

**REVIEWER'S REPORT****Manuscript No.: IJAR- 58012****Title: THERMOMECHANICAL CHARACTERIZATION OF MATERIAL MIXTURES BASED ON CLAY, 0/5 LATERITE, AND RED WOOD CHIPS FOR SUSTAINABLE CONSTRUCTION.****Recommendation:
Accept**

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality		Yes		
Clarity	Yes			
Significance		Yes		

Reviewer Name: Dr. Ashish Yadav***Detailed Reviewer's Report*****Reviewer's Comment for Publication.**

Acceptance Comment are mentioned below suitable for the paper titled "THERMOMECHANICAL CHARACTERIZATION OF MATERIAL MIXTURES BASED ON CLAY, 0/5 LATERITE, AND RED WOOD CHIPS FOR SUSTAINABLE CONSTRUCTION"

Reviewer Comments: Accept**Reviewer Comments –****Introduction**

The introduction effectively highlights the need for sustainable and affordable construction materials in Senegal, particularly for social housing applications. The authors successfully justify the selection of locally available materials such as clay, laterite, and red wood chips by emphasizing their abundance, low cost, and environmental benefits. The study addresses an important research problem concerning the development of thermally efficient and mechanically reliable building materials. Overall, the introduction establishes the practical relevance and societal significance of the research.

Literature Review

The manuscript demonstrates an adequate understanding of the existing literature on earthen construction materials and the use of natural fibers and agricultural by-products in sustainable building applications. The review appropriately recognizes the advantages of clay and laterite-based composites in terms of thermal insulation and environmental sustainability. The inclusion of wood chips as a reinforcing and insulating component is well justified. The literature review provides sufficient theoretical background and effectively positions the study within the growing body of research on eco-friendly construction materials.

Solution Approach

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The adopted experimental methodology is appropriate and scientifically sound for investigating the thermomechanical performance of the proposed material mixtures. The preparation of mixtures containing variable proportions of clay, a constant 40% laterite content, and wood chip additions ranging from 0% to 10% is clearly defined. The selection of thermomechanical tests enables a comprehensive assessment of both structural and thermal performance. The experimental design is systematic and adequately addresses the research objectives related to sustainable and cost-effective building materials.

Results and Discussion

The results demonstrate that the developed mixtures exhibit compressive strengths significantly exceeding the minimum requirements for infill wall construction, indicating their suitability for social housing applications. Furthermore, the improved thermal resistance achieved through wood chip incorporation contributes positively to indoor thermal comfort and energy efficiency. The discussion successfully links the experimental findings with the material characteristics and highlights the synergistic benefits of combining clay, laterite, and red wood chips. The findings provide valuable insights into the development of low-cost, high-performance, and environmentally sustainable construction materials.

Conclusion

The conclusion effectively summarizes the major findings and confirms the potential of clay-laterite-red wood chip mixtures as sustainable alternatives for affordable housing construction. The study demonstrates that the incorporation of locally available materials can simultaneously reduce construction costs and improve thermomechanical performance. The manuscript makes a meaningful contribution to sustainable construction practices, particularly in regions with abundant natural resources and limited access to conventional building materials.