

**PHYSICAL AND STRENGTH PROPERTIES OF
DENDROCALAMUS ASPER (BULUH BETONG) AT
DIFFERENT PORTION AND SUB-PORION**

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ABSTRACT

Bamboo, being a common resource (plant) in Asian region provide an interesting alternative raw material other than timber. The study was conducted to determine the strength characteristics and type of failure of bamboo strip and relationship between density and strength properties of bamboo loaded in bending, compression parallel-to-grain, compression perpendicular-to-grain. This study showed mechanical properties had correlation and was influenced by density. *Dendrocalamus asper* (buluh betong) was used in this study as raw material. Specimen was taken from internode and node of bottom, middle, and top portions. The entire specimen was tested at 12% of MC. The result showed that in static bending test for the modulus of rupture (MOR) increased from basal to top, meanwhile for the modulus of elastic (MOE) decreased from basal to top. The maximum stress strain will increase when the direction of compression is parallel to grain and decreased when perpendicular to grain. The correlation between density and bending showed the strong positive correlation. However the correlation within density and compression results showed moderate positive correlation. This study also identified types of failure of *D.asper*. From the strength test in bending, it showed compression failure higher than other failures. Meanwhile for compression parallel-to-grain test showed the higher mode of failure was crushing, however in compression perpendicular-to-grain test, a shearing failure was highest. Generally the strength properties of *D.asper* is the most suitable to produce a product such as bamboo strip board, laminated bamboo board, composite board others.