

CAUSES OF REWORK IN CALIFORNIA HOSPITAL DESIGN AND PERMITTING: AUGMENTING AN EXISTING TAXONOMY

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ABSTRACT

Based on the premise that healthcare facility design and construction costs are escalating due to rework in (1) upfront planning, (2) programming, (3) design, and (4) permitting phases, a group of healthcare facility owners, architects, designers, contractors and state permitting personnel conducted a study to understand where the waste occurs. This study identified 158 process waste items. In this paper we categorize these 158 waste items using an existing taxonomy of rework and extending it as needed. The existing taxonomy of rework contains five categories: (1) human resource capability, (2) leadership and communication, (3) engineering and reviews, (4) construction, planning, and scheduling, and (5) material and equipment supply. The extension places waste items into three new categories: (1) planning, programming, and budgeting, (2) design planning and scheduling, and (3) design review.

This research identifies what causes of rework are within the California healthcare facility design and permitting phases. Understanding these waste items provides a foundation on which to build new practices that avoid costly design and permitting delays.

KEY WORDS

Cause and effect diagram, design and permitting, rework, and lean construction.

INTRODUCTION

The delivery of healthcare facilities in California is a complex process. To understand this process the current state of operations were explored. Four hospital owners mapped their facility delivery process and it was determined that each owner had a different way of delivering healthcare facilities in California. These four process maps were consolidated and waste items were identified and documented. The consolidated map and waste items serve as the basis for the work presented in this section (Feng et al. 2009). A team combined the four current state maps and consolidated a list of causes that lead to waste in the permitting phase. This list contained 158 items.

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