



## Cold formed steel (CFS) offers many benefits and savings



The design objectives for Granite Ridge Retirement Residence in Gravenhurst, Ontario was to "provide high level care for seniors who require assistance and a stately, attractive, functional building for the residents," says Bob Dyck, President, Robert J Dyck Architect & Engineer Inc. To meet the goals, steel - with its many benefits: cost effective, design flexibility, non-combustible and speed of erection - was the obvious choice for the project.

Granite Ridge Retirement Residence, consisting of 100 retirement home units on four floors, was completed in September 2009. Steel was used extensively in the 6,455m<sup>2</sup> (69,480 sq. ft.) building. Light steel framing was used for non-load bearing interior walls as a requirement for non-combustible institutional construction. In addition, cold formed steel (CFS) was used for roof trusses.

Robert Dyck, who has worked with various products across numerous builds, continues to assert his appeal for the use of steel framing. "Light steel framing is cost effective, produces a straight wall and provides excellent sound ratings. For this project, it provided flexibility and it met our design needs."

CFS was used extensively throughout the project for many reasons. "It was chosen because it's a non-combustible material be used to meet institutional standards, i.e. if evacuation of residents became an issue," explains Alex McGillivray, Sales and Marketing Coordinator with VanderWal Homes & Commercial Group, who installed the roof.

CFS contributed to the aesthetic value of the building as well. It allowed engineers to design a pitched roof keeping it uniform to the surrounding residential community and retaining the calming familiarity associated with residential living. "VanderWal is one of only a few companies to do pitched roofs using non-combustible material," emphasizes McGillivray.

There were 8,230m (27,000') of pre-engineered, pre-fabricated CFS trusses, with the longest spanning 16.76m (55') outside-wall-to-outside-wall. CFS sections in a variety of thicknesses were used on the Granite Ridge facility with trusses ranging from the lightest at .912mm (.036"), as well as, 1.22mm, 1.5mm, 1.91mm and the heavier 2.74mm (.048", .060", .075" and .108"). The building roof diaphragm is covered with .76mm (.0299") thick and 38mm (1.5") deep Galvanneal steel deck. The roof trusses were assembled into sections at grade level; the decking applied, and then hoisted into final position using a crane. This method of installation decreased the overall build time, due to the prefabrication process of CFS and grade level on-site assembly.

As McGillivray summarizes, "Overall, cold-formed steel makes a lot of sense to the owner in this application, due to its non-combustibility, residential aesthetics, savings on insurance, reduction in site time - because of the prefabrication and fast install." In addition, CFS is low maintenance as it reduces, if not eliminates, the chance of building movement, there are no nail pops and it is the highest strength-to-weight ratio of any building material - with no shrinkage, no warping and no twisting or cracking. Over the course of time CFS yields the greatest return on investment due to low maintenance and upkeep and boasts a significant savings on insurance premiums.

### GRANITE RIDGE RETIREMENT RESIDENCE GRAVENHURST, ONTARIO

(Reprinted with permission from  
ArcelorMittal Dofasco Steel Design, 2011)

#### DESIGN AND CONSTRUCTION TEAM

ARCHITECT:  
Robert J Dyck Architect &  
Engineer Inc.

GENERAL CONTRACTOR:  
W.S. Morgan Construction

STRUCTURAL CONSULTANTS:  
Stephenson Engineering

DRYWALL CONTRACTOR:  
Mose Drywall

LIGHT STEEL FRAMING SUPPLIER:  
Bailey Metal Products

ROOF TRUSSES AND DECK  
INSTALLER:  
VanderWal Homes and  
Commercial Group

DECK SUPPLIER:  
Steelform Building Products

ROOF TRUSS SUPPLIER:  
MiTek Canada Inc.



"Light steel framing is cost effective, produces a straight wall and provides excellent sound ratings. For this project, it provided flexibility and met our design needs."

- Robert Dyck, President, Robert J Dyck Architect & Engineer Inc.



Canadian Sheet Steel  
Building Institute  
652 Bishop St. N., Unit 2A  
Cambridge, ON N3H 4V6  
Tel: (519) 650-1285  
Fax (519) 650-8081  
www.cssbi.ca