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REVIEWER'S REPORT

Manuscript No.: IJAR-53864 Date: **16.09.2025**

Title: A Study on Strength Properties of Textile Sludge with Fibre Reinforced in Paver Blocks

Recommendation:
Accept after major revision ……

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

Reviewer Name: Dr.K.Arumuganainar **Date: 16.09.2025**

Reviewer's Comment for Publication.

1. **Language & Clarity**
   - Revise the manuscript for grammar and readability.
   - Shorten lengthy sentences and improve technical precision.
2. **Figures & Tables**
   - Redraw figures with proper legends, scales, and clarity.
   - Provide detailed captions explaining key trends.
3. **Additional Tests**
   - Include durability tests (water absorption, abrasion resistance, chemical resistance).
   - Provide cost comparison with conventional paver blocks.
4. **Discussion**
   - Expand discussion by comparing results with existing literature.
   - Justify why 30% sludge + 0.5% fibre is the optimum.
5. **References**
   - Update references with more recent studies (post-2015).
   - Follow proper citation style as per the journal

Detailed Reviewer's Report

Review Report

Title of the Paper: A Study on Strength Properties of Textile Sludge with Fibre Reinforced in Paver Blocks

Manuscript ID: IJAR-53864

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1. Originality

The paper explores the use of textile sludge from CETPs (Common Effluent Treatment Plants) in paver blocks as a partial cement replacement, combined with polypropylene fibre reinforcement. This is a **novel and relevant approach**, addressing both **waste management** and **sustainable construction materials**. Similar research exists on sludge utilization in bricks and construction materials, but the specific focus on **paver blocks reinforced with fibres** adds originality.

Strengths:

- Utilizes waste material (textile sludge) innovatively.
- Integrates fibre reinforcement for strength improvement.

Weaknesses:

- The concept of sludge reuse in construction materials is not entirely new.
- Limited comparison with other industrial waste reuse methods.

Score: 7/10

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2. Significance

The research has **significant implications** for both environmental management and the construction industry. If scalable, this technique could reduce cement consumption, address waste disposal issues, and contribute to sustainability goals.

Strengths:

- Supports circular economy and eco-friendly construction.
- Relevant for regions with large textile industries like Tamil Nadu.
- Provides practical solutions for medium and non-traffic paver block applications.

Weaknesses:

- Applicability limited to non-structural/medium-load constructions.
- Lack of lifecycle cost analysis or durability testing (e.g., water absorption, abrasion).

Score: 8/10

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3. Quality of Work

The experimental program is clearly presented, with detailed material selection, mix proportions, and test methodology. The results are logically interpreted and supported by figures.

Strengths:

- Systematic experimental design with multiple mix combinations (25).
- Well-structured testing of compressive strength at 7 and 28 days.
- Clear conclusions linked to IS standards.

Weaknesses:

- Limited scope: only compressive strength was tested.
- Durability aspects (freeze-thaw, sulphate resistance, water absorption) are missing.
- Figures are mentioned but not well-explained in terms of scale, trendlines, or statistical significance.

Score: 6.5/10

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4. Presentation

The manuscript is reasonably well-written but has some grammatical inconsistencies and formatting issues. The flow between sections could be improved. Figures and tables need better clarity.

Strengths:

- Abstract provides a concise summary.
- Methodology is explained step-by-step.

Weaknesses:

- Some sentences are lengthy and not grammatically correct.
- Figures are poorly labeled and lack detailed captions.
- References need formatting according to journal guidelines.
- Minor typographical errors (e.g., “o.5 %” instead of “0.5 %”).

Score: 6/10

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5. Recommendation

The paper has **good potential** and contributes to sustainable material research. However, it requires **major revisions** before acceptance.

Recommended Decision: Major Revision

Reviewer’s Suggestions for Improvement

1. **Language & Clarity**
    - Revise the manuscript for grammar and readability.
    - Shorten lengthy sentences and improve technical precision.
2. **Figures & Tables**
    - Redraw figures with proper legends, scales, and clarity.

- Provide detailed captions explaining key trends.

3. **Additional Tests**
    - Include durability tests (water absorption, abrasion resistance, chemical resistance).
    - Provide cost comparison with conventional paver blocks.
4. **Discussion**
    - Expand discussion by comparing results with existing literature.
    - Justify why 30% sludge + 0.5% fibre is the optimum.
5. **References**
    - Update references with more recent studies (post-2015).
    - Follow proper citation style as per the journal.

 Final Evaluation:

- **Originality:** 7/10
- **Significance:** 8/10
- **Quality:** 6.5/10
- **Presentation:** 6/10

Overall Recommendation: Major Revision