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

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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 the reference is made to the work of others, it is believed to be original

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ABSTRACT

Profiled Steel Sheet Dry Board (PSSDB) system is a novel form of composite walling panel. The study is on profiled steel sheet dry board system as walling unit with window opening symmetrically positioned in center of the specimen. The specimen is rectangular section sized 1000mm x 830mm x 1mm, and the opening is 200mm x 400mm. It is an analytical investigation on the behavior of the PSSDB system as walling unit with window opening. The study is based on the concept that the load bearing capacity of the composite wall is derived from the individual components, namely, the steel sheet, the dry board and the interaction between these two. A numerical finite element package, known as LUSAS software of finite element analysis is used in modeling process. The analysis determines the deflection, critical buckling load and stress-strain pattern of the specimen. It is found that the profiled steel sheet is the major element in resisting load and it is capable in reducing buckling problem. Profiled steel sheet also improves the stability of the section under axial loading. Cemboard carries a portion of load and it is found that cemboard helps in delaying the buckling of PSSDB panel. The results of deflection, critical buckling load and stress-strain pattern shows that PSSDB panels have a good load bearing capacity as wall unit.

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