

**DEVELOPMENT OF BAMBOO LAMINATED PLYBOARD FOR STUDENT
DESKS**

**A Thesis Presented to the
Faculty of the College of Engineering and Technology
Romblon State University
Odiongan, Romblon**

**In Partial Fulfilment of the Requirements for the Degree of
BACHELOR OF SCIENCE IN CIVIL ENGINEERING**

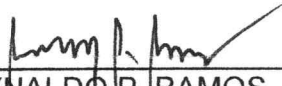
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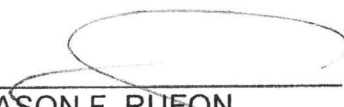
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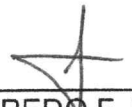
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The thesis entitled, "DEVELOPMENT OF BAMBOO LAMINATED PLYBOARD FOR STUDENT DESKS", prepared and submitted by FAJILAGMAGO, M.C.B., FOJA, S.L.F., FRUELDA, B.P.F., FRUELDA, J.K.M., MORTEL, N.W.F., SALMINGO, F.R., in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN CIVIL ENGINEERING is hereby accepted for oral examination.

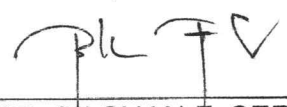

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ABSTRACT

The study sought to design and produce 1-inch thick bamboo-laminated plyboard using two locally available bamboo species, *Kawayang Tinik* and *Patong*.

In this study, the following materials were gathered: 0.75-inch plywood, slats of dry bamboo, 16-inch *Botong Gigantochloalevis* (*Patong*) and *Bambusablumeana* (*Kawayang Tinik*), Rakoll (woodworking adhesive), sodium hydroxide, sanding paper (100, 180, 300), sanding sealer, lacquer thinner, gloss lacquer, and tinting oil. Sodium hydroxide was used for treatment, protecting the slats from micro bacterial organisms and prolonging its lifespan. Mechanical equipment such as thickness planner, miter saw and table saw were used to achieve the desired one-fourth inch thickness. C-clamps were used to press and fix the bamboo-laminated plyboard.

The test results of the specimens show that the modulus of elasticity of *Patong* is 3498.39Mpa; of *Tinik*, is 3885Mpa; and of wood is 2741.28Mpa. It also shows that the stress at proportional limit of *Patong* is 11.83Mpa; *Tinik* and wood record a 8.68Mpa and a 6.29Mpa respectively. The modulus of rupture for *Patong* is 19.39Mpa; for *Tinik* is 21.48Mpa, and for wood, is 15.96Mpa.

These results show that two bamboo-laminated plyboards are better than commercial plyboards. In the financial cost of developed plyboard, the total estimated cost for 4' x 8' size plyboard is Php907.80, while the cost of commercially made plywood 4' x 8' in size is Php1200, showing that bamboo-laminated plyboard is cheaper than the commercial ones.

Finally, it is recommended that further research is to be conducted to determine the volumetric availability of bamboo in the province of Romblon, the different species that bear strength more than of wood.