IN CONFIDENCE TO THE CLIENT

REPORT NO: MT-11/097

SHEAR TEST REPORT FOR CASTS AUSTRALIA PTY LTD BRACE PANEL BOLTS

CLIENT: **CASTS AUSTRALIA PTY LTD**
PO BOX 6030
HAWTHORN WEST VIC 3122

DATE OF TEST: MARCH 1ST 2011

DATE OF REPORT: MARCH 3RD 2011

TEST SYNOPSIS:

Casts Australia Panel bolts used for the fixing of concrete wall panel brace feet were to be tested for shear load capacity. The bolts were identified by head marking "CA 8.8 BRACEBOLT", 20mm diameter x 130mm long panel brace bolts (see Fig.1).

Testing was carried-out by Melbourne Testing Services personnel at the premises of Unit 1/15 Pickering Road Mulgrave, Victoria.

FIG.1
BRACE PANEL BOLT

TEST PROCEDURE:

Installation was conducted in accordance with the client's procedure by drilling a nominal 20mm diameter hole into a concrete test block cast from N20MPa concrete. The anchors were installed through a 20mm thick steel shear plate representing the thickness of a typical brace foot and tightened to the specified torque of 150Nm(see Fig.2).

Shear test load was then applied until failure of the anchor connection occurred and the peak test load was recorded (see Fig.3).

TEST COMMENTS:

The peak test forces recorded during shear testing of the Bracebolt Panel Bolts were:

- **89kN** ≈9t for the 200mm edge distance test
- **98kN** ≈10t for the 500mm edge distance test

In the case of the 200mm edge distance test, cracking of the concrete forward of the bolt governed the mode of failure. Post-test examination of the bolt did not reveal any significant plastic deformation (distortion) or sign of failure.

In the case of the 500mm edge distance test, the bolt was observed to partially withdraw from the concrete before final failure which occurred by tensile rupture of the threaded portion of the bolt. There was no cracking in the concrete observed in this case.

TEST SPECIMEN DETAILS:

Details of the test preparation are presented as follows:

- Concrete Cylinder Strength f_{cm} 22MPa
- Nominal Hole Depth 130mm
- Nominal Hole Diameter 20mm
- Tightening Torque 150Nm
- Nominal Effective Depth 80mm
- Setting Date 01/03/2011

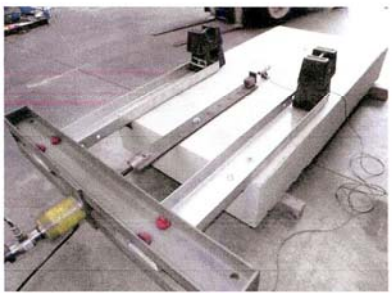

FIG.2
200MM EDGE PANEL BOLT TEST

TEST DATA:

Test data curves for the two Brace Panel Bolt shear tests are provided below.

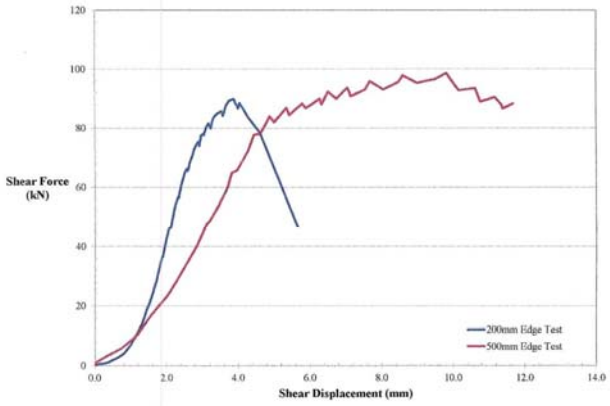

FIG.3
200MM EDGE DISTANCE
CONCRETE RUPTURE

ROD WILKIE
AUTHORISED SIGNATORY