



## RAIFFEISEN CO-OP HOUSING

SUDBURY, ONTARIO

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ArcelorMittal Dofasco Steel Design, 2010)

### DESIGN AND CONSTRUCTION TEAM

ARCHITECT:  
Wicklander Architects Inc.

PREASSEMBLED WALL SYSTEM  
SUPPLIER:  
Magest Building Systems Limited

PROJECT MANAGER:  
SalDan General Contractors Inc.

STRUCTURAL ENGINEER:  
Finelli Engineering Inc.

LIGHT STEEL FRAMING SUPPLIER:  
Steelform Building Products

FINISHED PHOTOGRAPHY:  
Greg Taylor Photography

## Steel the economical choice for Co-op Housing project



Recognizing that steel is both economical and versatile, Project Manager SalDan General Contractors Inc., of Sault Ste. Marie, decided to use light gauge steel as a complete panelized building system for the framing and walls for the Raiffeisen Co-Op Housing project. SalDan contracted Magest Building Systems Limited of Stratford, Ontario, a manufacturer of load bearing cold formed steel framing systems, to design, engineer and fabricate the 7,019m<sup>2</sup> (75,560 sq. ft.) facility.

The challenge was to design a building that could be built in a short period of time to keep financing costs to a minimum and meet the owner's requirements for the number of units and accessibility. The use of MBSL's lightweight, structural, steel-framing system met the criteria on all accounts. As it turned out, construction started in May, 2009 and the 47 one-bedroom and 33 two-bedroom units were ready for occupancy in November.

Finelli Engineering Inc. of Burlington, Ontario was the Structural Engineer on the project. "The structure consists of pre-assembled cold formed sections (CFS) load bearing wall panels with pre-cast concrete floors and roof", explains Dan Finelli, reiterating that speed of construction and cost implications were the benefits for using steel for the project. Gary Martin, President, Magest Building Systems, agrees. "Initially, this project was to be constructed in winter conditions. CFS was chosen as an alternate to masonry materials because panelized steel is an all weather product, ideal for winter construction. It is fast to erect so construction schedules can effectively be met."

Steve Wicklander, Architect and Engineer, points out, "The pre-assembled steel wall system allowed us to have the building shell erected in

about one week per floor, as opposed to about three weeks per floor with alternate methods - at about the same cost."

According to Gary Martin, "That meant the drywall was ready sooner, allowing the mechanical and electrical trades access as we continued to build upwards. The Magest building system offers major advantages of complete adaptability and a high strength-to-weight ratio - all at cost-effective prices. A 'Green' building product, it is 100 percent recyclable."

The floor system - pre-cast concrete by Coreslab - was also chosen for its speed of installation, fire ratings and minimal sound transfer between floors. "The fact that we were able to successfully marry the pre-cast system with our cold formed steel wall system is a result of the excellent coordination and cooperation between Magest and Coreslab," emphasized Gary Martin.

**"The pre-assembled steel wall system allowed us to have the building shell erected in about one week per floor, as opposed to about three weeks per floor with alternative methods - at about the same cost."**

Steve Wicklander, Architect and Engineer

**HIGHLIGHTS:**

Light steel framing (LSF) was used on the project, either as single members or doubled. The LSF sizes are 152.4mm and 203.2mm at 406.4mm o.c. (6" and 8" at 16" o.c.)

**Pre-assembled wall assembly linear sizes by floor:**

- 1st floor - 340m (1,113')
- 2nd floor - 337m (1,107')
- 3rd floor - 332m (1,089')
- 4th floor - 311m (1,019')
- 5th floor - 305m (1,001')
- 6th floor - 300m (981')

- Fire rating for floors: 1 hour
- Fire rating for walls: 1 hour
- Acoustic rating for floors: STC 50
- Acoustic rating for walls: STC 55
- Snow Load: 50 pounds/sq. ft.
- Wind Load: q 1/50 pounds/sq. ft.
- Seismic Zone: N/A
- Floor Span: 8.2m (27')
- Total Floor Depth: 203mm (8")



All three levels of government provided funding for the six-storey apartment complex overlooking the downtown centre of the City of Greater Sudbury and everyone associated with the project were cognizant of keeping costs in line.

TOP: JUNE - The lateral forces are resisted by cross-braced CFS wall panel assemblies. The 1st floor exterior wall assemblies consist of double 154.4mm (6") light steel framing members, while the interior walls are double 203.2mm (8") LSF members.

BOTTOM: AUGUST - On the first and second floor levels, a combination of 154.4mm (6") and 203.2mm (8") LSF sections were used in the wall assemblies for the exterior and interior walls. The third to sixth level utilized 154.4mm (6") single sections for the exterior walls and 203.2mm (8") sections on the interior walls.



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