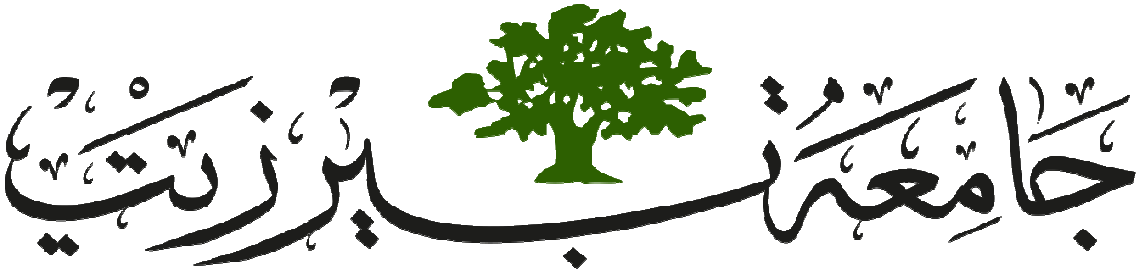

Faulty of Engineering and Technology

Civil Engineering Department

Construction Materials Laboratory

ENCE215

Experiment :

" Non destructive test : hummer test "

Instructors :

Dr. Khalil Qatu

Eng. Nasser

Done by : Mohammad Al-Swaity " 1181136 "

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Introduction :

Schmidt hammer, also known as a Swiss hammer or a rebound hammer or concrete hammer test is a device to measure the elastic properties or strength of concrete or rock, mainly surface hardness and penetration resistance .

The hammer measures the rebound of a spring-loaded mass impacting against the surface of a sample. The test hammer hits the concrete at a defined energy. Its rebound is dependent on the hardness of the concrete and is measured by the test equipment .

This test gives me an indication about the concrete .

The error in this test is very large (16% - 32%) , so the test is not a certified test .

Purpose :

- Measure the elastic properties or strength of concrete or rock, mainly surface hardness and penetration resistance .
- Measuring the rebound of a spring-loaded hardened steel plunger after it has struck a smooth-surfaced, solid, different concrete specimens at different angles.
- Learning a method to measure the strength of concrete without crashing.
- Learning how to use the rebound device .

Materials and Equipment's :

Equipment	The name of it :	Equipment	The name of it :
 Figure 1	**Stone use for cleaning**	 Figure 2	**The test equipment**

" Table 1 "

Procedure :

- In the beginning , we bring the sample and clean it by the stone , then clean it from dust by the brush .
- We designate the area that we want to hit on the sample and then do the test, the number that the device gives me is the number of rebounds .
- We see the intersection of the number that we found from the curve and record the value of strength .

Result and Conclusion :

Results :

For small cube (10 * 10 * 10) :

Reads :	Rebounds	Strength ( )
First read	34	34 MPa
Second read	35	36 MPa
Third read	33	32 MPa

For Prism (50 * 10 * 10) :

Reads :	Rebounds	Strength ( )
First read	34	34 MPa
Second read	24	20 MPa
Third read	29	26 MPa

Conclusion :

The results in this test are quite logical, they can't be accepted nor rejected since the data base is not available to do a comparison between the values, but sources of errors were reduced by testing the same specimen 3 times minimum and taking the average value as the final result .

The difference of the readings in the prism refers that the assay area differs on the prism surface each time .

A reading was taken in the middle of the post and then from the sides .

This indicates the large amount of error in this test .