

**TITLE OF ARTICLE:** Experimental Investigation of Yield Strengths of Steel Reinforcing Bars Used in Nigerian Concrete Structures

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**ABSTRACT:** Concrete is the most widely used construction material in the world and is best used in conjunction with reinforcing steel for optimal results. But a lot of behavioral and durability issues affect the performance of this composite material. The level of understanding of these durability issues depends on the sophistication of the environment of application of the material. In the developing nations such as Nigeria, where the incidence of building collapse is very frequent and over 95% of the cases of collapse affect reinforced concrete structures, a lot need to be done to understand effectively the true causes of the building collapses. Among these include the behavior of the reinforcing steel adopted in Nigerian construction industry. This research evaluates the behavior of reinforcing steel used in Nigerian concrete structures. The research considers the test results of 12mm and 16mm reinforcing bars adopted for structural purposes within Lagos State environment which have experienced the most cases of building collapse in Nigeria. A total of 433 samples from sites located in 10 Local Government Areas of Lagos State were analyzed with statistical tools. About 42% of the 12mm bars and 46% of 16mm bars failed to meet the BS code prescription of  $460\text{N/mm}^2$  yield strength and about 28 % and 33% of 12mm and 16mm bars, respectively, failed to meet the Nigerian's professional's prescription of  $410\text{N/mm}^2$