unit before being exhausted to the outside.

Modular precast concrete school additions can be designed to be demounted and reinstalled at another location by school boards if necessary to accommodate changing demand for classroom spaces.

Through the use of hollow core slabs, TermoDeck constructs buildings that consume significantly less energy. Based on the interactive



relationship between the outdoor environment and the energy being stored internally through hollow core slabs, surplus energy is stored to heat and cool a building, naturally. This method provides the added benefits of improved indoor air quality, ventilation, and comfort by constantly importing fresh, clean air into the building, and exporting old, stale air.

The effects of using the heat storage capacity of hollow core slabs varies during spring, summer, fall and winter conditions. Surplus heat, generated from body heat, lighting, computers, sun radiation, etc, can be stored in hollow core slabs increasing their temperature by 2-3°C during the day without affecting the comfort of the occupants. In the summer this excess heat is dissipated from the slabs by lowering the slab temperature with cool night air. During the winter, heat is stored in the hollow core slabs overnight and is used to maintain comfortable internal conditions for the occupants the next day.

CREDITS:

Owner: Halton District School Board

Architect: Svedas Koyanagi Architects Inc.

Structural Engineer: Philips Planning & Engineering Ltd.

Mechanical Engineer: MCW Consultants Ltd.

Precast Contractor

Manufacturer: Pre-Con Inc.

Hollow Core: Coreslab Structures

