

FACTORS AFFECTING WORK FLOW RELIABILITY --A CASE STUDY

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ABSTRACT

Low work flow reliability is a major contributor to the construction industry's dismal productivity record. The purposes of this paper are to identify the factors affecting work flow reliability, learn from failures of completing work plans, and recommend strategies to improve work flow reliability in order to improve productivity for construction projects. We collected production data of 592 working days in 12 working areas from a pipe installation project which implemented the Last Planner System. The data included the number of daily planned tasks, daily planned tasks completed, daily tasks completed non-planned, daily tasks uncompleted, daily planned man-days and completed man-days. Root causes of uncompleted tasks were also documented. Based on the data collected, correlation analysis was conducted to study the factors affecting work flow reliability. We found that commitment plan, prerequisite work, material and weather are the top four factors affecting work flow reliability. Strategies on how to effectively improve work flow reliability are also recommended. The findings can help project managers focus on the important factors causing work flow variation in their work plan and improve labor productivity. The results can also help consulting companies pinpoint root causes and responsibility for productivity losses in claims.

KEY WORDS

Work flow, work flow reliability, last planner system, lean construction, productivity.

INTRODUCTION

Construction projects are typically composed of complex networks of interrelated activities. Work flow is the movement of information and materials through the networks of production units (Ballard 1999; Ballard and Howell 1994). Improving work flow reliability is important for the productivity of linked production units, and consequently for project cost and duration. Work flow may be impacted by a number of factors, which may reduce work flow reliability and negatively affect productivity performance. Therefore, it becomes imperative on the part of the project management

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