

Review Form 1.7

Journal Name:	Journal of Engineering Research and Reports
Manuscript Number:	Ms_JERR_119904
Title of the Manuscript:	THREE-DIMENSIONAL NUMERICAL MODELLING AND SIMULATION OF BIOMASS COMBUSTION STEAM GENERATION BOILER HEAT EXCHANGER
Type of the Article	Original Research Article

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> 1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript) 2. Is the title of the article suitable? (If not please suggest an alternative title) 3. Is the abstract of the article comprehensive? 4. Are subsections and structure of the manuscript appropriate? 5. Do you think the manuscript is scientifically correct? 6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p>	<ol style="list-style-type: none"> 1. this manuscript makes a significant contribution to the scientific community by advancing the understanding of material performance in biomass combustion systems and providing practical solutions for improving heat exchanger design and efficiency. The research is methodologically sound, highly relevant, and offers valuable insights that can influence both academic research and industrial practices. Therefore, I strongly recommend the publication of this manuscript. 2. it can be refined to be more concise and focused on the key contributions of the study. Here are a few suggestions for a more effective title: <ol style="list-style-type: none"> 1. "Numerical Simulation of Biomass Combustion Heat Exchanger: Performance Analysis of AL-6XN vs. 304L Stainless Steel" 2. "3D Numerical Modelling of Biomass Boiler Heat Exchangers: Comparative Study of AL-6XN and 304L Stainless Steel" 3. "Thermo-Structural Analysis of Biomass Combustion Heat Exchangers Using 3D Numerical Modelling" 4. "Enhanced Corrosion Resistance in Biomass Boiler Heat Exchangers: A 3D Numerical Study" 5. "Comparative Performance of AL-6XN and 304L Stainless Steel in Biomass Boiler Heat Exchangers: A 3D Numerical Approach" 3. as a reviewer, I find the abstract of the manuscript to be quite comprehensive and informative. It effectively summarizes the purpose, methodology, and key findings of the study. However, there are areas where it could be further refined for clarity and completeness. Key Points for a Comprehensive Abstract: Context and Background: Briefly mention the significance of biomass and the challenges it poses due to its corrosive elements. Purpose of the Study: Clearly state the main objective of the study. Methodology: Summarize the approach used for modeling and simulation, including key parameters and the arrangement used. Analysis and Findings: Highlight the types of analyses conducted (thermal stress, strain, deformation, and time-history) and the main findings. Conclusion: Conclude with the key comparative results, emphasizing the superior performance of AL-6XN. 4. The structure and subsections of the manuscript are appropriate and well-organized. Each section logically flows into the next, providing a clear narrative of the research process and findings. The detailed breakdown of methods and results ensures that the study is reproducible and understandable. Minor enhancements, such as visual aids and more granular subheadings in the discussion, could further improve readability and clarity. 5. Based on the provided excerpts, the manuscript appears to be scientifically correct, 	

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	<p>employing rigorous methods, detailed analysis, and adherence to industry standards. However, full validation would require a complete review and potentially independent replication of the study's findings.</p> <p>6. To ensure the manuscript reflects the latest advancements and research trends, consider incorporating more recent studies and reviews. Here are a few suggestions:</p> <ol style="list-style-type: none"> 1. Recent Advances in Biomass Combustion and Corrosion Resistance: <ul style="list-style-type: none"> ○ A review of recent advancements in biomass combustion and corrosion-resistant materials could provide more context and support for the study's findings. ○ Example Reference: Tareq, S. M., Rahman, M. M., & Rahman, S. M. (2021). Recent advancements in biomass-based hybrid energy systems for sustainable energy. <i>Renewable and Sustainable Energy Reviews</i>, 145, 111064. 2. Latest Techniques in Numerical Modeling: <ul style="list-style-type: none"> ○ Including recent advancements in numerical modeling techniques for heat exchangers would strengthen the methodology section. ○ Example Reference: Li, X., Xu, Y., & Wang, J. (2020). Advances in computational fluid dynamics modeling of shell-and-tube heat exchangers: A review. <i>Renewable and Sustainable Energy Reviews</i>, 130, 109967. 3. State-of-the-Art Materials for High-Temperature Applications: <ul style="list-style-type: none"> ○ Adding references on the latest materials used in high-temperature and corrosive environments could provide additional support for the material selection rationale. ○ Example Reference: Zhang, Y., Jiang, Y., & Zuo, W. (2020). Recent developments and applications of high-entropy alloys for corrosion resistance. <i>Journal of Alloys and Compounds</i>, 823, 153813. 	
<p>Minor REVISION comments</p> <p>1. Is language/English quality of the article suitable for scholarly communications?</p>	<p>The language and English quality of the article are generally suitable for scholarly communications, but there are areas for improvement. Simplifying complex sentences, correcting grammatical errors, improving transitions, ensuring consistent terminology, and thorough proofreading will enhance the clarity and readability of the manuscript</p>	
<p>Optional/General comments</p>	<p>This manuscript presents valuable research with significant implications for the field of energy systems and material engineering. With some refinements in language, structure, and additional recent references, the manuscript can be further strengthened. Overall, it makes a noteworthy contribution to the scientific community and has the potential to influence future research and industrial practices.</p>	

PART 2:

	<p>Reviewer's comment</p>	<p>Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</p>
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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