

Thomas Bosch PE

Forensic Engineering Expertise

Structural Analysis/Design

Review appropriate documents including project plans and specifications as it relates to the building structure for purposes of failure analysis and extent of resulting damages. In addition, being a licensed professional engineer, replacement designs are provided upon request. Examples of past work includes failure analysis of collapsed structures (concrete, steel, wood, masonry), and various building components (windows, doors, glass, piping, roofing, exterior and interior cladding).

Origin & Cause

Determine the source and responsible party or element related to the failure of a structural or architectural element, or water damage in a building. Examples of past work include failure of roofing, waterproofing, sealants, and wall cladding causing moisture entry, humidity and condensation related issues, and groundwater entry.

Qualifications & Training

- Principle based Ethics: character-builder or career-ender (AWI051021), ASCE On Demand, November 2023
- Calculating and Applying Design Wind Loads on Buildings Using the Envelope Procedure of ASCE 7-16 (AWI081018), ASCE On Demand, November 2023
- Designing Buildings with Overhead Cranes (AWI122010), ASCE On Demand, November 2023
- Engineering Judgment-Lowrise Building Design and Detailing (092619), ASCE On Demand, November 2023
- Learning from Failures of Wood Framed Structures (AWI022811), ASCE On Demand, November 2023
- Curtainwall Primer for Design Professionals (AWI042514), ASCE On Demand, November 2023
- Philosophy of Structural Building Codes (AWI010713), ASCE On Demand, November 2023
- Building Enclosure Commissioning-What you need to know (AWI060619), ASCE On Demand, October 2023
- Diagnosis, Repair, and Restoration of Building Facades (AWI031715), ASCE On Demand, December 2022
- Advanced Snow Loads using ASCE 7-16 (AWI040317), ASCE On Demand, December 2022
- Lessons from Failures of Building Envelopes (AWI021913), ASCE On Demand, December 2022
- Rain Loads 101 (AWI071520), ASCE On Demand, May 2022
- Avoiding Ethical Pitfalls in Failure Investigations (AWI092419), ASCE On Demand, May 2022
- Wind Design for Components and Cladding (AWI120711), ASCE On Demand, April 2020
- Antiquated Structural Systems (AWI052411), ASCE On Demand, April 2020
- Steel Connection Delegated Design, NCSEA Webinar, December 2016
- Structural Thermal Bridging in the Building Envelope, ASCE Live Webinar, October 2015
- Application of the 2010 AISC Seismic Provisions, AISC Conference, September 2014

- Structural Building Condition Surveys (AWI012612), ASCE Live Webinar, July 2014
- Compact Gussets and the Uniform Force Method, SEAIA/AISC, April 2014
- Open-web Composite Steel Floor Joist Systems, SEAIA/Nucor, February 2014
- Design of Reinforced Steel Members, ASCE Live Webinar, November 2013
- Structural Thermal Bridging in the Building Envelope, ASCE Live Webinar, November 2012
- Design of Underslung Hoist and Crane Beams and Girders, ASCE Live Webinar, August 2012
- ATC-45 Training: Safety Evaluation of Bldgs after Windstorms and Floods, Applied Technology Council Webinar, March 2012
- Wind Design Considerations for Steel Joist and Joist Girders, AISC Webinar, October 2011
- Joist and Joist Girders as Lateral Load resisting Elements, AISC Webinar, October 2011
- Five Useful Stability Concepts, AISC Webinar, October 2011
- Introduction to the new 2010 AISC Publication, AISC Webinar, October 2010
- Where did that force come from? AISC Webinar, July 2010
- Introduction to the AISC 2005 Seismic Provisions, AISC Webinar, December 2009
- Practical Connection Design for Economical Steel Structures, AISC Conference, June 2009
- Intelligent Design! Low-Rise and Mid-Rise Building, AISC Conference, May 2008

Education

Master of Science in Structural Engineering
Iowa State University, Ames, IA
December 1993

Bachelor of Science in Civil Engineering
North Dakota State University, Fargo, ND
November 1991

Associate of Science in Engineering
Bismarck State College, Bismarck, ND
May 1989

Educational Presentations

Innovations in Concrete Curing, Iowa Better Concrete Conference, 2013

Licenses & Certifications

PE - Professional Engineer
Licensed by the State of Iowa - Number 14242

Employment History

Forensic Engineer
Nederveld, Inc.
2024 - Present
Duties include forensic engineering analysis relating to building pathology, structural damage due to fire, structural damage from vehicle impacts, storm damage (wind, snow, hail), seismic, and water loss events, calculations, and plan of repair design.

Structural Engineer

Shive-Hattery Group, Inc., West Des Moines, IA

1997 - 2021

Duties included structural analysis, design, and construction document production of industrial, healthcare, commercial, education, government, and sports facilities including deep and shallow foundations, steel, wood, masonry, concrete, and precast concrete. Experience includes new construction, renovation/rehabilitation of existing facilities, forensic investigation and repair design for structural failures, and water infiltration investigations and remediations.

Project Manager

Shive-Hattery Group, Inc., West Des Moines, IA

1997 - 2015

Responsible for finding and developing client relationships, recruiting design teams, writing contracts, establishing fees and schedules, monitoring and controlling project costs, and meeting or exceeding company and client expectations.

Structural Group Leader

Shive-Hattery Group, Inc., West Des Moines, IA

2012 - 2015

Led and managed the technical development and workload of the structural engineering department. Established operational effectiveness initiatives and processes to improve workflows. Coached and mentored staff to ensure engagement and professional development.

Office Director and Vice President

Shive-Hattery Group, Inc., West Des Moines, IA

2015 - 2021

Led and managed the daily operation of the Des Moines office serving clients in Healthcare, Industry, Commercial, Government, Sports, and Education markets.

Board of Directors Member and Chairperson

Shive-Hattery Group, Inc., West Des Moines, IA

2015 - 2021

Corporate governance, allocation of profits, oversight of president, shareholder selection, established acquisition target guidelines, approval of acquisitions, and leadership succession planning.

Graduate Research and Teaching Assistant

Structural Engineering Department, Iowa State University

1992-1993

Professional Affiliations

Member:	American Society of Civil Engineers (ASCE)
Past President:	Structural Engineers Association of Iowa
Past Board Member:	Iowa Association of Business and Industry
Past Board Member:	West Des Moines Chamber of Commerce

Publications

Strengthening of an Existing Continuous-Span, Steel Beam, Concrete Deck Bridge, Iowa State University Thesis for the Master of Science Degree, 1993

Expert Witness Experience

Expert Testimony at Judge Hearing

November 2014

Five Star, F.A. Inc., et al vs Ward Properties

Retained Expert for Ward Properties

Polk County Iowa Case 05771 EQCE077446

FOR REFERENCE ONLY NOT RETAINED