



Proposal of Design Method for Wood - Concrete Composite Beams Part 2 : Experimental Study on Creep Behavior

<https://research.thinkwood.com/en/permalink/catalogue873>

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Summary:

High strength, low weight, corrosion resistance, and electromagnetic neutrality make fiber-reinforced plastic (FRP) a suitable candidate in many structural applications, including rehabilitation and strengthening as well as the development of new wood members. Advanced forms of reinforced wood construction can enable contemporary wood structures to play an even greater role in today's construction."In this work, the writers establish a novel technique for reinforcing wood members involving external bonding of pretensioned FRP sheets on their tension zones. An analytical model for the maximum initial pretension is verified with tests on carbon/epoxy-prestressed wood beams. Additional studies, both analytical and experimental of the flexural behavior of wood beams reinforced with prestressed carbon/epoxy FRP sheets demonstrate the superior performance of the hybrid system and emphasize its favorable strength, stiffness, and ductility characteristics. Finally, a methodology is described for the selection of composite material dimensions and initial prestressing to maximize structural performance.

Online Access: Free

Resource Link

https://www.researchgate.net/profile/Thanasis_Triantafillou/publication/238180496_Prestressed_FRP_Sheets_as_External_Reinforcement_of_Wood_Members/links/5a8ae7fba6fdcc6b1a42e0af/Prestressed-FRP-Sheets-as-External-Reinforcement-of-Wood-Members.pdf