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REVIEWER'S REPORT

Manuscript No.: IJAR-54927

Title: IMPACT OF COW DUNG ADDITION ON THE THERMAL AND MECHANICAL PROPERTIES OF NÂ'DJAMENA CLAY.

Recommendation:

Accept as it is ✓

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

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

Reviewer Name: NIKHIL KUMAR GUPTA

Detailed Reviewer's Report

Abstract – issues and suggestions

Issues

Starts immediately with This study investigates — okay, but:

No mention of baseline properties (without cow dung).
No mention of density/porosity, which is directly related to thermal changes.
No information about curing conditions, which strongly affect compressive strength.
Optimal thermo mechanical behavior aligns with earlier reports is too vague; you don't say why10% is optimal (e.g., is there a trade-off, a plateau, or a maximum?).

Suggestions-

Add context in 1–2 short lines: earthen housing in Sahel, limitations (thermal & mechanical), role of bio-based additives.
Explicitly state sample geometry & test conditions in brief (e.g., dried at 105 °C, tested at room temperature, etc., if applicable).
Clarify why 10% is "optimal is it based purely on highest strength + lowest λ, or also cost/workability/durability?

3. Introduction –what is missing

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Missing / improvable

Quantitative context

You mention "limited mechanical resistance and inadequate thermal insulation" but do not give typical values for λ compressive strength, or density of unstabilised banco in literature.

Add at least orders of magnitude or typical ranges to justify why improvement is needed.

Knowledge gap

You should clearly say what is unknownfor example, "although organic and plant-fibre stabilisation has been reported, cow dung–clay systems in the specific context of N'Djamena clay have not been quantitatively characterised for both thermal and mechanical properties."

Missing:

1. Loading rate

MPa/s or mm/min, as per standards (e.g., ASTM, NF, etc.).

2. Standards used:

Which specific standard or norm is followed?

Conclusion – what to include

Single paragraph or small bullet list:

Optimal content: 10% cow dung by mass gives best thermomechanical compromise in your test range.

λ reduction from 0.99 → 0.42 $W \cdot m^{-1} \cdot K^{-1}$; Rc up to 8.2 MPa.

This confirms the potential of cow dung as a low-cost, locally available stabiliser for N'Djamena earthen bricks in social housing.

Suggest future work: durability, higher dosages, other clays, field-scale walls.