15235 Alton Parkway, Suite 120
Irvine, CA 92618

JOHN BERGELEEN, P.E., S.E.
SENIOR STAFF CONSULTANT

jrbergeleen@engsys.com

Mr. Bergeleen is a Senior Staff Consultant at Engineering Systems Inc. (ESi) where he works within the Civil Engineering practice group. He has over eight years of experience in structural engineering. His primary focus is assisting facility owners and managers in achieving safe and economical solutions to complex repair and retrofit needs. He performs hands-on inspections and produces designs that are closely coordinated with project owners, equipment operators, and installing contractors. Mr. Bergeleen has a diverse background including new construction, retrofits, construction aids, damage assessments, and repair design in the healthcare, military, and industrial sectors, including seismic design and design of structures in challenging mountainous conditions.

In his investigative work, Mr. Bergeleen has performed Occupational Safety and Health Administration (OSHA) fall protection assessments, condition and seismic evaluations of wood and steel structures, crane and crane runway assessments, damage assessments of steel and concrete silo structures, bridge inspections and damage assessments, and foundation settlement assessments at both residential and commercial structures. Having also been involved in the repairs and remediation of many of these issues, he is experienced with common repair techniques as well as critical conditions which are often obscured until the use of destructive testing or invasive investigations. He is highly skilled in the use of 3D design software for the analysis of existing structures and the design of complex structural systems used in repairs and additions.

Mr. Bergeleen is a licensed Structural Engineer (S.E.) in Washington State and a licensed professional engineer (P.E.) in the state of New Mexico. He is also a Federal Highway Administration (FHWA) Certified Bridge Inspector.

Areas of Specialization

Commercial Structures
Construction Defects
Cranes and Aerial Devices
Residential Structures
Storm Damage Investigation

Education

B.S., Civil Engineering, Washington State University (WSU), Pullman, 2011

Licensed Structural Engineer (S.E.)

State of Washington ..... License No. 55544

Licensed Professional Engineer (P.E.)

Phone: 949-336-9001 | Fax: 949-336-9020 | Toll Free: 866-596-3994
www.engsys.com

State of Washington ..... License No. 55544

State of New Mexico ..... License No. 28065

Certified Bridge Inspector

FHWA Certified Bridge Inspector, 2019

Previous Experience

Prior to joining ESi, Mr. Bergeleen worked as Senior Structural Engineer at Coffman Engineers. He managed multi-disciplinary project teams for clients in the healthcare, government, military, industrial, construction, and alternative energy sectors. Additionally, he performed inspections and investigations in diverse facility types. Prior to starting his engineering career, he spent several years working in the construction industry and performing facilities maintenance, giving him valuable insight into practical construction techniques and common defects. During his time at Washington State University, he served as an undergraduate researcher and was responsible for the development and operation of a compostable materials testing apparatus. He also led a team of students in designing and constructing a bridge in rural El Salvador together with Engineers Without Borders and Bridges to Prosperity.

Professional Associations and Affiliations

Structural Engineers Association of Washington (SEAW)
Structural Engineers Association of New Mexico (SEANM)

Academic Honors

Crimson Regent Scholar, WSU

Graduated Summa Cum Laude, WSU

Languages

Spanish (intermediate)

Professional Training and Education

ACT 20/45 Post-Disaster Building Safety Evaluation Training, 2018

Confined Space Hazards, 2019

Positions Held

Engineering Systems Inc, Albuquerque, NM
Senior Staff Consultant, 2022 – Present

Coffman Engineers, Spokane, WA
Senior Structural Engineer, 2013 – 2022

Teaching Experience

Director, Spokane Mountaineering School, 2016-2021: Served as an instructor for mountain safety and rope rescue courses.

Selected Project Experience

Pipeline Compressor Stations Fall Protection Assessment

Project Manager and lead investigator performing an assessment and remediation of fall protection hazards in gas pipeline compressor stations in Michigan, Minnesota, Wisconsin, Idaho, Washington, and Oregon. Performed on-site inspections at each facility assessing the ladders, platforms, and elevated work areas for fall hazard mitigation compliance with Occupational Safety and Health Administration (OSHA) regulations. Documented instances of non-compliance, created as-built documents for the non-compliant situations, and provided equipment recommendations and designs for new platforms, guardrail systems, tie-off points, and other solutions to mitigate fall hazards. Worked with product manufacturers, on-site operators, and state OSHA representatives to provide safe and economical solutions.

Crane Runway Evaluations

Project Manager and lead investigator for the condition assessment, as-built documentation, analysis, and reinforcement design of several crane runways at an aluminum production facility in Washington State that was constructed in the 1940s. Hazards identified included cracks in the steel beams and columns, cracked welds, broken rivets and bolts, and structural elements, which were loaded significantly above their allowable capacities. The analysis and design were completed following the Crane Manufacturers Association of America (CMAA) 70 specification for multiple girder cranes and American Society of Civil Engineers (ASCE) Design Guide 7: Industrial Building Design.

U.S. Air Force Base Building Evaluation and Upgrade

Engineering Lead for an evaluation of an existing wood-framed structure at a U.S. Air Force Base to determine if the structure was safe under wind, snow, and seismic loading and met the standards for conversion to a recreation center from its original use as a warehouse. An inspection of the structure was conducted, documenting the condition and as-built layout and sizing of structural elements. Analysis was performed in accordance with the International Existing Building Code and the ASCE 41 Seismic Evaluation and Retrofit of Existing Buildings, including 3D modelling of roof trusses and a tier 2 seismic evaluation of the roof diaphragm and shear walls. Based on the analysis, it was determined that the building was not safe to occupy, and it was subsequently demolished. Upon locating a different building for the recreation center, inspection, analysis, and design were performed to upgrade the main entryway of the building based on Anti-Terrorism Force Protection (ATFP) blast loading requirements.

Cement Mixer Structure Inspection

Lead investigator performing an inspection of the steel support structure for a cement silo, mixer, and associated conveyors at a facility in Washington State. The mixer had been in service for over 40 years and the facility was intended to be kept in service for an additional five years. Deterioration identified included spalled concrete and exposed, corroded reinforcement in the

concrete column piers, corroded gusset plates with significant steel section loss, localized corrosion of the beams and columns with significant steel section loss, and extensive corrosion and steel section loss in the maintenance platform support beams and grating. Repairs designed and implemented included encasement of the concrete piers, reinforcing plates welded to the beams and columns to bypass compromised sections, and replacement of the maintenance platform with new steel structure.

Sodium Chlorite Facility Silo Addition

Project Manager and lead investigator for inspection and design associated with the installation of a new silo and product bagging machinery within a highly corrosive environment in a manufacturing facility in Washington State. On-site inspections were performed to assess the building structure and building envelope around the addition and document compromised elements. New concrete and steel structural elements were designed to accommodate the weight of the silo and configuration of the existing and new equipment. The new structural elements were designed to complement the lateral and gravity force-resisting systems of the existing plant, and replacements and reinforcements were designed to bring the compromised structural elements into a safe condition. Three-dimensional (3D) scanning and 3D modelling of structural and mechanical components were utilized to incorporate new elements into the congested facility and enable a short construction window. Analysis was performed in accordance with the International Existing Building Code and ASCE Design Guide 7: Industrial Building Design.

Residence settling and underpinning

Lead investigator for the inspection of a residence in Washington State that was constructed on a hillside and experiencing settlement and exhibiting foundation cracks, drywall cracks, and door opening issues. On-site inspections were performed to determine the extent of damage and possible causes, including a leaking water line found on the house exterior and poor compaction of the soil slope beneath the house foundation. Design of new structural elements included helical piers along with their connections to the concrete foundation and continuity walers installed to prevent further cracking and differential movement of the foundation.

Hospital Retrofits and Additions

Project manager and lead investigator for several phases of additions and renovations to a hospital in North Idaho. The existing structure consisted of wood, concrete, steel, and masonry materials constructed in phases over a period of 60 years. Inspections were performed to assess the condition and configuration of existing building structure in areas that were to be modified for feasibility of incorporation of new structural elements and required repairs and seismic retrofits. Repair details, ductile seismic connection details, and new structure design drawings were developed to interact with and tie in with the existing hospital structure. Design was completed in accordance with the International Building Code, International Existing Building Code, and appropriate ASCE and material-specific codes.

Waste-to-Energy Facility Ash House Inspection

Lead investigator performing an inspection of the steel and concrete structure of the ash handling building of a waste-to-energy facility in Washington State. Due to the chemicals used, the age of the structure, and the compromised waterproofing of the roof structure, steel elements exhibited high levels of corrosion with areas of significant section loss and compromised structural integrity.

In addition, concrete foundations and supporting walls and piers of the conveyors and separating equipment in the facility exhibited spalling, delamination, and areas of exposed, highly corroded reinforcement. Designed and implemented emergency repairs for several of the critically deteriorated elements of the building and equipment support structures, and provided conceptual overall remediation and maintenance recommendations, as well as comprehensive reporting of the condition of the structures.

Parking Structure Inspection and Replacement

Project manager and lead investigator for inspection and partial replacement of a single-story parking structure in Washington State. The parking structure consisted of a concrete parking deck supported by steel and concrete beams and columns built over the side of a steep hill. A condition inspection of the structure was performed and significant deterioration of the concrete beams, columns, deck, and retaining walls was found and documented. Upon determination that partial replacement would be the appropriate course of action for the parking structure, further inspections were performed to document as-built dimensions and detailing for design of the replacement. Several design alternatives were coordinated with the owner, installing contractor, and product suppliers to determine a cost-effective and safe approach to partial replacement of the structure. Upon selection of an approach, detailed design was completed, and close coordination kept with the contractor through demolition and construction to ensure a safe construction process and to address unforeseen conditions found during exploratory demolition.