



BS TESTING LABORATORY (SEL) SDN. BHD.

(Company No.1340580-A)

SECTION V :

1) SCOPE OF TESTING: MS ISO/IEC 17025 SAMM ACCREDITATION - SEPANG LABORATORY

MATERIALS/ PRODUCTS TESTED	TYPE OF TEST/ PROPERTIES MEASURED/ RANGE OF MEASUREMENT	STANDARD TEST METHODS/ EQUIPMENT/ TECHNIQUES
CONCRETE	CONCRETE CUBE COMPRESSIVE STRENGTH TEST IN THE FORCE RANGE 0 KN TO 2700 KN CONCRETE CORE COMPRESSIVE STRENGTH TEST IN THE FORCE RANGE OF 0 KN TO 450 KN	MS EN 12390-3: 2012 BS EN 12390-3: 2019 BS EN 12504-1: 2019
REINFORCEMEN T STEEL BAR	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST	MS146: 2014 CLAUSE 7.3.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS146: 2014 CLAUSE 7.3.5 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7
ROUND STEEL BAR	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST	MS144: 2014 CLAUSE 7.2.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS144: 2014 CLAUSE 7.2.4 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7
STEEL FABRIC	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST WELD STRENGTH TEST	MS145: 2014 CLAUSE 7.2.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS145: 2014 CLAUSE 7.2.5 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7 MS145: 2014 CLAUSE 7.2.4 & 9 BS EN ISO 15630-2: 2019 CLAUSE 7

**2) SCOPE OF TESTING: MS ISO/IEC 17025 SAMM ACCREDITATION -
PUNCAK ALAM LABORATORY**

MATERIALS/ PRODUCTS TESTED	TYPE OF TEST/ PROPERTIES MEASURED/ RANGE OF MEASUREMENT	STANDARD TEST METHODS/ EQUIPMENT/ TECHNIQUES
CONCRETE	CONCRETE CUBE COMPRESSIVE STRENGTH TEST IN THE FORCE RANGE 0 KN TO 1800 KN	MS EN 12390-3: 2012 BS EN 12390-3: 2019
REINFORCEMENT STEEL BAR	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST	MS146: 2014 CLAUSE 7.3.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS146: 2014 CLAUSE 7.3.5 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7
ROUND STEEL BAR	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST	MS144: 2014 CLAUSE 7.2.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS144: 2014 CLAUSE 7.2.4 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7
STEEL FABRIC	TENSILE STRENGTH TEST IN THE RANGE OF 0 TO 800 KN BEND & REBEND PERFORMANCE TEST WELD STRENGTH TEST	MS145: 2014 CLAUSE 7.2.3 & 9 BS EN ISO 15630-1: 2019 CLAUSE 5 MS145: 2014 CLAUSE 7.2.5 & 9 BS EN ISO 15630-1: 2019 CLAUSE 6 & 7 MS145: 2014 CLAUSE 7.2.4 & 9 BS EN ISO 15630-2: 2019 CLAUSE 7

**3) SCOPE OF TESTING: MS ISO/IEC 17025 SAMM ACCREDITATION
PANDAMARAN KLANG LABORATORY**

MATERIALS/ PRODUCTS TESTED	TYPE OF TEST/ PROPERTIES MEASURED/ RANGE OF MEASUREMENT	STANDARD TEST METHODS/ EQUIPMENT/ TECHNIQUES
CONCRETE	CONCRETE CUBE COMPRESSIVE STRENGTH TEST IN THE FORCE RANGE 0 KN TO 1800 KN	MS EN 12390-3: 2012 BS EN 12390-3: 2019

4) SCOPE OF TESTING - NON SAMM ACCREDITED

1. COMPRESSION STRENGTH

	Types of Testing	Standards	I/E
1	Cement / Clay Brick Compressive Strength Test	MS 76: 1972 Section 3, clause 39	I
2	Determination of Rock Unconfined Compressive Strength	ASTM D7012 - 2014	I

2. DESTRUCTIVE & NON-DESTRUCTIVE TEST

	Types of Testing	Standards	I/E
1	Rebound Hammer Test	BS EN 12504-2 2012	I
2	Windsor Probe Test	ASTM C803 /803M 2010	I
3	Coring Test	BS EN 12504-1 2019	I
4	UPV Test (Ultra Pulse Velocity)	BS EN 12504-4 2004	I

3. SOIL TESTS

	Types of Testing	Standards	I/E
1	California Bearing Ratio – Lab a) Soaked CBR Test, b) Unsoaked CBR Test	BS 1377: Part 4 1990	E
2	Atterberg Limit a) Liquid Limit (LL) b) Plastic Limit (PL) c) Determination of Plasticity Index (PL) d) Linear Shrinkage (LS)	BS 1377: Part 2 1990	I
3	Field Density Test a) Sand Replacement Test b) Core cutter Method	BS 1377: Part 9 1990 BS 1377: Part 9 1990	I
4	Particle Size Distribution a) Coarse Grained b) Fine Grained	BS 1377 Part 2 1990	I
5	Mackintosh Probe Test	JKR Probe	I
6	In-situ CBR Test	BS 1377 Part 9 1990	I
7	Plate Bearing Test	BS 1377 Part 9 1990	I
8	Nature or In Situ Moisture Content (NMC)	BS 1377 Part 2 1990	I
9	Soil Compaction Test Using 4.5kg Rammer	BS 1377 Part 4 1990	I
10	Soil Compaction Test Using 2.5kg Rammer	BS 1377 Part 4 1990	I
11	Determination of Moisture Content	BS 1377 Part 2 1990	I
12	Determination of Relative Density/Particle Density	BS 1377 Part 2 1990	E
13	Determination of Dry bulk Density	BS 1377 Part 2 1990	I
14	Determination of Particle Size Distribution & Hydrometer	BS 1377 Part 2 1990	E
15	Soil Description and Photography Test	BS 1377 PART 3 1990	E
16	Unconfined Compression Test for Soil – 38 mm	BS 1377 Part 7 1990	E
17	Triaxial Compression Test – (UU) – 50mm – up to 1000KPa confining Pressure	BS 1377 Part 7 1990	E
18	One Dimension Consolidated Test for Soil – 7 loading, 2 unloading	BS 1377 Part 5 1990	E
19	Pilecon Vane Shear Test	BS 1377 Part 7 1990	E

20	Consolidated Direct Shear Test – 60 x 60 mm	BS 1377 Part 7 1990	E
21	PH Value	BS 1377 Part 3 1990	E
22	Carbonate Content	BS 1377 Part 3 1990	E
23	Organic Content	BS 1377 Part 3 1990	E
24	Sulphate Content	BS 1377 Part 3 1990	E
25	Chloride Content	BS 1377 Part 3 1990	E
26	Inclinometer test		E
27	Peizometer test		E
28	Soil Investigation		E

4. MATERIAL TESTING

	Types of Testing	Standards	I/E
1	Method for Determination of Moisture Content	BS 812: Part 109: 1990	
2	Sieve Analysis Test	BS 812: Part 103: 1985, MS 30 Part 4 sect 1: 1995	I
3	Silt, Clay and Dust Content Test	BS 812: Part 103: 1985	I
4	Organic Impurities Test	ASTM C40- 11	I
5	Aggregate Crushing Value Test	BS 812 Part 110: 1990, MS 30 Part 8: 1995	I
6	Elongation Index Test	BS 812: Part 105.2: 1990, MS 30 Part 5 sect 2: 1995	I
7	Flakiness Index Test	BS 812: Part 105.1: 1989, MS 30 Part 5 sect 1: 1995	I
8	Specific Gravity Test	BS 812: Part 2: 1995	I
9	Determination Particle Density and Water Absorption for Aggregate	BS 812: Part 2: 1995	I
10	Determination of Chloride Content	MS30 Part 13 1995	E
11	Determination of Sulphate Content	MS 30 Part 14 1995	E
12	10% Fine Value	BS 812 : Part 111: 1990, MS 30 Part 9 : 1995	
13	Water Analysis	BS EN 1008: 2002	E
14	Los Angles Abrasion Test	MS 30 Part 11, BS EN 1097 -2 2010	E
15	Soundness Test	ASTM C88 – 90	E
16	Determination of Resistance to Wear – Micro Deval Method – Coarse Aggregate	BS EN 1097-1 2008	E
17	Test for Geometrical Properties of Aggregates – Assessment of Fines (Grading of Filler Aggregate using Air Jet Sieving Method)	BS EN 933 – 10 2009	E
18	Test for Geometrical Properties of Aggregates – Assessment of Fines (Sand Equivalent Method)	BE EN 933 – 8 1999	E
19	Test for Geometrical Properties of Aggregates – Assessment of Fines (Methylene Blue Test Method)	BS EN 933 – 9 2009	E
20	Determination of Drying Shrinkage – Concrete	BS ISO 1920: 8 2009	E
21	Determination of Initial Surface Absorption of Concrete	BS 1881 Part 208 1996	E
22	Determination of Rapid Chloride Penetration Test	ASTM C1202 – 17 a	E

5. PREMIX/ BITUMEN TESTING

	Types of Testing	Standards	I/E
1	Premix Coring & In situ Core Density test	ASTM D2726/D2726M 19	I
2	Thickness or Height Compacted Bituminous Paving Mixtures	ASTM D3549/ D3549M 2011	I
3	Determination of Marshall Stability and flow of bituminous mixtures	ASTM D6927 2015/ ASTM D2726-19/ ASTM D6926-16	E
4	Determination of Bitumen Content & Particle Size Distribution	ASTM D2172 / D2172M 2017	E
5	Determination of Bitumen Penetration	ASTM D5/D5M 2013	E
6	Determination of Softening Point (Ring and Ball)	ASTM D36/D36M 2014	E

7	Determination of Flash Point	ASTM D92 2016b	E
8	Bitumen Density Test	ASTM D70 2009	E
9	Determination of Ductility	ASTM D113 2007	E
10	Thin Film Oven Test	ASTM D2042 2015	E
11	Coating and Stripping of Bitumen – Aggregate Mixtures	ASTM D1664 1980/AASHTO T 182 -84 1998	E
12	Bulk specific gravity and density of non-absorptive compacted bituminous mixtures	ASTM D2726/D2726M 2019	E



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SECTION VI :

1. CONCRETE COMPRESSIVE STRENGTH TEST MACHINE

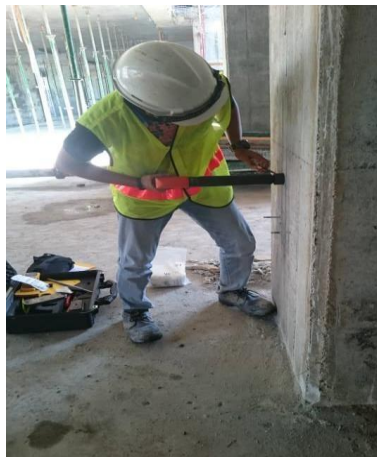


**CONCRETE CUBE, BRICK AND CORE SPECIMEN DIGITAL COMPUTERIZED
COMPRESSIVE STRENGTH TEST**

2. DESTRUCTION & SEMI DESTRUCTIVE AND NON-DESTRUCTIVE TESTS



REBOUND HAMMER



WINDSOR PROBE



UPV



CORING TEST



PREMIX CORING



CUBE SPECIMENS CURING FACILITY



COVER METTER TO SCAN STEEL BAR POSITION

3. SOIL TESTS



SOIL COMPACTION TEST



PLATE BEARING TEST



FIELD DENSITY TEST (FDT)



CALIFORNIA BEARING RATIO TEST



MACKINTOSH PROBE TEST



BRICK TEST



ROCK CORING



CORING TEST

4.0 TENSILE, BEND AND REBEND TESTING MACHINES



PUNCAK ALAM LAB



KOTA WARISAN



**KLANG PANDAMARAN
LAB**



KLANG BUKIT RAJA LAB

5. CONCRETE TEMPERATURE MONITORING ON SITE USING DATA LOGGERS

