UTM
UNIVERSITI TEKNOLOGI MALAYSIA

RESEARCH UNIVERSITY

CIVIL ENGINEERING LABORATORY

CONCRETE LABORATORY

STUDENT'S NAME/ MATRIX NO:	1. 2. 3. 4. 5. 6. 7. 8.
TOTAL MEMBERS:	
LECTURER:	
LABORATORY REPORT TITLE:	1. 2.
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DECLARATION
I/We declare that this laboratory report is my/our own work and does not involve plagiarism or unauthorized collusion. Signature(s): _____ Date: _____

Assessment *(please see overleaf for assessment rubrics)*

Scores :

TEST 2: DETERMINATION OF REBOUND HAMMER TEST

References:

EN 12504-2, ASTM C805, BS 1881-202, NF P18-417, DIN 1048, UNI 9189

Objectives:

To determine the rebound hammer test by calculates the compressive strength of hardened concrete with relating the compressive strength and the rebound index.

Apparatus:

a) Concrete Test Hammer
b) Abrasive Stone
c) Calibration Anvil

General Discussion:

Rebound Hammer test, which is also called as the **Schmidt hammer test**. It is a non-destructive test. We perform this test only on hardened concrete to determine the hardness of the surface and its strength. We can control the hardness of the surface to some extent with the concrete strength. This test provides a convenient and rapid indication of the compressive strength of hardened concrete. Its apparatus consists of a spring controlled mass that slides on a plunger within a tubular housing. If rebound hammer plunger is pressed against the surface of hardened concrete, a spring controlled mass having constant energy is made to hit the concrete hard surface to rebound back. The rebound hammer measures a surface hardness and is measurement shown on a graduate scale

Procedure:

<u>Calibration Test (before and after)</u>

1) Setup the rebound hammer to spare test in digital rebound.
2) Make one test to calibration anvil with result (depends on calibration anvil).
3) If result within the calibration anvil, move to next step.
4) If result not achieve please sent back to manufacturer to adjust the rebound hammer.

<u>Specimen</u>

1. Clean and smooth the surface of the specimen by using the abrasive stone. The surface to be tested must be flat with no loose mortar and must be free from water. If the layer of carbonated concrete is thick, it shall be removed before testing
2. Select the test area on digital rebound hammer. Make sure the parameter is right before start the test.

3. The hammer must be held in the same direction — horizontal, upward, downward and it should always be at a right angle to the surface being tested. Not used to test over reinforcement with a cover of less than 20 mm. If estimating concrete strength takes at least two cores from six locations that have different rebound hammer number.
4. Take 10 rebound hammer readings at each test area. All individual readings should be at least 25 mm apart. Any reading that is over six units from the average is discarded and calculates the average of the remaining readings. If two units are over six units from the average, all the readings are discard and the test is repeated.

Table of Data:

Specimens ID:			
Location:			
Date:			
Description of the Specimens:			
Age of Specimens:			
Concrete Grade:			
Direction of Impact:			
Data Record:			
Reading	Test 1	Test 2	Test 3
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
	Average:	Average:	Average:
	Compressive Strength (Mpa):	Compressive Strength (Mpa):	Compressive Strength (Mpa):