

Pedestrian Bridge Simulation Using Wasted Tire Rubber with Two Boundary Systems

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Abstract

The development of pedestrian bridge construction, ranging as it does, from a simple tree trunk, laid across a stream, through to today's spectacular three-dimensional support structures. Limited resources, environmental concerns, economic feasibility as well as the cost; are very important factors. These factors in addition to safety, durability and aesthetics should be considered in the design and construction processes for Pedestrian bridges. Therefore, it's important to look for alternative construction materials that verify most of these factors. Waste rubber tire is a material that can be used to develop new forms of Pedestrian bridges. In this research, a simple experiment was conducted to simulate the real pedestrian bridge using waste rubber tire. The use of waste rubber tire showed positive results as a structural member in carrying loads. Consequently, it can sustain the safe passing of pedestrians. In addition, the use of fixed boundary conditions has reduced the central deflection of the bridge span to about fifty percent.

Keywords: boundaries conditions, bridge deflection, footbridges, pedestrian bridge, waste rubber tire