

# Schedule

Setsco Services Pte Ltd  
No. 18 Teban Gardens Crescent  
Singapore 608925

Certificate No. : LA-1987-0001-B  
(Part 3 of 5)

Issue No. : 24

Date : 25 January 2016

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FIELD OF TESTING : Civil Engineering Testing

ITEMS/MATERIALS/ PRODUCTS TESTED	TESTS / MEASUREMENT	STANDARD METHODS/ TECHNIQUES/EQUIPMENT	APPROVED SIGNATORY
<b>A. PAINT AND COATING</b>	1. Determination of Pull-off Strength using Portable Adhesion Testers	ASTM D4541 – 2009e1 ASTM D4541 – 2002	HYM / SL / THC / SS
	2. Determination of Dry Film Thickness of Protective Coating Systems by Destructive Means	ASTM D4138 – 1994 (2001)e1	HYM
	3. Non-Destructive Measurement of Dry Film Thickness of Non-Magnetic Coatings Applied to a Ferrous Base	ASTM D7091 – 2013	HYM
<b>B. PAINT, COATING, VARNISHES AND RELATED MATERIALS</b>	1. Dry Film Thickness	SS 5 Part B1: 2003 ) (Method SS 5 Part B1: 2013 ) 6A & 7) ISO 2808: 2007 ) ASTM D7091: 2013 )	) SL / THC / SS ) ) )
	2. Non-Volatile matter	SS 5 Part B2: 2003 SS 5 Part B2: 2013 ISO 3251: 2008	) ) )
	3. Condition in container	SS 5 Part B4: 2003	) )
	4. Skinning	SS 5 Part B5: 2003	) )
	5. Storage stability	SS 5 Part B6: 1987 (2003) SS 5 Part B6: 2013	) )

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	6. Density	SS 5 Part B7: 2003 SS 5 Part B7: 2013 ISO 2811-1: 2011	) SL / THC / SS ) ) )
	7. Brushing properties	SS 5 Part B9: 2003	) )
	8. Consistency (Stormer Viscometer)	SS 5 Part B12: 2003 SS 5 Part B12: 2013	) ) )
	9. Fineness of Grind	SS 5 Part B13: 2003	) )
	10. Hard Drying Time	SS 5 Part D3: 1988	)
	11. Through Dry State and Through Dry Time	SS 5 Part D5: 2003 SS 5 Part D5: 2013 ISO 9117-1: 2009	) SL / SS ) )
	12. Gloss	SS 5 Part E1: 2003 ASTM D523: 2014 ISO 2813: 2014 BS EN ISO 2813: 2014 AAMA 2605: 2013 AAMA 2604: 2013	) SL / THC / SS ) ) ) ) ) )
	13. Opacity	SS 5 Part E2: 2003 SS 5 Part E2: 2013	) ) )
	14. Colour	SS 5 Part E3: 2003	) )
	15. Mandrel Bend Test	SS 5 Part F1: 2003 SS 5 Part F1: 2013 ASTM D522: 2013	) ) ) )
	16. Scratch Resistance	SS 5 Part F2: 2003 SS 5 Part F2: 2013 BS EN ISO 1518 Part 1: 2011	) ) ) )
	17. Abrasion Resistance by Taber Abraser	SS 5 Part F3: 2003 SS 5 Part F3: 2013 ASTM D4060: 2014 ISO 7784-2: 1997	) ) ) ) )

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	18. Wet Scrub Resistance	SS 5 Part F5: 2003 ISO 11998: 2006	SL / THC / SS SL / SS
	19. Adhesion by Tape Test	ASTM D3359: 2009e2 AAMA 2605: 2013 AAMA 2604: 2013	) SL / THC / SS ) ) )
	20. Cross Cut Test	ISO 2409: 2013	) )
	21. Pencil Hardness Test	ASTM D3363: 2005 ASTM D3363: 2005 (2011)e2	) ) )
	22. Impact Resistance (Falling Weight) Test	ASTM D2794: 1993 (2010) AAMA 2605: 2013 AAMA 2604: 2013	) ) ) )
	23. Tensile strength	) ASTM D412: 2006a(2013) ) ASTM D412: 1998a(2002)e1	) ) )
	24. Elongation at break	)	) )
	25. Salt spray fog test	ASTM B117: 2011 SS 5 Part G1: 2003 SS 5 Part G10: 2013	) ) ) )
	26. Alkali resistance	SS 5 Part G2: 2003	) )
	27. Accelerated weathering	SS 5 Part G4: 2003 SS 5 Part G9: 2013 ISO 11341: 2004	) ) ) )
	28. QUV Accelerated weathering	ASTM G154: 2012a	) ) )
	29. Natural weathering	ASTM D1014: 2009 ASTM D3719: 2000 ASTM D610: 2008(2012)	) ) ) )
	30. Resistance to Chemical	ASTM D1308: 2002 (2007) ISO 2812-1 :2007 ISO 2812-3 :2012 ISO 2812-4 :2007	) ) ) )
	31. Resistance to Water	ISO 2812-2 :2007	SL / SS

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	32. Resistance to Humidity	SS 5 Part G6: 2003 SS 5 Part G7: 2013 ISO 6270-2 : 2005	) SL / THC / SS ) ) )	
	33. Degree of Blistering	SS 5 Part H2: 1998 (2003) SS 5 Part H2: 2013	) ) )	
	34. Water Vapour Transmission	ASTM D1653 – 2013 ASTM E96 / E96M - 2005 ASTM E96 / E96M - 2014	) ) ) )	
	35. Water absorption	SS 500 Annex A: 2002	) )	
	36. Efflorescence	SS 500 Annex B: 2002	) )	
	37. Roller Coating	SS 500 : 2002 SS 150 :1998	) ) )	
	38. Paint & Coating specifications		SS 7 : 1998	)
			SS 34 : 1998	)
SS 38 : 1998			)	
SS 150 : 1998			)	
SS 345 : 1990			)	
<b>C. CERAMIC TILES</b> 1 Ceramic Wall and Floor Tiles	1. Determination of Dimensions	) BS EN ISO 10545-2 : 1997	) THC / FCS /	
		) SS 57 : 1989	) WPC / RT	
		) SS 301 : 1985	)	
		) ISO 10545-2 : 1995	)	
		)	)	
2. Determination of Straightness of Sides		)	)	
		)	)	
		)	)	
		)	)	
3. Determination of Rectangularity		)	)	
		)	)	
		)	)	
4. Determination of Surface Flatness		)	)	
		)	)	
		)	)	
5. Determination of Surface Quality		)	)	
		)	)	

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	6. Determination of Resistance to Deep Abrasion	SS 301 : 1985 BS EN ISO 10545-6 : 2012 ISO 10545-6 : 2010	) THC / FCS / ) WPC / RT )
	7. Tensile and Shear Adhesion Bond Strength	ASTM C482 – 2002 (2009)	) THC / FCS / ) WPC
	8. Determination of Resistance to Surface Abrasion	SS 301 : 1985 BS EN ISO 10545-7 : 1999 ISO 10545-7:1996	) THC / FCS / ) WPC / RT )
	9. Determination of Modulus of Rupture (tiles > 95 mm)	SS 57 : 1989 SS 301 : 1985 BS EN ISO 10545-4: 2014 ISO 10545-4: 2014	) ) ) ) )
	10. Determination of Water Absorption	SS 57 : 1989 SS 301 : 1985 BS EN ISO 10545-3 : 1997 ISO 10545-3 : 1995	) ) ) ) )
	11. Determination of Scratch Hardness of Surface	EN 101 : 1991 EN 159 : 1991 SS 57 : 1989 SS 301 : 1985	) ) ) ) )
	12. Determination of Colour Fastness	DIN 51094 - 1996 SS 57 : 1989 SS 301 : 1985	) ) ) )
	13. Slip Resistance Test	SS 485 : 2011	) )
	14. Reverse Staining	BTD/TP/10 (2003)	) )
	15. Craze Resistance Test	SS 57 : 1989 SS 301 : 1985 BS EN ISO 10545 -11 : 1996 SS 70 : 2001 ISO 10545 -11 : 1994	) ) ) ) ) )
	16. Impact Resistance	BS EN ISO 10545-5 : 1998 ISO 10545-5 : 1996	) )

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	17. Linear Thermal Expansion	BS EN ISO 10545-8 : 1996 ISO 10545-8 : 2014	) THC / FCS / ) WPC / RT )	
	18. Thermal Shock	BS EN ISO 10545-9 : 1996 ISO 10545-9 : 2004 (excluding Clause 6.3)	) ) )	
	19. Moisture Expansion	BS EN ISO 10545-10 : 1997 ISO 10545-10 : 1995	) )	
	20. Stain Resistance	BS EN ISO 10545-14 : 1997 ISO 10545-14 : 1995 SS 57 : 1989	) ) )	
	21. Chemical Resistance	BS EN ISO 10545-13 : 1997 ISO 10545-13 : 1995	) )	
	22. Small Colour Difference	BS EN ISO 10545-16 : 2012 ISO 10545-16 : 2010	) )	
	23. Coefficient of Friction	SS 485: 2011	)	
	24. Sampling and Basis for acceptance	BS EN ISO 10545-1 : 2014 ISO 10545-1 : 2014	) )	
	25. Specifications	SS 483 : 2000 ISO 13006 : 2012 BS EN 14411 : 2012	) ) )	
	2. Roofing Tiles	1. Batten Lugs and Squareness	) SS 70 : 2001 )	) THC / FCS / ) WPC )
		2. Transverse Strength	)	)
		3. Water Absorption	)	)
		4. Permeability	)	)
		5. Colourfastness	)	)

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<b>D. SURFACE SYSTEM</b>	1. Shock Absorption	BS EN 14808:2005	) RT	
	1. Sports Hall Surface (Lab and Site)	2. Vertical Deformation	BS EN 14809:2005	)
		3. Vertical Ball Behaviour (Acoustic Method)	BS EN 12235: 2004	)
		4. Slip/Skid Resistance of Dry Surface	BS EN 13036-4:2011	)
		5. Behaviour Under a Rolling Load	BS EN 1569:1999	)
		6. Specifications	BS EN 14904:2006	)
		2. Pedestrian Surface Materials	1 Pendulum Test	SS 485: 2011 Annex A ASTM E303: 1993(2013) BS 7976-2: 2002 + A1: 2013
	2 Dry Floor Fiction Test		SS 485: 2011 Annex B	)

## Approved signatories

Mr. How Yong Meng	(HYM)	Ms. Shirley Lim Sui Di	(SL)
Mr. Tan Hong Choon	(THC)	Mr. Foong Chee Sung	(FCS)
Mr. Raymond Tan Hai Chuan	(RT)	Ms. Catherine Wong Phui Chan	(WPC)
Mr. Salim Suwignjo	(SS)	Mr. Steven Lim Bee Teck	(LBT)

## Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 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 and calibrations. The **management system requirements** In ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 **Quality Management Systems — Requirements** and are aligned with its pertinent requirements.

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<b>A. ROCKS</b>	1. Unconfined Compressive Strength of Core Specimens	CTD/TP/07: 2008 (Adopted from ASTM D2938) ASTM D7012: 2014 Method C	) WPC / THK ) TT / TCK ) )
	2. Water (Moisture) Content of Soil and Rock Dimensional and Shape Tolerance	ASTM D2216: 2010 ASTM D4543: 2008	) ) ) ) )
	3. Point Load Test	ISRM Journal Vol. 22, No. 2, pp. 51-60: 1985	) )
	4. Cerchar Abrasivity	ASTM D7625 : 2010	) THK / TT / ) TCK
<b>B. NATURAL STONE / GRANITE</b>	1. Water Absorption and Density	ASTM C97-2009	) THC / FCS / ) THK ) )
	2. Compressive Strength	ASTM C170 - 2014a BS EN 1926 Annex A : 2006	) ) )
	3. Modulus of Rupture	ASTM C99-2009	) )
	4. Flexural Strength	ASTM C880-2009 BS EN 12372 : 2006	) )
	5. Salt Crystallisation	BS EN 12370 : 1999	) FCS / THK ) )
	6. Determination of Water Absorption coefficient by Capillarity	BS EN 1925 : 1999	) ) )



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<b>C. ASPHALT PREMIX</b>	7. Determination of real density and apparent density, total and open porosity	BS EN 1936 : 2006	) FCS / THK ) ) )
	8. Petrographic Examination	BS EN 12407 : 2007 BS EN 12670 : 2002	) WPC/THK/TT )
	1. Density of Cores (except porous mix)	BS 598 : Pt 104 : 2005	) WPC / PDS ) )
	2. Marshall Test	BS 598 : Pt 107 : 2004	) ) )
	3. Asphalt Content by Ignition Method	ASTM D 6307 : 2010	) ) )
	4. Surface Friction of pavement using griptester	BS 7941 Pt 2: 2000	) )
	<b>D. SOIL</b>	1. Moisture Content	BS 1377:Pt2 Method 3.2: 1990
2. Liquid Limit		BS 1377:Pt2 Method 4.3: 1990	) ) )
3. Plastic Limit & Plasticity Index		BS 1377:Pt2 Section 5 :1990	) ) )
4. Particle Size Distribution		BS 1377:Pt2 Method 9.2 & 9.3 : 1990	) ) )
5. Compaction		BS 1377:Pt4 Method 3.3 -3.6 :1990	) PDS / HBC ) )
6. California Bearing Ratio		BS 1377:Pt4 Method 7:1990	) ) )
7. Sand Replacement		BS 1377:Pt9 Method 2.1: 1990	) PDS ) )
8. Plate Bearing Test		BS 1377:Pt9 Method 4.1: 1990	) ) )
9. Nuclear Density Test		BS 1377: Pt9 Method : 2.5: 1990	)

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	10. Shear Strength by direct shear (Small Shearbox Apparatus)	BS 1377: Pt7 Method 4 :1990	) PDS / HBC ) ) ) ) ) )
	11. Maximum and Minimum Dry Density	BS 1377: Pt4 Method 4 :1990	) ) ) ) ) )

## Approved signatories

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Mr Tan Hong Choon	(THC)	Mr Foong Chee Sung	(FCS)
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ITEMS/MATERIALS/ PRODUCTS TESTED	TESTS / MEASUREMENT	STANDARD METHODS/ TECHNIQUES/EQUIPMENT	APPROVED SIGNATORY
<b>A. HARDENED CONCRETE (Non-Destructive Tests)</b>	1. Surface Hardness (Rebound Hammer)	BS EN 12504-2 : 2012	HYM / OJW / LBT
	2. Ultrasonic Pulse Velocity Measurement	ASTM C597 – 2009 BS EN 12504-4: 2004	HYM / OJW / LBT
	3. Electromagnetic Cover Measurement (for determination of cover only)	BS 1881 : Pt 204 : 1988	HYM / OJW / LBT
	4. Half-Cell Potential Measurement	ASTM C876 – 2009	HYM / OJW
	5. Depth of Carbonation on cores or broken concrete	BRE Publication (IP6/81) RILEM TC14-CPC 1988 BS EN 14630: 2006	HYM / OJW / LBT
	6. Penetration Resistance	ASTM C803 – 2003 (2010)	HYM / LBT / OJW
	7. Detection of Objects Embedded in Concrete	CTD/TP/05/2014	HYM / OJW / CST

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<b>B. STRUCTURAL FIXINGS</b>	1. Determination of Tensile Strength (Pull-out Strength) of Structural Fixings in Concrete and Masonry	BS 5080 : Pt 1 : 1993	THC / HYM
	2. In-Situ Pull-Out (Pull-Off) Adhesive Strength for Tiles/Marble/Granite/ Adhesive/ Repair Materials/Screed/Self-Levelling Screed/Plasters/Skim Coats	BTD/TP/08 (2015a)	THC / HYM
<b>C. WINDOWS AND CURTAIN WALLS</b>	1. Field Water Tightness Test	BCA Conquas 21: 2012 Appendix 2 Part 5 Item 2 SS CP 96: 2002 Clause 4.3a AAMA 501.2: 2009	OJW / HYM / ACT

## Approved signatories

Mr How Yong Meng	(HYM)	Mr Ong John Wei	(OJW)
Mr Lim Bee Teck	(LBT)	Mr Aw Chong Tze	(ACT)
Mr Chiang Seng Tow	(CST)		
Mr Tan Hong Choon	(THC)		

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