

**FINITE ELEMENT ANALYSIS OF PROFILED STEEL
SHEET DRY BOARD AS WALLING UNIT WITH
WINDOW OPENING**

**A Report Submitted to the Faculty of Civil Engineering
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I hereby declare that this report has not been submitted, either in the same or different form to this or any 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

The Profiled Steel Sheet Dry Board (PSSDB) system is a thin-walled, lightweight composite structure consisting of Profiled Steel Sheeting connected to dry boards by means of self drilling, self tapping screws and is a structural load bearing system. The size of the model of the wall selected is **3000 mm x 3000 mm x 78 mm**. It is a square section with window opening section at **1200 mm x 1200 mm** and symmetrically positioned in the center of the specimen. The study is based on the concept that the load bearing capacity of the composite wall is derived from the individual components, namely the profiled steel sheeting, dry board and the interaction between these two. Therefore, an analytical method is essential to predict the behaviour of the PSSDB system as walling unit with window opening. A linear finite element model has been developed to predict the full range of behaviour of PSSDB panel. LUSAS (1999), a finite element package (LUSAS version 13.4) has been employed for this purpose. LUSAS pre-processing options provide on-screen modelling which include wide range of features like colour plots of deflection, stress and strain contours combining with different load cases.

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