

THE STRUCTURAL POTENTIAL OF BAMBOO: A STUDY OF THE COMPRESSIVE AND TENSILE STRENGTH OF *BAMBUSA TULDA* SPECIES

Dr. RRO Ochieng

*Lead Expert (NEMA), COD - Civil Engineering & Construction Management, Jaramogi Oginga Odinga, University of
Science & Technology, Kenya*

ABSTRACT

The increasing consumption of steel and timber as major structural construction materials has led to adverse environmental consequences world over. Processing of steel products is known to be associated with emission of certain gases that degrade the environment and continued use of steel will certainly lead to depletion of the existing raw materials for the manufacture of steel. Harvesting of trees for the manufacture of timber products applied in construction has contributed to wanton destruction of our forests at unprecedented rate. The foregoing suggests investigations of alternative structural construction materials that are environmentally sustainable. This study therefore focused on making an enquiry on the compressive and tensile strength of Bambusa tulda bamboo which is a renewable fast-growing wood plant. Specimens for compressive and tensile strength tests were prepared and subjected to laboratory tests through use of INSTON 300 DX Universal hydraulic Testing Machine. The findings of the study showed the average compressive strength achieved was 40.0 N/mm² which was reasonable compared with those from the conventional structural construction materials and therefore appropriate for use as compressive structural materials. On the other hand, the average tensile strength obtained from the experiment was 58.9 N/mm² which is marginally low implying bamboo cannot be applied as a tensile material in structures subjected to heavy loading but minor structural elements such as lintels and worktops as well as low rise structures.

KEYWORDS: Bambusa Tulda Bamboo, Compressive Strength, Structural, Tensile Strength

Article History

Received: 23 Aug 2022 / Revised: 26 Aug 2022 / Accepted: 03 Sep 2022
