ABSTRACT

IMPLEMENTATION ANALYSIS OF VALUE ENGINEERING WITH TRIZ THEORY ON PROJECT X SUBSTRUCTURE

The success of a project is an utmost concern to be achieved by all involved parties. Inefficiency of structures in a project can prevent achievement of the success that is expected in a project. Therefore, there is a mounting need in a technique that may solve these problems. One of the techniques that can be used is value engineering. In some studies, there are some modification that can be applied in analysis of value engineering. One of the attempted modification is to apply the TRIZ techniques. Application of TRIZ techniques in the analysis of value engineering is believed to simplify efforts to find solutions in the problems encountered. Foundation structures in a project of high rise building will be used as the object of study. This study aims to find foundation system that can be applied in the object of study. TRIZ techniques is only applied in the creative phase of the analysis of value engineering in this study. The initial foundation system that is applied in the object of study is bored pile foundation system. Bored pile foundation system had a total cost of 18,719,136,609.24 IDR, average settlement of 48.24 cm, work duration of 92 days, and assessment scoring of 122.92. Application of TRIZ technique in the analysis of value engineering provides two alternatives, that is raft foundation and raft-pile foundation system. The evaluation of the systems analyzed results that pile-raft foundation systems delivers the best result with the total cost of 15,910,991,105.30 IDR, average settlement of 14.17 cm, work duration of 87 days, and assessment scoring of 144.58. Raft-pile foundation system saved 15% in cost when compared to bored pile foundation.

Keywords: bored pile foundation, contradiction matrix, raft-pile foundation, TRIZ*, value engineering*