
ROY L. ERIKSSON, P.E.

President/CEO
Eriksson@LRFD.com

Years of Experience: 30

Education

- M.S., Civil Engineering (structures emphasis), University of South Florida, 1989
- B.S., Civil Engineering (structures emphasis), University of Florida, 1982
- Additional Studies: completed 24 credits towards MBA, University of South Florida, 1986

Professional Affiliations

Precast/Prestressed Concrete Institute (PCI):

- Chairman, Prestress Losses Subcommittee (2005 – present)
- Chairman, PCI Bridge Technical Committee (1999 – 2003)
- Transportation Activities Committee (TrAC) (1994 – present)
- Bridge Committee (1994 – present)
- Bridge Producers Committee (1996 – present)
- LRFD Subcommittee (1995 – present)
- Girder Stability Subcommittee (2008 – present)

Professional Registrations

NCEES Record No. 36031

Connecticut, No. 28179

Florida, No. 40107

Maine, No. 12930

Maryland, No. 36505

Massachusetts No. 48750

New Hampshire, No. 12927

New Jersey, No. 47952

New York, No. 090733

North Carolina, No. 038156

Pennsylvania, No. 077232

Rhode Island, No. 9833

South Carolina, No. 30522

Texas, No. 103987

Utah, No. 8234976-2202

Vermont, No. 75908

Virginia, No. 045631

Washington, No. 49844

Key Qualifications

Roy Eriksson is President and CEO of Eriksson Technologies, Inc., a firm that specializes in the rendering of consulting structural engineering services and developing and supporting state-of-the-art bridge and structural engineering software. The firm is a noted expert in developing technology transfer tools for the bridge engineering community and applying the *AASHTO LRFD* and *Standard Specifications* to engineering practice. Eriksson offers consulting, training, and research services to departments of transportation, consulting engineering firms, precast fabricators, and industry groups throughout the United States. Their PSBeam software, for the design of prestressed concrete bridges, is used extensively throughout the United States.

Roy has been responsible for structural engineering for a variety of projects using precast/prestressed and post-tensioned concrete, cast-in-place concrete, structural steel and composites. Project types include new construction, expansion, rehabilitation, repairs, failure investigations, and construction engineering of bridges and commercial structures. He also has extensive personal experience with AASHTO's load and resistance factor design (LRFD) specifications, which includes development of design software, comprehensive LRFD training courses, industry committee involvement, and project design experience. During his tenure as the Chair of PCI's Technical Committee for Bridges, Roy interfaced directly with the T-10 (Concrete) subcommittee of the AASHTO Subcommittee on Bridges and Structures. A primary activity of this involvement is preparing proposed revisions to the AASHTO Specifications.

Employment History

- LEAP Associates International, Inc.
Project Engineer 1983-1985
Performed structural engineering on a variety of projects, including bridges and commercial structures. Structural materials included reinforced and prestressed concrete, steel, and wood.
- LEAP Software, Inc.
VP/General Manager 1985-1994
Responsible for overall management of the company. During tenure developed the company from a single employee to a full staff of programmers, engineers, and support personnel. Oversaw conception, development, and bringing to market of the Conspan, RC-Pier, Geomath, Presto, and Axsys softwares.
- Parsons Brinckerhoff Quade & Douglas, Inc.
Supervising Structural Engineer, Professional Associate 1994-2000
Lead structural engineer and project manager for a large, complex post-tensioned box girder bridge and moveable bridge project for FDOT, leading it from conception through post-design services. Oversaw development of standardized series of bridges for the Boston Central Artery Project. Integral member of a team that assessed the feasibility of the Charles River cable-stayed bridge (renamed the Howard Zakim Bridge after final design). Developed an LRFD training program for internal and external use.
- Eriksson Technologies, Inc.
President/CEO 2000-present
Principal structural engineer in overall charge of the company. Led company from single employee to a current staff of 40, consisting of engineers, programmers, CAD technicians, and support personnel. Company specializes in rendering structural engineering services and developing engineering software tools for internal and external use. Areas of expertise include highway bridges, prestressed concrete, reinforced concrete, steel, composites, repairs, structural assessment and programming.

Representative Bridge Design Projects (partial listing)

- Dominion Blvd., Girder Aging Evaluation (VA): Assessed the feasibility of establishing prestressed girder continuity connections earlier than the stipulated 90-day minimum. Performed a time-dependent analysis to quantify the potential for restraining moment development at the pier diaphragm caused by creep from the prestress and differential shrinkage between the deck and the girders. Performed a non-linear thermal gradient analysis. Was able to justify to the full satisfaction of the EOR and owner that continuity could be safely established at 60 days, allowing the fabricator and GC to meet required construction schedule.
- Tappan Zee Bridge (NY): Designed lifting and handling and schemes and prepared all shop drawings for the full-depth precast, reinforced concrete deck panels for this very large twin structure project. Typical panel dimensions are 45' long, 12' wide and 10.75" thick. Total panel count is approximately 6,000. Many complexities are present, including tangent and curved, super elevated sections with a moving crown line, many openings of various sizes, and skews. Oversaw and approved repair work as required.
- Bridge HAS-799-03.91/04.53 (Harrison County, OH): This 2-span replacement structure for an existing bridge consisting of adjacent precast box beams. One span will utilize conventional 270ksi prestressed strands while the other will utilize Carbon Fiber Reinforced Polymer Strands (CFRP). The scope of services for my involvement in this project consists of providing design/analysis and QA/QC services for the CFRP portion of the project.
- Little Pee Dee Swamp Bridge, SC: Designed repair for the continuity connection at the piers which utilized carbon fiber externally bonded FRP.

- Navy Explosives Handling Wharf, WA: Secret clearance project for U.S. Navy for arming of submarines with nuclear explosives. Performed redesign, detailing, prepared shop drawings and lifting and handling analyses for box beams, pile caps, deck slabs, and trench covers. Very large, complex project in excess of 500 sheets of shop drawings for all products.
- Troy Menands Re-Decking, NY: Prepared shop drawings for exodermic panels used to redeck the project. Six spans plus off ramp. Large, complex project with curved alignment.
- Stillwater Viaduct Rehabilitation, RI: Performed detailing and prepared shop drawings and designed lifting, handling, and transportation schemes for all precast products used in the rehabilitation of this complex, historically significant 1932 arch bridge. The entire superstructure of the bridge was removed and fabricated out of precast concrete to match the appearance of the original structure. Product types included precast caps, longitudinal beams, floor beams, SIP forms, and decorative precast railing. **Winner 2013 PCI Design Awards, Rehabilitated Bridge category.** Eriksson Technologies served role of Precast Specialty Engineer.
- Yadkin River Bridges, NC: Prepared shop drawings for four structures, the longest being in excess of 20 spans. Structure type is bulb tee girders with a very large number of shop drawings due to skews and complex alignment.
- Craney Island Fuel Terminal, Pier D, VA: Prepared shop drawings for precast concrete pile caps. Complex cap shapes required 3D assessment and fit-up.
- Route 205 Colonial Beach, VA: Serving as EOR for this hybrid composite beam (HCB) project. Prepared design calculations, details, and shop drawings for this highly skewed 49' long structure.
- Manderfield Bridge No. D-699, UT: Served as EOR for the analysis, design, and detailing of the hybrid composite beams (HCB) on this 74' long single span highway structure. Cross section consisted of eleven HCB box beams with CIP deck.
- Logan Airport RSA, MA: Performed conceptual design of this 500 foot long by 300 foot wide total precast structure that extended Runway 33L of Logan Airport into the Boston Harbor as part of HNTB/Jay Cashman design-build team. Oversaw production of shop drawings for precast piles, precast caps, and NEXT beams for the final structure.
- Dulles Metrorail, VA: Prepared many sheets of detailed shop drawings for large precast, pretensioned and post-tensioned box and inverted tee beams. These heavily-loaded girders support the passenger platforms at three of the elevated guideway stations. Parabolic post-tensioning ducts, future PT ducts, pretensioned strands, dapped ends, and a complex reinforcing steel layout provided a high degree of technical challenge.
- Bridge #4 Fort Knox Military Reservation, KY: Served as EOR for the analysis, design, and detailing of the hybrid composite beams (HCB) on this 2-span highway structure with 40' spans.
- BSNF Railroad Bridge: Prepared design calculations for this 42' long hybrid composite (HCB) railroad bridge. Cross section consisted of a single track with six beams.
- Bridges B0410, B0439, B0482, MO: Prepared shop drawings for several projects utilizing hybrid composite beams (HCB) on Missouri Safe and Sound bridge replacement project.
- Intercounty Connector (A & B), Baltimore, Maryland: Prepared conceptual designs, redesign calculations, and calculations for shipping and handling of bridge girders for the six structures of Contract A and four structures on Contract B. Supervised preparation of all shop drawings. Structural member types included bulb tees and box beams. Developed a new quick connect/disconnect lifting system for long (> 165'), very heavy girders (> 200 kips). Worked closely with fabricator to assist in winning these two large projects. After award of Contract B,

worked closely with contractor (Kiewit) to standardized detailing for girders for the EOR in advance of the design of the girders.

- Prestress Bed Retrofit, San Marcos, TX: Performed a load study and prepared design calculations and drawings to retrofit an existing bed to enable it to handle draped strand patterns with high forces. New hold-down concept utilized deep foundation 18" diameter drilled shafts and cap beam due to highly expansive clay soil. Detailed calculations were also performed to assess capacities of other existing beds.
- Oak Bluffs, Martha's Vineyard, Massachusetts: Prepared all shop drawings for a single span and a three-span composite box beam structures.
- Route 896, Delaware: Performed detailing and prepared detailed shop drawings and handling calculations for precast/prestressed concrete pavement panels. These 24' wide by 10' long 8" thick panels were pretensioned in the direction transverse to the roadway and post-tensioned with strands and PT bars longitudinal to traffic.
- Route 23 Over Peckman's Brook, New Jersey: Served as EOR for this hybrid composite beam (HCB) bridge. The hybrid composite beam is a new-generation composite structural member that incorporates an inner concrete compression arch and tension tie to create a highly structurally efficient member.
- Knickerbocker Bridge, Maine: Prepared complete shop drawings for this 8-span continuous hybrid composite beam (HCB) bridge.
- Subsea 7 Spool Base Facility, Texas: Designed superstructure for this waterfront structure. The main structural elements were continuous precast/prestressed concrete voided slabs.
- International Boulevard Viaduct, Fulton Co., Georgia: Rendered construction engineering services to the fabricator. Prepared redesign calculations and shop drawings for these twin 12-span, highly asymmetrical precast/pretensioned concrete girder structures.
- SR-77 Over Talladega Creek, Talladega Co., Alabama: Prepared value engineering calculations, redesign calculations, and drawings for this bridge replacement project that incorporates both standard AASHTO girders and bulb-tee girders.
- Hallandale Beach Flyover Ramp, Hallandale Beach, Florida: Served as project manager, lead structural engineer, EOR and post-design services manager for a cast-in-place, highly-curved, (89 degrees) post-tensioned concrete box girder flyover ramp. With span lengths ranging from 131 to 187 feet, this four-span highly-curved structure with phased construction presented numerous design challenges.
- Central Artery/Tunnel Project, Boston, Massachusetts: Served as lead engineer for the development of a series of standardized bridges, both concrete and steel. Also served as an Integral member of a team that performed a special feasibility investigation of the asymmetric cable-stayed Charles River segmental concrete bridge, which consists of eight inboard and two outboard traffic lanes.
- Harbour Island People Mover, Tampa, Florida: Project engineer for the superstructure of the prestressed precast spliced-girder span of this elevated people mover. [See *Selected Publications* below for *PCI Journal* article on this project.]

Software Development

Roy has extensive experience in all phases of commercial software development. Major areas of responsibility have included software design, programming, operations management, business development, contract negotiation, technical support, and design seminars. He has over ten years of hands-on experience developing Windows-based engineering applications using C++.

Selected Teaching Experience (partial listing)

- “Design and Load Rating of Concrete Box Culverts”, half-day live training course conducted in training facility of University of Texas (Arlington) also broadcast simultaneously nationwide as webinar. Sponsored by American Concrete Pipe Association (ACPA). July 2013
- “Precast, Pretensioned Concrete Bridge Girder Design”, Two-day comprehensive design and detailing course conducted on-site at fabricator for the benefit of a large, multi-office engineering client of fabricator’s. April 2012.
- “LRFD Training: Principles & Practice” – Participated in the delivery of this full-day course on concrete bridge design in accordance with the AASHTO LRFD Specifications. This course was conducted in Tampa; Atlanta; Newark, NJ; Springfield, IL; Portland, OR; Sacramento, CA; and Irvine, CA from March 2004 through April, 2005. Several hundred practicing bridge engineers in private and public practice attended it.
- “AASHTO LRFD Training Seminar”, developed course material and taught Concrete Bridges I & II modules (7 hrs total) covering LRFD principles, bridge superstructure design, substructure design, strut-and-tie modeling, and integral bridge design. Part of 4-day seminar sponsored by Michael Baker Engineers for the WV DOT, FHWA, and consultants, August 1-4, 2000, Charleston, WV.
- “PCI Bridge Design Manual Seminar”, taught 3 hours covering design optimization, LRFD, and superstructure design. Sponsored by Prestressed Concrete Producers of Arkansas, Little Rock, AR, August 8, 2000.
- “1997 Load and Resistance Factor Design (LRFD) of Bridges,” developed presentation material for, and participated in the presentation of, a half-day concrete module for a series of 2-day, intensive seminars sponsored by the Florida DOT and Florida Institute of Consulting Engineers, August-October, 1997. The purpose of the seminars was to prepare Florida bridge engineers for statewide adoption of LRFD.

Research

- Spliced Girder Standards, PennDOT – Developed standard drawings and model calculations for Pennsylvania DOT for standardizing the use of spliced girders in the state of Pennsylvania.
- NCHRP 12-69 – “Design and Construction Guidelines for Long-Span Decked Precast, Prestressed Concrete Girder (DPPCG) Bridges”. Eriksson served as Co-Principal Investigator on this project. Eriksson’s role in the project was to perform literature search related to design and analysis methods of DPPCG, refine/revise design and analysis methods with respect to research conducted, draft specifications language, and develop design examples. Total project budget was \$500,000 and was completed in 2010.
- NCHRP 10-71 – “Evaluation of CIP Reinforced Joints for Full-Depth Precast Concrete Bridge Decks”. Eriksson serves as a primary consultant on this \$500k project. Areas of responsibility include: review of design procedures, preparation of design examples, and review of specifications language. Project is scheduled for completion in late 2010.

Awards/Recognitions

- 2015 Selected as one of three judges for this year's PCI National Bridge Design Awards. Judging will be in June, 2015 in Chicago.
- Winner 2013 PCI Design Awards, Rehabilitated Bridge category. Stillwater Viaduct (Smithfield, RI). Served role of Precast Specialty Engineer.
- 2002 PCI National Design Awards Judge
- Elected a Professional Associate of Parsons Brinckerhoff; March, 1996
- Technical Writing Awards: Merit (1993), Excellence (1991), and Merit (1991), Society for Technical Communication Technical Writing Competitions.

Selected Publications

- "LRFD Bridge Design Seminar Series: Overview of the AASHTO LRFD Specifications and Concrete Bridge Design," PB Office of Professional Practice, 1996.
- Co-author, "Segmental Design of the Harbour Island People Mover," *PCI Journal*, Vol. 30, No. 4, July-August, 1985, pp. 38-51.
- Updated design examples portion of the *PCI Bridge Design Manual*. Since its release in 1987, the *PCI BDM* has become the industry's standard reference for the design and fabrication of plant-cast precast prestressed concrete transportation products.