High-rise building construction in recent years has trended toward increasing slenderness. Real estate values in desirable international cities have provided incentives to build so-called ‘Skinny High-Rises’ that have pushed the envelope of structural design of tall buildings. In New York particularly, a number of residential buildings with slenderness ratios greater than 12 are under various stages of design and construction. Due to their form, the engineering challenges that accompany these skinny buildings have required a fresh look at traditional design and serviceability criteria as conventional engineering approaches can lead to important aspects of the structural behavior being overlooked. In particular, wind engineering issues for this type of structure are significantly more important. Traditional or prescriptive criteria have proved inadequate to evaluate the longer term performance of the building and its envelope. A number of recent projects studied at RWDI will be presented to highlight some of the important wind engineering and structural serviceability challenges. The case studies will also cover how the challenges are addressed and mitigated through adaptations to the architecture, structural design, and supplementary damping.

Jon Galsworthy joined RWDI in 2009 following a decade in academia and consulting at The University of Western Ontario’s Boundary Layer Wind Tunnel Laboratory. He is a Principal of the firm and leads RWDI’s Loads & Effects group consisting of more than 100 engineers and professionals working together across North America, the UK and Asia. The global team contributes to client’s projects providing input which helps to inform design and decision-making in areas relating to structural wind engineering, roof snow loading and vibration assessment and control. In addition to management and leadership of the firm, Jon remains active in projects and has consulted on more than 100 major buildings and structures including several buildings exceeding 600m in height in recent years. He is a member of several professional societies and active on a number of technical committees including the National Building Code of Canada, ASCE 7 Wind Load standard and the ACI 307 Concrete Chimney wind loading standard. He is a registered Professional Engineer in several jurisdictions in Canada and the United States.