ABSTRACT

The construction industry has its bad reputation for poor management. It has often failed to perform to the stipulated contract requirements in terms of time and cost expectations.

This study therefore sets out to formulate the methodology for defining and measuring performance of construction projects in relation to both time and cost effectiveness. The analysis of contract performance for both the private and public sectors projects are carried out based on the developed methodology, which is defined using suitable performance ratios for time and cost characteristics. The results analysed were encouraging for the cost performance characteristic, but were very unsatisfactory for the time performance characteristic. The majority of the projects surveyed, 95.8%, exceeded the stipulated contract period.

The study continued to develop a more reliable model using the multiple regression with indicator variables for improving construction performance of future projects by setting realistic time targets. The model is found to be:

\[
\log(\text{Speed}) = -0.5059 - 0.1162 \times \log(\text{Cost}) - 0.2028 \times \log(\text{Storey}) - 0.7715 \times \log(\text{TPR})
+ 1.003 \times \log(\text{Area}) + 0.1143(\text{Tender}) + 0.1728(\text{Ind})
\]

where

\[
\text{Speed} = \frac{\text{Gross Floor Area}}{\text{Actual Construction Period}} = \text{m}^2/\text{month}
\]

Cost = Actual Construction Cost

Storey = Number of storeys

TPR = Time Performance Ratio
CPR = Cost Performance Ratio
Area = Gross Floor Area[a]
Tender = Types of Tender (i.e. Open = 1 or Selected = 0)
Ind = For Industrial Project

For the benefit of those who wish to apply simple arithmetic calculation to obtain speed performance can make use of the averages given in Appendix E.

Using performance ratios and statistical models, new yardsticks and methods useful for project management are recommended. These are:

- to measure contract performance of a completed project using performance ratios.
- to estimate construction durations of future projects using statistical models.

[a] The gross floor area is not the same area used for submission to Building Control Department. It includes the covered car parking area.