FABRICATION AND ANALYSIS OF THREE DIMENSIONAL SPACE TRUSS STRUCTURE

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ABSTRACT

Bamboo has a long history in human life. Applications of bamboo range from basic households appliances to building material. However, the norm of the application is still very traditional and conservative. This project therefore is trying to explore the possibilities of advancing the application of this natural composite. One of the methods is by using laminated bamboo to build more complex structure. Hence, a space truss structure has been selected. The purposes of this project is to study the manufacturing method of laminated bamboo, fabrication techniques, and lastly to analyse the mechanical behaviour of the structure. This thesis is a literal reflection of the physical works done in achieving the purpose or the objectives of the project. It consists three main portions. The first portion is a literature review on bamboo and fundamentals of manufacturing laminated bamboo. It is followed by the fabrication of truss structure and testing preparation. The last portion encompasses the analysis of the structure using finite element method (LUSAS) software, comparison between the actual condition and the LUSAS analysis, and lastly the discussion and recommendation on the results.

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