

A person in a white lab coat with red cuffs is pouring liquid from a metal pitcher into a UTEST machine. The machine is a large, industrial-looking device with a stainless steel bowl and a control panel on top. The background is a blurred laboratory setting.

**WESTERN SYDNEY**  
UNIVERSITY



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Centre for Infrastructure  
Engineering

**WORLD CLASS  
STRUCTURAL  
TESTING FACILITIES**

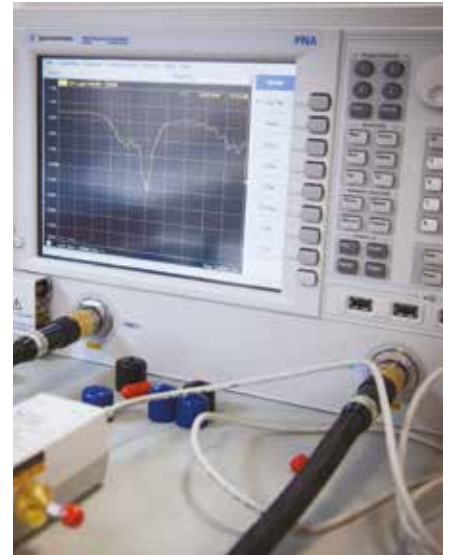
# THE STRUCTURAL RESEARCH AND TESTING LABORATORY AT THE CENTRE FOR INFRASTRUCTURE ENGINEERING IS ONE OF THE BEST TESTING AND RESEARCH FACILITIES IN AUSTRALIA.



Elevated Temperature Test Rig  
(Up to 900°C, 200 tonne)



Hongshan 1000 tonne  
Multi-purpose Testing Machine



Agilent PNA for antenna and sensor  
measurements and material characterisation

## The facility includes several multi-purpose structural testing and sensor technology laboratories.

- Hongshan 1000 Tonne Multi-purpose Testing Machine
- Elevated Temperature Test Rig (Up to 900 c, 200 Tonne)
- Strong Floor 8m x 16m and associated Testing Rigs
- Advanced Materials Testing machines
- Automated Microwave Imaging System

## STRUCTURAL TESTING FACILITIES AND SCOPE INCLUDE:

- multi-purpose structural testing facility for testing specimens and assemblies up to 4 m high at:
  - 10 000 kN (1000 tonne) static compressive load
  - simultaneous 1000 kN lateral fluctuating load at 3 Hz
  - simultaneous loading with dual actuators at 500 kN tilting load each at 3 Hz synchronous or asynchronous loading up to 5000 kN (500 tonnes)
- a multi-configurable strong floor of 16 m x 8 m with numerous actuators ranging from 150 kN to 2000 kN, built to complement the above frames
- impact testing of materials using Split Hopkinson Pressure Bar system for specimen sizes 16 mm and 80 mm
- a research furnace for testing structural specimens at 2000 kN compressive load at temperatures up to 800C
- tensile testing of material at elevated temperatures up to 1200C
- a vertical wall panel testing rig that uses vacuum to apply lateral load to plaster board specimens up to 1200mm x 6000mm
- testing for dynamic characteristics of structures, concrete floors, buildings, assemblies, modal analysis for structures and assemblies
- microwave sensor technology for defect detection, non-destructive testing of material and material characterisation
- testing and advice on material and granular flow and behaviour
- infrastructure health monitoring services using wired and wireless sensor technology.

This is backed by a CPU/GPU based High Performing Computer cluster with computational power of 2060 GigaFLOPS (one GigaFLOP is equivalent to one billion (10<sup>9</sup>) floating-point operations per second).





## SERVICES AND CAPABILITIES

Relying on the extensive resources and competencies of our Facilities and Technical staff, CIE will work with you to meet your testing needs.

Should you have a request that is not listed, please don't hesitate to get in contact to discuss your project with us.

CIE is capable of providing services in the following areas:

### TESTING

- Structural Testing: Beams, Columns, Joints, Wall Panels
- Materials Testing: Concrete, Steel, Timber, Composites
- Fire Testing: Cylinders, Short Columns
- Dynamic Testing
- Impact Testing
- Bridge Testing and Load Rating
- Damper Systems

### ANALYSIS

- Static Analysis and Modelling of Structures and Components
- Dynamic Analysis and Modelling of Structures and Components
- Finite Element Analysis of Structures and Components
- Wind and Earthquake Loading Analysis
- Thermal Analysis
- Life Cycle Analysis

**WE LOOK FORWARD TO MEETING YOUR PROJECT NEEDS,  
PLEASE GET IN CONTACT TODAY.**

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