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Ronald C. Prevost Jr. | Senior Forensic Engineer, P.E., HCI-C, HCI-R

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Professional Summary:

Mr. Prevost has been involved with the construction industry since 1986. He has held positions at all levels of responsibility from carpenter's helper to design engineer and now forensic engineer. His most recent forensic structural engineering experience includes investigations into structural failures of post and frame buildings, building envelope failures, moisture intrusion, design/construction defects, structure fire salvageability, flood damage, and roofing hail and wind damage, along with many other damage mechanisms. Mr. Prevost also has experience in environmental/water resource engineering studies including hazardous waste remediation, contaminated site assessments, ground and surface water modeling, stormwater management design, combustion by-product contamination assessments, indoor air quality, and mold assessment and remediation. He is proficient in the use of multiple modeling software packages including AutoCAD 3D, SketchUp Pro, HEC-RAS, HEC-HMS, and ArcGIS. He deploys these tools when needed in the design or analysis of complex problems or to assist in communicating solutions.

Mr. Prevost's expertise includes:

- **Civil / Structural Forensic Investigations**
- Building Envelope Assessments
- Moisture Intrusion Cause & Origin
- Property Condition Investigations
- Roofing Wind/Hail
- Vehicle Impact Assessments
- Blast Damage Assessments
- Fireplace & Chimney Investigations
- Lightning Damage
- **Environmental Forensic Investigations**
- Remediation Design & Oversight
- Fire Residue Contamination Assessments
- Mold Contamination Assessments & Remediation Design
- Forensic Flood Assessments
- Hydrologic & Hydraulic Modeling
- Hazardous Materials Contamination

Licenses and Certifications:

Professional Engineer (P.E.), State of Michigan, #6201067875

Professional Engineer (P.E.), State of Wyoming, # PE 16830

Professional Engineer (P.E.), State of Colorado, # PE 0061755

Professional Engineer (P.E.), State of Utah, # PE 13244496

Professional Engineer (P.E.), State of Ohio, # PE 89984

Professional Engineer (P.E.), State of Indiana, # PE 12400353

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Project Experience:

Forensic Structural/Civil Engineering

Retail Hardware Store Catastrophic Roof Structure Failure, Atlanta, MI
Origin & Cause Assessment & Repair Design
A northern Michigan retail hardware store sustained a catastrophic collapse of the roof structure shortly after the store opened. The structure, a 10,000 sf two story with low slope roof had recently undergone light remodeling when during calm skies, the roof collapsed. No external loading was apparent, and the building had resisted significant winter snow loading for more than 40 years. Mr. Prevost led a team of engineers to perform detailed observations, analysis, and design of both failure causation and repair design services. The forensic efforts resulted in the discovery of latent truss design anomalies that contributed to the initial truss failure and rapid propagation across the remaining trusses. Rapid repair design services facilitated a quick resumption of business operations and limited business interruption losses.

3 Million Bushel Grain Storage Bunker Post Fire Damage Assessment, Hemlock, MI
Post Fire Damage Assessment
Just days before Christmas a large grain storage facility caught fire shortly after being filled with the summer's harvest. The fire spread to the corn inventory being stored and continued to burn for more than a month even though fire suppression efforts applied over 7 million gallons of water to the corn. The structure consisted of a 25-foot tall, steel reinforced, continuous concrete circular wall with open web steel trusses supporting a wood roof deck. The roof structure was completely consumed by the fire and the concrete wall exhibited significant thermal stress. A comprehensive salvageability study of the concrete walls deployed ground penetrating radar, high-definition 3D LiDAR modeling, and plenty of physical sounding. The resulting comprehensive salvageability study resulted in repair cost savings in excess of $2 million.

Multi Structure 84 Unit Apartment Campus, Flint, MI
Property Condition/Damage Assessment
Initially reported as a mechanical/plumbing systems damage incident from acidic Flint, MI municipal water supply. Three structures and 84 individual units were assessed under strict time restraints by a team of engineers for plumbing system damage, roofing damage, interior structural and surficial water damage, and damage from vandalism. The campus sat vacant for several years allowing weather and human caused degradation of the building envelopes which was further complicated by a substantial freeze event of the plumbing system. The team, led by Mr. Prevost, performed detailed damage assessments of the interior of all 84 units, roofing, attic spaces, and mechanical systems over an 18-hour period. The resulting comprehensive report resulted in a significantly reduced claim liability.

Air Supported Dome Structure, Auburn, MI
Collapse Investigation of an Air Supported Sports Dome
An Air Supported Dome structure collapsed during a wind event resulting in a multi-million-dollar loss claim. Essential to the coverage liability was the determination of the specific cause of collapse differentiated between wind and facility power loss. Complicating the study was a series of rigid poles that had been erected inside the structure, one of which penetrated the structure's exterior membrane causing catastrophic damage. The interior pole was erected in close proximity to the air structures side wall requiring the calculation of normal lateral deflection at design wind loading to determine if wind alone may have caused the loss. Additionally, a detailed chronology of events was created in order to determine the effects of a power outage sustained as a result of the passing storm system.

Industrial Building, Alpena, MI
Structural Wall/Floor/Roof Damage Investigation
A masonry block constructed industrial building developed differential settling of concrete floor slabs which caused rotational displacement of interior CMU walls which inturn caused lateral displacement of exterior and interior CMU bearing walls and roof displacement. 3D modeling of the structure and subsurface was deployed for analysis, communication, and repair design development. Geologic subsurface sampling and analysis revealed underlying geologic anomalies (sink holes) undermining the structures slab floors. The recommended solution included driven pier deep foundations supporting grade beams and structural slabs as well as reconstruction of CMU walls and roof repairs.

Public Library, Alpena, MI
Commercial EIFS Failure Investigation
A recently refurbished public library and associated commercial office building developed significant blistering and associated facade failure and water intrusion which was investigated for cause. An aerial lift was deployed to inspect three stories of exterior wall finishes revealing numerous façade penetration detail defects, window penetration detail defects, and wall contour detail defects. A repair plan was developed in consultation with the EIFS manufacturer, repair contractor, and property owner.

Nature Center, Midland, MI
Commercial Roof Hail Investigation
An early spring hailstorm in the Midland area contained hail reported up to two-and one-half inch diameter. An investigation of the Duro-Last PVC membrane revealed extensive impact damage. Observations of damage to HVAC components confirmed size and directionality of hail stone impacts.

Rural Golf Course & Country Club, West Branch, MI
Structural Repair Design
Significant damage to the clubhouse floor system was sustained as the result of a kitchen fire. A post fire salvageability investigation was requested by the remediation company to determine scope of required demolition and subsequent reconstruction.

Mid-Michigan Farming Operation, Memphis, MI
Design/Construction Defect Investigation
A recently constructed post and frame structure displayed signs of structural roof failure with no apparent external influence. An investigation of the roof truss system revealed damage to truss top chord members where the lumber delaminated and failed in axial compression. Inadequate insulation and ventilation led to severe and repeated roof condensation and freezing of the saturated truss members. The continuous cycle resulted in structural instability and ultimate failure of the trusses.

Modular Home, Clare, MI
Construction Defect Investigation
Shortly after a modular home was installed near Clare, MI some of the exterior walls began to show signs of outward deformation initially thought to be related to a defect in the siding material. An investigation of the building envelope revealed a lack of adequate air exchange that limited the buildings ability to dry itself. Photos of in progress construction revealed high moisture content in the soils of the crawlspace and an undersized primary exhaust fan. It was determined the

moisture inside the envelope condensed on the backside of the exterior sheathing causing differential expansion and deformation.

Highschool Campus Complex, MI
Moisture Intrusion Investigation
Upon returning from a summer break the staff of a large high school complex found significant water damage to a multi-media center in the library including damage to the computer server center. Multiple maintenance contractors had been working in the facility, each with multiple uncontrolled discharges of water, in areas directly above the impacted area. The assignment was to determine cause of damage. After in-depth personnel interviews and an extensive investigation of the impacted structure it was determined that a maintenance contractor stripping and polishing floors was using an improper method that included discharging up to 50 gallons of water on the floor which leaked through to the media center below.

Environmental / Water Resource Engineering

Private Residence, Shelby Township, MI
Fire Residue Contamination Assessment
Single family residence sustained a substantial structure fire originating at an outside wall and igniting the roof structure consuming approximately ten percent of the roof. Combustion by-product sampling was performed via tape lifts, bulk samples, and wall cavity microvacuum air sampling to allow quantification of contamination throughout the residence. These analyses were then used to develop a detailed remediation plan.

Private Residence, Redford, MI
Fire Residue Contamination & Structural Salvageability Assessment
Single family residence sustained a substantial structure fire originating at a bedroom wall and igniting the roof structure consuming approximately 70 percent of the roof. Combustion by-product sampling was performed via tape lifts and bulk samples to allow quantification of contamination of the exterior Celotex sheathing which was backing an exterior masonry cladding. Ultimately the combustion-by-product contamination testing results indicated sufficient contaminant concentrations to warrant removal and replacement of more than 50% of the exterior sheathing, which would have required removal of the masonry cladding. The structure was deemed unsalvageable due to cost considerations.

Private Residence, Lansing, MI
Indoor Hazardous Materials Contamination
Single family residence sustained a substantial accidental release of raw sewage into a soil floor crawlspace. An initial hazard assessment was performed, and emergency mitigation plan implemented to allow access to the confined, contaminated space. A subsequent remediation plan was developed including soil and swab sampling and subsequent testing. Final abatement protocols were then developed and implemented.

County Soil Conservation District, WY
Groundwater Contamination
The Soil Conservation District commissioned a county wide, multi-year study into potential groundwater contamination after observed degradation of water quality in a Class I Outstanding Stream (DEQ). The study included development of a groundwater elevation model to identify high priority contaminant sources such as septic systems located within one foot of high ground water. The model was developed using groundwater elevation data collected from a continuously

monitored network of legacy monitoring wells combined with surface water elevation data from HEC-RAS stream hydrologic models. These data were then integrated into 3D groundwater models using advanced ArcGIS interpolation routines and statistically tested against known groundwater elevations.

County Governmental Agency, ID
FEMA Flood Hazard Risk Map Updates
Teton County Idaho, in partnership with the Federal Emergency Management Agency (FEMA), commissioned a floodplain revision study of all major flooding sources within the county. Detailed two-dimensional HEC-RAS models were developed using high definition one-meter DEM data, ground surveyed bathymetry, and HEC-HMS hydrology discharge models. The final models were nationally peer reviewed and are currently in a public comment phase awaiting adoption.

County Road & Bridge Department, Teton County, ID
County Road Culvert/Bridge Design
Teton County Idaho Road and Bridge Department commissioned the design and construction of a culvert upgrade for County Road 2000 South where it crossed Darby Creek. HEC-RAS hydraulic models were developed using a combination of ground survey data and three-meter DEM data combined with HEC-HMS modeled 1% chance and 0.2% chance discharge rates. These models were then used to assess culvert vs bridge design alternatives and ultimate design specifications.

Expert Witness Testimony Court Qualifications / Depositions:

Mr. Prevost has considerable experience providing strategic litigation support services and expert witness testimony in several jurisdictions. Expert witness testimony and litigation support experience available upon request.

Professional Experience:

EFI Global, Inc., Forensic Structural Engineer, 2020 - Present
Paragon Forensic, Managing Member/Sr. Forensic Engineer, 2017 – 2020
Harmony Design & Engineering, Design Engineer, 2014 – 2017
Rainmaker, Inc., CEO/Founder & CEO, 1989 – 2018

Specialized Education:

Building Science Fundamentals, Building Science Corporation, 2022
Haag Certified Commercial Roof Inspector Certification, Haag Engineering, 2019
Haag Certified Residential Roof Inspector Certification, Haag Engineering, 2019
Design of Onsite Wastewater Treatment Systems, State of Idaho, 2016
Environmental Engineering – Water Resources Interdisciplinary Studies,
University of Wyoming, 2013 - 2014
AutoCAD 3D, Western Wyoming Community College, 2012

Education:

Bachelor of Science, Civil Engineering, University of Wyoming, Laramie, WY, 2013
Associates of Science, Engineering Sciences, Western Wyoming Community College, Rock Springs, Wyoming, 2011

Affiliations:

American Society of Civil Engineers (ASCE)
National Society of Professional Engineers (NSPE)