MATERIALS ISSUE

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GREEN_SPACE

CANADA GREEN BUILDING COUNCIL

OTTAWA REGION CHAPTER NEWSLETTER

MATERIAL REUSE AT THE OTTAWA CONVENTION CENTER

The *Ottawa Convention Centre* (OCC), the former Ottawa Congress Centre, is undertaking a large–scale $145 million redevelopment of its facility. The new OCC will offer more flexible meeting space with outstanding views of the *Rideau Canal* (a *UNESCO World Heritage Site*) and *Parliament Hill*. The expanded facility will feature 20,000 square metres of meeting and convention space within a 35,000 square metre building. PCL is acting as Design–Builder for this excellent facility, which is scheduled to open in April 2011. The project has targeted LEED® Silver certification.

The *OCC* project contains several sustainable initiatives; however, the reuse of the existing roof trusses merits particular attention. The reuse of these significant structural elements was pursued from the early stages to help achieve the project's sustainable goals while saving on time and cost.

THE SALVAGING ENDEAVOUR COMPRISED:

- Removing the existing roof structure that contained 7 massive, 4.5 meter deep HSS trusses spanning 54m across the length of the great hall and weighing approximately 36,000Kg (See photo);
- Once the roof shell was removed, these trusses were lifted by a tower crane; they were then taken from the site to a fabrication and storage facility;
- The trusses we re-engineered to support the new building design
- The trusses are now being reinstalled, they will again support the roof structure but at an elevation 8 metres higher than in their original elevation.

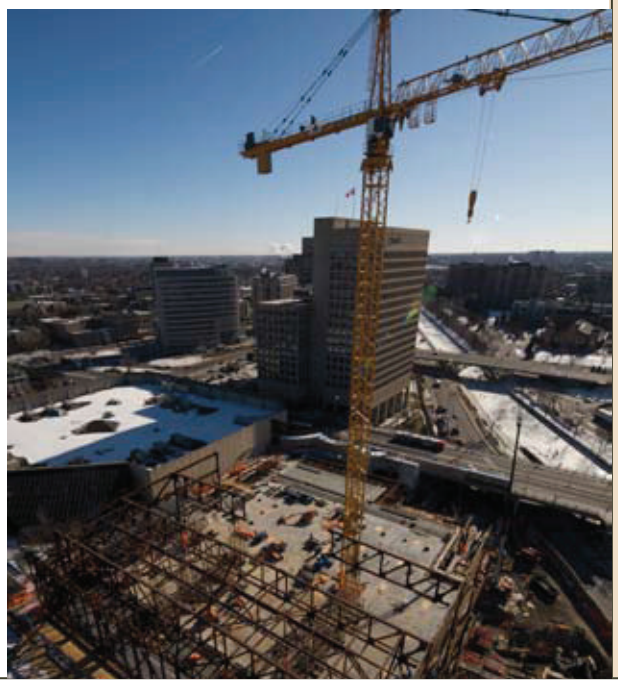
This reuse is saving the project approximately one million dollars. This reuse of 36,000Kg of steel represents a significant reduction of environmental impact, as the project did not need to source and mill new, massive trusses, possibly from as far away as Korea.

Critical to the success of this important task was to have professional, competent and dedicated team members, from the designers to the contractors actually performing the lifts. It is essential that these parties understand the complexities and risks associated with the heavy lifts. The owner and the engineer were instrumental in encouraging and accepting the reuse of these important elements. It is generally easier to fabricate new steel than to reuse existing fabricated elements.

The removal and reinstallation of the steel was completed without a hitch. The re-engineering of the trusses was completed on time and without any issues.

Builders need to evaluate thoroughly the benefit of salvaging and reusing material. The 'right thing' to do is not necessarily the best thing to do for the project or the product. Schedule, cost considerations and project benefits need to be thoroughly evaluated when it comes to large-scale selective demolition and material reinstallation.

(Oliver O'Hanlon is an Irish rogue who is a project coordinator with *PCL Constructors Canada Inc.* In addition to wooing contractors and owners with his keen wit and limerick readings, Oliver has managed to coordinate the uncoordinatable at both the Delegation of the *Ismaili Imamat* and *Ottawa Convention Centre projects*.)



UPCOMING EVENTS

April 22, 12PM-1PM: *ORC CaGBC Building Tour: C.D. Howe Building*

April 28: *ORC CaGBC Building Tour: Albion-Heatherington Community Centre*

May 3-4: *EE4 Energy Modeling Workshop*

May 12-14: *Green Building Ottawa: Retrofit—Sustainability for the future*

MAY 26: *LEED CI Silver (Retail) Building tour*

May 31: *Living Building Challenge Workshop*

May 12: *LEED for Existing Buildings Operations and Maintenance (EB: O&M) Workshop*

June 1: *LEED for Homes Workshop*

June 8-10: *CaGBC National Conference, Vancouver*

JUNE 16: *ORC technical lunch series*

*Please check the events calendar on the Ottawa Region Chapter pages of the CaGBC website (**http://ottawachapter.cagbc.org**) for more information about these and other events.*

THE OTTAWA REGION CHAPTER SUSTAINING SPONSORS:

Gold: HPNC HIGH PERFORMANCE NEW CONSTRUCTION; CMHC SCHL

Silver: Advanced Business Interiors / Haworth; Capital Office Interiors / Steelcase; HOK Architects; M.P. Lundy Construction; MHPM Project Managers; Morrison Hershfield; PCL Constructors Canada; Thyme and Again Catering

Media Sponsor: Ottawa Construction News

SUSTAINABLE BUILDING TRAINING CENTRE OPENS THIS SPRING

ORC member and volunteer Ross Elliot, of Homesol Building Solutions, is an experienced energy auditor, trainer, and contractor. Recently, he has strapped on his tool belt to build the LivelyUp Sustainable Living Centre, centrally located between Ottawa and Kingston in the heart of rural Lanark Highlands.

1) HOW WILL THE LIVELYUP SUSTAINABLE LIVING CENTRE SERVE THE COMMUNITY?

The Centre will provide training sessions on various aspects of green building and renovation, for builders and renovators, trades, designers, homeowners / homebuyers and owner-builders. We will also provide other workshops related to additional facets of sustainable living.

2) WHAT IS DIFFERENT ABOUT THIS CONCEPT?

Builders and trades people enjoy learning by seeing and doing, rather than just sitting in a classroom. The LivelyUp Sustainable Building Centre will have interactive displays and models where people can work directly with new products and techniques, or see actual cut–away building sections demonstrating thermal performance and durability details. Thanks to supply sponsors like Owens Corning, the Centre will offer samples of green building products and equipment, HVAC systems and other permanent displays that are impossible to bring along to other venues. Builders use these products every day, but we're demonstrating their use in unique combinations and with techniques that can meet or exceed LEED standards for energy efficiency, air quality, and durability.

3) TELL US A LITTLE ABOUT THE BUILDING.

The whole project is 2,100 square feet: half is new construction (the Learning Centre) and half is renovated residential (our home).The Centre is about 900 square feet, with room for 30 students at a time. Attached to the Centre is a 1,200 square foot existing 1930s farmhouse, which is being fully renovated to the same standard as the rest of the project (R–20 basement slab, R–30 foundation, R–40 walls, R–60 roof, and triple–glazed low–e krypton fibreglass windows). The training centre's slab–on–grade has R–30 insulation underneath — 6" Owens Corning Foamular 300 extruded polystyrene. We are targeting LEED Platinum.

4) WHAT MAKES THIS BUILDING PROJECT PARTICULARLY INNOVATIVE?

The EnerGuide Rating is 92, with an annual energy bill projected at under $1200. The heating and domestic hot water system is a wood gasification boiler with 1000 gallons of heat storage, combined with a ground source heat pump. Evacuated tube solar collectors and a solar air panel supply additional energy. Rainwater collected from the roof will flush toilets. All plumbing fixtures feature ultra–low water usage.

The building is designed for flexibility: a single residence attached to a commercial space (café, training centre and community centre), or two independent attached residences (one side designed to be 100% handicapped accessible). There will be a 3.5 Kw photovoltaic array providing at least 30% of the project's electricity.

5) WHAT PARTICULAR CHALLENGES HAVE YOU FACED IN BUILDING THIS UNIQUE CENTRE?

We used insulated concrete forms (ICF), and although ICF is the ideal material to make curves, there was a learning curve involved. Since the walls move in and out relative to the roof ridge, the height of the walls rise up and down, so we had to cut the 4x10 exposed pine rafters individually to suit. Nevertheless, these sorts of design details are what make the space acoustically and aesthetically pleasing.

We have lost some of the LEED points we targeted along the way — for example, none of our local concrete suppliers have fly ash. We switched from steel to shingle roofing due to the difficulties of using steel on a curved roof, which affected our plans to collect rainwater for showering and clothes washing and may cost us two more LEED points.

Two 100–year–old maple trees we hoped to preserve were too close to the excavation so eventually we had to make the decision to turn them into firewood. The positive side is that these two trees alone will provide 4 years worth of heating and hot water for the building!