

DESIGN, MODELLING, AND ANALYSIS OF TIMBER STRUCTURES – GUIDE AND DATABASE

Speaker

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Abstract

Computer modelling has become a critical component of structural design and analysis, especially as modern timber constructions increasingly rely on numerical models to demonstrate performance or establish equivalency under both prescriptive and performance-based design approaches. This seminar will introduce key modelling considerations for mass timber systems, noting the ways in which their structural behaviour and modelling requirements differ from those of steel and concrete structures. Examples such as CLT shear walls and braced timber frames will be used to illustrate these concepts. Approaches for acquiring, selecting, and calibrating modelling inputs will also be discussed. The material presented is drawn from the latest published modelling guide (<https://web.fpinnovations.ca/modelling/>) and the developing database for timber structures.

Biography

Dr. Zhiyong Chen is a Senior Scientist and Practising Engineer in the Building Systems Group at FPInnovations in Canada, and an Adjunct Professor at University of Alberta. He is also an External Graduate Faculty member and a Faculty Associate at the University of Maine in the USA. He has almost 20 years' experience researching the advanced and practical, multidisciplinary simulation of timber structures in relation to seismic and fire resistance. He is the author of around 150 scientific and technical publications, including textbook chapters, the Canadian Guide for the Design of Tall Wood Buildings, the Canadian CLT Handbook and the Mass Timber Diaphragms Guide. Dr. Chen is the lead editor of the pioneering Modelling Guide for Timber Structures, which was developed by over 100 experts from around the world. He leads an international collaborative project that has developed the first web-based database to support the design, modelling and analysis of timber structures. He is also the project leader of the ISO/TC 165 working group responsible for developing the Technical Specification for Numerical Modelling of Timber Structures. Furthermore, he is a member of the ISO/TC 165 Mirror Committee, the Wood Structures Committee of the Canadian Society for Civil Engineering, and the European Code (CEN/TC 250/SC 5/WG 11). He is also a technical task group member of the Canadian Standard for Engineering Design in Wood (CSA 086).



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**Room 3574 (Lift 27/28),
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