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Facilities of the soil mechanics laboratory, Fritz Engineering Laboratory, December 1966

Fritz Lab

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FACILITIES

of the

Soil Mechanics Laboratory

of

FRITZ ENGINEERING LABORATORY

Department of Civil Engineering

LEHIGH UNIVERSITY

December 6, 1966

H. Y. FANG

Fritz Engineering Laboratory Report No. 237.38
The Soil Mechanics Lab is located in rooms 320, 322, 323, 324, and 324A of Fritz Engineering Laboratory at Lehigh University.

The major equipment is contained in rooms 323 and 324, with the triaxial and consolidation test equipment, pore water devices, and permeameters contained in room 323 and the chemical analysis equipment in room 324. The soil sampling devices are housed in the basement of Fritz Lab.

Room 322 contains precise, analytical balances and other delicate instruments, and room 324A is a constant humidity room. The Soil Engineering office is located in room 320.

The Fritz Lab library contains a section on soil mechanics which includes various books, pamphlets and papers. There is also a complete set of Geodex index cards for Soil Mechanics and Foundation Engineering.

The following pages contain a list of the facilities of the Soil Mechanics Lab.
Consolidation Equipment

8 Karol-Warner Consolidometers
8 KW Conbel Testing Machines
2 KW Low Range Attachments
1 Self-Loading Back Pressure Consolidation Apparatus
   (Anteus)
3 Mechanical Consolidometer Apparatus

Triaxial Shear and Pore-Water Apparatus

1 Triaxial Apparatus - 5000 lb. capacity (Soiltest)
1 Triaxial Testing Machine (KW)
1 Triaxial Transmission (KW)
1 Triaxial Recorder (KW)
1 Pore Pressure Apparatus (Soiltest)
1 Bishop Type Pore Pressure & Volume Change
   (Wykeham Farrance)
1 Self-Compensating Mercury Control Apparatus
   (Wykeham Farrance)
1 Pore Pressure Device (KW)
1 Pressure Saturation Device (KW)
1 Universal Triaxial Chamber (Soiltest)
2 Universal Triaxial Cells (Testlab)
1 Triaxial Test Chamber (KW)
1 High Capacity Triaxial Chamber (Soiltest)
1 Storage Chamber (KW)
1 Speed Reducer Motor (Bodine Electric Co.)
1 Set of membranes, pore stones, tubing, loading head
   for 2.8" triaxial test specimen.
Triaxial Shear And Pore-Water Apparatus (cont.)

2 Membrane Jackets (Soiltest)
1 Air Compressor (Ingersoll Rand)
1 Compressed Air Tank (Soiltest)

Direct Shear Equipment

2 Direct Shear Testing Machines (KW)
2 Variable Speed Drives (KW)

Unconfined Compression Test Equipment

1 Multispeed Compression Machine (Testlab)

Density and Compaction Equipment

1 Mechanical Compactor (Soiltest)
6 CBR Compaction Molds
8 Std. Proctor Compaction Molds
1 Complete Set of Harvard Miniature Compaction Apparatus
1 Volumeasure - Soil Density Kit (Soiltest)
1 Basic Field Density Set (Soiltest)
1 Proving Ring Penetrometer

CBR Equipment

2 Complete Sets of Laboratory CBR Equipment (6 CBR Molds)
Permeability Apparatus

1  Falling Head Permeameter
1  High Pressure Permeability Apparatus
4  Soiltest Permeameters
1  Harvard Permeability Apparatus
6  6-inch Permeameter - CBR Molds
8  Compaction Permeability Molds - 1/30 cu. ft.
   with 5 pair of permeability plates

Physical and Chemical Equipment

1  Binocular Microscope (Amer. Optical)
1  Microscope with camera attachment (Amer. Optical)
1  Poiny Count Stage (Amer. Optical)
1  Microscope Illuminator with Transformer (Amer. Optical)
1  Centrifuge and Trunnion Cups (Intern'l Equip. Co.)
1  Beckman Zeromatic Ph Meter
1  Conductivity Bridge (Fisher)
1  Universal Meter (Fisher)
1  Conductivity Cell - Dip Type (Fisher)

Grain Size Analysis Equipment

4  Complete Sets of Std. Sieves
8  Soil Hydrometers
2  Dispersion Apparatus (Hamilton Beach)
1  Lab Mixer - 12 Qt. (Reynolds)
Grain Size Analysis Equipment (cont.)

1. Five Quart Mixer (Hobart)
1 Mechanical Shaker (Tyler)
1 Sieve Shaker with Motor (Denver)
1 Motorized Dynamic Sieve Shaker (Soiltest)
1 Motorized Sieve Shaker for 3 in. sieves (Amer. Instrument Co.)

Alttberg Limit Devices

5 Liquid Limit Devices (Amer. Instrument Co.)

Dials and Proving Rings

9 Ames Dials 0.001"
18 Ames Dials 0.0001"
8 Dial Indicators LC-3
1 KW Test Gage 100 p.s.i., .5 subd.
2 Load Rings 10,000 lbs.
1 Load Ring 5,000 lbs.
2 Proving Rings 1500 lbs.
1 Proving Ring 1000 lbs.
3 Proving Rings 500 lbs.

Ovens and Desiccators

1 Oven (Trent)
2 Ovens, Gravity Convection - Model 16 (Thelco)
Ovens and Desiccators (cont.)

2 Thelco Ovens - Model 18
2 Desiccator Vacuum Jars
1 10' in. Vacuum Desiccator
2 Aluminum Desiccators (Fisher)

Sampling Devices

1 Large Capacity Sample Splitter (Gilson)
1 Sample Splitter - small (Fisher)
2 Sample Splitters (Cenco)
1 Model Sampling Outfit
1 Soil Kit (Acker)
1 Sample Ejector and Horizontal Sample Ejector (Soiltest)
1 Hand Specimen Trimmer (Soiltest)

Scales and Balances

3 Triple Beam Balances - 211g, 0.01g
2 Triple Beam Balances - 1610g, 0.1g
1 Analytic Balance - 200g, 0.01g (Eimer & Amend)
1 Beam Balance - 311g, 0.01g (Ohaus)
1 Fairbanks Counter Scale - 250 lbs., 0.5 oz.
1 Highway Scale & Case - 5000g, 0.5g
1 Torsion Balance - 120g, 0.01g (Torsion Balance Co.)
1 Automatic Scale - 800g, 0.1g (Mettler)
Scales and Balances (cont.)

1  Mettler Balance - 3000g, 1g
1  Mettler Balance - 1200g, 0.1g
1  Howe Scale - 176 lbs., 0.01 lbs.
1  Solution Balance - 20Kg, 1g (Ohaus)
1  Christian Becker Analytical Balance - 22lg, 0.1mg

Miscellaneous

1  Scissor Type Jack
1  8 Tn. Hydraulic Jack (Blackhawk)
1  30 Tn. Hydraulic Jack with Jack Frame (Blackhawk)
2  Constant Temperature Baths
1  Constant Temperature Hydrometer Jar Bath (Amer. Instrument Co.)
1  Water Still, Cutoff, and Tank (Precision Scientific)
1  Low Water Cutoff (Precision Scientific)
1  Rotary Screw Pump (Teel)
1  Air Pump (Fisher)
1  "Hyvac-2" Vacuum Pump (Cenco)
1  Laboratory Dry Classifier (Denver)