



EASTERN ONTARIO CHRISTIAN SENIOR HOUSING CO-OP OTTAWA, ONTARIO

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ArcelorMittal Dofasco Steel Design, Spring
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DESIGN AND CONSTRUCTION TEAM

ARCHITECT:
Christopher Simmonds Architect
Inc.

STRUCTURAL ENGINEER:
Cleland Jardine Engineering Ltd.

GENERAL CONTRACTOR:
Warlyn Construction Ltd.

STEEL STUD CONTRACTOR:
Durabuilt Construction Inc.

STEEL STRUCTURE SUPPLIER:
Morin Bros. Building Supplies Inc.

STEEL STUD SUPPLIERS:
Bailey Metal Products Limited
Steelform Building Products Inc.

STEEL FLOOR AND ROOF DECK:
Canam Inc.

SHEAR POST SYSTEM:
The Steel Network

PHOTOGRAPHER:
Gerry and Hubert Morin



Eastern Ontario Christian Senior Housing Co-Op: All Cold-Formed Steel Frame Construction



The five-storey, 4,924 m² (53,000 sq. ft.) housing co-op consists of an all steel frame, steel cold formed "C" section floor joists and steel studs for the walls.

The Eastern Ontario Christian Senior Housing Co-Op on Viewmount Drive in Ottawa is a good showcase for the use of steel. That's the opinion of the project's Structural Engineer, Colin Davies, of Cleland Jardine Engineering Ltd., who noted that steel was the obvious solution to the building's design and construction challenges.

"Construction like this (balloon framing and TSN's shear post system) hasn't been used in Ottawa," says Colin, explaining that the City has stringent design codes and recently introduced strict, seismic residential building standards. Ottawa sits on a known fault line and is ranked third for earthquake risk among Canadian urban centres. "The heavier the building, the higher the risk for earthquakes," says Colin, noting that light-weight steel has an advantage over concrete material because it helps reduce both the weight of the building and thus the seismic loads.

The five-storey, 4,924m² (53,000 sq. ft.) housing Co-Op consists of an all steel frame, steel cold formed "C" section floor joists for the floors and light steel framing for the walls. Bailey Metal Products Limited supplied studs for the first three floors and Steelform Building Products Inc. for the top two floors and the roof.

Morin Bros. Building Supplies Inc. supplied the balloon framing for the steel structure. "It is a proven system with back-up testing for sound and fire rating," emphasizes Gerry Morin. "It is a light weight system that is easy to frame with no welding. The floor system weighs less than 9.07kg (20 lbs.) per square foot and provides an STC of 58+. We were able to reduce the

weight of the structure by a minimum of 771 metric tons (1,700,000 lbs.) which saved a lot of money on the foundation work due to the soil conditions."

The Steel Network supplied the shear post system for lateral loads. Explaining the advantages of this system, Gerry says, "The product is engineered to work in steel stud structures and is easy to install, supports the fire rating and lowers the cost overall for installation. It also helps to maintain the STC rating of walls because there is no double or triple stud posts. The high strength posts can be roll formed to 10 gauge. This system was important to the structural engineer in the quest to meet severe seismic code requirements and also save 45,359kg (100,000 lbs.) of steel."

Colin Davies agrees. "The skeleton is very efficient and the use of steel allows us to put the load bearing walls in the right places. Another positive factor is that a large percentage of the steel is recyclable so, at the end of the day, it saves material. Steel was an economical choice for a building of this nature. This building shows what can be done with the use of steel and it's something we expect to see more of in the future."

MATERIALS USE FOR THE FLOORS AND THE ROOF

ROOF:
 46,000 ft.² floor deck Canam P3012
 16,000 ft.² roof deck Canam P3615
 Floor and roof joist - both Bailey and Steelform
 13000 LF 12" x 2" X 54mils
 28000 LF 12" x 2" x 68mils
 7000 ft.² 9 1/4" x 1 3/4" x 54mils

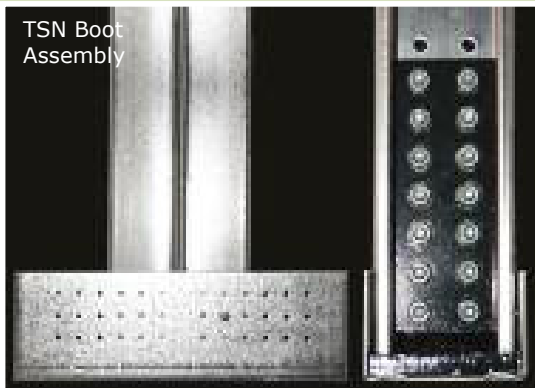
WALLS:
 52,000 ft.² of studs of various sizes
 362S16248mils, 362S16254mils
 362S16268mils, 400S20068mils
 600S16243mils, 600S16254mils
 600S16268mils, 600S20068mils
 600S25068mils



Balloon framing is a proven system with back-up testing for sound and fire rating. Also, it is a light weight systems that is easy to frame with no welding.

This system was important to the structural engineer in the quest to meet severe seismic code requirements and also save 45,359 kg (100,000 lbs.) of steel.





The shear post system is engineered to work in steel stud structures and is easy to install, supports the fire rating and lowers the cost overall for installation. It also helps maintain the the STC rating of walls because there are no double or triple stud posts.



Aligning shear post no. 2 connectors.



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Typical floor connection to demising wall. The floor system weighs less than 9.07kg (20 lbs. sq. ft.) and provides an STC of 58+.



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