LOAD TESTING FOR

SCAFEAST PROPS

FOR
SCAFEAST (SYDNEY) PTY LTD
QINGDAO JINCHENGHUI MACHINERY & TECHNOLOGY CO. LTD

OCTOBER 2016

BY

BUILDING CONSTRUCTION TEST LABORATORY

All load cells are calibrated by **NATA** accredited services and are in valid

1. Introduction

At the request of Scafeast Pty Ltd, we attended during 16 to 19 October 2016 testing sessions for Scafeast Props with a view to confirming their vertical working load capacity. One sizes of props, Number 4, were tested, which were for general use for formworks and shoring in building construction. The tests were carried out at 6 Gatwood Close, Padstow, NSW. The test load and method of testing evolved from consideration of the Australian Standard AS 3610: 1995, Appendix A, and AS 3610 Supplement 2: 1996, Appendix CA.

2. Test Apparatus

The test was carried out using a test loading frames with Enerpac 25t capacity Hydraulic system, digital reading, and a 20 T capacity load cells which has been calibrated by Precise Calibration Services (PCS), a NATA accredited organisation, and is valid for accuracy estimation until 23 March 2017.

Accessories include:
- loading bars and couplers,
- Lift truck,
- Rule, laser measures, and
- Levers

3. Specimen

The number four size of the test samples are shown in Photo A. Details of measurement of the sample is shown in Attachment A. The samples are marked with "AS/NZS 1576 04/16" on the base plate. The range of height for the samples is set in Table 1 below.

Size	Closed Height (mm)	Full Open Height (mm)	Est. Weight (kg)	Other Measures mm
No.4	3200	4505	24	60 X 4.0 (outer tube) 46 X 4.0 (Inner tube) 150X150X 8(Plates)

Table 1: Specification of Scafest Props

Sample 1 was tested for close status, and Sample 2 was tested for opening to maximum length status.

4. Test Method

Destructive test method is adopted in accordance to AS3610: 1995.

The props were placed horizontally between, hydraulic cylinder and load cells, and supporting plates of the test frame, with the specified eccentricities 20mm from the centre

of the top plate and to the centre of the cylinder. The steel plate base of the props is sat on a shaped steel block with slope of 1:40. There is eccentricity of 20mm from the centre of axis of the prop to the top of the shaped steel plate. See Photo B.

Test load applied to the samples with a reasonable speed until they fail. It is considered that at this point the sample is unable to carry the applied load or has exhibited unacceptable deformation. See Photo C. The load data were recorded and then used for calculation of strength limit state load capacity, and convert to working load capacity.

5. Test, Results and Observations

The testing results and observations are set in Table 2 below.

Sample	Status	Test Force (KN)	Observation when Ultimate Load Applied
No. 4	Open To Max	31.1	Buckling at middle of inner tube. No collapse or separation of component was observed.
	Close	49.1	Excessive deformation on inner tube. No collapse or separation of component was observed.

Table 2: Testing Results and Observations

6. Working Load Capacity Conversion

The test method selected is destructive testing to Appendix A, AS3610-1995. Sample size is one.

Based on Table A1 and A2, and A.4.4.3 of AS 3610:1995, we select value of modification factor as 0.15. Further, we select value of sampling factor as 1.9.

The strength limit state load capacity can be obtained from the equation *Ru = X (test data) / 1.9.*

Based on Table 4.5.1 of the same standard, using a factor 0.8, the working load capacity may be converted as:

*L = 0.8 * Ru = 0.8 * test data / 1.9.*

Using the test data in Table 2 and the equations above, the working load capacity for Kore props is converted in Table 3.

Sample	Status	Modification Factor	Sampling Factor	Working Load Capacity (KN)
	Open To Max	0.15	1.9	**13.1**
	Close	0.15	1.9	**20.7**

Table 3: Working Load Capacity of Scafeast Props

4. Conclusion

Based on the results of single sample, destructive test method as specified in AS 3610: 1995, the working load capacities for Scafeast props are estimated through destructive testing and conversion equations by this laboratory as specified in Table 3 of this report. The Working Load Capacities are **13.1KN when it is fully open at height of 4.5m, and 20.7KN when it is close at height of 3.2m.**

The limitation of the small sampling in this test indicates that the results may not represent working load capacity for all prop products of the size. More reliable information in regards the capacity should be obtained from tests with a reasonable large sampling process.

The test is supervised by

Dr. Lida Song

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Signature:

Technician:

Linye Zhai (B. Scien)

Signature:

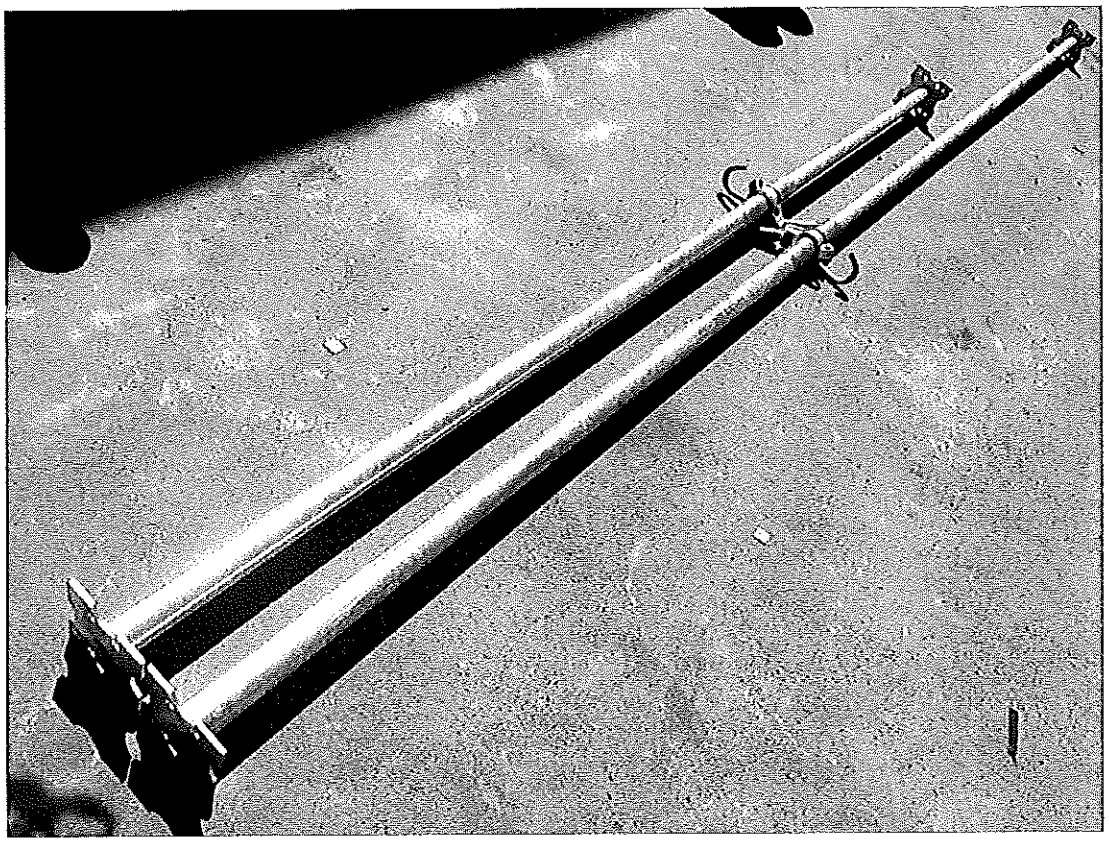

Photo A: Test Samples

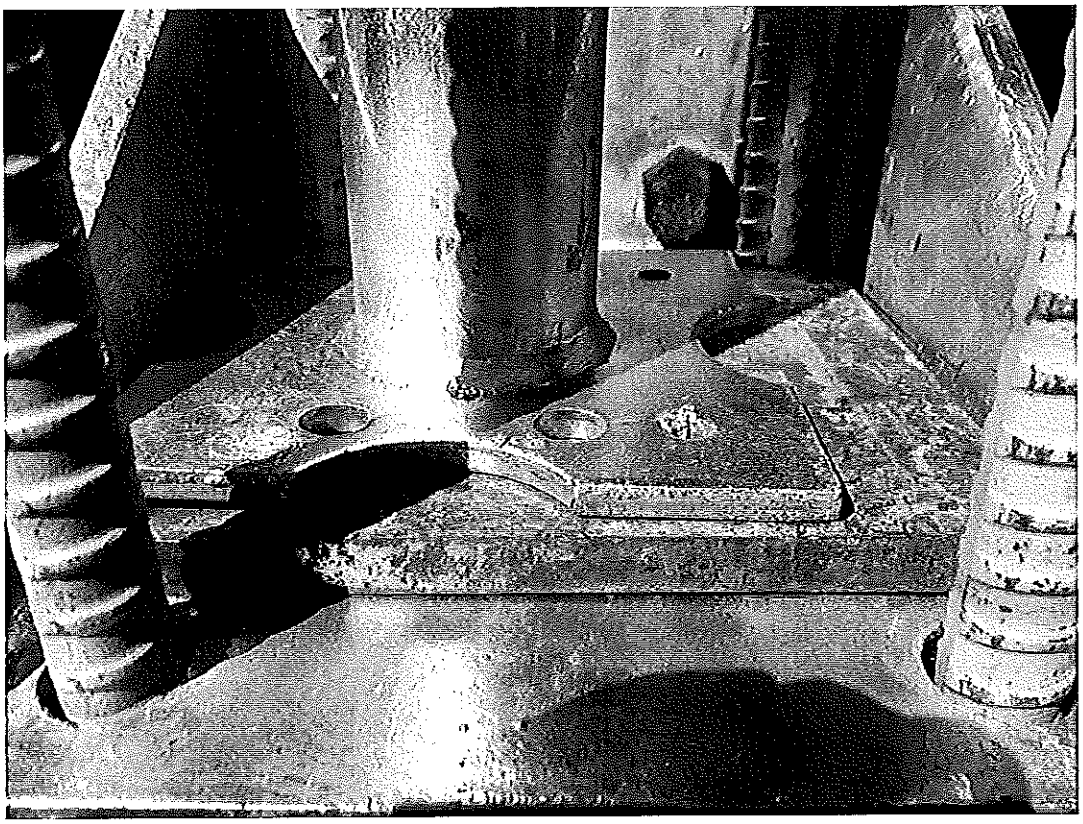

Photo B: Base Eccentricity Setup at Slope Plate

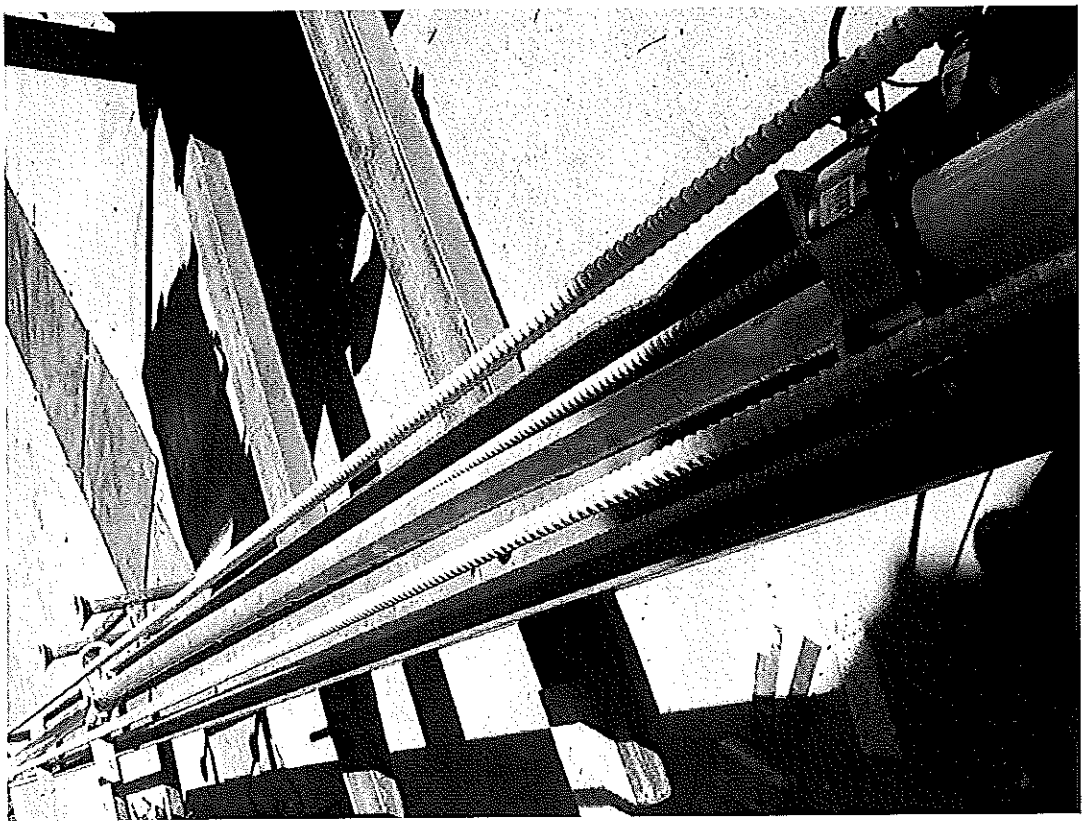

Photo C: Test Sample under Ultimate Test Load