

**FINAL YEAR PROJECT REPORT
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**THE BEHAVIOUR OF PSC UNDER RAIL VERTICAL LOAD
TEST AND REPEATED LOAD TEST UNDER 80% MEAN**

**ROHAMEZAN ROHIM
98014139
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I hereby that this report has not been submitted, either in the same or different from, to this or any other university for a degree, and except where reference is made to the work of others, It is believed to be original.



(Rohamezan Rohim)

ABSTRACT

The railway track underwent several changes from its early development. In the modern railway track, concrete sleepers are widely used to accommodate the impact from the high speed train. It is important to increase the strength and the weight of concrete sleeper, to reduce the vibration and track buckling.

High-speed train can cause high vibration to sleeper and this impact will lead cracking in the sleeper. The present concrete sleeper should be able to absorb the stresses and prevent the crack development.

In this study, an experimental was carried out to examine behaviour of prestressed concrete sleeper under the rail seat. The positive bending moment at rail seat was carried out in the vertical load test. Then 80% of the yield load which is 204 kN was taken to be the mean value to simulate the repeated load test with amplitude variation of 10% of the yield.

The hairline crack developed has been under the rail seat measuring 176mm maximum with a crack mouth of 0.374 mm. Under the repeated load test the cracks occurred at mid span of the PSC with maximum 164mm and crack mouth of 0.4mm.

The study of the behaviour of PSC with 4 wire showed that the tested PSC could be used in the Malaysia railway track. The crack at 138 kN occurred beyond the design load which is 82.2 kN under the rail seat and at the mid span the tested load 101kN is greater than design load of 52.5 kN.

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