FEAR'S LAB - Equipment

I. Hydraulic Actuators and Loading Equipment

Universal Testing Machine: Baldwin 200 kip capacity (tension or compression) with room for 6 ft. tall specimens. Equipped with both dial and electronic readouts.

Compression Testing Machine: Forney LC-1 400 kip capacity w/ digital readouts primarily for concrete (cylinders, MOR's, Modulus etc)

High Pressure Hydraulic Equipment (10,000 psi)
- 4 1330 kip push-pull ram 12” stroke
- 2 100 kip hollow rams 8” stroke
- 3 30 kip hollow rams 8” stroke
- 1 50 kip push-pull ram 10” stroke
- 1 300 kip ram 12” stroke
- 1 350 kip ram 12” stroke
- 6 hand pumps
- 4 electric powered pumps (2 fixed units - 2 portable units)

Medium Pressure Hydraulic Equipment (2,500 psi)
- 1 100 kip ram 12” stroke
- 7 30 kip ram 24” stroke
- 2 50 kip ram 24” stroke

MTS Hydraulic Equipment:
- 1 10 gpm pump
- 1 25 gpm pump (for shake tables)
- 2 55 kip rams 6” stroke
- 1 22 kip ram 6” stroke
- 1 11 kip ram 6” stroke
- 3 control consoles
- 1 valve to MTS pumps

Seismic Simulator:
- 1 4 ft x 6 ft shake table supported by linear ball bearings, driven by 11 kip MTS actuator (listed above). Frequency response up to 40 Hz, 20 kip payload capacity

Load Reaction Equipment:
- 1 30 ft x 60 ft reaction floor w/ 4 beam lines
- 4 14 ft tall frames (for reaction floor)
- 1 Self contained reaction frame capable of 7000 kips
- 4 gravity load simulators

A selection of specialty fixtures from previous tests
II. Data Transducers:

15 Load cells (1 kip to 300 kip)
28 LVDTs (0.5" to 3.0")
14 wire potentiometers (10" to 20")
12 linear potentiometers (1" to 2")
25 accelerometers (5g)
2 servo inclinometers

III. Environmental Chambers

1 30 ft. x 60 ft. walk-in chamber with constant temperature (40F - 120F)
1 12 ft. x 12 ft. walk-in chamber with constant temperature (40F - 120F) and humidity controls
1 2 ft x 6 ft x 1 ft cyclic freeze-thaw chambers

IV. Concrete Construction Equipment

1 21 cu. ft. rotary concrete mixer
1 3.5 cu ft concrete mixer
3 concrete vibrators
1 cylinder vibrator
12 unrestrained length change molds
1 RCIP test apparatus

IV. Data Acquisition Equipment

1 Edaq lite base unit from Somat with 100,000 Hz simultaneous sample rate
4 Somat 4 channel bridge boards
2 Mobile Power Trailers (solar) 220 watt
1 case mounted HP3497 scanners with Pentium III controller capable of 40 channels at 10 Hz sample rate. Labview based software
1 case mounted HP3497 scanners with IBM-XT controller capable of 80 channels at 10 Hz sample rate. Labview based software
3 HP3497 scanners
3 amplifiers
1 signal conditioning system with 6 channels
1 signal conditioning system with 10 channels
1 HP 35660A Dynamic signal analyzer