





# Flexural Strengthening of Composite Bridge Glued Laminated Timber Beams-Concrete Plate Using CFRP Layers

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Summary:

The timber bridge design although economical, often has difficulty producing enough rigidity so that a solution is needed to solve it. The use of CFRP (Carbon Fiber Reinforced Polymer) as a reinforcement of structural elements if properly designed and implemented can produce an effective and efficient composite structure. The experimental study aims to analyse the strength, stiffness and ductility of flexural strengthening composite bridge glued laminated timber beams-concrete plates using CFRP layers. The dimensions of the composite glued laminated timber beams 100/180 mm and concrete plate 75/300 mm with a length of 2,480 mm. The number of specimens is 3 composite glued laminated timber beams-concrete plate consisting of 1 test beam without CFRP reinforcement, 1 test beam with one layer CFRP reinforcement, and 1 test beam with three layer CFRP reinforcement. Experimental testing of flexural loads is done with two load points where each load is placed at 1/3 span length. The test results show that the strength of composite laminated timber beams glued - concrete plates BN; BL-1; BL-2 in a row 81.32; 82.82; 82.69 kN/mm; stiffness in a row 7.51; 8.22; 6.32 kN/mm and successive ductility of 16.67; 28.83; 20.21.

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<https://iopscience.iop.org/article/10.1088/1757-899X/830/2/022047/meta>