

# **FABRICATION OF COAL ASH BRICKS**

## **Research Study**

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## ABSTRACT

**MISLANG, JAN IVAN P., TIMA, JAN ISOBELLE G., and VICEDO, JULIUS ANDREW R. Fabrication of Coal Ash Bricks.** Applied Research III Science High School, College of Education, Cavite State University, Indang, Cavite, May 2017. Adviser: Engr. Willie Buclatin.

The study entitled “Fabrication of Coal Ash Bricks” was conducted in Trece Martires City, Cavite to produce bricks from coal ash. It also aimed to determine the physical properties of the produced bricks from coal ash in terms of compressive strength, density, texture and level of acceptability, determine the treatment that will produce the best quality of bricks and the cost of production of the produced bricks using coal ash.

The researchers used the following treatments in the conduct of their study; T<sub>0</sub> – commercial chalk; T<sub>1</sub> – 40% coal ash + 50% cement + 10% sand; T<sub>2</sub> – 50% coal ash + 40% cement + 10% sand; T<sub>3</sub> – 60% coal ash + 30% cement + 10% sand; T<sub>4</sub> – 70% coal ash + 30% cement + 10% sand.

The coal ash were gathered from different grills and materials were prepared. The proportioned sand, cement, and coal ash were mixed thoroughly using shovel. Mixture will be transferred into the brick moulder that is 7 in x 3 in x 2.5 in deep using shovel. The trowel will be used in smoothing off the mixture in the molder. The mixture were set aside for a day. The bricks were removed from the molder and stacked in a cool area for air drying and cure it for 2 weeks. After drying, coal ash bricks are ready for evaluation. The best treatment that produced best quality of bricks were evaluated by fifty respondents to test the texture and general acceptability of the bricks using an evaluation sheet. The best treatment is T<sub>3</sub> among the four treatments. Based on the results of the study, the physical properties of the best treatment are smooth, light in weight, hard, acceptable and have high mean of compressive strength.

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A research study submitted to the faculty of the Science High School, College of Education, Cavite State University, Indang, Cavite, in partial fulfillment for the requirements in graduation under Contribution No. \_\_\_\_\_. Prepared under the supervision of Engr. Willie Buclatin.

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## **INTRODUCTION**

Brick is a building material used to make walls, pavements and other elements in masonry construction. The term brick refers to small units of building material, often made from fired clay and secured with mortar, a bonding agent comprising of cement, sand, and water. It is an ideal material for structures in confined spaces, as well as for curved designs because each unit is small—usually four inches wide and twice as long. (Encyclopædia Britannica, 1911)

Materials used in fabricating bricks can be replaced by other alternative ingredient like coal ash that reduce wastes in our environment. In some cases, products made with coal ash perform better than products made without it. It makes concrete stronger and more durable. It also reduces the need to manufacture cement, resulting in significant reductions in greenhouse