

Mechanical and environmental analysis of the performance of interlocking concrete block pavements with coconut fibers and recycled materials from civil construction

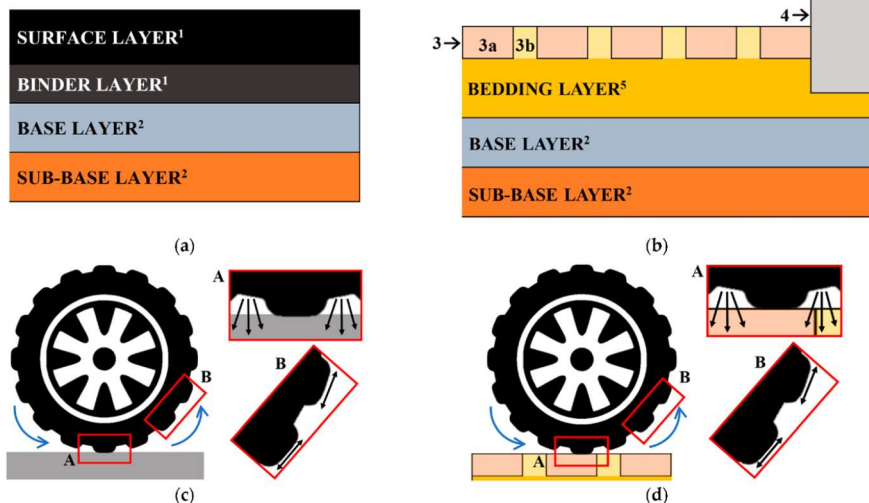
Summary

The main objective of this research is to evaluate the individual and group behavior of CPB using recycled construction materials and coconut fibers in ICBP's surface layer for road pavement application. Specific objectives:

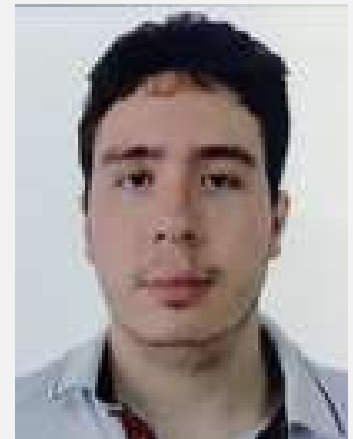
- a) To verify the most viable water/cement ratio, the CDW replacement level, and the coconut fiber addition for the best CPB's physical and mechanical behavior;
- b) To analyze the contaminants' concentration from CDW or coconut fiber on CPB through abrasion effects under temperature cycles;
- c) To evaluate the highest internal drainage capacity on ICBP's surface layer with CDW or coconut fibers in experimental sections;
- d) To assess the mechanical advantages of ICBP compared to a conventional AP by characterization of experimental sections;
- e) To propose an LCA for ICBP's sustainability for cost savings, energy consumption, and global warming potential.

Keywords

Interlocking concrete block pavement, recycled by-products, coconut fibers, performance, resistance, environmental role.



Interlocking Concrete Block Pavement (ICBP) and Asphalt Pavement (AP) in terms of layers and contact with the traffic load.



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