

# PROPERTIES OF LIGHT-WEIGHTED CONCRETE BLOCK USING RECYCLED MATERIALS

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## ABSTRACT

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Due to the increasing growth in population on the earth, the amount of waste materials have increased, many of the non-decaying waste materials will remain on the earth for hundred or thousand years and this will lead to waste disposal crisis. As most of these materials are left as stockpiles, landfill material or illegally dumped in areas. Example, like polystyrene and tires. 190 millions of tires [2] and 25 billion of polystyrene cups [3] were thrown away each year in America only. This project presents about the properties of light-weighted concrete using recycled materials. Lately, the interest in using recycled material is increasing in many areas as this is one of the ways to reduce the waste materials in the earth and to go green. So does in construction industry, lightweight concrete is introduced. There are many types of lightweight concrete, one of the type is by replacing the usual mineral aggregates by others materials or lightweight aggregates. In the outcome of this project, the strength of the polystyrene concrete cube is 7.29MPa, 8.60MPa and 7.84MPa on 7<sup>th</sup>, 14<sup>th</sup>, and 28<sup>th</sup> day. Whereas the strength of the tire concrete cube is 11.28MPa, 10.33MPa and 10.04MPa. Besides, the water absorption of polystyrene concrete cube is 0.80% and tire concrete cube is 1.12%. Other than that, the flexural strength of polystyrene concrete beam is 37.98MPa and 33.63MPa. Whereas it is 3.52MPa for tire concrete beam.