

BUILDING THE FORTH BRIDGE

ABSTRACT

During the late 19th century structural steel manufacturing, quality and cost were rapidly improving. Civilization was at the dawn of the steel age and civil engineers were courageously leading the way to leverage steel to design and build what was once thought impossible. In southern Scotland the Firth of Forth had forever impeded safe and efficient travel from the Capital of Edinburgh in the south to the Highlands of the north. Building a bridge was far from certain in the harsh environment of the Firth of Forth. The two-mile-wide Firth would require record setting foundations, and superstructure design and construction. Construction in the harsh environment of the Firth required extraordinary men, machines, and methods. In 1882 Sir Benjamin Baker, Sir John Fowler, and Sir William Arrol boldly accepted the challenge of spanning the Firth of Forth. Baker, Fowler, and Arrol would have to leverage civil engineering's collective bridge building body of knowledge and successes of the past such as the newly completed Eads Bridge (1874). And, they would have to innovate new methods and overcome the doubts and the failures of the past such as the Firth of Tay disaster (1879). After starting construction in 1882, the bridge opened to traffic in 1890. The Forth Bridge is an important chapter in the history of bridge design and construction. This presentation will bring the story of the Forth Bridge to life, providing a unique learning opportunity. Upon attending this seminar, you will be able to; understand why the Forth Bridge is still considered one of the greatest bridge-building stories, attendees will also understand the challenges of building the Forth Bridge, the unique innovative construction methods employed, and the importance of the Forth Bridge to growth and development of Northern Scotland in the twentieth century.

SEPTEMBER 24, 2025

4:30PM - 5:30PM RECEPTION IN HAMP 1129 | 5:30PM - 7:30PM LECTURE IN RHPH 172

BIOGRAPHY



*Prof. Paul Giroux,
Dist.M.ASCE, NAC*

Raymond "Paul" Giroux, Dist.M.ASCE, NAC received his BS in Construction Engineering from Iowa State University in 1979. Paul worked for Kiewit for 45 years on a wide variety of heavy civil engineering mega projects throughout the United States. Paul played a key role in notable projects such as the Fort McHenry Tunnel in Baltimore, several projects on the Big Dig in Boston --- including the new Zakim/Bunker Hill Bridge, the new San Francisco Oakland Bay Bridge East Span. Currently, Paul is a professor of engineering practice at Purdue University Lyles School of Civil Engineering. Paul has served on numerous industry advisory board and has been an active member of several national committees for the American Society of Civil Engineers (ASCE). During the past two decades Paul had leadership and speaking roles at numerous anniversary events including the Brooklyn Bridge 125th, the Hoover Dam 75th, the Golden Gate Bridge 75th, the Panama Canal 100th, the Grand Coulee Dam 75th, the Transcontinental Railroad 150th, the Union Chain Bridge 200th (Scotland) as well as lectures on the Eads Bridge, and the Mackinac Bridge. Paul is the author of several bridge design and civil engineering history papers. He is also an active public speaker having presented over 350 lectures and seminars at over 90 engineering schools. Additionally, he has presented over 150 other speeches at professional and public venues. Paul has also been a contributor on the Fox Business News show 'American Built'. Renowned for his ability to bring the past alive with inspirational storytelling and dynamic animations, he has shared his lectures to a wide variety of audiences around the world. Paul was the recipient of the American Society of Civil Engineers' Civil Engineering History and Heritage Award for 2013. In 2015 Paul received ASCE's G. Brooks Earnest Technical Lecture Award. In 2016 Paul was awarded the American Society of Engineering Societies' Norm Augustine Award. In 2016 Paul was elected as a Distinguished Member of the American Society of Civil Engineers. In 2017, Paul was awarded the ASCE Construction Institute's Roebling Award. In 2018 Paul was inducted into the Iowa State University Construction Engineering Hall of Fame. And, in 2022 Paul was inducted into the National Academy of Construction.