

SINGAPORE LABORATORY ACCREDITATION SCHEME



Schedule

Singapore Laboratory Services Pte Ltd
64 & 76 Tuas South Avenue 2
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Certificate No. : LA-2014-0574-G

Issue No. : 14

Date : 18 December 2024

Page : 1 of 19

FIELD OF TESTING : Mechanical Testing

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A Pipes and Fittings A1 UPVC Pipes/Fittings for Soil, Waste, Vent Below Ground for Drain Lines/Sewers, Cold Potable Water, Joints/Fittings for Use with UPVC Pipes	a. Dimensional b. Tensile c. Heat Reversion d. Hydrostatic e. Impact Test f. Opacity g. Softening Point h. Shear Strength i. Film Properties j. Long Term Hydrostatic Pressure k. Internal lining Tensile test l. Hydraulic test m. Flattening test n. Softening point test o. Bending test p. Geometric characteristics q. Physical and chemical characteristics r. Mechanical characteristics s. Mounting support t. Linear deflection u. Impact v. Cover retention w. Ball pressure x. Insulation strength & resistance y. Dimension	SS 213: 1998, 2022 MS 1063: 2002, MS 2713-1 to 3: 2021 SS 272: 2012, 2022 SS 141: 2013 SS 174: 1997, 2014, MS 628-1 to 3: 2014 ISO 1452-1 to 3: 2009 JIS K6741: 2007 JIS K6741: 2016 BS EN 1401-1: 2009, 2023 BS EN ISO 15874-2: 2013 MS 2286-2:2012 BS EN ISO 15874-3: 2013 MS 2286-3:2012 BS 4346-3 :1982 BS EN 14814:2016, MS 628-4: 2015, MS 1419-3: 1997 amd.1: 2018 SS 367: 1994 SS 275-12 BS EN 61386-1: 19 BS EN 61386-21:10, 21 BS 4607-5: 2010 BS 5627: 1984

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 2 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A1 UPVC Pipes/Fittings for Soil, Waste, Vent Below Ground for Drain Lines/Sewers, Cold Potable Water, Joints/Fittings for Use with UPVC Pipes	z. Compression aa. Bending ab. Collapse ac. Thermal properties ad. Dimension, labelling, impact, tensile, ageing, softening point ae. Surface roughness af. Water Seal ag. Blockage ah. Thermal behaviour ai. Tightness aj. Mechanical Strength ak. Flowrate	BS 5627: 1984 Onorm E6530-85 ASTM D 3045-18 ASTM D 1525-17 ISO 4287: 97, 09 BS EN 1253-1: 2015
A2 Plastics Pipes & Fittings	a. Dimensions b. Resistance to Pull Out c. Heat Reversion d. Pressure Test e. Surface Finish f. Pull Out Test g. Bending Test h. Internal Pressure Test i. Leak Tightness Under Vacuum j. Pressure Cyclic k. Opacity l. Thermal Durability m. Delamination n. Form supplied o. Surface finish p. Dimensions q. Long term hydrostatic r. Pressure testing s. Heat reversion t. Tensile strength u. Ovality v. Melt flow rate w. Form Supplied Surface Finish Long Term Hydrostatic	BS 7291-1: 2010 BS 7291-2: 2010 BS 7291-3: 2010 BS EN ISO 21003-1: 2008 BS EN ISO 21003-2: 2008 +A1: 2011 BS EN ISO 21003-3: 2008 DIN 8077: 1999 DIN 8078: 1996 BS EN ISO 21003-5: 2008 BS EN ISO 21003-2: 2008 DIN 8075: 2018 ISO 22391-2: 2009 ISO 9080: 2012 ISO 13953: 2001, 2020 ISO 1133-1: 2011 ASTM D 1238: 2013 DIN 16962: 2000 Parts 1 to 13

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 3 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A2 Plastics Pipes & Fittings	x. Oxygen permeability y. Impact Strength PPR pipe z. Stiffness & Tear	ISO 17455: 2005 ISO 21003-2: 2008 BS 7291: 2010 BS EN ISO 179: 1997 ISO 179-1: 2010 DIN 8078: 1996 ISO 9854-1&2: 1994 ASTM D2412: 2018
A3 PP Pipes	a. Dimensions b. Marking c. Mechanical Characteristics d. Longitudinal Reversion e. Thermal Stability by Hydrostatic Pressure f. Impact Resistance g. Internal Pressure h. Bending i. Pull-out j. Thermal Cycling k. Pressure Cycling l. Leaktightness under vacuum	BS EN ISO 15874-2: 2013 MS 2286-2:2012 BS EN ISO 15874-3: 2013 MS 2286-3:2012 ISO 15874-1: 2013 MS 2286-1:2010 ISO 15874-3: 2013 MS 2286-3:2012 ISO 15874-5: 2013 MS 2286-5:2012
A4 PE Pipes, Fittings & Valves	a. Geometrical Characteristics b. Mechanical Characteristics c. Longitudinal Reversion d. Performance Requirements e. Fitness for Purpose f. Tensile g. Peel h. Hydrostatic i. Peel Test	BS EN 12201-1-5: 2003, 2012 BS EN 1555-1-5: 2011 ISO 4427-1 to 5: 2007 MS 1058 -1 to 5: 2006 ISO 13953: 2001 ISO 13954:1997 ISO 13955: 1997 ISO 6259-1: 2015 ISO 6259-2: 2020 ISO 6259-3: 2015 ISO 1167-1-4: 2006 ISO 13956: 2010
A4a PC Pipe	a. Flexural & Modulus	ASTM C580: 2018, BS EN 196-1: 2016
A5 Steel Pipes	a. Hydrostatic Test b. Tensile Test c. Dimension d. Tensile e. Bend f. Flattening g. Leak Tightness	API 5L: 2004 BS EN 10255: 2004 +A1: 2007

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 4 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A6 Seals for Pipe Joint	a. Tensile b. Hardness c. Elongation at Break test d. Stress Relaxation e. Compression at 23 & 70 Degrees f. Water Absorption g. Ozone h. Accelerated Aging i. Rubber Washer for Hot and Cold Water j. Accelerated Ageing Tests in Soapy Water and Static Endurance k. Static Endurance Ageing Tests	SS 270 :1996, 2015 BS EN 681-1: 1996 BS EN 681-2: 2000 BS EN 681-3: 2000 BS EN 681-4: 2000 BS 3457: 1973 SLS-WI-03
A7 Hubless Cast Iron Pipes & Fittings	a. Dimensions b. Hydrostatic c. Deflection on Joint Assemblies d. Aligned on Joint Assemblies e. Shear Loading f. Mechanical Coupling g. Examination of Specimen h. Pneumatic Proof i. Vacuum Test j. Hydrostatic Proof k. Flexibility l. Hydrostatic Burst m. Rigidity n. Bending Moment Proof o. Bending Moment Ultimate	CISPI 310: 2012 CISPI 301: 2012 DIN EN 877: 2010, 2022 ASTM F1476-07: 2013
A8 Ductile Iron Pipe & Fitting	a. Dimensions b. Tensile c. Leak Tightness of Flexible Joints d. Works Leak Tightness e. Thickness Measurement on Cement Lining f. Ovality g. Bore h. Straightness i. Abrasion Resistance j. Diametral Stiffness k. Microstructure l. Compressive Strength of Cement Mortar Lining	BS EN 545:2010 BS EN 598:2007+A1:2009 BS EN 969: 2009 BS EN ISO 945-1: 2008, 2019 ISO 1083: 2004 DIN 58415-2: 1998-11 BS EN 196-1: 2005, 2016 BS EN 545:2010 BS EN 598:2007+A1:2009

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 5 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A8 Ductile Iron Pipe & Fitting	m. Coating thickness	BS EN 15189: 2006 ISO 8179-1: 2017 BS EN 14628: 2005, BS EN 14628-1:20 BS EN 14901: 2014, BS EN 14901-1: 14, 19 BS EN 15655: 2009
	n. Non-porosity	
	o. Hardness	
	p. Adhesion	
	q. Chemical resistance	
	r. Impact strength	BS EN 15655: 2009
	s. Peeling strength	
	t. Heat aging	
	u. Light aging	BS EN 15655-1: 2018
	v. Diametrical stiffness	
	w. Resistance to ovalization	
	x. Elongation	BS EN 1514-1: 1997 & 1514-2: 2014 JIS G 5528: 2014
	y. Specific coating resistance	
	z. Indentation	
	aa. Dimension of gasket	EN 877: 10, 2021 BS EN 969: 2009
	ab. Thickness, pinhole, hardening, appearance, adhesiveness, density, resistant to falling weight, scratch, salt spray, Temperature , cycle, cupping	
	ac. Coating thickness resistance to salt spray/ waste water/ hot water/ Chemical resistance Adhesion	
A9 Clay Pipes & Fittings	a. Dimensions	BS EN 295-1: 2013 BS EN 295-3: 2012 BS EN 295-7: 2013
	b. Crushing Strength	
	c. Water Tightness	
	d. Deflection Test	BS EN 14636-1: 2009
	e. Shear Resistance Test	
	f. Cyclic Load	
	g. Bending Moment Resistance	
	h. Compressive Strength	
A10 Mechanical Drain & Geofabric	a. Tensile Test	ASTM D4595: 2017 ASTM D4632: 15a ASTM D4533:15 ASTM D1682: 1975 ISO 10319-15 ASTM D751-19 ASTM D5034: 21 ASTM D5035: 19

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 6 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A10 Mechanical Drain & Geofabric	b. Mass Measurement c. Thickness Measurement Width & length measurement d. Puncture Test e. Opening Size f. Water Permeability Test g. Flow Rate h. Cone Drop Test i. Bursting j. Adhesion k. Tensile test l. Abrasion test m. Light aging n. Compression	ASTM D5261-18 ISO 9864: 2005 ASTM D751-19 ASTM D3776: 2020 ASTM D5199-19 ISO 9863-1-16 ASTM D751: 2011, 2019 ASTM D1777: 2019 ASTM D 3774:18 ASTM D4833 -20 ISO 12236: 2006 ASTM D6241-22a ASTM D4751-20, ISO 12956-19 ISO 11058-19 ASTM D4491-22 ASTM D4716-22, ASTM D6918:22, ISO 18325:15, BS EN 15237:07, ISO 12958-1 & 2:20 ISO 13433: 2006 ASTM D3786 -18 ASTM D413-17 ASTM D4884-22, ISO10321:08 ASTM D4885:-23 ISO 13427: 2014 ASTM D4886: 18 ASTM D4355: 18 ASTM D1621:16
A11 Stainless Steel Pipes Tubes and Fittings	a. Dimensional Measurements b. Hydrostatic c. Flattening d. Bend / Weld Bend e. Leak Tightness f. Drift Expanding g. Mechanical Properties at Room Temperature h. Pressure Cyclic i. Resistance to Pull-out of Joints j. Method of Determining Compatibility of Fittings with Pipe k. tensile	BS EN 10312: 2002 BS 3605: Part 1: 1991 BS 3605: Part 2: 1992 BS EN 10216 Part 5: 2013, 2021 BS EN 10217 Part 7: 2014, 2021 BS EN 10217 Part 1: 2002, 2019 SS EN 10224:13, SS EN 10311:13 AS 3688: 2005, 2016 EN 10002-1:01,
A12 Polymer Concrete and Concrete Pipes	a. Dimension b. Crushing c. Cyclic Pressure Test d. Water Tightness	DIN 54815-1: 1998 DIN 54815-2: 1998 SS 183: 1978, 2022 DIN 4060: 1998

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 7 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A12 Polymer Concrete and Concrete Pipes	e. Deflection Test f. Shear Resistance Test g. Chemical Resistance h. Dimension i. Crushing Strength j. Bending Moment Resistance k. Cyclic Loading l. Leak Tightness m. Joint Performance n. Long Term Crushing Strength o. Compressive Strength p. Absorption q. Cyclic load r. Pressure Test s. Angular deflection t. Shear load & vacuum u. Compressive test v. Tensile	BS 5911-120: 1989 ASTM D6783: 2011 BS EN 14636-1: 2009 EN 295-3: 2012 DIN 54815-2: 1998 SS 183: 1978, 2022 ASTM D4161-01 ASTM C579-01 BS EN 5911: 2010, 2021 BS EN 1916: 2002 SS 2: 87
A13 Shower Head	a. Performance tests b. Mechanical Tests for Flexible Hose c. Spray Trajectories	AS 3662: 2005 SPAN TS-3005-2021 (Annex A to E) BS 6340-4: 1984
A14 Flexible Hose	a. Heat Ageing b. Cyclic Pressure Test	AS 3499: 1997, 2016, 2022 AS/NZS 3707: 2001
A15 GRP Piping System	a. General b. Pipes c. Fittings d. Joint Performance	BS EN 1796: 2006
A16 Metal and Metal Products	a. Coating Thickness Measurements b. Tensile	ISO 2177: 2003 ISO 1461: 2009 ISO 6892-1: 2009, 2016, 2019 BS EN 10216-5: 2013, BS EN 10217-7: 2014, BS EN 10312: 2002
A17 Fittings	a. Body Pressure Resistance b. Elongation Resistance c. Internal Pressure d. Resistance Repeatability e. Vibration	JWWA G116: 2007

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 8 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
A18 Copper Tubes	a. Dimensions and Tolerances b. Tensile Test c. Bending Test d. Drift Expanding Test e. Flanging Test f. Freedom From Defects Test g. Hydrostatic Pressure	BS EN 1057: 2006
A19 Copper/Copper Alloy or Stainless Steel Mechanical Jointing End Connectors	a. Leak Tightness under internal hydrostatic pressure b. Resistance to pull out c. Leak Tightness under internal hydrostatic pressure whilst subjected to bending d. Dimensional Measurement e. Temperature cycling f. Pressure cycling g. Vacuum h. Vibration i. Disconnection and re-use (if applicable) j. Fitting rotation k. Static Bending Test	BS EN 1254-2: 1998 BS EN 1254-1: 1998, 2021 BS EN 1254-2: 1998 BS EN 1254-6: 2012, 2021
A20 Flange	a. Measurement	BS EN 1092-1: 13, BS EN 1092-2: 97, BS EN 1092-3: 03 BS EN 1092-4: 02
A21 DI Flange adaptor (with/ without rubber expansion)	a. Mating Dimensions b. Flange thickness c. Pressure / Temperature Rating d. Hydrostatic	BS 4504 Part 3.1 – 3.3: 1989 BS EN 12266-1: 2012
B Sanitary Ware B1 Water Closet Pans & Cisterns	a. Load Test for Wall Hung Pan b. Trap Seal Depth c. Front Thrust d. Distortion e. Impact f. Torque g. Load Test on Operating Mechanism h. Flushing Test i. Volume of Discharge j. Endurance Test	SS 574: Part 1: 2012, 2024 MS 1522: 2015, 2021 SS 574: Part 2: 2012, 2024 MS 795-1 to 3: 2019

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 9 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
B1 Water Closet Pans & Cisterns Ceramic sanitary appliances - Western Water Closet	k. Backflow Prevention l. Dimensions / Marking / Water Line m. Leakage Test n. Hydraulic Test o. Flush Button Design p. Liquid containment q. WC drain line transportation test r. WC Requirements	SS 574: Part 1: 2012, 2024 SASO 1473: 2016 SASO 1474: 2014 SASO 1257: 2017 SASO 1025: 1998 ASME A112.19.14: 2018
B2 Water Closet Pans & Cisterns	a. Design b. Performance Requirements c. Marking/Labelling d. Materials e. Flushing Cisterns f. Flushing Valves for Use with Mains Supply g. Flushing Valves for Use with a Break Tank Supply h. Cistern Inlet Valves i. Cistern Outlet Valves j. Appendices	AS 1172.1: 2005 AS 1172.1: 2014 MS 795-1: 2011 GB 6952-2015 AS 1172.2: 1999 AS 1172.2: 2014 AS 1172.2: 2014
B3 Water Closet Seat & Cover	a. Dimensions b. Water absorption c. Impact resistance d. Rigidity e. Staining	SS 16: 1985
B4 Toilet Seat with Bidet	a. Washing Performance Characteristics - Washing Water Quantity - Rear Washing Force b. Hydraulic Proof Characteristics c. Mechanical Strength d. Temperature Performance e. Warm Wind Performance f. Insulation Resistance	JIS A 4422: 1986, 2011 ASME A112.18.1: 2018 ASME A112.4.2: 2015

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 10 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
B4 Toilet Seat with Bidet	g. Ordinary Temperature h. Abnormal Temperature i. Water Impact j. Counter flow Preventive Performance k. Negative Pressure Actuation l. Durability m. Consumed Electrical Power n. Assembly hydrostatic strength test o. Performance requirements	WMTS-051:2016 ASME A112.4.2-2015/CSA B45.16-15
B5 Taps, Combination Taps & Mixers	a. Dimensional Characteristics b. Leak Tightness Characteristics c. Pressure Resistance Characteristics d. Mechanical Strength Characteristics e. Mechanical Endurance Characteristics f. Hydraulic Characteristics g. Determination of Sensitivity h. Torque Test i. Thermal Shut-off /Electronic Valves – Power Failure j. Back Flow Prevention k. Scope & General l. Materials m. Design & Manufacture n. Performance Requirements o. Determination of spray coverage p. Determination of nominal spray force q. Corrosion Resistance r. Coating Adherence s. Vacuum test t. Water Hammer u. Burst, bending, torques, spout, handle, valve operating, flow, endurance, high temperature, backflow, electrical control, organic coating	BS EN 15091: 2013 BS EN 200: 2008 BS EN 817: 2008 AS 4032.1: 2005 BS EN 1111: 1999, 2017 BS EN 1287: 1999, 2017 ASME A112.18.1-2018/CSA B125.1-18 SS 448-2: 1998, SS 671: 21 SPAN TS 3012: 2022 AS/NZS 3718: 2005, 2021 AS 3662: 2013 BS EN 248: 2002 BS EN 14506: 2005 SASO 2656: 2006 SASO 2655: 2019 SS 636: 2018

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 11 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
B5 Taps, Combination Taps & Mixers	v. Performance requirements w. Pressure resistance characteristics x. Leak tightness characteristics y. Mechanical strength characteristics z. Mechanical endurance characteristics	SPAN TS 3004-2021
B6 Constant Flow Regulators	a. The flow shall be tested at a pressure of 50kPa to 550kPa at intervals of 50kPa. Within the pressure range of 150kPa and 550 kPa, the flow rate shall remain within +/-10% of the specific rating of the CFR	PUB's Stipulation of Requirements 00 In-House WI SLS-WI-16 / Rev. dated 20 Apr 2018
B7 Urinal	a. Dye Test b. Performance requirements	SLS-WI-01 SLS-WI-01 / Rev 01 (Clause 8.5 of ASME A112.19.2 -2008 or 2013, 2018/ CSA B45.1-08 or 13, 18) AS/NZS 3982: 96 MS 1799: 2020
B8 Waterless Urinal	a. Resistance to Stoppage b. Tightness Test of Removable Trap c. Evaluation Testing for Ammonia d. Testing of Urinal with an Optional Drain-Cleaning Action 545	Section 6 of ASME A112.19.19-2016 (Vitreous China Nonwater Urinal)
B9 Ceramic	a. Application of Glazing b. Visual Examination c. Resistance to Staining and Burning d. Water absorption e. Dimension f. Strength & support g. Drain of water	BS 3402: 1969, AS 1976: 92 MS 147: 2021 MS 2578: 2014 Amd 1: 2017
B10 Shower Seat	a. Load Test	SLS-WI-06
B11 Grab Bar	a. Load Test	SLS-WI-06
B12 High Pressure Washer	a. Water consumption	In house method SLS-WI-29

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 12 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
B13 Commercial Dishwasher	a Water consumption	IEC 63136: 19 In house method SLS-WI-30
B14 Dishwasher for household	a Water consumption	IEC 60436: 15 In house method SLS-WI-31
B15 Water meters	Static pressure, Water pressure, Pressure loss, Intrinsic errors, Static magnetic field tests	ISO 4064-1: 2014 ISO 4064-2: 2014
C Valves		
C1 Flush Valves	a. Endurance Test b. Hydraulic Test c. Effectiveness of Vacuum Breaker d. Volume of Discharge Test e. Flushing Test f. Sensing Distance Test	In-house test methods SLS-WI-01 SLS-WI-02 (Requirements as per PUB website) MS 2545: 2022 QB 2948-2008
C2 Metallic Valves	a. Dimensional Measurement b. Hydraulic c. Stem Cap operating Load d. Resistance to bending e. Resistance to operating load f. Max operating torque g. Endurance h. Mechanical Test i. Torque Test j. Bending Moment Test k. Design l. Designation m. Marking n. Pressure designations o. Materials p. Pressure/temperature ratings q. Functional characteristics r. Flow characteristics	SS 75 Part 2: 1978 BS 5154: 1991 BS EN 12288: 2010 BS 5153: 1974 BS EN 16767: 2016 BS EN 593: 2011 BS 5152: 1974 BS EN 13789: 2010 BS 5163-1: 2004 BS 5163-2: 2004 BS EN 1074-1: 2000 BS EN 1074-2: 2000 BS EN 1074-3: 2000 BS EN 1074-4: 2000 BS EN 593: 2004 BS EN 13828: 2003 BS EN 331: 1998 BS EN 1213: 2000 BS EN 12288: 2010 BS EN 13789: 2017
C3 Float Valves	a. Hydraulic Shut Off b. Backnut Distortion c. Backflow Prevention d. Design construction & dimension performance	BS 1212: Part 1: 1990 BS 1212: Part 2: 1990 AS/NZS 2845-1:10 BS 1212: Part 3: 1990 Section 3&4 BS 1212: Part 4: 1991 Section 3&4

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 13 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
C3 Float Valves	e. Dimension & Weight f. Leakage	BS 1968: 1953
C4 Flexible Connecting Hose Valves	a. Water Tightness	AS/NZS 3499:1997, 2016
C5 Anti Vacuum Valves	a. Visual inspection b. Tightness c. Flow Rate/Pressure Loss d. Bending moment e. Endurance f. Vacuum	BS EN 14451: 2005
C6 Copper Alloy and Stainless Steel Ball Valves	a. Design Requirements b. Performance Requirements c. Test Methods d. Markings	BS EN 13828: 2003
C7 Water Pressure Reducing Valves	a. Mechanical Requirements and Tests b. Hydraulic Requirements and Tests	BS EN 1567: 2000
C8 Landing Valves	a. Hydrostatic Pressure Test on Seat b. Hydrostatic Pressure Test on Body c. Design Observation d. Dimensional measurement e. Spring Strength f. Flow Rate	BS 5041: P1- P2: 1987 BS 5041: P1- P2: 1987
D Industrial Products		
D1 Smoke and Heat Control Ventilators (Fans)	a. General Testing Procedures	BS EN 12101-3: 2015
D2 Manhole Cover	a. Design Requirements b. Testing c. General	SS 30: 1999, 2012 BS EN 124: 1994
D3 Tool Clamp	a. Tool Clamp Test	SLS-WI-05 / Rev 00
E Building Materials		
E1 Flooring	a. Ignition Test	BS 4790: 1987 SS 495: 2001, 2022 ASTM D2859-16 (2021)

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 14 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
E1 Flooring	b. Impact Test	ASTM F1292: 2004 BS 7188:1998, SS 495: 2001, 2022
	c. Slip Resistance	SS 495: 2001, 2022 SS 485: 2011
E2 Playground and Fitness Equipment	a. Full Testing	SS 457:2017 (Clauses 4, 6, 7, 8, 12) SS 534: 2007 ASTM F1487: 2011, 2021 EN 1176 P1-P6: 2003 MS 966: 2001 BS EN 16630: 2015 AS 4685 1 - 6: 2014 ASTM F2276: 2009 ASTM F3101: 2015
F Fire Protection Products		
F1 Fire Hose Reel	a. Dimension Measurement and Design Observation	BS EN 671-1: 2012
	b. Opening of manual inlet stop valve	
	c. Opening of automatic inlet stop valve	
	d. Resistance to external corrosion on coated parts	
	e. Resistance to corrosion of waterway	
	f. Ageing tests for plastic materials	
	g. Resistance to impact for shut-off nozzle	
F1 Fire Hose Reel	h. Measurement of spray angle	BS EN 671-1: 2012
	i. Minimum flow rate	
	j. Effective throw range	
	k. Endurance - Rotating	
	l. Endurance - Swinging	
	m. Unwinding load	
	n. Dynamic braking	
	o. Resistance to impact and load	
	p. Resistance to internal pressure	
	q. Strength	

 Accredited
Laboratory
SAC-SINGLAS

Page: 15 of 19

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Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 16 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
F6 Fire hose Couplings and Ancillary Equipment	a. Plunger Springs b. Dimension Measurement	BS 336: 1989, 2010
F7 Fire Doors - Cylinder for locks - Door Bolts - Level Handles and Knobs	a. Endurance Tests	SS 332: 2007, 2018, 2022
F8 Dampers	a. Air Leakage, b. Cycling Test c. Spring Closing Force d. Operation e. Temperature Degradation	SS 333:2022 clause 6.4 BS EN 1751 clause 5.2.1 to 5.2.4 SS 333:2022 clause 6.5 UL 555S:2014 clause 8 SS 333:2022 clause 6.6 SS 333:2022 clause 6.7 SS 333:2022 clause 6.8 UL 555S clause 9
F9 Ceiling Fan	a. Mechanical strength b. Suspension system Installation	SS 655: 2020
F10 Ceramic floor tiles	a. Length and width b. Thickness c. Straightness of sides d. Rectangularity e. Flatness of surface f. Surface quality g. Water absorption h. Breaking strength i. Modulus of rupture j. Staining test	BS EN ISO 10545-2: 1997 SS 57: 1989 SS 301: 1985
F11 Water storage tanks – Fiberglass integral water storage tank Press steel tanks	a. Construction b. Dimensions c. Visual defects d. Physical properties of GRP panels e. Hydrostatic test f. Leakage test g. Deflection test h. Luminous transmittance test i. Marking	SS 245: 2014 SS 22: 1979

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 17 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
F12 Stainless Steel Sectional Water Storage Tank (Minimum Grade 316)	a. Dimension test b. Tensile test c. Impact test d. Hardness e. Resistance to intergranular corrosion test	BS EN 10088 Part 2: 1995, 2014
F13 GRP Ladder	a. Measurement and load testing	BS 5395: Part 3: 1985
F14 Plastic lining	a. Density b. Heat reversion c. Tensile d. Fire resistance e. Water absorption f. Chemical resistance g. Shore D hardness h. Pinhole detection i. Shear & Peel test j. Carbon Content k. Pull-out test	ASTM D792: 2000 ASTM D1505: 2003 ASTM D1204: 2002 ASTM D638: 2014 UL94: 2001 ASTM D570: 1998 ASTM D543: 2001, 2021 ISO 868: 2003 ASTM D2240: 2015 ASTM D1004-13 ASTM D 6693-20 SLS-WI-15 ASTM D6392:2018 ASTM D4218: 2020 ASTM D1603: 2020 BS EN 1015-12: 2016 SLS-WIM-01
F15 Safety showers	a. Full Standard	AS/NZS 4775: 2007 ANSI Z358.1: 2014
F16 Dispensers	a. Design b. Performance requirements and test methods	WMTS-105: 2016

Schedule



Certificate No.: LA-2014-0574-G

Issue No.: 14

Date: 18 December 2024

Page: 18 of 19

ITEMS / MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES
F17 Thermostatic mixing valves	a. Closure b. Leaktightness test c. Closure - Diverter d. Porosity e. Joint effectiveness f. Endurance g. Torque – Operating mechanism h. Torque - Backnuts i. Corrosion protection j. Flowrate k. Means for connection and disconnection l. Visual inspection m. Effect upon water quality n. Opacity o. Contamination p. Vacuum test q. Dimensional r. Measurement of linear dimensions s. Marking	AS/NZS 4032.1: 2005 WRAS Test Code Sheet: 1111.1, 1111.5, 1111.7 1112.1, 1113.1, 1211.2, 1211.3, 1211.5, 1211.7, 1315.1, 1315.4, 1412.1, 1511.4, 1511.5, 1611.5, 1611.8, 1611.11, 2111.1, 2114.2, 2211.3, 2212.6, 2213.18, 2213.19, 5011.1, 6001.1

Approved Signatories

- | | |
|-------------------------|--|
| Jimmy Lee Shen Sun | - All tests. |
| Louis Chua Lee Choong | - All tests except item E2. |
| Jonathan Hong Chang Bin | - A1, A2, A3, A4, A4a, A5, A7 (f to o), A8, A10, A11(h to k), A12 (r to v), A14, A16, A20, A21, B1(q), B4, B5(f & u), B7 (b), B9, B12, B13, B14, C2 (k), C3(c), C4, E1, F1, F2, F4 to F6, F9, F11, F12 and F14 |
| Caleb Lee Jun | - A1, A2, A3, A4, A4a, A5, A7, A8, A10, A11(h to k), A12, A14, A16, B1(q), B4, B5(f & u), B7(b), B9, B10, B11, B12, B13, B14, C2 (k), C3(c), C4, E1, F1, F2, F4 to F6, F9 and F14. |
| Joshua Lee | - A1 (s to ak), A2, A3, A4 (i), A5, A8, A10 (c & n), A11(k), A12(v), A13, A16 (b), B1, B4 (a, n, o), B5 (u to z), B7, B9, B12, B13, B14, B15, C2(k), E1, F1, F2, F4 to F6, F8, F9. |

Schedule



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Page: 19 of 19

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.