

UNIVERSITI TEKNOLOGI MARA

**INFLUENCE OF DRY MIX MORTAR WITH
EXPANDED POLYSTYRENE (EPS) POWDER
REPLACEMENT ON COMPRESSIVE STRENGTH**

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Dissertation submitted in partial fulfillment requirement for the degree of
Master of Science

Faculty of Civil Engineering

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and the result is on my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted 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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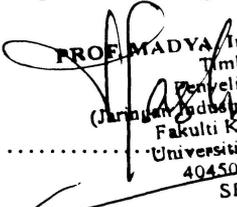
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ABSTRACT

The use of dry mix mortar or dry mortar in the construction industry is no longer something new in the construction development. The approach of dry mix mortar in today's rapid and fast growth of development is playing a crucial role in construction industry development. This is due to the dry mix mortar could save a lot of time and cost instead using the conventional method of wet mix mortar. Nowadays, there is more demand than supply on the uses of material in the construction. Thus, the need to use alternative materials should be widely used and practiced among the construction and development to pro-long the material for future generation supply. In this study, the use of Expanded Polystyrene (EPS) powder is to minimize the sand extinction. The objective of this study is to determine the best replacement of Expanded Polystyrene (EPS) which it is considered as the industrial waste in the design mix of ratio 1:2.5 and the relationship between percentage of Expanded Polystyrene (EPS) replacement and compressive strength of the design mix of ratio 1:2.5. The mix design of EPS replacement with different level of replacement proportion percentage of 20%, 25%, 30%, 35% and 40% were tested as to determine the mixes that contributed to the best compressive strength. The tests were conducted at 7 and 28 days of curing with various replacements of EPS in the dry mix. From the result obtained, it was found that 40% of EPS replacement is the best replacement in the dry mix that has strength of 12.770N/mm^2 which considered achieved the standard non-load bearing strength requirement. The correlation between compressive strength and density with various EPS powder replacement percentage were established using linear regression analysis.

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