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**BEHAVIOUR OF REINFORCED CONCRETE BEAM
UNDER DYNAMIC LOADING**

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by

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ABSTRACT

The increase in use of high strength concrete (HSC) in modern construction is tremendously high. Thus its behaviour need to be understood clearly. The behaviour of high strength reinforced concrete beam (R.C Beam) under dynamic loading with respect to the serviceability and ultimate limits had been studied. Three numbers of reinforced concrete beam of size 125 mm x 150 mm x 1400 mm was casted, one were tested under static load until failure and two was tested under dynamic loading at three million cycles, and nine million cycles. In order to investigate whether reinforced concrete beam has endurance limit or not. So far from past, there is no general agreement whether endurance limit consist or not for concrete beam. The maximum and minimum load is at 40 % and 20 % yield load respectively and generated under sinusoidal wave load with 10 hertz frequency. Deflection and cracks behaviour are studied and compared with the previous work. From the experiment first cracking occurred almost at the middle of the span. The number of crack increased with load at initial stages before it became constant. Under static test, the beam failed due to bending. For dynamic loading, the increase of cracks and crack pattern found to be similar to static loading tests. On static load test the value of yield load is 107.78 kN and the deflection is about 13.6 mm. At 3 million cycles the range of deflection is between 8.996 mm and 9.368 mm and for 9 million cycles the range of deflection is between 9.361 mm and 9.609 mm. Each of the beam will have a minimum concrete strength of 60 N/mm². The concrete strength from the cube test show that mix design for high strength concrete is achieved.