Advanced Technology For Large Structural Systems (ATLSS) Research Center

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The ATLSS Engineering Research Center is a national center for research and education on structures and materials of the infrastructure. Established in May 1986 with a grant from the National Science Foundation (NSF), the Center now addresses the research goals of the NSF, the U.S. Department of Transportation, the Commonwealth of Pennsylvania, the U. S. Department of Defense, and numerous national, state, and local industry and government organizations and agencies. Approximately 80 people, including graduate and undergraduate students, research associates, faculty and staff members representing the disciplines important to large structural systems are active at the Center.

ATLSS research areas include: Advanced Structural Systems and Materials; Measurement, Simulation, and Evaluation of Structural Systems; Infrastructure Reliability, Maintenance, and Life-Cycle Performance; Intelligent Structural Systems; and Infrastructure Hazard Mitigation with particular emphasis on Earthquake-Resistant Structures. The research is conducted in close association with engineers and scientists from several Lehigh departments, industry, government, design and professional groups and other universities.

ATLSS has excellent research facilities and equipment, including two world-class structural testing facilities; the Fritz Engineering Laboratory and the ATLSS Multi-Directional Testing Laboratory, in which researchers study large-scale structural subassemblies under static, dynamic, and/or cyclic multidirectional loading with complete computer-controlled experimentation. A recent grant from the NSF created the real-time multi-directional (RTMD) experimental facility to evaluate the performance of engineering designs and materials during earthquakes, hurricanes and other storms, tsunamis, landslides, and other disasters as part of NSF’s Natural Hazards Engineering Research Infrastructure (NHERI) program. ATLSS also has outstanding resources for computing, mechanical testing, welding, metallography, and non-destructive evaluation.