

# Schedule

CAST Laboratories Pte Ltd  
17 Tuas Ave 8  
Singapore 639232

Certificate No. : LA-2000-0182-G

Issue No. : 15

Date : 12 June 2018

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FIELD OF TESTING: Mechanical Testing

MATERIALS / PRODUCTS TESTED	TEST / PROPERTIES MEASUREMENTS / RANGE OF MEASUREMENT	STANDARD METHODS / TECHNIQUES	APPROVED SIGNATORY
A. Metallic Materials / structural steel	1. Tensile Test	BS EN 10002:pt1:2001 JIS Z 2241 : 2011 ASTM A370 -12,13,14,16, 17a SS 456 : 1999 BS EN ISO 6892:1:2009,2016	CTJ/TMC/DS/HM/TBH
B. Steel Reinforcement Bar	1. Tensile test 2. Bend test 3. Rebend test	SS2 : 1987 SS2 : pt 1 :1999 SS2 : pt 2 :1999 SS 2: pt 3 : 1987 SS 456 : 1999 SS 427:1998 BS 4449:1997, 2005 +A2:2009, 2016 BS EN 10002:pt 1:2001 BS EN ISO 6892:1:2009,2016 BS EN ISO 15630-1: 2002, 2010 SS 560: 2010, 2016	CTJ/TMC/DS/HM/TBH/BL
C. Welded Steel Fabric	1. Tensile test 2. Bend test 3. Rebend test 4. Reverse bend test 5. Weld shear test	SS18:Pt1 : 1999 SS 18: pt2: 1970 (1981) SS 32: pt 1 : 1999 SS 32: pt 2 : 1986 SS 427: 1998	CTJ/TMC/DS/HM/TBH/BL

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D. Seven wire prestressing strand/ high tensile steel wire/prestressing Steel	6. Strength of joint For welded Fabric	SS 456: 1999 SS 561: 2010 BS EN ISO 15630-1: 2010 BS EN ISO 15630-2: 2010 BS EN ISO 6892-1 : 2009, 2016	CTJ/TMC/DS/HM/TBH/BL
	1. Tensile test (Breaking load)	BS 5896: 1980, 2012 ASTM A416/416M-12a, 16, 17a (exclude Table 2 - Yield Strength) SS 475:pt 1 & 4 :2000 BS EN 10002-1 : 2001 BS EN ISO 6892-1 : 2009, 2016 BS EN ISO 15630-3 : 2010	CTJ/TMC/DS/HM/TBH
	2. Tensile Strength	BS 5896: 1980, 2012 BS EN ISO 15630-3: 2010 BS EN ISO 6892-1: 2009, 2016 ASTM A416/A416M: 16, 17a	CTJ/TMC/DS/TBH
E. Reinforcement steel bar with coupler	1. Tensile Load & Permanent Set	MEC-S029-RO-Jan17 (BS 8110-1: 1997 )	CTJ/TMC/DS/HM/TBH
F. Metals	1. V Notch Charpy Impact	ASTM A370-12a,13,14,16, 17a BS EN ISO 10045-1:1990 ASTM E23 - 12c, 16b BS EN ISO 148-1: 2010, 2016	CTJ/TMC/DS/TBH
G. Ferrous Materials	1. Rockwell Hardness ("B" & "C ")	BS EN ISO 6508 -1:2005, 2015, 2016 ASTM E18-12, 14, 15, 16, 17e1	CTJ/TMC/DS/TBH

The SAC Programme is managed by Enterprise Singapore

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H. Bolts	1. Tensile Test Full Size Bolts	BS EN ISO 898 - 1 : 2009, 2013 (Clause 9.2)	CTJ/TMC/DS/TBH
	2. Single Shear Test	ASTM F606/F606M - 16 CL 3.8	
I. Nuts	1. Proof Load	BS EN ISO 898 - 2 : 2012 BS 3692 : 2001, 2014	CTJ/TMC/DS/TBH
J. Reinforcement couplers for mechanical splices of bars	1. Slip test	ISO 15835-2: 2009	CTJ/TMC/DS/TBH
K. Fiber reinforcement polymer matrix composite bars / GFRP bar	1. Tensile test	In-house Developed Procedure, MEC-S031-RO-Mar18	CTJ/TMC/DS/TBH
L. Metal formwork	1. Tensile test	JIS Z 2241 : 2011	CTJ/DS/BL/TBH
	2. Dimension test	In-house Developed Procedure, MEC-S032-RO-Mar18	

## Approved signatories

Mr Chai They Jhan	For all tests
Mr Subramanian D	For all tests
Mr Tee Boon Huat	For all tests
Mr Tian Mong Ching	For all tests (except K)
Mr Hamidon Bin Mostaffar	For all tests (except K and L)
Mr Benedict Lim	For tests B, C & L

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## Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.