

# 2019 Toronto Wood Solutions Fair

## Speaker Bios and Presentation Abstracts

### 1. Efficient Mass Timber Construction: Specifying Mass Timber Grids

**Michelle Roelofs, Senior Engineer, ARUP**

**ABSTRACT:** In many commercial markets steel and concrete buildings are the norm. The characteristics of these materials (column spacing, vibration performance, structural depth) have set the market expectations in different regions. In order for mass timber to break into these mature commercial markets, it is important to understand how efficient mass timber systems can be utilized to conform to these constraints. In some cases, mass timber cannot comply with these market expectations and then it is critical to prioritize what is important and showcase the unique benefits that mass timber can bring. This presentation will showcase examples of different mass timber systems and how they can comply with industry standards in commercial office and residential construction.

**BIO:** Michelle Roelofs is a structural engineer at Arup's New York office. Since joining Arup, Michelle has worked in the New York, Beijing, and Brisbane offices on a wide variety of projects. She has been involved in several developments in China including Raffles City in Chongqing and China Zun in Beijing. In New York, she is the project manager for 475 West 18th Street, the co-winner of the US Tall Wood Building Competition.

Michelle received her undergraduate degree in civil engineering from the University of Michigan. She holds her master's degree from the University of California at Berkeley where her studies focused on seismic based structural analysis and design. She is a registered Professional Engineer in the state of California.

### 2. Presentation: The Forest of Fabrication

**Alex de Rijke, Director, dRMM Architects**

**ABSTRACT:** During its life cycle a tree makes oxygen, eats carbon, produces food, shade, habitat, colour, and character. Trees also control wind, water levels, soil erosion, pollution and temperature, and endlessly renew themselves. Not only do trees make cities more possible and desirable when alive, they then provide future fuel, construction material and compost for new trees when dead. Trees are an exemplar of cradle-to-cradle design, an approach considering whole life cycles with maximum benefits, minimum disadvantages.

dRMM Architects are acknowledged as pioneers in the use and development of engineered timber architecture. The team consistently delivers experimental structure, composition, and placemaking design, addressing both social and environmental sustainability. In his lecture, Professor Alex de Rijke will present engineered timber as a defining material of 21st century architecture. The 'Forest of Fabrication' examines the existing capabilities and future potential of engineered timber, from concept to construction, across buildings from different scales and sectors.

**BIO:** Alex de Rijke is a founding director of the Stirling Prize winning architecture practice dRMM, alongside Philip Marsh, Sadie Morgan and more recently, Jonas Lencer. The studio is renowned for creating innovative, high quality and socially useful architecture.

Alex oversees the concept and construction of dRMM's timber projects. These include Maggie's cancer care centre in Oldham, Rundeskogen (with Helen + Hard) in Norway, Sliding House, Endless Stair, Tower of Love in Blackpool, Kingsdale School in London and the 2017 Stirling Prize winning Hastings Pier. Through his leadership, dRMM has become experts in engineered timber design and construction.

Alex conducts ongoing research into contemporary materials, technologies and methods of construction. In 2013 he co-invented cross-laminated hardwood timber for Endless Stair, dRMM's London Design Festival installation that went on to be exhibited at Milan Salone di Mobile in 2014. He co-designed Wood Blocks, a new type of timber shell and core housing recognised in the 2015 NLA Housing Ideas Competition. The 2017 Maggie's cancer care centre is the world's first hardwood CLT building; a project that reveals much of Alex's holistic design ethos, from inside to outside.

Alex has taught in the UK, Germany and India, and particularly at the Architectural Association and the Royal College of Art, London. In his role as Dean of Architecture at the RCA 2011-2015, Alex encouraged design leadership as well as a culture of invention, research, and speculation with an emphasis on learning through making. Alex is an External Examiner to the Architectural Association timber masters programme at Hooke Park, and the Spatial Practice masters programme at University of the Arts, London.

### **3. Virtual Design Construction: reasons, processes, uses and costs**

**Xenia Gordienko, B.Eng., B.A., Senior VDC Coordinator, EllisDon**

**ABSTRACT:** VDC (Virtual Design Construction) tools have been integrated by several architects, engineers and contractors, but there are still many companies hesitating to embrace the BIM software. The main reason for that is not estimated BIM (Building Information Modelling) effort in proportion to the way of conventional design.

This presentation will touch on the history and the psychological success behind BIM, fast tracking into the current status, the presenter will share specific case study scenarios of time/money saving in BIM projects, discuss the next steps for the construction industry in relation to VDC.

**BIO:** Ms. Xenia Gordienko is a Senior VDC Coordination with EllisDon Corporation and is currently working on the Centre for Mental Health and Addictions. Prior to joining EllisDon, Ms. Gordienko served a major European – based construction company with a focus on creating BIM strategies, and developing and implementing BIM standards.

Ms. Gordienko earned a Bachelor of Architecture and Design from the University of Applied Sciences in Stuttgart, Germany and a Bachelor of Computer Science and Computer Engineering at the State University for Aerospace Technology in St. Petersburg, Russia. She is a guest speaker at the University of Applied Sciences and Arts Northwestern Switzerland, a speaker at the BUILDDEX Conference and the Canadian Wood Council/Wood WORKS! Workshop.

#### **4. Overcoming the Challenges of Getting Clients to say “YES” to Wood Structures**

**Normand Hudon, President, Coarchitecture**

**ABSTRACT:** Everybody loves wood for its naturally warm and welcoming effect, yet not everyone is willing to commit to a wood structural solution at the design stage and make it a reality on the construction site. This talk, led by Normand Hudon, is going to address how the pitch was presented and decisions were made concerning the use of wood in various award-winning wood projects designed by Coarchitecture.

**BIO:** (Practice) Normand Hudon is an architect graduate from Laval University School of Architecture. He is president of Coarchitecture, an architectural practice based in Quebec City, Canada. The award-winning firm is known for its innovative approach to sustainable development using engineered wood as a low carbon strategy as well as building science to reduce energy demand while improving comfort for occupants. In June 2013, Coarchitecture won the innovation in architecture award from the Royal Architectural Institute of Canada for the Glaxo Smith Kline building in Quebec City with Normand as project director. (Teaching) Normand teaches the integrated design process (IDP) at Laval University’s engineering school. (R&D) Normand leads a living lab project financed by Quebec’s government which aims at creating an affordable solution for autonomous and carbon negative buildings.

#### **5. The Heights - a Passive House Journey**

**Scott Kennedy, P.Eng , B.Arch, Cornerstone Architecture**

**ABSTRACT:** Cornerstone Architecture embarked on a project with the cooperation of Eighth Avenue Developments and Peak Construction to explore constructing a large multi-family building to the Passive House Standard. The Heights, a six storey, 85-unit mixed-use building approved under the City of Vancouver’s Rental 100 program. The building has been in operation 1 year. We will tell the tale of our journey, the decisions on the building envelope and mechanical systems, the results of monitoring to date, lessons learned where more research is needed and how our experience with this building and others is influencing our current work.

**BIO:** Scott is a professional engineer as well as a graduate of the UBC School of Architecture. He also has LEED accreditation. He has been a principal of Cornerstone Architecture since 1988. In 2013 he attended a Passive House course at UBC to understand what it takes to create a low energy building that actually performs as predicted. It has inspired him to attend International Passive House Conferences in Europe, the US and Canada and become a founding Board Member of Passive House Canada. Cornerstone has the “You should consider building a Passive House” conversation with every client and has had some success with three projects built and many more on the way.

## **6. Low-Rise Commercial Wood Buildings: a Recipe for Cost-Effective Development**

**Reed Kelterborn, P.Eng., National Education Manager, Canadian Wood Council**

**ABSTRACT:** In recent years, the Canadian Wood Council has commissioned a number of market research studies that have identify retail buildings, industrial/warehouse buildings, and office buildings as the best opportunity to increase the use of wood in low-rise commercial buildings in Canada. The CWC has assembled 3 regional Working Groups consisting of architects, engineers, builders, developers, and other stakeholders from across Canada to develop 6 cost-effective systems that will allow the Canadian wood industry to compete head-on with steel and concrete in the Canadian low-rise commercial construction market. The 3 mass timber and 3 light wood frame typologies developed as part of this initiative will be outlined, the discussion will include building sizes, areas, structural systems, code requirements, and preliminary pricing information.

**BIO:** Reed Kelterborn is a Registered Professional Engineer with a background in designing high end residential and commercial structures while working at a Toronto based engineering firm. As a Technical Advisor for FII China, a crown agency of BC, he supported the growth of the wood construction market in China by working with local design professionals to educate and promote the benefits of building with wood. He also has experience in technical sales working for MetsäWood, the largest forest products company in Finland. He was responsible for the sales of their Engineered Wood Products in the Asia Pacific region, where he developed new sales channels and promoted their offsite construction solutions. He is currently the National Education Manager at the Canadian Wood Council.

## **7. North American Wood Design Awards: a Showcase of Wood Design Award Winners from 2018-19**

**Marianne Berube, Executive Director, Ontario Wood WORKS!**

**Lynn Embury-Williams, Executive Director, Wood WORKS! BC**

**ABSTRACT:** Wood is an extraordinary building material. It is strong, lightweight and safe. It is durable, versatile and adaptable. It is also sustainable and, as new products, systems, and advancements in manufacturing continue to come on-line, the applications for wood products are almost unlimited. Through design innovation, architects and engineers can create larger wood buildings of diverse occupancies that meet or exceed the requirements for safety and performance. Yet wood is also an intimate, precious material well suited to smaller projects and thoughtfully crafted installations. This presentation showcases award-winning projects of every type from the Wood Design Award programs held across Canada, the US and Internationally in the past year, shining a light on wood design excellence in both structural and architectural applications.

**BERUBE BIO:** Marianne Berube lives and works in North Bay, Ontario. She has degrees in Environmental Science and Business. She later obtained Professional Management and Certified Investment Management Degrees. She has extensive experience within the Finance, Construction and Wood industries and now works for the Canadian Wood Council. Marianne has been the Executive Director of Ontario Wood WORKS! for the past 19 years, building the program from its pilot launch to the Provincial initiative it is today. Marianne has been recognized for her efforts by receiving the CIBC Chairman's Award, an Influential Women's Award from Northern Ontario Business, the Ontario's Forest Sector Champion Award from the OFIA and a Nipissing University Influential Alumni Award.

**EMBURY-WILLIAMS BIO:** Lynn is a Registered Professional Forester in the province of BC and has an MBA from the University of Western Ontario. She joined the BC Wood WORKS! program as Executive Director in 2014. Previously the Director of Marketing and Business Development at Canfor, Lynn has brought a wealth of experience and expertise in the areas of marketing and business development to Wood WORKS! BC. In more than two decades of working at Canfor, she was instrumental in helping the company quadruple its size to become the largest SPF producer in the world. For six years, until the end of the program, Lynn Chaired the NEWBuildS Forestry Network Program, whose primary goal was to advance scientific knowledge and construction technologies that will enable wood-based products to be used in mid-rise and non-residential construction. Lynn was a forester for Crestbrook and its predecessor companies in the East Kootenays during the early 1980's. During that time she managed the largest private land holding in forests, in the Province of BC.

## **8. Western Red Cedar, Beautiful, Sustainable Designs**

**Paul Mackie, Western Area Manager, Western Red Cedar Lumber Association**

**ABSTRACT:** Increase your awareness of Western Red Cedar, its properties and performance characteristics. Expand your understanding of Western Red Cedar grades and product specifications for your projects. Gain a greater appreciation of Cedar's versatility and the enhanced appeal it brings to both commercial and residential designs. Get the facts about proper installation, finishing and maintenance of all Western Red Cedar applications. Learn about design trends around the world using Western Red Cedar. Find out why Western Red Cedar is the 'greenest' building material available and get the facts about forest certification systems.

**BIO:** Paul Mackie, known in the industry as Mr. Cedar is an internationally recognized expert in Western Red Cedar. His family's history goes back to the turn of the last century when his great grandfather operated Western Red Cedar shingle mills in Ballard, Washington. He has been the Western Area Manager for the Western Red Cedar Lumber Association for 24 years.

## **9. Acoustical Challenges in Mass Timber Buildings**

**Bob Hartogsveld, Architectural Solutions Manager, CertainTeed & Tim Preager P.Eng. of Aercoustics Engineering**

**ABSTRACT:** Mass Timber products have many advantages for structural, constructability and sustainability to name a few, but the disadvantages are rarely discussed in recent forums. One of the main characteristics of mass timber that benefits many disciplines is its light weight is actually its greatest disadvantages for acoustics. The light-weight of timber panels adds significant challenges to achieve performance for sound isolation while still being able to visually expose the raw mass timber panel, which is a typical desired feature from owners, developers and architects. Similarly, this desired exposed wood characteristic renders the sound within a room to have an acoustically live feel or has a potential for a high echo environment. These issues will be discussed in detail along with solutions to improve the acoustics for mass timber projects, with consideration for recent changes in NBC and expected changes to OBC.

The 2nd portion of the discussion will be to present acoustical options designers can utilize to reduce noise in large open rooms in mass timber building where the aesthetic of wood wants to be maintained and not covered by gypsum board.

**BIO:** Timothy Preager is a Principal at Aercoustics Engineering and has been working in the field of acoustics, noise and vibration since 2006. Over this period, Tim has worked on a wide range of projects of solving acoustic problems in existing buildings and designing new ones for residential and commercial spaces. With the advance in mass timber construction recently, Tim has taken an interest in this new technology and has had the opportunity to work closely with this emerging building tech on the Wood Innovation Design Centre, the Catalyst building with Katerra as part of Spokane’s University District in Washington State and more recently with a mixed use student residence, office and teaching building at the University of Toronto and with Sidewalk Labs as part of the Quayside development.

Bob Hartogsveld is the Architectural Solutions Manager for Saint-Gobain-CertainTeed Canada Inc.

## **10. Designing with Durability-Considerations for Wood**

**Peter Moonen, National Sustainability Manager, Canadian Wood Council**

### **ABSTRACT:**

#### **Design for Durability: In-House Seminar Overview**

Designing with wood adds a different dimension to durability, as wood is used as a structural and architectural medium, and in both interior and exterior applications. As such, designers and builders must have an understanding of the factors likely to impact wood in use and consider treatment and design solutions. This seminar provides specifiers with an overview of the key weathering and wear factors affecting wood, how wood is impacted, and potential design considerations to reduce risk of aesthetic and/or structural failure. As well, actual projects will be reviewed in an exercise in which participants will attempt to evaluate the effectiveness of various constructed projects with the goal of evaluating the level of durability achieved in practice -- bad, good, best – and examine ways in which issues could have been avoided. This exercise challenges participants to take learning from the theoretical part of the seminar and apply it to real buildings.

### **BIO:**

Peter studied Marine Biology, Zoology and Forestry the University of British Columbia and has used that science-based foundation as a technical communications specialist to advance a better understanding of wood products and the forest sector. He has more than 30 years experience dealing with regulatory, environmental, sustainability and operational issues.

He is National Sustainability Manager for the Canadian Wood Council (CWC), a technical and knowledge transfer organization, which provides free technical support to designers, contractors, building and fire officials, owners and regulators to build a strong wood culture in Canada through education, training and awareness.

He regularly presents on achieving greater sustainability, durability and the appropriate use of wood in Asia, Europe and throughout North America to design professionals, contractors, educators, regulators and building officials.

## **11. The Sum of the Parts: Incorporating Modern Mass Timber Products in Canadian Construction Projects**

**Christopher C. Williams, P. Eng., MBA, Vice President, Timber Systems Limited**

**ABSTRACT:** Designers, specifiers, owners, and builders now have more options than ever to bring timber buildings to life. Sorting through those options can be daunting, especially for those new to the material. Some products are relatively modern, while some have storied histories in Canadian construction; what are the

products and tools available, how do they integrate, and how best to make budget-savvy choices? Knowing the advantages and characteristics of these products is an important step in project planning. This presentation will use three recently completed projects as case studies to explore material choices, framing strategies, integration with steel and concrete, and more.

**BIO:** Christopher Williams is Vice President of Timber Systems Limited, with offices in Markham, ON, and Vernon, BC. For 40 years Timber Systems have provided pre-engineered heavy timber structures to many markets around the world. They are renowned for their integral role in bringing many creative timber projects from concept to construction. Christopher has extensive experience with the engineering, costing, and construction of timber buildings, with particular specialty in heavy timber commercial structures. He received his Bachelor's degree in Civil Engineering from Queen's University, Kingston, and received his MBA from the University of Cambridge, UK.

## **12. Prefabrication, A Look at advanced manufacturing methods and the perception**

**Maik Gehloff, DI (FH), MASc, Senior Lab Instructor - University of Northern British Columbia,  
Director/Owner - Gehloff Consulting Inc.**

**ABSTRACT:** Prefabrication can take many forms and be done entirely manual or (almost) fully automated. Prefabrication alongside advanced manufacturing equipment comes with its seemingly obvious advantages, but is also ridden with perceptions that need to be overcome to fully embrace the technology and utilize its full potential.

This presentation will go through the revolutions of modern industrialization and briefly depict the various levels of prefabrication and automation. It will also cover and try to address the main challenges of prefabrication.

The presentation is intended to demystify prefabrication and more specifically automation or advance manufacturing equipment as well as challenge the common perception of prefabrication.

### **BIO:**

Maik Gehloff is a Senior Lab Instructor at the University of Northern British Columbia's Masters of Engineering in Integrated Wood Design program and is the founder and owner of Gehloff Consulting Inc.. Maik holds a Dipl.-Ing. (FH) degree in Wood Science and Technology specializing in timber engineering from the University for Applied Sciences in Eberswalde, Germany, as well as a MASc in Timber Engineering from University of British Columbia (UBC) in Vancouver. Maik is a member of the Timber Framers Guild of North America, Timber Frame Engineering Council and Vice President of the BC Log and Timber Industry Association. *He can be reached at [maik.gehloff@unbc.ca](mailto:maik.gehloff@unbc.ca).*

## **13. Frame it Right: Back to Basics for Big Buildings**

**Cory McCambridge, Engineered Wood Specialist, APA - The Engineered Wood Association**

**a) ABSTRACT:** The demand for commercial and multifamily construction is soaring, and the framing industry is expanding to meet this demand. After walking hundreds of jobsites, APA – The Engineered Wood Association has identified the most common wood construction framing errors found in today's commercial, multi-family and residential projects. This session will examine the consequences of these framing mistakes from the ground up, providing practical solutions for avoiding typical issues using APA's resources as a guide.

**BIO:** Cory is an Engineered Wood Specialist for APA – The Engineered Wood Association. Cory brings over 10 years of architectural and structural design and analysis experience with a proven track record in value engineering. He has spent most of his career working in the pre-fabricated panel industry as a design manager for various facilities located across Canada and has a thorough understanding of engineered wood products and systems. In his work for APA, Cory consults with and conducts workshops for designers, code officials, and other building professionals on best practices for specification, selection, and application of engineered wood products.

**Advanced Framing and Value Engineering:**

**Balancing Structural Integrity, Energy Efficiency, and Cost Effectiveness**

**Cory McCambridge, Engineered Wood Specialist, APA - The Engineered Wood Association**

**b) ABSTRACT:** As the costs of constructing a home continue to increase, builders and designers are seeking changes to their designs and construction process to offset these costs without negatively impacting structural performance. One effective solution is Advanced Framing, a system of construction framing techniques designed to optimize material use and increase energy efficiency. Examples of high-performance wood framed wall assemblies designed to meet effective R-values will be shared along with common Advanced Framing details. In addition, simple techniques and details for engineered wood floor systems will be shared. These methods can be applied during the preliminary design stage in order to increase the performance of floor systems while reducing material, labour and waste.

**BIO:** Cory is an Engineered Wood Specialist for APA – The Engineered Wood Association. Cory brings over 10 years of architectural and structural design and analysis experience with a proven track record in value engineering. He has spent most of his career working in the pre-fabricated panel industry as a design manager for various facilities located across Canada and has a thorough understanding of engineered wood products and systems. In his work for APA, Cory consults with and conducts workshops for designers, code officials, and other building professionals on best practices for specification, selection, and application of engineered wood products.

**14. “Or Equivalent”: Considering Alternatives for Midrise Projects**

**Andy Teasell, P. Eng., Structural Frame Engineer, Weyerhaeuser**

**ABSTRACT:** When issuing jobs for tender, engineers and architects can be presented with alternatives to the systems or components they have specified. For midrise buildings and other complex projects, there can be significant costs in evaluating alternatives, as well as risks. While clients rightly expect choices, they also expect quality, durability and reliability. With a focus on engineered lumber, this session discusses the potential effects to building performance that should be considered when alternatives are proposed. Recommendations are provided for writing specifications and evaluating alternatives.

**BIO:** In over 25 years as a professional engineer, Andy Teasell has seen a lot of what works well (and not-so-well) in the wood frame construction industry.

Through examples from real-life situations, Andy engaging presentation style draws on his experience in construction management, structural engineering, wood component design, and field problem resolution to

illustrate the value of sharpening your structural specification of engineered wood products. Information shared in this session can help manage your liability risk and improve client service.

Andy is based in Vancouver, and currently leads the Technical Team in Canada for Weyerhaeuser's "Trus Joist" line of wood products. Andy's experience includes previous memberships of APEGBC's Building Codes Committee, BOABC Wood Products Technical Committee, and past Chair of the WoodWORKS National Steering Committee.

### **15a. Fire Resistance of Mass Timber Products**

**Marc Alam, Technical Specialist – Fire, Code & Standards, Canadian Wood Council**

**ABSTRACT:** This seminar will discuss various sources of information and tools that may be used to develop solutions to meet the building code's fire-resistance rating requirements for buildings using mass timber construction, including the new Annex B in CSA O86 Engineering Design in Wood, entitled "Fire resistance of large cross-section wood elements," for solid-sawn timber, glued-laminated timber (glulam) and structural composite lumber (SCL) in the 2014 edition, and cross-laminated timber (CLT) which was added in the 2016 CSA O86 update.

**BIO:** Marc Alam is a member of the Canadian Wood Council. He is a Manager, Codes and Standards in the fire division. Marc completed a Bachelor Degree in Civil Engineering at Carleton University, and currently is in the process of completing a Ph.D. in fire safety engineering also at Carleton University. His doctoral thesis studies the behavior of heavy timber connections in fire conditions. As Manager, Codes and Standards in Fire, Marc assists through participation in CWC's building code and standards fire-related initiatives and the development of CWC's fire design tools, as well as code-related fire research projects.

### **15b. Mass Timber Fire Resistance Calculation Method: An Overview of CSA O86-14 Annex B and WoodWorks® Sizer**

**Marc Alam, P. Eng., Technical Specialist – Fire, Code & Standards, CWC & America Lopez-Molina. BA Sc., M.A.Sc.-Technical Service Specialist Codes & Standards, CWC**

**ABSTRACT:** This seminar demonstrates the CSA-O86 Annex B method to calculate the fire-resistance ratings of large cross-section wood elements for mass timber buildings (solid-sawn timber, glued-laminated timber (glulam) and structural composite lumber (SCL), and cross-laminated timber (CLT). This seminar also includes a demonstration of the WoodWorks® Sizer software that will show how it saves designers time by automating Annex B calculations.

**BIO:** Marc Alam is a member of the Canadian Wood Council. He is a Manager, Codes and Standards in the fire division. Marc completed a Bachelor Degree in Civil Engineering at Carleton University, and currently is in the process of completing a Ph.D. in fire safety engineering also at Carleton University. His doctoral thesis studies the behavior of heavy timber connections in fire conditions. As Manager, Codes and Standards in Fire, Marc assists through participation in CWC's building code and standards fire-related initiatives and the development of CWC's fire design tools, as well as code-related fire research projects.

America Lopez-Molina joined the Canadian Wood Council in 2018 as a Technical Service Specialist in the Codes and Standards division, concentrating on structural engineering. America completed her Bachelor Degree (B.A.Sc.) and Master of Applied Science (M.A.Sc.) in Civil Engineering at the University of Ottawa in 2018. Her thesis focused on retrofitting techniques for Cross-Laminated Timber (CLT) elements subjected to blast loads. America responds to wood-related technical inquiries and assists in the WoodWorks software role by providing technical support to customers and assistance in testing. She is also involved in CWC's participation in building codes and standards.