Quantitative and Qualitative Approaches to Improve the Management and Outcomes of Construction Claims

By
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In the last three decades, there has been an increased pressure by owners of constructed facilities and capital investments to reduce project duration to bring their products to market faster. The construction industry has reacted to these demands by implementing a fast-track approach to the construction process. In fast-track projects, the design and construction phases overlap. As a result, contractors are forced to bid from an incomplete set of plans and specifications and are thus more vulnerable to downstream changes. (Exceptions are project-delivery systems such as design-build, where the contractor is involved in the design process. This book will not reference these types of projects.) Compounding that vulnerability is the nature of owners, who are frequently tempted to modify the scope of work to incorporate new technologies and remain competitive with their market sector. A project operating under the fast-track method is also vulnerable to changes in codes and other regulations, as well as evolving technologies that feed the demand for more environmentally friendly buildings. As a result of these changes, designers need to act with haste and efficiency, which typically comes at a premium.

Despite all the industry pressure to go faster, more than 50% of construction executed in the United States today is delayed or behind schedule. It is paradoxical that the faster the industry attempts to go, the slower the project actually gets done. Causes of delay include design changes, design coordination, protracted request-for-information (RFI) processes, weather, and supply-chain issues. Often, delayed projects do not receive a time extension, and the contractors are subject to directed acceleration or constructive acceleration. In directed acceleration, the owner's representative/general contractor directs the subcontractor to begin using schedule-acceleration techniques such as overtime or overmanning to meet the original deadlines in a shorter time. On the other hand, constructive acceleration occurs when the owner refuses to approve a valid request for time extension and the contractor decides to accelerate the work on its own to avoid liquidated damage or any other losses.

Particularly vulnerable to both the fast-track system and general project delay are the MEP trades (mechanical, electrical, plumbing, and fire protection). These trades are typically scheduled to complete their work late in the project and are colloquially known as "follow-up trades," those whose work depends on the precursor work of other trades. For example, a breaker panel cannot be hung until the walls of the electrical room are roughed in.

As a result of their follow-up nature, MEP trades and similarly labor-intensive trades are highly exposed to labor risks. Because MEP trades depend on precursor work, an upstream delay has significant effects on their timeline, and they often inherit delays without corresponding time extensions. Additionally, MEP trades often encounter unique scheduling situations that are atypical in other types of construction, such as highway projects, which tend to have a more consistent schedule. For example, an electrical contractor might engage in outage work that necessitates the temporary shutdown of a power plant for seasonal maintenance. The labor-intensive nature of MEP trades also means that labor costs can amount as much as 60% of total project costs.

Furthermore, the technological advancement of MEP work is significantly faster than that of the civil work that precedes it. The life cycle of basic building structures can be up to a century, while the life cycle of MEP systems is often fewer than twenty-five years. That high degree of technological advancement has an impact on MEP work. First, it requires frequent retraining and professional development for tradespeople to keep up with new technologies. Second, the interconnected nature of MEP work means the trades are often asked to work concurrently, which requires that workers have at least baseline knowledge of their fellow trades.

The interconnected nature of the trades has practical implications. Some systems within the MEP ecosystem can be located hundreds of feet from each other (itself a result of the work’s follow-up nature, as space in electrical rooms may have been taken by precursor trades), so conduits or pipes must be run between them. Thus, workers are expected to understand the purpose of everything that is being run in the conduit at a functional level.

Objectives

The principal objective of this book is to provide accessible methodologies for MEP contractors, general contractors, or other project stakeholders with a vested interest in the quantification of increased costs that result from factors affecting productivity that are not accounted for at the time of bid. These methods are derived from practices accepted by courts and administrative boards as well as extensive academic research. However, this book is not intended to be a strictly academic text. The findings, methods, figures, and other elements are presented in a straightforward manner for ease of use. While the data are derived from and targeted toward MEP work, the principles are applicable to other trades, particularly other labor-intensive ones such as drywall, finish carpentry, and concrete formwork.

A secondary objective is to compile the numerous studies the author has conducted at the University of Wisconsin-Madison that pertain to the impact of specific factors on labor productivity. These studies are widely accepted and considered by many as groundbreaking.

This book includes a section that teaches effective use of job-management techniques that will alert project managers to the existence of leading or lagging indicators of productivity loss. It also contains a guide to seeking equitable adjustments as a result of productivity loss that are beyond the contractor’s control.

Additional objectives include:

1. Evaluate and quantify the financial impact of schedule compression, change orders, and other external factors on labor productivity.

2. Evaluate and quantify time-dependent factors such as extended job overhead, unabsorbed home-office overhead, and escalation of labor and material costs.

3. Compile managerial advice and best practices on methods to minimize the effects of the external factors discussed in (1).

4. Provide a comprehensive glossary of terms used in claims management and the claims process.

5. Compile a set of case studies derived from the author's consulting work to provide examples of application of the book's theory.

6. Present different theories of recovery that have been accepted by courts and arbitration boards and discuss their relative merits.

7. Characterize “normal” projects such that contractors can benchmark productivity for their projects.