

Six Sigma Approach to Real Time Cast In-Situ Slab Concreting Process Improvement

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ABSTRACT

The best way of construction processes improvement is by problem solving approaches. Before problems start to emerge in construction phases. In accordance to experiencing in real time problem solving approaches in other industries processes this study suggest that its time to go toward other industries experiences in real time problem solving. Proposing check sheet for real time problem solving within Six Sigma by; Identifying problem's root causes and taking preventive actions before facing problem during construction phase, is main target of this study. This study were conducted as project experience and data gathering from interview with related experts. For achieving this goal, study adopting cast in-situ slab concreting quality improvement. Finding root causes of plastic crack in cast in-situ slab concreting and eliminating them in first place by applying Six Sigma tools and techniques.

ABSTRAK

Cara terbaik proses perbaikan pembinaan adalah dengan pendekatan penyelesaian masalah. Sebelum masalah mulai muncul dalam fasa pembinaan, Sesuai untuk yang mengalami masalah pendekatan penyelesaian real time dalam industri lain proses kajian ini menunjukkan bahawa masa untuk pergi ke arah pengalaman industri lain dalam penyelesaian masalah real time. Mengajukan helai semak untuk menyelesaikan masalah real time dalam Six Sigma oleh; Mengidentifikasi akar penyebab masalah dan mengambil tindakan preventif sebelum menghadapi masalah selama fasa pembinaan, merupakan target utama dari kajian ini. Studi ini dilakukan sebagai pengalaman projek dan pengumpulan data dari wawancara dengan para ahli berkaitan. Untuk mencapai matlamat ini, kajian mengadopsi cor concreting peningkatan high in-situ slab. Mencari akar penyebab retak plastik di cor concreting slab-situ dan menghilangkan mereka di tempat pertama dengan menerapkan Six Sigma dan alat teknik.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In the recent years, construction projects have turned into a more complicated, dynamic and interactive scenario. Project managers are constantly required to speed-up reflective decision-makings on time. Construction is an experience-based discipline, knowledge or experience accumulated from pervious projects, plays very important role in successful performance of new works. If experience and knowledge are shared, then the same problems in construction projects will not be repeated.

Several enabling activities should be considered to help to achieve the ultimate goal of efficient experience and knowledge reuse; experience and knowledge should be preserved and managed; that is, they should be captured, modeled, stored, retrieved, adapted, evaluated and maintained and updated (Bergmann, Ralph (2002)). The reuse of information and knowledge minimizes the need to refer explicitly to past projects; reduces the time and cost of solving problems, and improves the quality of solutions during the construction phase of a construction project. The knowledge can be reused and shared among the involved engineers and experts to improve the construction process and reduce the time and cost of solving problems.

Only in recent years has sparing the six-sigma method been utilized by some of the major players in the construction sector. While traditional quality programs have

focused on detecting and correcting mistakes, six-sigma encompasses something broader: it provides specific methods to re-create the process itself so that the defects are never produced in the first place. The concept seeks to continually reduce variation in processes with the aim of eliminating defects from every transaction (Hahn et al., 1999; Tennant, 2001). The main advantage of the six-sigma method is that it shares much of the same values and uses similar tools to TQM. The tools are nothing new, but the strategic way that the six-sigma programme proactively uses them, within its structured framework, is what generates improved results. (Hagemeyer, C; Gershenson, J.K; Johnson D.M, 2006).

By considering previous project experiences we can find problematic element of defects in previous project learn it, and find the defect's root causes by eliminating root causes in current project systematically. For achieving this goal this study has choose Six Sigma problem solving approach.

1.2 Problem Statement

In accordance real time delay and defect problem. Approaches of “quality record and document” and “corrective and preventive actions” with different objectives, major process, information requirements industries processes is use in the project. The study suggest that several amount of defect and late delivery of project in times need to be learned.

1.3 Objectives

- 1- To identify and analyze the root causes of plastic crack to Six Sigma problem solving approach.
- 2- To propose check sheet for real time problem solving cast in situ slab concreting process from the outputs of pervious problem and solutions.

1.4 Scope of Study

In this research cause of different nature of construction projects like dam, road, air port, high rise building, office buildings project and further; researcher has selected office building construction. With focusing on cast in situ slab concreting process. In this research, researcher has concentrated on DMAIC methodology of Six Sigma problem solving approach. The study conducting site survey on construction project in Universiti Teknologi Malaysia (UTM).

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