

**SAWDUST AS SUPPLEMENTARY AGGREGATE FOR
CONCRETE HOLLOW BLOCKS PRODUCTION**

Research Study

**LEE ARIUS G. ERANA
KURT KENNETH C. MARZO
RONI MARIE A. ROSARDA**

**Science High School
CAVITE STATE UNIVERSITY**

Indang, Cavite

Cavite State University (Main Library)



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HOLLOW BLOCKS PRODUCTION**

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**ERANA, LEE ARIUS G.
MARZO, KENNETH A.
ROSARDA, RONI MARIE A.
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ABSTRACT

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The study entitled “Sawdust as Supplementary Aggregate to Concrete Hollow Blocks Production” was conducted from December 2016 to January 2016 at Alulod, Indang, Cavite to produce concrete hollow blocks with sawdust and lahar materials as supplementary aggregate. Specifically it aimed to: a) determine the compressive strength and density of concrete hollow blocks with different amount of sawdust; b) determine the amount of sawdust as aggregate that produce good quality hollow blocks in terms of compressive strength and density; and c) determine the cost of production of the produced concrete hollow blocks with different amount of sawdust as an aggregate.

The study had five treatments with three replications each. The five treatments used were as follow: T₀. Commercialized Concrete Hollow Blocks (CHB); T₁. Cement – 50%, Lahar – 45%, Sawdust – 5 % ; T₂. Cement – 50%, Lahar – 40%, Sawdust – 10%; T₃. Cement – 50 %, Lahar – 35%, Sawdust – 15%; T₄. Cement – 50 %, Lahar – 30%, Sawdust. The materials used such as cement, lahar, and sawdust were collected and proportioned per treatment. Sawdust was dried and lahar was screened to get its finest pieces. When the mixing is done, the mortar was poured in the ground and the proportioned saw dust was applied. The mortar and saw dust were mixed thoroughly using shovel and cement were mixed thoroughly with water using electric mixer.

After 28 days, the produced hollow blocks were transported to Associated Services and Testing Center (ASTEC) in Pala Pala, Dasmarinas, Cavite to determine its compressive strength, It was also transported, measured and weighed in one of the researcher's residence in Alulod, Indang, Cavite to determine its density.

The best treatment is Treatment 1 with 5% amount of sawdust replacement of lahar. Based on the results of the study, Treatment 1 had the highest compressive strength of 393.3 psi and also had the highest density of 1.607 g/cm³.

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**Lee Arius G. Erana
Kurt Kenneth A. Marzo
Roni Marie A. Rosarda**

A research study manuscript submitted to the faculty of Science High School, College of Education, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for graduation under Contribution No. _____. Prepared under the supervision of Engr. Cesar C. Carriaga.

INTRODUCTION

Concrete hollow blocks (CHB), are one of the most extensively used building construction materials in the Philippines. Some of the reasons for this are their relative low cost when compared to other materials and speed of installation by semi-skilled laborers. Through the years, researchers develop concrete hollow blocks using different kinds of aggregates from usually sand and fine gravel to industrial wastes, fly ash or bottom ash and clinker (Bravante & Paral, 2011).

Sawdust is a waste product of cutting, grinding, drilling, and sanding wood or any other material with a saw or other tool, and is composed of fine particles of wood, but instead of being thrown away, researchers expanded its uses and developed new useful materials from it. The major use of saw dust is for making particleboard. Sawdust is used in such a wide range of applications such as: coarse sawdust may be used for wood pulp;