

Girder-Slab® Method of Construction in Canada

With a little more than a decade since inception, testing and filing for international patents, the US developed, Girder-Slab® System for the multi-story residential construction market has achieved well over 130 projects south of the Canadian border; the majority of which have been employed in the past few years.

So what is precipitating this surge in interest in an alternate structural framing method to long-standing conventional construction systems for hotels, student residences, apartments, senior care facilities, and condominiums?

The answer is: quite simply; faster, cheaper, and easier. Through an ingenious modification to market abundant structural rolled beam shapes allowing conventional 8” or 10” pre-stressed, pre-cast hollow-core planking support on the bottom flange, a shallow structural system is produced that can meet the spanning demands of the residential/hospitality building infrastructure market.

Robust design guidance and tools are available that aid Canadian engineers in the development of structural designs for applications within our unique environments. Additionally, as this building method has opened a previously restrictive market for the structural steel fabrication industry, comprehensive collaborative methods from well experienced regional fabricators are available to assist design teams within an Integrated Project Delivery approach for best value propositions to owners and developers.

As a learning objective for the session, participants will receive relevant design guidance and will understand the benefits of its application through recent project examples constructive within challenging environments.

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Interest in the Girder-Slab® Method of construction for multi-storey residential/hospitality/housing developments in Canada is increasing following several successful design and installation projects. The low floor-to-floor height steel framed structural system, complete with composite pre-cast hollow-core planking, aggressively competes with conventional construction methods where vertical height for facilities must be minimized and earlier occupancy is desired.

The Girder-Slab® System is a patented, yet uniquely non-proprietary, structural system for use by architects, engineers, general contractors, steel fabricators, and pre-cast manufacturers. By splitting a standard wide flange section with a castellated patterned cut down the web, and welding a narrow, yet thick flat bar to act as a top flange; two dissymmetric beams are fabricated that allow hollow-core planks to

TECHNICAL PROGRAM

readily rest on the bottom flange thereby tucking most of the modified steel section into the floor cross-sectional depth.

The resultant steel beam section therefore contains regular openings through the web allowing rebar and grout to bond the hollow-core ends supported by the beam for reliable composite system behaviour. This simple on-site assembly of high quality controlled off-site pre-manufactured components permits for faster installation of floor plates for building structures without significant environmental control for major wet work construction. Several hotel projects constructed in Western Canada will be show-cased, each of which were delivered in shorter periods, at significantly lower cost and eliminated numerous risks to the owners. Attendees will gain insight on the parameters for such designs and where to seek appropriate resources for rapid execution of solutions.

Speaker: Peter Timler, M.Sc., P.Eng.

Peter is a Corporate Business Development Officer and Vice President Engineering of the Supreme Group; Canada's largest privately owned steel construction business. He manages a challenging position that fuses early project involvement with application of innovative technological approaches to projects instilling better value for owners, architects, engineers, and construction managers.

A former civil engineering graduate of McMaster University (Bachelors) and the University of Alberta (Master of Science) as well as past Western Regional Executive Director of the CISC along with many years in private structural consulting, he is known for taking theory into practice and shares several prestigious awards. Most recently he authored the CISC Code of Standard Practice Appendix on Digital Modeling; a guideline to Building Information Modeling protocol with the steel industry.