

Acceptance Test Stay Cable Bridges

CTLGroup's structural engineering laboratory is one of the world's largest private structural testing facilities and a recognized center for full-scale fatigue testing of stay cables and bridge components. CTLGroup's activities in the specialized field of full-scale acceptance testing have contributed to better cable design and fabrication practices. Our engineers have helped disseminate technical information by presenting papers and working on technical committees for such organizations as the Post Tensioning Institute (PTI).

Test Center

CTLGroup has designed and built one-of-a-kind test fixtures, electronic controls, servo-hydraulic power units, load frames and high-capacity load cells for its test center. In 2001, the test center was enlarged to accommodate two test fixtures for stay cables.

CTLGroup subjects stay cables to static forces in excess of 10,000,000 pounds and dynamic (cyclic) forces of over 4,500,000 pounds. The axial test fixtures have been used to test cables with up to 156 strands, while the axial-flexural test fixture has been used to test cables with up to 119 strands. Cable assemblies are instrumented with strain gages, load cells and highly sensitive acoustic wire break detection systems for continuous monitoring of cable fatigue cracks and ruptures during the tests.

PTI criteria allow the fracture of no more than 2% of the total wires during a stay cable fatigue test. Accelerometers, combined with an automated electronic data acquisition system, monitor wire breaks, providing data on the date and the time of each trigger.

CTLGroup has performed cable-acceptance testing for cable-stayed and supported bridges all over the world. Some of the more prominent long-span bridges are:

- Maysville Bridge, Maysville, Kentucky
- Leonard Zakim Bridge, Boston, Massachusetts
- Sidney Lanier Bridge, Brunswick, Georgia
- C+D Canal Bridge, Delaware
- Clark Bridge over the Mississippi, Illinois
- Cape Girardeau Bridge, Missouri
- Foss Waterway, Tacoma, Washington
- US-34 Bridge, Burlington, Iowa
- Wadi-Leban Bridge, Saudi Arabia
- Rosario Victoria Bridge, Argentina
- Rama VIII Bridge, Bangkok, Thailand
- Kap Shui Mun Bridge, Hong Kong
- Puente Paralelo Bridge, Dominican Republic
- Putrajaya Bridges 8 and 9, Malaysia

