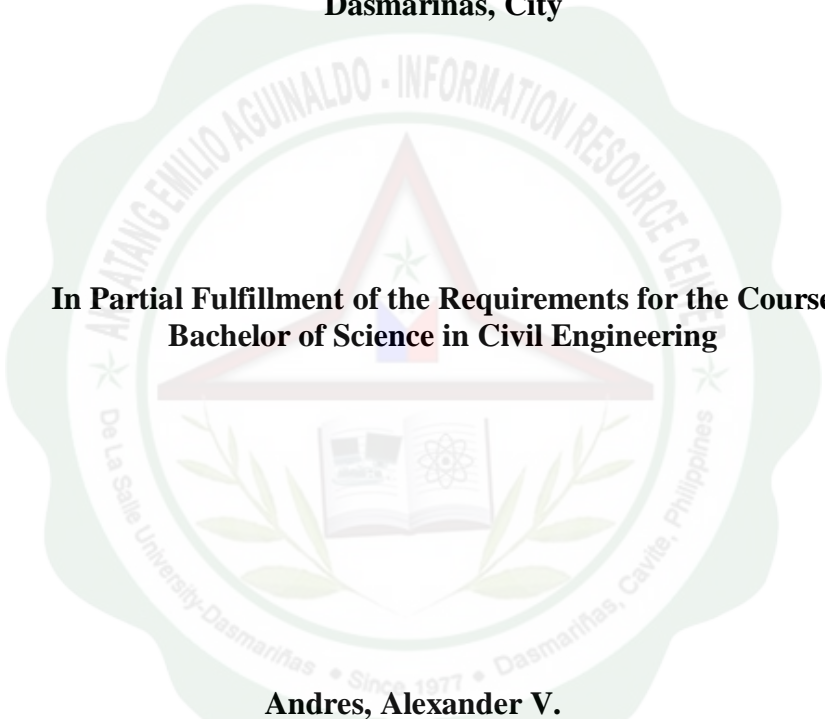


**Comparative Analysis on the Effectiveness of Mussel Shell Used as Fine Aggregate and
Used as Ash in the Compressive Strength of Mortar**

**A Thesis Proposal Presented to the Faculty of Civil Engineering
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ABSTRACT

Mussel, a bivalve which is abundant in the Philippines, is considered one of the most common shellfish consumed by the people. The shells that are left of are non-biodegradable and their indiscriminate disposal can lead to land and water pollution. In this study, mussel shell was used as partial replacement for fine aggregate and cement in the creation of mortar. It was crushed in order to produce fine aggregates and was incinerated in order to produce ash. Different set of specimens with different design mixes were created. In the first part of the study, mussel shell fine aggregate (MSFA) served as partial replacement for sand without partially replacing cement and in the second part, mussel shell ash (MSA) served as partial replacement for cement without partially replacing sand. Specimens with no replacement were created to serve as the control. Both MSFA and MSA were used in 10%, 20% and 30% replacement. Three specimens per percentage replacement were created in order to obtain accurate results. After the specimens had been created, they were subjected to compressive strength test. It was found out that MSFA gave a positive result at 10% partial replacement while MSA didn't pass the strength of the control. It was also observed that while the percentage of MSFA is increased, the mixture becomes more watery which was proven by the slump test which gave an increasing slump as the percentage was increased. Densities of the design mixes were also obtained and they showed that as MSA and MSFA increased, density of the mixture decreased which means that the mixture becomes more permeable and an increase in permeability means a decrease in thermal conductivity.