

Matthew Deardoff, 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. Examples of past work includes failure analysis of collapsed structures (concrete, wood) and various building components (windows, doors, roofing, exterior and interior cladding) as well as damage assessment of structural components after a fire.

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 and wall cladding, causing moisture entry, humidity and condensation related losses, and groundwater entry.

Building Fenestration/Building Envelope

The building envelope is a building's first line of defense to moisture entry. Identifying the type of system (single versus multiple barrier) and how the various adjoining materials' water, vapor, thermal, and air control layers connect is key to effective moisture management. Examples of past work include residential window installations, exterior cladding installation, and roofing materials.

Building Pathology/Construction Defects

The building pathologist relies on an in-depth knowledge of building design, construction, use, and changes as well as assessing the environment of use and the materials and how these interrelate to systematically identify, investigate, and diagnose defects in a building. Past work includes design and specification of repairs to structural elements as an owner's representative.

Inspection and Evaluation of Roofing Systems

This includes steep and low slope roofs as well as various types of roofing materials, including both common and unique roofing applications. Past work involved offering opinions and repairs related to installation deficiencies and storm-related damages, including for hail and wind.

Education

Master of Science Degree in Civil Engineering
South Dakota School of Mines and Technology, Rapid City, SD
December 2011

Bachelor of Science in Civil Engineering
South Dakota School of Mines and Technology, Rapid City, SD
May 2010

Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Minnesota – Number 55899

Licensed by the State of North Dakota – Number PE-10598

Licensed by the State of South Dakota – Number 16686

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
Albertson Engineering Inc., Sioux Falls, SD
2023

Work included design and detail of structural buildings (wood, concrete, and steel construction) as dictated by group lead. This includes but is not limited to developing calculation packages for member design and plan preparation. Construction observation and shop drawing review were also performed as part of duties.

Structural Engineer
Encompass Inc., Minnetonka, MN
2018 - 2023

Joined group as structural engineer. General duties include inspection and forensic analysis of damaged or deteriorated structural systems and provide information for repairs, including plans, details, and technical reports. Emphasis toward repair of structural support members and remediation of damaged items at building envelope. Work requires competent coordination of work with general contractors, project managers, and insurance representatives. Have also provided bid coordination and project oversight during repair projects.

Structural Engineer
KLJ-Structural Group, West Fargo, ND
2014 - 2018

Work includes design and assessment of structural buildings of wood, concrete, and steel construction. This includes but is not limited to member design, plan preparation, construction observation, and shop drawing review.

Structural Engineer
KLJ-Power Group, Fargo ND
2013 - 2014

Work included transmission line structure modeling in PLS CADD and structure drafting in AutoCAD. Later involvement included design of structure foundations with anchorage.

Professional Affiliations

Member: National Society of Professional Engineers
Member: American Society of Civil Engineers (ASCE)