Test Facilities in the Sir John Laing Building

For citation information please see http://www.claisse.info/Publish.htm

A major purpose-built facility located 300m from the Engineering and Computing building

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Wet Concrete Testing

- Concrete mixing area with 3 pan mixers (10 – 50 litres)
- Concrete and grout rheometers
- Slump, Vebe, Flow table, J-ring, L-box, V-Funnel (Self-Compacting Concrete tests)
- Temperature probes and associated data acquisition unit (hydration temperature of concrete)
- Range of ovens and curing tanks
Mechanical test machines

- 50 kN and 100 kN computer controlled tension-compression machines.
- Torsion machine
Hydraulic Test machines

- 5000kN capacity Amsler machine
- Three Denison machines with capacities of 500kN – 3000kN
- Full computer control of all machines and data acquisition (load and displacement including strain gauges etc.)
Strong Floor

8m × 6m strongfloor with a range of hydraulic actuators with full computer control.
Durability Testing 1

- Freeze-Thaw
- Expansion (sulphate/ASR)
- Helium pyconometer (porosity measurement)
Durability Testing 2
Tests for Reinforcement Corrosion

• Accelerated corrosion testing apparatus
• Computer controlled potentiostat
• Resistivity measurements
Durability Testing 3

- High pressure through flow permeability cells.
- Diffusion cells
- Pore fluid expression cell
Durability Testing 4
Chloride Migration Tests

Rapid Chloride Migration test to ASTM C1202
• Triaxial cells (UU and CU)
• Direct shear box apparatus (including large 300mm × 300mm)
• Standard compaction apparatus
• 1-dimensional compression oedometer (consolidation test)
• California Bearing Ratio apparatus
• Soil classification equipment (moisture content, plastic and liquid limit)
• Dry sieve analysis apparatus (63μm – 20mm sieves)
• Soil permeability (constant head and falling head)
• Marshall test apparatus on asphalt mixes
Bitumen testing

Marshall apparatus
Fume cupboard
Automatic compactor
Hydraulics

- Flume: rectangular, 15 m long, 0.3 m wide, flow up to 70 l/s with flow measurement, gradient adjustable, wave generation equipment
- 0.3 m diameter pipe, 14 m long, with openings for depth measurement etc, attached to flume above (gradient adjustable) roughened to represent a concrete surface
- Flume: rectangular, 5 m long, 0.3 m wide, flow up to 30 l/s with flow measurement
- Flume: rectangular, 5 m long, 0.1 m wide, flows up to 10 l/s with flow measurement
Building Services

- Thermal conductivity test rig
- Refrigerant cycle rig
- Cooling tower rig
- Pipe to pipe heat exchanger rig
- Pressure and Density rig
- Airflow Developments Vane Anemometer
- Artificial sky (for daylighting measurements)
- FLIR infrared camera
- Hagner luminance/illuminance meter
- Brueel & Kjaer digital sound level meter with filter set
- Masons screen hygrometer
Computer Modelling

• Thermal Modelling
• Transport (permeability, diffusion, electro-migration) modelling for durability and waste containment.
• Software development for customer requirements.
Site Trials
Thank You

Please see

www.claisse.info

Details of our test facilities and major projects

700 papers for free download from our major conferences

“Sustainable Construction Materials and Technologies”

Coventry 2007, Ancona Italy 2010

and Kyoto Japan 2013.