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| Special Research Study Title | Compressive Strength and Durability of Recycled Aggregate<br>Concretes Containing Ground Fly Ash |
| Credits                      | 6  |
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| Program                      | Master of Engineering  |
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#### Abstract

This research aims to study the effect of ground fly ash on compressive strength, abrasion resistance, chloride ion penetration, and drying shrinkage of concrete made from recycled concrete aggregates. Ordinary Portland cement type I was partially replaced by ground fly ash at the rate of 20, 35, and 50% by weight of binder. The concrete samples were divided into 3 groups; (i) concrete made from natural aggregates, (ii) concrete made from river sand and coarse recycled aggregates, and (iii) concrete made from both fine and coarse recycled aggregates. The results showed that the compressive strength of recycled aggregate concrete was lower than that of the conventional concrete. However, the use of ground fly ash in recycled aggregate concrete could enhance compressive strength of recycled aggregate concrete. The highest compressive strength was found at 35% replacement rate of ground fly ash. For abrasion resistance, the use of ground fly ash slightly affected the weight loss of concrete. The chloride ion penetration of recycled aggregate concrete decreased with an increase in ground fly ash. Finally, increasing proportions of ground fly ash caused a decrease in the drying shrinkage of recycled aggregate concrete.

Keywords: Abrasion resistance / Chloride ion penetration / Compressive strength / Drying shrinkage / Fly ash / Recycled concrete aggregate