MORTAR BLOCKS WITH RICE HUSK ASH (RHA) AS ADMIXTURE

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ACCEPTANCE SHEET

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BIOGRAPHICAL SKETCH

Sherrylyn "Sherry" Venancio Evangelista is the youngest daughter of Mr. Segundo C. Evangelista and Mrs. Tessie V. Evangelista and was born on the first day of July 1997 at Brgy. Tutuloy, Cuyapo, Nueva Ecija. She has an older sibling named Sheilamie V. Evangelista who graduated Bachelor of Science in Environmental Science in Central Luzon State University.

She finished her primary education as class salutatorian at Cabileo Elementary School on March 2010 and received different awards from her extra-curricular activities in News Writing in Filipino and became one of the representatives of District-1 in Regional Schools Press Conference held in Gapan City, Nueva Ecija. She was one of the Cadette Captain Officers of Citizenship Advancement Training (CAT) in her Junior and Senior year and graduated as one of the top 10 high school students of Saint Pius X Institute in Cuyapo, Nueva Ecija on March 2014.

On her tertiary she chose Central Luzon State University as her school taking up the course Bachelor of Science in Agricultural and Biosystems Engineering. On her first year she became a college scholar that became her key to be one of the few chosen scholars of PhilDev Foundation.

She is a taekwondo player since high school up to college, she also played for the College of Engineering during Intramurals and won gold medallist on her division.

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ABSTRACT

EVANGELISTA, SHERRYLYN V., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **JUNE 2019, MORTAR BLOCKS WITH RICE HUSK ASH (RHA) AS ADMIXTURE.**

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Rice Husk Ash are considered an agricultural waste which affiliates the massive quantity causing difficulty in storage and transportation. This assessment has led in tracing the present problems or factors affecting the environment in terms of lack of disposal and storage for bulky quantities of Rice Husk Ash. On the contrary, RHA are considered pozzolan and can alternatively blended with ordinary portland cement (OPC) that enhance its workability, durability, and significantly reduce the cost of materials. Generally, this study aims to produce mortar blocks with the determination on the effects of replacing different amounts of RHA to cement material in terms of physical and mechanical properties.

The ashes produced from biomass power generation plant in Nueva Ecija were used as replacement for cement in different percentages (0%, 20%, 30% and 40%) in the production of mortar blocks. The mortar blocks samples were subjected to different duration of curing in order to determine its effects in the produced blocks. Different test were conducted to evaluate their physical (water absorption and density), and mechanical (compressive strength) properties.

The water absorption test of mortar blocks is not affected by the amounts of RHA replacements, however the number of curing days showed significant effect on its capacity

to absorb water. It was also found out that percentage of RHA showed significant effect to the density of mortar blocks, where 0% RHA resulted to the highest mean density value regardless of different curing days. The Compressive strength of mortar blocks was found to be affected by the interaction effects of RHA percentage and duration of curing days. Moreover, lesser amount of RHA (20%) tended to be stronger than those blocks with greater amount of RHA (30% and 40%). The cost of production of mortar blocks showed noticeable reduction with the addition of RHA compared to conventionally mixed mortar used in the construction site.

RHA addition reduced the density resulting to lightweight material with accompanying increase in the compressive strength and improved the workability at up to 20% replacement by volume for the production of mortar. The Rice Husk Ash as waste material further reduces the cost of production of mortar blocks.

Keywords: Rice Husk Ash (RHA); mortar blocks; water absorption; density; compressive strength

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