



STEEL FRAMING INDUSTRY ASSOCIATION



CASE STUDY

COLD-FORM CASHFLOW STORY

255 COLBORNE STREET
BRANTFORD, ONTARIO

Steel Framing Industry Association
513 W. Broad Street Suite 210
Falls Church, VA 22046-3257
P 703.538.1613
F 703.538.1733
CFSteel.org

OVERVIEW

PROJECT

Use

Mixed use, top 4 floors apartments,
1st floor commercial

Size

5 stories, 41,000 sq.ft., 40 units

Completion Date

2011

Construction Cost

\$15 million

PEOPLE

Owner

GK York Management Services Inc.,
Brantford, ON

Architect

Cianfrone Architect,
Hamilton, ON

Structural Engineer

BFP Engineering Solutions,
Mississauga, ON

CF Steel Engineer and Fabricator

Magest Building Systems Ltd.,
Stratford, ON

STEEL

33-68 mils

Pre-fabricated cold-formed steel
load and non-load bearing wall
panels, roof trusses and parapets

200,000 tons

Cold-formed steel
cut weeks off the
construction schedule
at 255 Colborne Street,
Brantford, Ontario.



Cold-Formed Steel Helps Owner Net an Extra \$100,000 from Early Rent Collections

Why build an apartment building with cold-formed steel framing?

The answer initially for developer Gabriel Kirchberger was that the steel system, being non-combustible, could lower his insurance premiums. As it turned out, cold-formed steel framing did much more. Because the framing system installed quickly, Kirchberger was able to take occupancy of his building and begin its rent cycle sooner. He netted, he says, a total of \$100,000 in earlier rent collections.

“The system cut our construction timeline by five to eight weeks,” says Gabriel Kirchberger, President, GK York Management Services Inc., Brantford, Ontario. “I got renters in place much faster than I ever have before.”

COLD-FORMED STEEL SAVED SIX WEEKS

In 2010, Magest Building Systems Ltd., Stratford, Ontario, was awarded the subcontract to design, engineer and fabricate the load-bearing cold-formed steel framing for a five-story, GK York apartment building in Brantford.

Magest had worked with Kirchberger before. The company knew GK York viewed itself as a long-term player in the community and wanted a quality structure.

“My vision is to help neighbors achieve their business and personal dreams,” Kirchberger says. “That means offering flexible leases, creating attractive streetscapes and bringing quality to communities.”

Cianfrone Architects Ltd., Hamilton, Ontario, designed 255 Colborne Street and set a target completion date of mid-2011.

Colborne Street is five stories high and has approximately 41,000 sq.ft. of space with a total of 40, one-bedroom units. It features a distinctive parapet roof design, an area where cold-formed steel framing saved additional dollars.

“We used a steel truss roof to anchor the decorative parapets,” says Brock Martin, President of Magest Building Systems and Colborne Street Project Manager. “Cold-formed steel lends itself to a variety of roof and parapet

Magest Building Systems panelized the cold-formed steel walls in its factory and shipped them to the site.



The cold-formed steel roof trusses had a slight slope designed to save money on the project.



Crews built the cold-formed steel framing system one floor at a time, a floor each week.

designs, making it an attractive building system to owners, general contractors and construction managers.”

Cold-formed steel can deliver unique building features on a tight schedule. Magest crews, for example, completed one floor a week at the Colborne Street apartments, assembling the entire load-bearing cold-formed steel framing in just five weeks. The roof truss system and the parapets called for only two additional weeks.

“We completed every floor at least one week faster than we would have with another system,” Martin says.

Cold-formed steel, he says, shaved at least six weeks from the construction timeline versus poured concrete or masonry. Such time savings meant dollar savings in lower construction financing charges, pared site supervision needs and less labor. The developer had worked with Magest on another project specified for wood construction, but that project was upgraded to cold-formed steel framing for its greater durability and non-combustibility characteristics. For these reasons, GK York never considered using wood framing on this project.

“There was the added benefit of using cold-formed steel to reduce call-backs due to cracked drywall from lumber shrinkage,” Martin says.

SLOPED TRUSSES, PANELIZED WALLS

Cold-formed steel brought a number of additional benefits to the Colborne Street project, including one that involved the building’s roof.

“We used hollow core [concrete] floors, as we have on other jobs, but we changed the roof design,” Martin says. “Instead of hollow core, we went with a cold-formed steel truss. That did two things. It lightened the load on the building, which resulted in reduced foundations. It also allowed us to build slope into the trusses to handle rainwater.”

The slope, Martin says, meant that Colborne Street could use regular-thickness insulation on the roof, rather than a tapered insulation on a flat roof. Tapered insulation products come at a price premium, so the cold-formed steel trusses saved money.

Finally, cold-formed steel construction helped with site logistics — navigating a narrow lot in a city center area.

“We panelized the walls,” Martin says. “We were dealing with things like a tight, in-fill lot and overhead wires in downtown Brantford.”

Martin says Magest sized the panels so that crews could maneuver them on site by hand. This eliminated the need for a crane to be staged on site for the duration of the project. Instead, the crane would arrive just once a week with the steel and wall panel deliveries. It would lift bundles of wall panels off the delivery truck and place them on a floor area where crews could move them by hand.

“You can design a wall that’s 10 feet tall and 20 feet long, but you can’t get a guy to move it,” Martin says. “If you chop it into smaller sections, then it’s manageable for them, and it doesn’t necessarily take more time to install.”

Thus, wall panelization saved crane costs with no compromise to work speed or quality. It was one more reason why the Colborne Street project proceeded smoothly.

“Because of the steel and Magest’s expedited schedule,” Martin says, “the other trades were able to access the building much earlier than had other construction methods been used.”



Colborne Street owner GK York provides affordable, attractive apartments that offer character and comfort.

DETAILS

STRUCTURE

- Poured concrete walls, lower slab and footings
- First-floor structural steel beam and post/concrete
- Second to fifth floor cold-formed steel load bearing wall panels
- Second floor hollow-core concrete transfer floor

WALL FRAMING

- Stud range: 800S200-54 – 800S200-68; 600S162-33 – 600S162-68
- Bridging: 200U50

JOISTS

- Floor joists: hollow-core concrete
- Roof joists: Nutruss 3.0

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