



THE UNIVERSITY OF
MELBOURNE

Melbourne School
of Engineering

FRANCIS LABORATORY

STRUCTURAL AND CONCRETE LABS



Supporting advanced research and teaching activities for construction testing, grading and a range of material testing.

The University of Melbourne's Francis Laboratory supports advanced research and teaching activities for construction testing, grading and a range of material testing.

OUR TESTING CAPABILITIES

All tests are conducted in accordance with Australian Standard.

Laboratory Research

- » Advanced materials for constructions (Concrete, Composite, steel, Timber)
- » Structure systems
- » Admixture Evaluations
- » Secondary Cementitious Materials Analysis
- » Advanced concrete technology (Recycled Concrete, Ultra-High-Performance Concrete, Self-Healing Concrete, self-compacting concrete)
- » Corrosion impact on Reinforced concrete
- » Earthquake and Damn Simulations
- » Large range of Non-Destructive testing
- » Fire performance of materials for construction and systems
- » 3D printing
- » Durability of materials for construction (concrete, timber, composite, steel)

CONCRETE MATERIAL TESTING:

Laboratory Tests

- » Advanced Materials for construction testing capacity
- » Concrete properties assessment
- » Workability/rheology assessment
- » Composite testing
- » Timber – CLT
- » Fire performance testing
- » Thermopformance of materials and systems
- » Compressive Strength
- » Tensile Strength (all scale samples from film to full scale beams)
- » Aggregate Grading
- » VPV- Voids Testing
- » Water Permeability & Water Absorption
- » Acidic environment
- » pH Profiling, chlorine profiling
- » Rebound Hammer (Schmidt Hammer) testing
- » Concrete Staining & Efflorescence
- » Surface Coatings Analysis
- » Chloride migration test
- » Corrosion test
- » Carbonation test
- » Impact test
- » NDT testing

Paste, Mortar and Concrete Mixers

- » The concrete lab has 4 mixers with different capacities: 3L, 17L, 40L and 200L. The mixers are used to mix past, mortar and concrete.



V-Funnel

- » V-funnel apparatus is used to evaluate the flow time of freshly mixed self-compacting concrete in accordance with EN 12350-1.



Flow Table

- » Flow table apparatus to measure the workability and flowability of pastes and mortar in accordance with ASTM C230 / C230M.



L Box

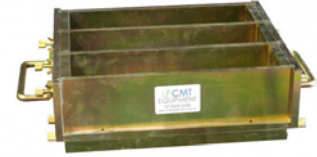
- » The L Shape Box is used for determining the passing ability rate of freshly mixed self-compacting concrete in accordance with EN 12350-1.



Concrete Shrinkage

- » Shrinkage apparatus to measure the concrete shrinkage in accordance with AS 1012.13.

CMT EQUIPMENT



Rheometer

- » Rheometer- Haake viscotester VT550 from Thermo scientific is used to measure a flow curve of fresh concrete.



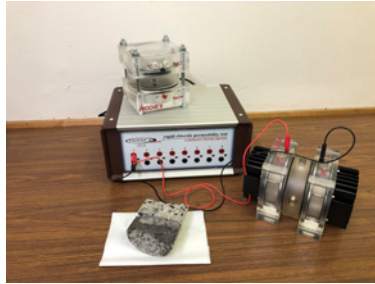
Vicat test

- » Vicat apparatus is used to determine the setting time and consistency of cement pastes or mortars.



PROOVE´it

- » The PROOVE´it system is used to evaluate the resistance of concrete to the ingress of chloride ions in accordance with ASTM C1202-RCPT Test, NT Build 492, ASTM C1760.



Nord Test

- » Chloride migration test equipment for accelerated test NT build 492.



MTS Universal Testing Machine – 300kN

- » This machine is capable of handling loads from 50kN up to 300kN. It performs test types, such as tension, compression, shearing, peeling, flexure and more.



Compression Test Machine – Tecnotest

- » This compression test machine with load capacity of 3000kN is capable to perform compression test in accordance with AS 1012.9.



MTS Universal Testing Machine – 5000kN

- » This machine is capable of handling loads from 50kN up to 5000kN. It performs test types, such as compression, shearing, peeling, flexure and more.



CONCRETE MECHANICAL AND STRUCTURAL TESTING:

MTS Bi-Axial Shaker Table

- » Shaker table is used to conduct seismic analysis on scaled down model of a modular building for different projects.



MTS Actuator

- » Hydraulic actuator is used to apply vertical and/or lateral forces on samples to measure their ultimate strength.



Impact Test on Baffle

- » Hydraulic actuator is used to apply vertical and/or lateral forces on samples to measure their ultimate strength.



Impact Test on Small Scale Wall

- » This is a scaled-down RC retaining wall which can be used as a rockfall protection barrier. The experiment is aimed at quantifying the improvement of the deflection demand of the RC wall using an additional cushion layer.



Vertical Static Test on Connections

- » This test examines the failure mechanism of the connections under static loading.



CONTACT US:

For information on how to engage with our researchers, form teams with us, and conduct various testing, please contact:

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