US Army Corps of Engineers®
Engineer Research and Development Center

Geotechnical and Structures Laboratory (GSL)

Description

The Geotechnical and Structures Laboratory (GSL) serves the US Army and the Nation by developing solutions to challenges in geotechnical and structural engineering and related disciplines. GSL has a rich history, dating to the early 1930s, and is today a vital organization of more than 350 engineers, scientists, technicians, and administrative and support personnel. More than 73 percent of the engineers and scientists hold advanced degrees, and each GSL team member is dedicated to providing customer support of the highest quality.

GSL is the ERDC lead for Military Engineering and serves as the Department of Defense (DoD) lead for science and technology in the areas of survivability and protective structures, airfields and pavements, and sustainment engineering. Consistently at the forefront of engineering and scientific research, GSL is a key component of the worldwide recognition ERDC achieves, most recently as the Army Large Research Organization of the Year.

Capabilities

The GSL mission focuses on military engineering to develop innovative technologies for survivability and protective structures, force projection, and maneuver support and on civil works engineering to support water-resource infrastructure and geosciences. GSL operates a number of unique laboratory and research facilities, including the TeleEngineering Operations Center, or TEOC; the world's most powerful centrifuge dedicated to engineering and scientific research; and the DoD's lead pavements research facility for roadways, permanent and contingency airfields, and railroads.

Research conducted in GSL's nine branches encompasses the areas of soil mechanics, engineering geology, near-surface geophysics, earthquake engineering, pavements (both expedient and permanent), mobility and trafficability of military vehicles, weapons effects and blast mitigation, structural design and performance of structures under both static and dynamic loadings, earth dynamics, and the uses and performance of concrete, cement, and other construction materials. Other investigations include measurement and analysis of seismic and acoustic signals to locate airborne and ground military targets and buried objects and to characterize earth media. Research on concrete and cement relates predominantly to currently recognized military and civil needs. Structures research involves development, testing, and evaluation of a broad class of structures to resist the effects of static and dynamic loads induced by earthquakes and other sources. Research in numerical modeling and computer simulation of many of these topics is also undertaken.

Point of Contact

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