The Geotechnical Research Centre

The University of Western Ontario's Geotechnical Research Centre (GRC) comprises a core group of researchers who are finding solutions to a range of challenging geotechnical and geoenvironmental problems. The seven faculty members and 10 associate and adjunct members are emphasizing research on renewable energy and infrastructure rehabilitation. The formation of this group has enabled geotechnical research to more easily cross traditional disciplines and has fostered extensive collaborations within the University and with industry.

Engineers at Western's Geotechnical Research Centre ensure the safety of structures such as dams, bridges and nuclear power plants

Research

The GRC's engineers are authorities at solving soil and rock related problems in civil, geotechnical and geoenvironmental engineering. This research expertise is extremely broad and extends to different areas such as earthquake engineering, soil mechanics, foundation design, geosynthetics, underground structures, and soil and foundation dynamics. The group is investigating major areas from theoretical and applied soil and rock mechanics to the stability of concrete dams on rock foundations. Researchers at the Centre also study groundwater contamination and remediation, tunnelling in swelling rock and through fault zones, environmental management of mine wastes and deep geological disposal of high level radioactive nuclear waste, among others.

The group's members are involved in many projects both as consultants and as researchers. With an emphasis on interfacing with industry, engineers at the Centre have numerous corporate partners both within Canada and around the world. Some of these include AMEC Earth and Environmental, EBS Construction, Engineering and Environmental Solutions, GeoSyntec Consultants, Hyundai Engineering and Construction Co. Ltd, Terrafix Geosynthetics Inc, Terraprobe Ltd and Thurber Engineering Ltd.

Current Projects

The members of the GRC have secured more than 200 mineralogy/soil chemistry contracts to provide their expertise in areas such as clay barrier technology, soil and rock slope stability, dam design and aggregate technology. They are currently working on numerous projects, some of which include:

- Seismic response of buried pipelines
- Tunnel design for energy and transportation
- Soil-structure interaction due to seismic loading and wave forces
- In situ rock stress measurement
- Seismic response of dams
- High-voltage electrokinetic strengthening of marine sediments

Facilities

The facilities used by the GRC's engineers are highly advanced and comprehensive. The list of instruments housed at the Centre includes standard geotechnical laboratory equipment but also includes cutting-edge devices that enable very specialized geotechnical, environmental and structural research projects, as well as research in advanced concrete technology, environmental geochemistry and electrokinetics.

For more information, please visit: www.eng.uwo.ca/research/fluidization/sponsors.htm

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