

CE/CEM Candidate for Faculty Position

Harnessing Technology for Modern Structural Systems

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RHPH 172

Abstract

Our future infrastructure must be resilient to meet increasing loading demands, and economical for both design and construction. To achieve these goals the Steel Systems Innovation Research Lab conducts research in the areas of infrastructure resilience to changing climates, advanced visualization and extended reality in structural engineering, and next generation structural design. A project in each of these areas will be discussed including lessons learned and future directions. Projects include an example of employing data-driven design for shear connectors welded through steel deck, integrating advanced monitoring, monitoring, and visualization of structures to aid in understanding the performance of structures subjected to adverse climate conditions, and implementing extended reality visualization technology to augment the structural steel fabrication process. Furthermore, examples of using extended reality visualization in the classroom will be described.

Biographical Sketch



Hannah Blum is an Assistant Professor and the Alain H. Peyrot Fellow in Structural Engineering in the Department of Civil & Environmental Engineering at UW-Madison. She has a wide range of active research on metal structural systems including steel, cold-formed steel, and stainless-steel members, steel joist and deck systems, metal buildings, and extended reality in structural steel fabrication. Her approaches include member and large-scale experimentation, advanced computational analysis, structural stability, structural reliability, and data-driven design approaches. She has received several early career research awards in addition to multiple teaching innovation awards for her pioneering development and use of

extended reality technology in structural engineering education. Dr. Blum received her PhD from the University of Sydney and her MSE and BS degrees from the Johns Hopkins University. She actively serves on multiple committees related to the development of design standards for steel, cold-formed steel, and stainless-steel structures.