

NO: SMM 505

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LABORATORY LOCATION:  
(PERMANENT LABORATORY)
**BUILDTEST LABORATORY SDN. BHD.**  
**NO. 12, JALAN PS 8/1**  
**TAMAN PRIMA SELAYANG**  
**68100 BATU CAVES**  
**SELANGOR**  
**MALAYSIA**

FIELD(S) OF TESTING:

**MECHANICAL & NON-DESTRUCTIVE TEST**

FIELD(S) OF CALIBRATION:

**MASS**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment 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 and calibrations. 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 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

**SCOPE OF TESTING: MECHANICAL**

| Materials/<br>Products Tested | Type of Test/<br>Properties Measured/<br>Range of Measurement | Standard Test Methods/<br>Equipment/Techniques                  |
|-------------------------------|---|---|
| Hardened Concrete             | Compressive Strength Test<br>(Cubes, Cores & Cylinders)       | BS EN 12390-3: 2019<br>(Test at ambient conditions)             |
|                               | Water Absorption of Concrete<br>Specimens                     | BS 1881-122: 2011<br>(Test at ambient conditions)               |
|                               | Density of Hardened Concrete                                  | BS EN 12390-7: 2019<br>(Volume by Water Displacement<br>Method) |
|                               | Secant Modulus of Elasticity in<br>Compression (Method A)     | BS EN 12390-13: 2013  |
| Aggregates                    | Flakiness Index of Coarse<br>Aggregates                       | BS 812 : Part 105 : Sect 105.1 : 1989                           |
|                               | Elongation Index of Coarse<br>Aggregates                      | BS 812 : Part 105 : Sect 105.2 : 1990                           |
|                               | Aggregate Crushing Value (ACV)                                | BS 812 : Part 110 : 1990<br>(Test at Dry Conditions)            |
|                               | Aggregate Impact Value (AIV)                                  | BS 812 : Part 112 : 1990 Clause 7.1<br>(Test at Dry Conditions) |

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**SCOPE OF TESTING: MECHANICAL**

| Materials/<br>Products Tested                            | Type of Test/<br>Properties Measured/<br>Range of Measurement                            | Standard Test Methods/<br>Equipment/Techniques  |
|--|--|---|
| Aggregates   | Ten Percent Fines Value (TFV)  | BS 812 : Part 111 : 1990<br>(Test at Dry Conditions)                                      |
|  | Shape Index  | BS EN 933-4 : 2008  |
|  | Clay Lumps and Friable Particles in Aggregates   | ASTM C 142 / C 142 M-17   |
|  | pH Value   | BS 1377-3 : 2018 Clause 12  |
|  | Los Angeles Abrasion (LA) of Small-Size Coarse Aggregates                                | ASTM C131/C131M-14  |
|  | Los Angeles Abrasion (LA) of Large-Size Coarse Aggregates                                | ASTM C535-16  |
|  | Particle Size Distribution By Sieving Method   | BS EN 933-1 : 2012  |
|  | Determination of Materials Finer than 75 µm by Washing                                   | ASTM C 117-17 (Procedure A - Washing with Plain Water)                                    |
|  | Particle Density and Water Absorption of Coarse Aggregates                               | BS 812 : Part 2 : 1995<br>Clause 5.3 - Wire Basket Method<br>(Test at Ambient Conditions) |
| Particle Density and Water Absorption of Fine Aggregates | BS 812 : Part 2 : 1995<br>Clause 5.5 - Glass Jar Method<br>(Test at Ambient Conditions)  |   |
| Organic Impurities in Fine Aggregates for Concrete       | ASTM C40/C40M-19   |   |
| Soil   | Moisture Content   | BS 1377 : Part 2 : 1990<br>Clause 3.2 (Oven-drying Method)                                |
|  | Dry Density / Moisture Content Relationship of Soils by 2.5kg Rammer Method              | BS 1377 : Part 4 : 1990<br>Clause 3.3   |
|  | Dry Density / Moisture Content Relationship of Soils by 4.5kg Rammer Method              | BS 1377 : Part 4 : 1990<br>Clause 3.5   |
|  | Dry Density / Moisture Content Relationship of Granular Soils by Vibrating Hammer Method | BS 1377: Part 4: 1990<br>Clause 3.7   |
|  | Liquid Limit   | BS 1377: Part 2: 1990 Clause 4.3  |

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**SCOPE OF TESTING: MECHANICAL**

| Materials/<br>Products Tested | Type of Test/<br>Properties Measured/<br>Range of Measurement   | Standard Test Methods/<br>Equipment/Techniques   |
|-------------------------------|---|--|
| Soil                          | Plastic Limit and Plasticity Index<br><br>Laboratory California Bearing Ratio (CBR)<br><br>pH Value   | BS 1377: Part 2: 1990 Clause 5<br><br>BS 1377 : Part 4 : 1990 Clause 7<br><br>BS 1377-3 : 2018 Clause 12   |
| Steel Reinforcing Bar         | Tensile Tests for determination of:<br><br>- Yield strength<br>- Tensile strength<br>- Mass per meter<br>- Percentage elongation after fracture<br>- Percentage total extension at maximum force<br><br>Force range: up to 1500kN<br><br>Bend Test<br><br>Rebend Test | BS EN ISO 15630-1 : 2019 Clause 5<br><br>ISO 6892-1 : 2016<br><br>MS 146:2014<br><br>BS EN ISO 15630-1 : 2019 Clause 6<br>ASTM E 290 – 14<br>MS 146:2014<br>ISO 7438:2016<br><br>BS EN ISO 15630-1 : 2019 Clause 7<br>MS 146 : 2014 Clause 7.3.5<br>MS 145 : 2014 Clause 7.2.5     |
| Steel Wire                    | Tensile Tests for determination of:<br><br>- Mass per metre<br>- Yield strength (determined from 0.2% proof strength)<br>- Tensile strength<br>- Tensile/yield strength ratio<br>- Percentage total elongation at maximum force<br><br>Bend Test<br><br>Rebend Test   | BS EN ISO 15630-1 : 2019 Clause 5<br><br>ISO 6892-1 : 2016<br><br>MS 144:2014<br><br>BS EN ISO 15630-1 : 2019 Clause 6<br>ASTM E 290 – 14<br>MS 146 : 2014<br>ISO 7438 : 2016<br><br>BS EN ISO 15630-1 : 2019 Clause 7<br>MS 146 : 2014 Clause 7.3.5<br>MS 145 : 2014 Clause 7.2.5 |

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# Schedule

Issue date: 03 March 2020  
Valid until: 22 March 2023



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## SCOPE OF TESTING: MECHANICAL

| Materials/<br>Products Tested                               | Type of Test/<br>Properties Measured/<br>Range of Measurement   | Standard Test Methods/<br>Equipment/Techniques  |
|---|---|---|
| Steel Fabric  | <p>Tensile Tests for determination of:</p> <ul style="list-style-type: none"> <li>- Yield strength (determined from 0.2% proof strength)</li> <li>- Tensile strength</li> <li>- Tensile/yield strength ratio</li> <li>- Percentage total elongation at maximum force</li> </ul> <p>Bend Test</p> <p>Rebend Test</p> | <p>ISO 15630-2 : 2019 Clause 5</p> <p>ISO 6892-1 : 2016</p> <p>MS 145:2014</p> <p>BS EN ISO 15630-1 : 2019 Clause 6</p> <p>ASTM E 290 – 14</p> <p>MS 146 : 2014</p> <p>ISO 7438 : 2016</p> <p>BS EN ISO 15630-1 : 2019 Clause 7</p> <p>MS 146 : 2014 Clause 7.3.5</p> <p>MS 145 : 2014 Clause 7.2.5</p> |
| Reinforcement Couplers<br>for Mechanical Splices of<br>Bars | Tensile Strength  | ISO 6892 – 1: 2016  |
| Masonry Units   | <p>Compressive Strength Test<br/>(Clay, Calcium Silicate and<br/>Aggregate Concrete Masonry<br/>Units)</p> <p>Water Absorption</p>  | <p>BS EN 772-1 : 2011 + A1 : 2015</p> <p>BS EN 772 – 7: 1998</p>  |
| Bitumen   | <p>Sampling Compacted Asphalt<br/>Mixtures for Laboratory Testing</p> <p>Thickness or Height of<br/>Compacted Bituminous Paving<br/>Mixture Specimens</p>   | <p>ASTM D 5361 / D 5361 M-16</p> <p>ASTM D 3549 / D 3549 M-18<br/>(Method A)</p>  |
| Water   | pH Value  | BS 1377-3 : 2018 Clause 12  |

### Signatory(ies):

1. Ip Kwok Khuen
2. Tang Wei Luen
3. Ip Kar Mun
4. Nor Fatimah Binti Mohd Fauzi
5. Muhammad Nur Faaizi Bin Badarudin **IKM No. L/2675/7938/18 (pH Value only)**

SKIM AKREDITASI MAKMAL MALAYSIA (SAMM)  
LABORATORY ACCREDITATION SCHEME OF MALAYSIA

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**SCOPE OF TESTING: MECHANICAL****SITE: CATEGORY I**

| Materials/<br>Products Tested | Type of Test/<br>Properties Measured/<br>Range of Measurement  | Standard Test Methods/<br>Equipment/Techniques   |
|-------------------------------|--|--|
| Soil                          | In-situ California Bearing Ratio (CBR)<br><br>In-situ Density Test by Small Pouring<br>Cylinder Method<br><br>In-situ Density Test by Large Pouring<br>Cylinder Method | BS 1377 : Part 9 : 1990 Clause 4.3<br><br>BS 1377 : Part 9 :1990 Clause 2.1 –<br>Small Pouring Cylinder Method<br><br>BS 1377 : Part 9 :1990 Clause 2.2 –<br>Large Pouring Cylinder Method |

**Signatory(ies):**

1. Ip Kwok Khuen
2. Tang Wei Luen

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SCOPE OF TESTING: NON-DESTRUCTIVE TEST

SITE TESTING: CATEGORY I

| Materials/<br>Products Tested | Type of Test/<br>Properties Measured/<br>Range of Measurement                               | Standard Test Method/<br>Equipment/Technique |
|-------------------------------|---|--|
| Hardened Concrete             | Surface Hardness Testing by<br>Rebound Hammer in the range of 20<br>to 55 rebound number, R | BS EN 12504 – 2 : 2012                       |

Signatory(ies):

1. Ip Kwok Khuen
2. Tang Wei Luen

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\* The expanded uncertainties are based on an estimated confidence probability of not less than 95% and have a coverage factor of k=2 unless stated otherwise

**SCOPE OF CALIBRATION: MASS**

**SITE CALIBRATION: CATEGORY I**

| Instrument Calibrated/<br>Measurement Parameter | Range       | Calibration and Measurement Capability Expressed as an Uncertainty( $\pm$ )* | Remarks   |
|---|-------------|--|---|
| Balance   | Up to 30 kg | 0.1 g  | ASTM E 898 – 88<br>(Reapproved 2013 –<br>Calibrated by Using<br>Standard Weights) |

**Signatory(ies):**

1. Ip Kwok Khuen
2. Ip Kar Mun

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