

**“FINITE ELEMENT ANALYSIS OF PROFILED STEEL SHEET
DRY BOARD SYSTEM AS A WALLING UNIT
WITH DOOR OPENING”**

*A report submitted to Universiti Teknologi MARA in partial fulfillment of the
requirements for the Bachelor Degree of Civil Engineering (Hons) (Civil)
in the Faculty of Civil Engineering.*

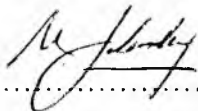
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I hereby declare that the report has not been submitted, either in the same form, to this or any other University for a degree and except where reference is made to the work of others, it is believed to be original.

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ABSTRACT

Composite engineering component which may consist of two or more materials, connected or combined to give a performance in service, which is superior to the properties of its individual materials.

Profiled steel sheet dry board (PSSDB) is a composite system, which classified into macrocomposite system comprises of Profiled steel sheet, cemboard and connected by self-tapping screw. This system when combined imposed strength and stiffness.

The proposed of this system as a load-bearing wall give more advantages in building construction. It's a lightweight structure, easy to fabricate and save a lot of time for installation work.

In this study, Profiled Steel Sheet Dry Board has been treated as load-bearing wall, where it's due to door opening using finite element method (LUSAS) has been analyzed. The model analyzed measures three metres wide and three metres high. An opening of 926 mm by 2040 mm is modeled as door opening in symmetrical position.

LUSAS 13.3 software adopted to create the finite element model. The model was modeled using 3D thin shell elements as a profiled steel sheet (Bondek □) and dry board (Cemboard).

A series of load had been assign to this model and the result are stated as follow; for total load of 256 kN the maximum displacement is 5.969 mm, for maximum stress is 391.50 N/mm^2 occurs at node 32837 and for the maximum strain is $0.2785\text{E-}2$.

KEYWORDS: Profiled Steel Sheet; Dry Board; Composite; Lightweight

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