



Material Tech Company Limited

進科檢測有限公司

ADDRESS 地址	:	105 San Lee Uk Tsuen, Tin Ha Road, Yuen Long, New Territories, Hong Kong 新界元朗田廈路105號新李屋村
ENQUIRY 查詢		Mr Felix Chan, Managing Director 陳景華先生，董事總經理
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CLIENTELE 服務對象		Public 公眾



Scope of Accreditation
Registration No. HOKLAS 274
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ADDRESS

地址

Main Laboratory : 105 San Lee Uk Tsuen, Tin Ha Road, Yuen Long, New Territories, Hong Kong
香港新界元朗田廈路 105 號新李屋村

Test Location : 中國廣東省東莞市高埗鎮低涌村創興路廉商智造產業園 G 棟一樓四、五區

ACCREDITED TEST CATEGORY : Calibration Services 校正服務
認可測試類別 Construction Materials 建築材料



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Calibration Services 校正服務		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED® 特定測試或量度的特性®	CALIBRATION AND MEASUREMENT CAPABILITY (CMC)* 校準和測量能力*
Construction materials testing equipment - Cube mould	Verification in accordance with in-house method TP-C001 for the dimensional and tolerance requirements as specified in CS1:2010 Vol. 1 App. A25 - dimension - flatness - perpendicularity - parallelism	 0.05 mm 0.02 mm 0.05 mm 0.1 mm
Length and related measurements - Length measuring instruments - Caliper	Calibration in accordance with in-house method TP-C002 over the following range : up to 300 mm	 0.02 mm

® UNLESS OTHERWISE SPECIFIED, ACCREDITED ACTIVITIES ARE CONDUCTED AT THE LABORATORY.

* THE CALIBRATION UNCERTAINTY OF A DEVICE UNDER TEST IS USUALLY REPORTED AT 95% CONFIDENCE LEVEL AND DEPENDS ON BOTH THE CMC OF THE LABORATORY AND THE PERFORMANCE OF THE DEVICE DURING CALIBRATION.

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Adhesive	Pull-off test of tile adhesive in the force range 0.6 kN – 5 kN	In-house method TP-F028
Admixtures (chemical analysis)	Ash content of liquid admixture	BS 5075: Part 1:1982 (Amd.4910) App.D2
	Conventional dry material content of liquid admixture	BS EN 480-8: 2012
	pH of liquid admixture	ISO 4316: 1977 (E)
	Relative density of liquid admixture	BS 5075: Part 1: 1982 (Amd. 4910) App. D.3
	Density of liquid admixture	ISO 758: 1976
	Chloride ion content of liquid admixture	BS 5075: Part 1: 1982 (Amd. 4910) App. E
	Acid soluble alkali content of liquid admixture (equivalent Na ₂ O)	BS EN 480-12: 2005

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Aggregates	Sampling	BS 812: Part 102: 1989 CS3: 2013 Section 8
	Particle size distribution	BS 812: Section 103.1: 1985 + Amd. 6003 (by sieve analysis) BS EN 933-1: 2012 CS3: 2013 Section 10 (by sieve analysis)
	Flakiness index	BS 812: Section 105.1: 1989 BS EN 933-3: 2012 CS3: 2013 Section 11
	Elongation index	BS 812: Section 105.2: 1990 CS3: 2013 Section 12
	Los Angeles value	CS3: 2013 Section 14
	Aggregate impact value	BS 812: Part 112: 1990 + Amd. 8772 CS3: 2013 Section 15
	Ten per cent fines value	BS 812: Part 111: 1990 CS3: 2013 Section 16
	Bulk density, voids and bulking	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 6
	Particle densities and water absorption	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 5 CS3: 2013 Section 17
	Moisture content	BS 812: Part 109: 1990 (by oven drying method) CS3: 2013 Section 18 (by oven drying method)
	Soundness	BS 812: Part 121: 1989 BS 6349: Part 1: 1984 App. B BS EN 1367-2: 2009 CS3: 2013 Section 19
	Drying shrinkage	CS3: 2013 Section 20

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Aggregates (cont'd)	Clay, silt and dust content	BS 812: Part 1: 1975 + Amd. 4875 Cl. 7.2 (by decantation method)
	Aggregate crushing value	BS 812: Part 110: 1990
	Shell content in coarse aggregates	BS 812: Part 106: 1985
	Resistance of aggregates to fragmentation	BS EN 1097-2: 2010 Cl. 5
	Water Absorption	BS EN 1097-6: 2013 Annex B
	Resistance to degradation of small size coarse aggregate by abrasion and impact in the Los Angeles Machine	ASTM C131-96 with modification
	Resistance to degradation of large size coarse aggregate by abrasion and impact in the Los Angeles Machine	ASTM C535-96 with modification
Aggregates (chemical analysis)	Water-soluble chloride salts	BS 812 : Part 117: 1988 <i>Excluding</i> Cl. 4 BS EN 1744 : Part 1 : 2009 Cl.7 <i>Excluding</i> 7.2
	Total sulphate content by acid extraction	BS 812: Part 118 : 1998 Cl.6 <i>Excluding</i> Cl. 4
	Water-soluble chloride ion content	CS3: 2013 Section 21.3
	Acid-soluble sulphate content	CS3: 2013 Section 21.5
Bituminous materials	Theoretical maximum specific gravity of bituminous paved mixtures	ASTM D2041-95 (weighing in water method)
	Quantitative extraction of bitumen from bituminous paving mixtures	ASTM D2172-95 (Method A using ashing method) ASTM D2172/D2172M -17e1
	Sieve analysis of fine and coarse aggregates and materials finer than 75 micron sieve in mineral aggregates by washing	ASTM C117-95 ASTM C136-96a with modification
	Bulk specific gravity and density of non-absorptive compacted bituminous mixtures	ASTM D2726-96a ASTM D2726/D2726M -17
	Percentage air voids in compacted mixtures	ASTM D3203-94 ASTM D3203/D3203M -17

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Cement	Compressive strength of broken mortar prisms in the force range 10 kN - 300 kN	BS EN 196-1: 2005
	Flexural strength of mortar prisms in the force range 1 kN - 10 kN	BS EN 196-1: 2005
	Standard consistence	BS EN 196-3: 2005 + A1:2008 Cl. 5
	Setting times	BS EN 196-3: 2005 + A1:2008 Cl. 6
	Soundness	BS EN 196-3: 2005 + A1:2008 Cl. 7
	Density	BS EN 196-6: 1992 Annex NC BS EN 196-6: 2010 Annex NC
	Fineness	BS EN 196-6: 1992 Cl. 4 (by Blaine Method) BS EN 196-6: 2010 Cl. 4 (by Blaine Method)
Cement (chemical analysis)	Chloride content (Cl)	BS EN 196-2: 2013 Cl. 4.5.16
	Residue insoluble in hydrochloric acid and sodium carbonate	BS EN 196-2: 2013 Cl. 4.4.3
	Loss on ignition (L.O.I.)	BS EN 196-2: 2013 Cl. 4.4.1
	Sulfate content (as SO ₃)	BS EN 196-2: 2013 Cl. 4.4.2
	Acid-soluble alkali content	BS EN 196-2: 2013 Cl. 4.5.19

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Concrete	Sampling fresh concrete on site	CS1: 2010 Section 1 + Amd. No. 1/2017
	Slump of fresh concrete	CS1: 2010 Section 2 Part I + Amd. No. 1/2017
	Flow table test	CS1: 2010 Section 2 Part IV
	Slump flow test	CS1: 2010 Section 2 Part V
	Stiffening time	CS1: 2010 Section 3
	Density of compacted fresh concrete	CS1: 2010 Section 5
	Air content of fresh concrete	CS1: 2010 Section 6
	Making test cubes from fresh concrete	CS1: 2010 Section 7
	Curing of test specimens (Tropical zone temperature)	CS1: 2010 Section 10
	Compressive strength of concrete cubes in the force range 50 kN – 3000 kN	CS1: 2010 Section 12
	Tensile splitting strength of cylinders in the force range 50kN – 3000kN	CS1 : 2010 Section 13
	Obtaining core samples	CS1: 2010 Section 15
	Compressive strength of concrete cores in the force range 50 kN – 3000 kN	CS1: 2010 Section 15
	Concrete's ability to resist chloride ion penetration	CS1: 2010 Section 19
	Density of hardened concrete	CS1: 2010 Section 16
Alkali silica reaction potential by ultra-accelerated mortar-bar test	CS1: 2010 Section 22	

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Concrete (cont'd)	Bleeding test	ASTM C232-99 Method A
	Water absorption	BS 1881: Part 122: 1983 + Amd. 6108
	Temperature monitoring of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4(b)
	Temperature rise evaluation test on concrete (TRET Block)	In-house method TP-F033
	Temperature monitoring of concrete structure (heat of hydration)	In-house method TP-F034
	Crack survey	Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.14
	Obtaining drilling powder samples	Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 6.4
	Removal of concrete cover to expose reinforcement	Hong Kong Housing Authority Materials Testing Services (2014/2016) for Maintenance & Building Materials Specification Part D Cl. 4.2.1
Concrete (chemical analysis)	Chloride content	CS1: 2010 Section 21.10.2
	Cement and aggregate content (by CaO determination)	CS1: 2010 Section 21.6.4, 21.6.6 & 21.6.7
Concrete - Hardened (chemical analysis)	Chloride content	BS EN 14629: 2007 Cl. 4.3.4.1



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Concrete (diagnostic)	Carbonation test	BS EN 14630: 2006 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.1 Method 1 & Method 2
	Covermeter survey	BS 1881: Part 204: 1988 Cl. 7.3 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.2 Method 1 & Method 2
	Half cell potential measurement	ASTM C876-91 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.4
	Resistivity measurement	BS 1881: Part 201: 1986 Cl. 2.3
	Surface hardness measurement	BS 1881: Part 202: 1986 BS EN 12504-2: 2001 BS EN 12504-2: 2012 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.1
	Ultrasonic pulse velocity measurement	ASTM C597-02 BS 1881: Part 203: 1986 Cl. 6 (by direct transmission) BS EN 12504-4: 2004 (direct and semi-direct transmission) Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.2
Foundation	Plate load test (PLT)	BS 1377: Part 9: 1990 (Amd 8264) Cl. 4.1 (incremental loading/maintain load test)
Grout	Making of grout cubes	CS1 : 1990 Section 7 (Amd. 1101 & 1102) with modifications
	Flow test of grout by flow cone	ASTM C 939-97 ASTM C 939-02
	Expansion and bleeding of freshly mixed grout	General Specification for Civil Engineering Works (1992) Vol. 2 Cl. 17.60

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Metallic materials	Mass per meter of steel reinforcing bars	CS2: 2012 Cl. 6.1 & 6.2
	Tensile test of steel reinforcing bars in the force range 10 kN – 2000 kN	CS2: 2012 Cl. 6.1 & 6.4
	Rebend test of steel reinforcing bars (up to 50 mm diameter)	CS2: 2012 Cl. 6.1 & 6.5
	Bond property of steel reinforcing bars by surface geometry measurement	CS2: 2012 + Amd. 1/2018 + Amd. 2/2018 Cl. 6.1 & 6.7
	Tensile test of a reinforcing bar with a mechanical coupler in the force range 10 kN -2000 kN	BS 8110: Part 1: 1997 Cl. 3.12.8.16.2 General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 15.35 Buildings Department Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.3
Tensile test of structural steel section in the force range 10 kN – 2000 kN	BS EN ISO 6892-1: 2016 BS EN ISO 6892-1: 2009 BS EN 10002-1: 2001 in conjunction with the following specification(s): BS EN 10025-1: 2004 Cl. 10.2.1 BS EN 10025-2: 2004 Cl. 10.2 BS EN 10113-1: 1993 Cl. 8.6.2.1 BS EN 10113-2: 1993 Cl. 7.4.1 BS EN 10113-3: 1993 Cl. 7.4.1 BS EN 10155: 1993 Cl. 8.7.2.1 BS EN 10137-1: 1996 Cl. 8.5.2.2 BS EN 10137-2: 1996 Cl. 7.4.1 BS EN 10210-1: 2006 Cl. 9.2 BS EN 10219-1: 2006 Cl. 6.7.1 & 9.2.2	
Tensile test of metallic materials in the force range 10 kN – 2000 kN	BS EN 10002-1: 2001 BS EN ISO 6892-1: 2009 BS EN ISO 6892-1: 2016	

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Metallic materials (cont'd)	Static tension test, static compression test, cyclic tension & compression tests for mechanical connector systems (Type 2 Splice) for steel reinforcing bars in the force range 10 kN - 2000 kN	ICC Evaluation Service, Inc. AC133 (Approved May 2008, Effective 1 Jun 2008) Cl. 4.1.2 ICC Evaluation Service, Inc. AC133 (Approved May 2008, Effective 1 Jun 2008) Cl. 4.1.2 with modifications ICC Evaluation Service, Inc. AC133 (Approved Jan 2010, Effective 1 Jul 2010) Cl. 4.1.2 ICC Evaluation Service, Inc. AC133 (Approved Jan 2010, Effective 1 Jul 2010) Cl. 4.1.2 with modifications Buildings Department Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.4(b), (c) & (d)
	Charpy V-notch impact test of metallic materials	BS EN 10045-1:1990 in conjunction with the following specification(s): BS EN 10210-1: 2006 Cl. 9.2.3 BS EN 10219-1: 2006 Cl. 9.2.3 BS EN 10025-1: 2004 Cl. 10.2.2 BS EN 10025-2: 2004 Cl. 10.2 BS EN 10025-4: 2004 Cl. 10.2
	Vickers hardness test of metallic materials	BS EN 23878: 1993 BS EN ISO 6507-1: 2005
	Ultrasonic test of H beams with parallel flanges and IPE beams (manual method)	BS EN 10306: 2002
Metallic materials (non-destructive)	Ultrasonic test of steel flat products (reflection method)	BS EN 10160: 1999
	Ultrasonic test of steel plate, strip and wide flat (manual method)	BS 5996: 1993

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Pipes	Dimensions and tolerances of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	In-house method TP-W001 in conjunction with the followings specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 7.3.3, 7.3.4 & 7.3.5 Table 4 & 5
	Free from defects test (hydrostatic test) of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	In-house method TP-W001 in conjunction with the followings specification(s): BS EN 1057: 2006 +A1: 2010 Annex C2
	Drift expanding test of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	BS EN ISO 8493: 2004 In-house method TP-W001 in conjunction with the followings specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 10.7
	Bending test of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	BS EN ISO 8491: 2004 In-house method TP-W001 in conjunction with the followings specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 10.6
	Leaktightness test of non-alloy steel tubes	In-house method TP-W004 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 Cl. 9.6
	Visual examination of non-alloy steel tubes suitable for welding and threading	In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1:2007 (E) Cl. 8.3
	Dimensions, masses and tolerances of non-alloy steel tubes suitable for welding and threading	In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 (E) Cl.8.4 Table 2
	Flattening test of of non-alloy steel tubes suitable for welding and threading	BS EN ISO 8492: 2013 In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 (E)

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Pulverized fuel ash (PFA)	Moisture content	BS 3892: Part 1: 1997 Annex C
	Fineness	BS 3892: Part 1: 1997 Annex D in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 6
		BS EN 451-2: 2017 in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.1
	Particle density	BS EN 196-6: 1992 Annex NC in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 7
		BS EN 196-6: 2010 Annex NC in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.4
	Initial setting time	BS EN 196-3: 2016 Cl. 6.1 & 6.2 in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 10 BS 3892: Part 1: 1997 Cl. 10 with modification BS EN 450-1: 2005 + A1:2007 Cl. 5.3.5
	Soundness	BS EN 196-3: 2016 Cl. 7 in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 11 BS 3892: Part 1: 1997 Cl. 11 with modification BS EN 450-1: 2005 + A1:2007 Cl. 5.3.3
	Water requirement	BS 3892: Part 1: 1997 Annex E in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 8 BS 3892: Part 1: 1997 Annex E with modification BS EN 450-1: 2005 + A1:2007 Annex B in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.6
Strength factor	BS 3892: Part 1: 1997 Annex F in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 9 BS 3892: Part 1: 1997 Annex F with modification	

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Pulverized fuel ash (PFA) (chemical analysis)	Loss on ignition (L.O.I.)	BS EN 196-2: 2013 Cl. 4.4.1 (using 1h ignition time)
	Sulfate content (as SO ₃)	BS EN 196-2: 2013 Cl. 4.4.2
	Chloride content (Cl ⁻)	BS EN 196-2: 2013 Cl. 4.5.16
	Acid soluble alkali content	BS EN 196-2: 2013 Cl. 4.5.19

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Road surfaces	Skid resistance of road surface using a portable pendulum tester	Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989)
	Skid resistance performance of road markings using a portable skid resistance tester	BS EN 1436: 1998 Annex D BS EN 1436: 2007 (A1: 2008) Annex D
	Texture depth of carriageways	Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989) Hong Kong Housing Authority specification Library (2000) RAP 1.T710.3 – 1.T720.3 RAP 2.T910.3 – 2.T1010.3 General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.1
	Luminance coefficient under diffuse illumination (Q_d) and retro-reflected luminance (R_L) of road markings	BS EN 1436: 2007(E) Annex A & B
	Permeability of friction coarse materials	General Specification for Civil Engineering Works (1992) Vol. 2 App. 9.1
	Surface regularity of carriageways (by rolling straightedge method)	Highways Department (Research and Development Division) Guidance Notes on Road Testing - RD/GN/009 (Sep 1989) General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.55
	Surface regularity of carriageways (by 3 meter straightedge method)	General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.55
	Thickness of road marking (by micrometer method)	BS 3262: Part 3: 1989 (Amd. 8785 & 10205) App. B in conjunction with the following specification: General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 12.34 (3)

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Rock	Dropping test of rock armour to determine the resistance to fracture	General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 21.97 (1) & (2) and Cl. 21.99 (2)
Sanitary tapware (single taps and combination taps for water supply systems)	Leaktightness of the obturator and of the tap upstream of the obturator with the obturator in the closed position	BS EN 200: 2008 Cl. 8.3
	Leaktightness of the tap downstream of the obturator with the obturator open	BS EN 200: 2008 Cl. 8.4
	Pressure resistance characteristics – mechanical performance under pressure	BS EN 200: 2008 Cl. 9
	Hydraulic characteristics – flow rate of single and combination taps	BS EN 200: 2008 Cl. 10

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Construction Materials 建築材料		
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Soil (Phase I)	Sample preparation for phase I tests	GEOSPEC 3: 2001 Test 4
	Moisture content by oven-drying at 45°C ± 5°C	GEOSPEC 3: 2001 Test 5.1
	Moisture content by oven-drying at 105°C ± 5°C	GEOSPEC 3: 2001 Test 5.2
	Comparative test for the determination of moisture content by oven-drying	GEOSPEC 3: 2001 Test 5.3
	Particle density by gas jar method	GEOSPEC 3: 2001 Test 7.1
	Particle density by small pycnometer method	GEOSPEC 3: 2001 Test 7.2
	Particle size distribution by wet sieving (with dispersant)	GEOSPEC 3: 2001 Test 8.1
	Particle size distribution by wet sieving (without dispersant)	GEOSPEC 3: 2001 Test 8.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.1
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.3
Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.4	
Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.5	

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Soil (Phase I) (cont'd)	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.6
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.7
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.8
	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)	GEOSPEC 3: 2001 Test 11.1
	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine-, medium-, and coarse-grained soils (with large pouring cylinder)	GEOSPEC 3: 2001 Test 11.2
	Relative compaction of fill material	GEOSPEC 3: 2001 Test 11.4 Buildings Department PNAP 55 (1994) Cl. 2 App. A
	Sand equivalent value of soils and fine aggregates	ASTM D2419-14
	Particle size distribution of fill materials	General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 6.70 & 6.72(3)
	Coefficient of uniformity	General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 6.72(4)

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Structural fixings (anchor bolts and dowel bars)	Tensile proof load test of anchor bolts and dowel bars in the force range 5 kN to 200 kN	In-house method TP-F017 In-house method TP-F018 BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3 with modifications
Tapwares and valves	Hydrostatic shell and seat tests of copper alloy globe, globe stop and check, check and gate valves	BS 5154: 1991 Cl. 11 BS 6755: Part 1: 1986 BS EN 12266-1: 2012
	Hydrostatic shell and seat tests of predominantly key-operated cast iron gate valves	BS 5163: 1986 Cl. 19 (Amd. 1 & 2) BS 6755: Part 1: 1986 BS EN 12266-1: 2012
Water	Suitability of water for making concrete (Setting time and strength)	BS EN 196-1: 2016 & BS EN 196-3: 2016 in conjunction with the following specification: BS EN 1008: 2002 Cl. 4.4
Water (chemical analysis)	Chloride content	BS EN 1008: 2002 Cl. 6.1.3 & <i>Test procedures for compliance testing:</i> BS EN 196-21: 1992 Cl. 4
	Sulfate content	BS EN 1008: 2002 Cl. 6.1.3 & <i>Test procedures for compliance testing:</i> BS EN 196-2:2013 Cl. 4.4.2
	Acid soluble alkali content (equivalent Na ₂ O)	BS EN 1008: 2002 Cl. 6.1.3 & <i>Test procedures for compliance testing:</i> BS EN 196-21: 1992 Cl. 7
	Total dissolved solids content	BS 1377-3: 1990 Cl. 8
	pH value	BS 1377-3: 1990 Cl. 9
Welds (destructive)	Bend test of shear stud	BS 5400-6: 1999 Cl. 5. 5.4(b) BS EN ISO 14555: 2014 Cl. 11.3 Buildings Department Code of Practice for Structural Use of Steel (2005) Cl. 14.3.7.3 Buildings Department Code of Practice for Structural Use of Steel (2011) Cl. 14.3.7.3

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Welds (non-destructive)	Visual examination	BS 5289: 1976 BS EN 970: 1997 BS EN ISO 17637: 2011
	Magnetic particle test	BS 6072: 1981 (1986) (magnetic flow method colour contrast technique using permanent magnets, A.C. yokes) BS EN 1290: 1998 (magnetic flow method colour contrast technique using permanent magnets, A.C. yokes) BS EN ISO 9934-1: 2001 (magnetic flow method colour contrast technique using permanent magnets, A.C. yokes) BS EN ISO 17638: 2009 (magnetic flow method colour contrast technique using permanent magnets, A.C. yokes)
	Liquid penetrant test	BS 6443: 1984 (colour contrast method) BS EN 571-1: 1997 (colour contrast method) BS EN ISO 3452-1: 2013 (colour contrast method)
	Ultrasonic test	BS 3923: Part 1: 1986 (butt welds in plates, 'T'-joint welds, nozzle welds and node welds) BS EN 1714: 1998 (Butt welds in plates, 'T'-joint welds, nozzle welds and node welds) BS EN ISO 17640: 2010 (butt welds in plates, 'T'-joint welds, nozzle welds and node welds)

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Aggregates	Particle size distribution	BS 812: Section 103.1: 1985 + Amd. 6003 (by sieve analysis) CS3: 2013 Section 10 (by sieve analysis)
	Flakiness index	BS 812: Section 105.1: 1989 CS3: 2013 Section 11
	Elongation index	BS 812: Section 105.2: 1990 CS3: 2013 Section 12
	Aggregate impact value	BS 812: Part 112: 1990 + Amd. 8772 CS3: 2013 Section 15
	Ten per cent fines value	BS 812: Part 111: 1990 CS3:2013 Section 16
	Bulk density, voids and bulking	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 6
	Particle densities and water absorption	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 5 CS3: 2013 Section 17
	Moisture content	BS 812: Part 109: 1990 (by oven drying method) CS3: 2013 Section 18 (by oven drying method)
	Clay, silt and dust content	BS 812: Part 1: 1975 + Amd. 4875 Cl. 7.2 (by decantation method)
	Aggregate crushing value	BS 812: Part 110: 1990

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Cement	Compressive strength of broken mortar prisms in the force range 10 kN - 300 kN	BS EN 196-1: 2005 BS EN 196-1: 2016
	Flexural strength of mortar prisms in the force range 1 kN - 10 kN	BS EN 196-1: 2005 BS EN 196-1: 2016
	Standard consistence	BS EN 196-3: 2005 + A1:2008 Cl. 5 BS EN 196-3: 2016 Cl. 5
	Setting times	BS EN 196-3: 2005 + A1:2008 Cl. 6 BS EN 196-3: 2016 Cl. 6
	Soundness	BS EN 196-3: 2005 + A1:2008 Cl. 7 BS EN 196-3: 2016 Cl. 7
	Density	BS EN 196-6: 2010 Annex NC
	Fineness	BS EN 196-6: 2010 Cl. 4 (by Blaine method)
Concrete	Temperature monitoring of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4(b)
	Sampling of fresh concrete	CS1: 2010 Section 1 + Amd. 1/2017
	Slump of fresh concrete	CS1: 2010 Section 2 Part I + Amd. 1/2017
	Making test cubes from fresh concrete	CS1: 2010 Section 7
	Curing of test specimens (Tropical zone temperature)	CS1: 2010 Section 10
	Mixing and sampling of fresh concrete	CS1: 2010 Section 11
	Compressive strength of concrete cubes in the force range 50 kN – 3000 kN	CS1: 2010 Section 12
	Density of hardened concrete	CS1: 2010 Section 16
	Water absorption	BS 1881: Part 122: 2011

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Ground granulated blastfurnace slag (GGBS)	Density	BS EN 196-6: 2010 Annex NC in conjunction with the following specification: BS EN 15167-1: 2006 Cl. 5.5g
	Fineness	BS EN 196-6: 2010 Cl. 4 (by Blaine method) in conjunction with the following specification: BS EN 15167-1: 2006 Cl. 5.3.1
	Initial setting time	BS EN 196-3: 2016 Cl. 6 in conjunction with the following specification: BS EN 15167-1: 2006 Cl. 5.3.2.2
	Activity index	BS EN 196-1: 2016 Cl. 9.2 in conjunction with the following specification: BS EN 15167-1: 2006 Cl. 5.3.2.3
	Moisture content	BS EN 15167-1: 2006 Annex A
Pulverized fuel ash (PFA)	Activity index	BS EN 196-1: 2016 in conjunction with the following specification: BS EN 450-1 : 2012
	Moisture content	BS 3892: Part 1: 1997 Annex C
	Fineness	BS 3892: Part 1: 1997 Annex D in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 6 BS EN 451-2: 2017 in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.1
	Particle density	BS EN 196-6: 1992 Annex NC in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 7 BS EN 196-6: 2010 Annex NC in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.4

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Pulverized fuel ash (PFA) (cont'd)	Initial setting time	BS EN 196-3: 2016 Cl. 6.1 & 6.2 in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 10 BS EN 450-1: 2005 + A1:2007 Cl. 5.3.5
	Soundness	BS EN 196-3: 2016 Cl. 7 in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 11 BS EN 450-1: 2005 + A1:2007 Cl. 5.3.3
	Water requirement	BS 3892: Part 1: 1997 Annex E in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 8 BS EN 450-1: 2005 + A1:2007 Annex B in conjunction with the following specification: BS EN 450-1: 2005 + A1:2007 Cl. 5.3.6
	Strength factor	BS 3892: Part 1: 1997 Annex F in conjunction with the following specification: BS 3892: Part 1: 1997 Cl. 9
Water	Suitability of water for making concrete (Setting time and strength)	BS EN 196-1: 2016 & BS EN 196-3: 2016 in conjunction with the following specification: BS EN 1008: 2002 Cl. 4.4