



STATISTICAL MODEL ASSESSMENT OF CONSTRUCTION ERRORS IN NIGERIA CASE STUDY: KANO AND KADUNA

MOHAMMED, A., ALIYU, I. AND USMAN, A.

Department of Civil Engineering, Ahmadu Bello University, Zaria, Nigeria

ABSTRACT

The study examined errors in building construction projects in Nigeria considering two states. The Compressive and tensile strength behaviors were investigated for concrete and steel respectively to ascertain the level of conformity of the tested parameters with specification. 200 steel samples and 30 concrete samples were collected from 5 sites in Kano and Kaduna state, the strength tests were conducted on these samples. From the results and analysis, the mean concrete cube strength was found to be 85.17% (17.03N/mm^2) of the target strength (20N/mm^2) and 88.43% (362.6N/mm^2) for the target steel strength (410N/mm^2); 7.641 and 9.447 were found to be the average coefficient of variation in concrete and steel respectively. The distribution model that best fits both the concrete and steel strength was found to be Gumbel using Easy-fit statistical package. The study found that the errors in construction material strengths are beyond the acceptable limit of 5% and for probabilistic design and analysis the mentioned coefficient of variation and the statistical model should be used respectively for each parameter.

Keywords: Errors, steel, concrete, strength, coefficient of variation, distribution model

***Correspondence:** ibshazali03@hotmail.com