

**ELEVATED SHELL PLATFORM:  
EFFECTS DUE TO SHELL GEOMETRIC**

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**UNIVERSITI TEKNOLOGI MARA**

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By

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This report is submitted as a  
partial requirement for the degree of  
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## DECLARATION BY CANDIDATE

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## **ABSTRACT**

Shell structure has a unique thin, curved plate shaped yet strong enough to transmit applied forces by compressive, tensile, and shear stresses that act in the plane of the surface. They are usually constructed as a roof structure without any or only minor external load applied onto it. Thus, this study has been done to know either shell structure is able to carry the high load with a large span or not. The objectives of this research are to study the feasibility in proposing elevated shell platform and to investigate the effect of shell geometric on elevated shell platform and identify the suitable shell geometric. This study consist of five different geometrics of shell structure proposed which are dome, cone, pendentive, clam shape and leaf-like shape. Linear static analysis were carried out using LUSAS. Different geometric of shell will affected the stresses distribution and performance in carrying the load applied. Before comparing the stresses between different geometric, the optimum height used as the constant variable was determined by convergence test. Then only the modelling phase for all geometric can be proceed to obtain the output for each of them. In analyzing the data, several ways of justification have been carried out to achieve the objectives stated. In the end of the study, the feasibility in proposing elevated shell platform has been justified. The effect of different geometrics on stress distribution and maximum stress generated have been investigated. Dome and cone have came out as the best geometrics as the application of elevated shell platform due to their performance as analyzed in this report.

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