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# Effects of the Existence of Fan in the Wood Drying Room and the Performance of the Electric Energy Wood Dryer

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**Abstract**

The purpose of this study is to determine the effect of the presence of a fan in the wood drying room in the drying time of wood. In addition, it is also to determine the performance of the steam compression cycle engine used in wood drying machines and the conditions of air entering and leaving the wood drying room. Wood drying machines work on a source of electrical energy. The research was conducted experimentally. Variations in the study were carried out on the presence of fans in the drying room: (a) there were no fans and (b) there were 2 fans. The dried object is a sengon wood board, which has a length of 2 m, a width of 20 cm, and a thickness of 2 cm. The number of wooden planks is 70 wooden planks of uniform size. The wooden planks before drying have a moisture content of 29.6%, and when dry, have a moisture content of 10%. The research gave the following results: (a) if there are 2 fans in the drying room, the time needed to dry the sengon wood planks is around 42.6 hours, whereas if there is no fan around 49.9 hours (b) the average Coefficient of Performance (COP) of the steam compression cycle engine is 10.65 (c) The air condition enters the drying room when