

**THE EFFECT OF LENGTH TO THICKNESS
RATIO TO THE COMPRESSIVE
STRENGTH OF AXIALLY LOADED PVC-
STEEL SKINNED HOLLOW CONCRETE
FILLED COLUMNS**

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DECLARATION BY THE 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 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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Double skinned hollow concrete filled tube (DSHCFT) column is one of the composite column type where this concept has evolved from the use of concrete filled tubular members. In this study, the main objective is to determine the compression strength of DSHCFT columns with varies length to thickness ratio (L/t) subjected to axial loading and evaluation of influence of length-to-thickness (L/t) ratio of steel tubes to the compressive strength and deflection of DSHCFT columns. There are 3 main activities involved namely material preparation, preliminary testing and DSHCFT column testing. Each length of column used are 300mm, 325 mm and 375 mm with diameter of outer mild steel skin and inner PVC skin are 162.50mm and 75 mm respectively. It was observed that the experimental ultimate compressive load, N_{exp} is higher than theoretical ultimate compressive load, N_{theo} as per BS5400 where the difference is in range of 1% - 8%. Lower L/t ratio results in increase of ultimate compressive load and failure mechanism observed were crushing and buckling. DSHCFT shows a very good potential to be utilized as a column system especially for column structure with low load bearing capacity such as utilities poles, lamp posts and signboards.

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