

## Characterization and Grading of Timber Species Available in Nigeria for Structural Application – A Systematic Review

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**Abstract**—As the construction world’s emphasis moves towards sustainable and renewable processes and materials, timber offers excellent credentials due to its relatively low carbon footprint, renewability and excellent structural properties. In Nigeria, a diverse range of timber species is available across different regions, many of which hold significant potential for structural applications in construction. However, the absence of a standardized characterization and grading system presents challenges in selecting and optimizing timber for structural use. Thus, high-impact materials such as structural steel and concrete remain the predominant materials in use. This paper critically reviews the physical, mechanical, and durability properties of Nigerian timber species as reported in the literature. Additionally, it compares these properties against grading methodologies outlined in BS 5268–2 (2002), EN 384, and NCP 2 (1973). By consolidating existing research, this review aims to provide a framework for the effective classification and grading of Nigerian timber species, ensuring their reliable and efficient utilization in structural applications.

**Keywords**—Timber Grading, Structural Applications, Nigerian Timber, Mechanical Properties