



## 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

3) 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	I
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

	<b>Types of Testing</b>	<b>Standards</b>	<b>I/E</b>
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**

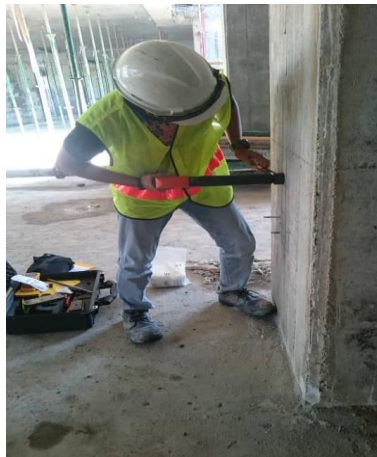


**CONCRETE CUBE, BRICK AND CORE SPECIMEN DIGITAL COMPUTERIZED  
COMPRESSIVE STRENGTH TEST**

**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 STEEL BAR TESTING



Steel bar tensile and elongation test

Steel bar bend & rebend test



5. CONCRETE TEMPERATURE MONITORING ON SITE USING DATA LOGGERS

