

Professional Summary:

Mary H. Darr has 25 years of structural and forensic engineering experience. She has performed hundreds of investigations and routinely assesses damage to structures caused by fire, wind, snow, impact, settlement, and corrosion. This work has included buildings constructed with conventionally reinforced concrete, prestressed and post-tensioned concrete, steel, masonry, and wood structural systems.

Ms. Darr is also well versed in the preparation of construction documents to repair damaged structures, adapt existing buildings for new uses, and for new commercial building construction. Examples of past repair projects have included drawing and specification development to address timber truss, two-way concrete slab, post-tensioned concrete slab, open-web steel joist, masonry facade, low-pressure stainless-steel air piping, and foundation distress. With regard to adaptive reuse, she was responsible for leading a team of engineers to modify six existing warehouse buildings, constructed from 1920 to 1970, into new commercial and stadium occupancies as a part of the new Ford Field construction. She has designed and prepared construction documents for numerous new single and multi-story steel and wood-framed commercial structures.

Her clients have included building owners, property managers, contractors, attorneys, insurance companies, engineers, and architects.

Prior to becoming an engineer, Ms. Darr worked as a carpenters' apprentice on highway bridge structures and a laborer for commercial building construction.

Licenses and Certifications:

Registered Professional Engineer, Michigan - #6201049485

Registered Structural Engineer, Illinois - #081.005659

Registered Professional Engineer, Ohio - #PE.78219

Project Experience:

Timber Truss Investigation & Repair, Ann Arbor, MI* **Commercial Building Structure**

Performed a detailed investigation of distressed and failed timber trusses constructed in the early 1900s including obtaining wood samples for species identification. Provided report containing repair options and conceptual repair costs. Produced construction documents for implementing the selected repair approach.

Long Span Steel Roof Truss Collapse, Riverview, MI*

Commercial Building Structure

Investigated cause of 8-foot deep truss failure following on overhead door installation and rain event. Performed finite element analysis of the field measured framing to determine the cause of the collapse. Provided litigation support.

Post-tensioned Parking Structure Evaluation and Repair, Detroit, MI*

Commercial Building and Parking Structure

Investigated corrosion-related distress of one-way concrete slab with failed post-tensioning tendons. Developed repair scope corresponding to client budget, prepared construction documents to implement the repairs, and performed construction administration services during the repairs.

*Project completed with a prior firm.

Court Qualifications/ Depositions:

Litigation CV available upon request.

Professional Experience:

EFI Global /Unified Investigations & Sciences
Detroit, Michigan- Structural & Forensic Engineer
June 2018 - Present

Shymanski & Associates
Livonia, Michigan – Structural Engineer
September 2016 – May 2018

Wiss, Janney, Elstner Associates
Detroit, MI & Northbrook, IL – Senior Associate
June 2002 – September 2016

SmithGroup
Detroit, Michigan – Project Engineer
July 1999 – June 2002

Wiss, Janney, Elstner Associates
Northbrook, IL – Project Engineer
July 1995 – July 1999

Carl, Walker, Incorporated
Kalamazoo, MI – Project Engineer
July 1994 – July 1995

Specialized Education:

Simpson Strong-Tie, Wind Design with ASCE 7-10; October 10, 2017, 2.0 Hours, Tested

Simpson Strong-Tie, Soft-Story Retrofit; October 10, 2017, 3.0 Hours, Tested

Simpson Strong-Tie, Strong-Wall Shearwalls; October 10, 2017, 1.0 Hour, Tested

American Wood Council, Traditional and Engineered Wood Products (MAT210); October 6, 2017, 2.0 Hours, Tested

American Wood Council, Codes and Standards for Midrise Construction (DES520); October 6, 2017, 2.0 Hours, Tested

American Wood Council, Resolving Wood Shear Wall Design Puzzles with Force Transfer Around Openings (DES415); October 6, 2017, 1.5 Hours, Tested

American Wood Council, Calculating ASD Shear Wall Capacities per 2015 SDPWS Using the Equal Deflection Approach (DES413-3); October 6, 2017, 1.0 Hour, Tested

Simpson Strong-Tie, Shearwall Design with 2015 SDPWS; October 3, 2017, 2.0 Hours, Tested

Simpson Strong-Tie, Diaphragm Design with 2015 SDPWS; July 13, 2017, 1.0 Hour, Tested

American Wood Council, Historical, Current, and Future Tall Wood Buildings (DES600-A); July 12, 2016, 2017, 2.0 Hours, Tested

Simpson Strong-Tie, The Design Fundamentals of FRP Strengthening (Recorded Webinar); July 12, 2017, 2.0 Hours, Tested

Wiss, Janney, Elstner, Inc., Instrumentation: Measuring Expectations; May 20, 2016, 1.5 Hours

Wiss, Janney, Elstner, Inc., Coatings: Assessment and Selection Considerations; May 20, 2016, 1.5 Hours

Wiss, Janney, Elstner, Inc., Building Component Load Tests – Case Studies; May 20, 2016, 1.5 Hours

Wiss, Janney, Elstner, Inc., Structural Analysis: Developing and Interpreting Models of Nonlinear Behavior; May 20, 2016, 1.5 Hours

Wiss, Janney, Elstner, Inc., Structural Analysis: Tools of the Trade; May 20, 2016, 1.5 Hours

Wiss, Janney, Elstner, Inc., Evaluating and Testing Facade Access Equipment; June 30, 2015, 1.0 Hour

Wiss, Janney, Elstner, Inc., Structural Analysis Roundtable Discussion Series; May 21, 2015, 1.0 Hour

Wiss, Janney, Elstner, Inc., Fall Protection Training, Part 2: Personal Fall Protection Systems; April 28, 2015, 1.0 Hour

Wiss, Janney, Elstner, Inc., The Art and Science of Slabs-on-Ground Repairs; April 16, 2015, 1.0 Hour

American Institute of Steel Construction, Design and Stability of Connection Elements; March 27, 2015, 1.5 Hours

American Institute of Steel Construction, Follow the Load Path to Avoid Unfortunate Consequences; March 27, 2015, 1.5 Hours

American Institute of Steel Construction, HSS Design: New Codes and Material Specifications; March 27, 2015, 1.5 Hours

Wiss, Janney, Elstner, Inc., Fall Protection Training, Part 1; March 26, 2015, 1.0 Hour

American Institute of Steel Construction, Roof and Floor Deck Diaphragms: Behavior and Design; March 26, 2015, 1.0 Hour

American Institute of Steel Construction, AISC Research: Protecting the Protected Zone; March 26, 2015, 1.0 Hour

Wiss, Janney, Elstner, Inc., Indefensible: A Story of Grit, Stupidity, or Ethical Compromise? You Decide; March 19, 2015, 1.0 Hour

Engineered Load Cell Technologies, Bolting Quality Assurance Seminar; March 11, 2015, 1.5 Hours

Wiss, Janney, Elstner, Inc., Introduction to Concrete Pavements; February 17, 2015, 1.0 Hour

American Concrete Institute, ACI/PCA 318-11 Building Code Seminar,

November 10, 2011, 0.75 Hour

American Concrete Institute, Reshoring for Multistory Concrete Buildings,
April 4, 2008, 1.0 Hour, Tested

American Concrete Institute, Structural Crack Repair by Epoxy Injection, April 4, 2008,
1.0 Hour, Tested

American Concrete Institute, Floor Openings in Two-Way Slabs, April 3, 2008, 1.0 Hour,
Tested

American Concrete Institute, Cementitious Materials for Concrete – Part 2, April 3, 2008,
1.0 Hour, Tested

American Concrete Institute, Cementitious Materials for Concrete, April 1, 2008,
1.0 Hour, Tested

American Concrete Institute, Control of Cracking in Concrete Structures, April 1, 2008,
1.0 Hour, Tested

Education:

University of Michigan
Ann Arbor, Michigan
Master of Science in Engineering
Civil Engineering - 1994

University of Michigan
Ann Arbor, Michigan
Bachelor of Science in Engineering
Civil Engineering - 1993

Affiliations:

Structural Engineers Association of Michigan (SEAMi)
American Concrete Institute (ACI)

Publications:

Anderson, Richard O.; Darr, Mary; Hungspruke, Udom, “Ford Field and the Reuse of the Hudson’s Warehouse”, Eighth Annual Great Lakes Geotechnical and Geoenvironmental Conference, 2000.

Tide, Raymond H.R.; Darr, Mary H., “Buckling Failure of Titanium-Steel Composite Chimney Liner”, Second International Conference on Thin-Walled Structures, 1998.

Presentations:

When Common Sense Goes Out the Door, Literally . . . Investigating a Roof Collapse, 2013, University of Michigan ASCE Student Chapter

Investigation of a High-Rise Screen Wall Collapse: A Project Illustrating the Importance of Engineering Fundamentals, 2012, CEE 812 – Structural Engineering Seminar Series

The Business of Investigating the Every-day Structural Failure, 2010, CEEFA Spring Technical Session

Post-Tensioned Structural Analysis: An Overview of Available Software with a Focus on ADAPT-PT, 2009, Wiss, Janney, Elstner, Inc. Webinar

Detailing and Design Examples for Torsional Members, 2004, American Concrete Institute Spring Convention