THE PROPERTIES OF THREE LAYER PARTICLEBOARD FROM OIL PALM FRONDS (Elaeis Guineensis)

HAMMAD ASYRAF BIN ABDUL RAHMAN

Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Furniture Technology
in the Faculty of Applied Science
Universiti Teknologi Mara

JANUARY 2013

THE PROPERTIES OF OF 3-LAYER PARTICLEBOARD FROM OIL PALM FRONDS (Elaeis Guineensis)

By

HAMMAD ASYRAF BIN ABDUL RAHMAN

JANUARY 2013

ABSTRACT

Particleboard (PB) is a composite panel product consisting of cellulosic particles of various sizes that are bonded together with a synthetic resin or binder under heat and pressure. This study was undertaken is to determine the properties of three layer particleboard from oil palm fronds and to evaluate the properties of three layer particleboard from oil palm fronds by using different particle sizes and resin content. With that, this study use the oil palm fronds (OPF) because to reduce the wastage from oil palm biomass and overcome shortage of the wood supply. Experimental three layer PB panel from OPF particles bonded with Phenol Formaldehyde (PF) were produced with two different particle sizes (mm); 0.5/1.0/0.5 and 1.0/2.0/1.0 and two different resin content (%); 9/9/9 and 11/9/11. The results show the panels made with 0.5/1.0/0.5 particle size and 11/9/11 resin content showed better in MOR and MOE compare with other. Internal bond of panel manufactured using 0.5/1.0/0.5 with 11/9/11 was higher compare with panel manufactured using 1.0/2.0/1.0 with 9/9/9 and 11/9/11 resin content. Thickness swelling rate were slightly lower for PB manufactured using 9/9/9 compare 11/9/11.

TABLE OF CONTENTS

PAGE