

January 2010

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	
3	electric powered pumps	
1	air powered pump	

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
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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
- 2 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

- 2 Edaq lite base units from Somat with 200,000 Hz simultaneous sample rate
- 7 Somat 4 channel bridge boards
- 4 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. Delphi 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