

A consistency check of concrete compressive strength using pearson's correlation coefficient

ABSTRACT

The efficiency of the concrete ready mix service provider is undoubtedly and has become a widespread trend among contractors in which facilitates and eliminated a large budget surplus in maintenance, operating costs and is preferred as it reflects more efficient asset utilization. However, the quality assurance of concrete supplied is always raised associated with the inconsistencies of concrete compressive strength at the age of 28 days. The objective(s) of this study are to determine the correlations between the compressive strength of ready mix concrete, to evaluate the consistencies of the results and to identify the irregular sources that lead to the inconsistencies. Based on the compressive strength values obtained from the existing experimental data using different concrete mixes from the batching plant, a statistical analysis was conducted. A total of 90 concrete cubes specimens were attained from 15 concrete batches. A correlation analysis was conducted using the Pearson Correlation calculation to check the consistency of concrete compressive strength. The calculation showed the Pearson correlation coefficient of this study is +0.990. This indicated that there are significant linear relationship exists between the concrete compressive strength and the density of concrete batches which is positively high. In conclusion, the analysis reveals that the design of ready mix concrete compressive strength is in high consistencies and acceptable in practices for the proposed mix design to the contractor.