

Causes and Impacts of Rework Costs in Construction Projects

Authors : Muhammad Ejaz1

Abstract : Rework has been defined as: "The unnecessary effort of re-doing a process or activity that was incorrectly implemented the first time." A great threat to the construction industry is rework. By and large due attention has not been given to avoid the causes of reworks, resulting time and cost over runs, in civil engineering projects. Besides these direct consequences, there might also be indirect consequences, such as stress, de-motivation or loss of future clients. When delivered products do not meet the requirements or expectations, work often has to be redone. Rework occurs in various phases of the construction process or in various divisions of a company. Rework can occur on the construction site or in a management department due to for example bad materials management. Rework can also have internal or external origins. Changes in clients' expectations are an example of an external factor that might lead to rework. Rework can cause many costs to be higher than calculated at the start of the project. Rework events can have many different origins and for this research they have been categorized into four categories; changes, errors, omissions, and damages. The research showed that the major source of reworks were non professional attitude from technical hands and ignorance of total quality management principals by stakeholders. It also revealed that sources of reworks have not major differences among project categories. The causes were further analyzed by interviewing employees. Based on existing literature an extensive list of rework causes was made and during the interviews the interviewees were asked to confirm or deny statements regarding rework causes. The causes that were most frequently confirmed can be grouped into the understanding categories. 56% (max) of the causes are change-related, 30% (max) is error-related and 18% (max) falls into another category. Therefore, by recognizing above mentioned factors, reworks can be reduced to a great extent.

Keywords : total quality management, construction industry, cost overruns, rework, material management, client's expectations

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