

**Review Form 3**

Journal Name:	<a href="#">Advances in Research</a>
Manuscript Number:	Ms_AIR_129614
Title of the Manuscript:	Finite element analysis of underground large-diameter concrete cylinder under temperature load based on ABAQUS
Type of the Article	Original Research Article

**PART 1: Comments**

	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.</p>	<p>The manuscript titled "Finite Element Analysis of Underground Large-Diameter Concrete Cylinder under Temperature Load based on ABAQUS" is of substantial importance to the scientific community for several reasons:</p> <ol style="list-style-type: none"> <li>1. It addresses a critical issue in the design and construction of underground large-diameter concrete cylinders, specifically the influence of temperature loads on structural integrity. This is an area of growing relevance due to increasing storage demands globally.</li> <li>2. By employing advanced finite element analysis techniques using ABAQUS, the study provides a detailed understanding of temperature-induced stress distributions and deformation patterns, offering valuable insights for optimizing structural design under variable environmental conditions.</li> <li>3. The research bridges a gap in knowledge by highlighting the disparities in structural response under temperature rise and fall, emphasizing the need for targeted design strategies to mitigate stress concentrations, particularly in critical areas.</li> <li>4. The findings contribute to safer and more efficient construction practices, serving as a reference for engineers and researchers involved in designing resilient underground structures.</li> </ol>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title "Finite Element Analysis of Underground Large-Diameter Concrete Cylinder under Temperature Load based on ABAQUS" is informative and accurately reflects the core focus of the study, including the methodology (finite element analysis), the subject (underground large-diameter concrete cylinder), and the specific aspect investigated (temperature load). However, it could be refined for conciseness and clarity.</p> <p>Suggested Alternative Title: "Finite Element Analysis of Temperature Effects on Underground Large-Diameter Concrete Cylinders Using ABAQUS"</p> <p>This revised title maintains the essential details while improving readability and ensuring it captures the study's focus succinctly.</p>	

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<p><b>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</b></p>	<p>The abstract of the article is comprehensive, providing an overview of the study's objectives, methodology, and significance. However, there is room for improvement to enhance clarity and ensure it aligns with scientific best practices.</p> <p><b>Suggestions:</b></p> <ol style="list-style-type: none"> <li><b>Add Specific Findings:</b> Include key quantitative results from the analysis, such as the specific stress values or critical observations (e.g., the hoop tensile stress exceeding the axial tensile strength during temperature decrease).</li> <li><b>Streamline Background Information:</b> The opening sentences on the increasing demand for storage capacity could be condensed to emphasize the unique contribution of this study.</li> <li><b>Highlight Practical Implications:</b> Explicitly mention how the findings can guide design improvements or practical applications in construction engineering.</li> </ol> <p><b>Revised Abstract Suggestion:</b>          "This study investigates the temperature-induced stress distribution and deformation in underground large-diameter concrete cylinders using finite element analysis with ABAQUS. By simulating temperature changes through boundary conditions, the research identifies critical stress patterns, particularly the significant hoop tensile stress observed during temperature decreases, which peaks at 2.75 MPa. These findings emphasize the need for enhanced tensile capacity in specific regions of the structure. The results provide valuable insights for optimizing the design and ensuring the structural integrity of underground concrete cylinders under varying thermal conditions."          This revision focuses on the most critical aspects and actionable insights, making the abstract more impactful and aligned with the expectations of the scientific community.</p>	
<p><b>Is the manuscript scientifically, correct? Please write here.</b></p>	<p>The manuscript appears to be scientifically sound, with a well-defined methodology and detailed analysis. It employs the finite element method using ABAQUS to analyze the temperature-induced stresses and deformations in underground large-diameter concrete cylinders, which is an appropriate and widely accepted approach for such studies.</p> <p><b>Suggestions for Improvement:</b></p> <ol style="list-style-type: none"> <li><b>Validation of Results:</b> While the manuscript provides comprehensive numerical simulations, it would benefit from additional discussion on the validation of the results, such as comparisons with experimental data or results from other studies.</li> <li><b>Clarity of Assumptions:</b> Ensure all assumptions used in the finite element model, such as soil properties, boundary conditions, and temperature gradients, are clearly stated and justified.</li> <li><b>Discussion Depth:</b> While the stress distribution under temperature rise and fall is discussed, elaborating on the implications of these results for real-world design scenarios, such as specific engineering solutions, could enhance the manuscript's scientific contribution.</li> </ol> <p>Overall, the manuscript is technically accurate and contributes valuable insights into the field. Addressing the above points would strengthen its scientific robustness and practical relevance.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>The references cited in the manuscript are relevant and provide a solid foundation for the research. They cover various aspects of temperature effects on concrete and silo structures, including experimental and numerical studies, and range from classical studies to more recent findings. However, there is room for improvement to ensure the reference list is both comprehensive and up-to-date.</p> <p><b>Suggestions:</b></p> <ol style="list-style-type: none"> <li><b>Add Recent Studies:</b> Include more recent references, particularly from the last 3–5 years, focusing on advancements in finite element analysis techniques, temperature effects on underground structures, and applications of ABAQUS in structural analysis.</li> <li><b>Incorporate Broader Context:</b> Consider adding references that discuss temperature effects in underground or similar structures from different geographic or environmental contexts, broadening the applicability of the study.</li> <li><b>Key Journals:</b> Include references from high-impact journals such as <i>Engineering Structures</i>, <i>Journal of Structural Engineering</i>, or <i>Construction and Building Materials</i>, which often feature cutting-edge research in this field.</li> </ol> <p><b>Suggested References:</b></p> <ul style="list-style-type: none"> <li>Recent studies on temperature stress analysis using finite element methods.</li> <li>Papers discussing ABAQUS applications for underground or large-scale concrete structures.</li> </ul>	

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	<ul style="list-style-type: none"> <li>Research focusing on the mitigation of temperature-induced stress concentrations in concrete structures. By updating the reference list with these additions, the manuscript will demonstrate a thorough engagement with the latest developments in the field.</li> </ul>	
<p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>The language and English quality of the article are generally suitable for scholarly communication. The manuscript uses technical terminology appropriately, and the overall structure is clear and logically organized. However, there are areas where the writing could be improved to enhance readability and precision.</p> <p><b>Suggestions:</b></p> <ol style="list-style-type: none"> <li><b>Grammar and Syntax:</b> Review for minor grammatical issues, such as sentence structure and punctuation, to ensure consistency and fluency throughout the manuscript.</li> <li><b>Conciseness:</b> Some sentences, particularly in the introduction and discussion sections, are lengthy and could be rephrased for clarity and brevity.</li> <li><b>Technical Descriptions:</b> Simplify overly complex explanations without compromising technical accuracy, making the content more accessible to a broader scientific audience.</li> <li><b>Terminology Consistency:</b> Ensure consistent use of technical terms, such as "temperature load" and "temperature-induced stresses," across the manuscript.</li> </ol> <p><b>Example of Improvement:</b> Original: "The research results indicate that under temperature increase conditions, the concrete cylinder is mainly subjected to compressive stress, and the stresses in all directions meet the concrete strength requirements." Revised: "The results show that during temperature increases, the concrete cylinder experiences compressive stress, with all stress values remaining within the material's strength limits." Enhancing these aspects will improve the manuscript's scholarly presentation and ensure it meets the expectations of an international scientific audience.</p>	
<p><b>Optional/General</b> comments</p>	<p><b>General Comments:</b></p> <p><b>The manuscript provides valuable insights into the impact of temperature loads on underground large-diameter concrete cylinders, employing advanced finite element analysis techniques. It is well-structured and addresses an important topic in structural engineering, particularly in the context of increasing demands for storage capacity and environmental considerations.</b></p> <p><b>Suggestions for Improvement:</b></p> <ol style="list-style-type: none"> <li><b>Practical Implications:</b> While the study focuses on numerical simulations, incorporating a section that explicitly discusses the practical engineering implications of the findings would enhance its relevance to practitioners.</li> <li><b>Model Validation:</b> Consider including a discussion on how the finite element model was validated, such as comparisons with experimental data or established theoretical models. This would strengthen the reliability of the results.</li> <li><b>Figures and Visuals:</b> The figures are informative, but adding more annotations or explanations in the captions would improve their interpretability for readers.</li> <li><b>Future Research:</b> Highlight potential areas for future research, such as exploring the effects of dynamic loads or different soil conditions on similar structures.</li> <li><b>Broader Applicability:</b> Discuss how the findings could be adapted or extended to other types of underground structures or varying environmental conditions.</li> </ol> <p><b>Overall, this manuscript has the potential to make a significant contribution to the field. Addressing these points would enhance its impact and ensure broader applicability of the findings.</b></p>	

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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(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)</i>
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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