



Construction Industry Institute®

Safety Performance through Operational Excellence – Phase I

Construction Industry Institute

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Safety Performance through Operational Excellence – Phase I

**Prepared by
Construction Industry Institute
Research Team 317, Safety Performance
through Operational Excellence**

**Research Summary 317-1
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The University of Texas at Austin

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Executive Summary

The Construction Industry Institute (CII) chartered Research Team 317 (RT-317) to identify the impact of operational excellence on safety performance. Recognizing the challenge of this task, CII authorized RT-317 to divide its project into two phases. The primary objective of Phase I was to develop a conceptually validated model of operational excellence for safety in the context of a construction project. The results of this phase are summarized in this research summary and described more completely in Research Report 317-11, *Improving Site Safety Performance through Operational Excellence*. RT-317 continues its work in Phase II, collecting data to measure the relationship between operational excellence and safety performance, and then quantifying the impact of adherence to the operational excellence model on project safety performance.

**“Doing the right thing, the right way, every time –
even when no one is watching.”**

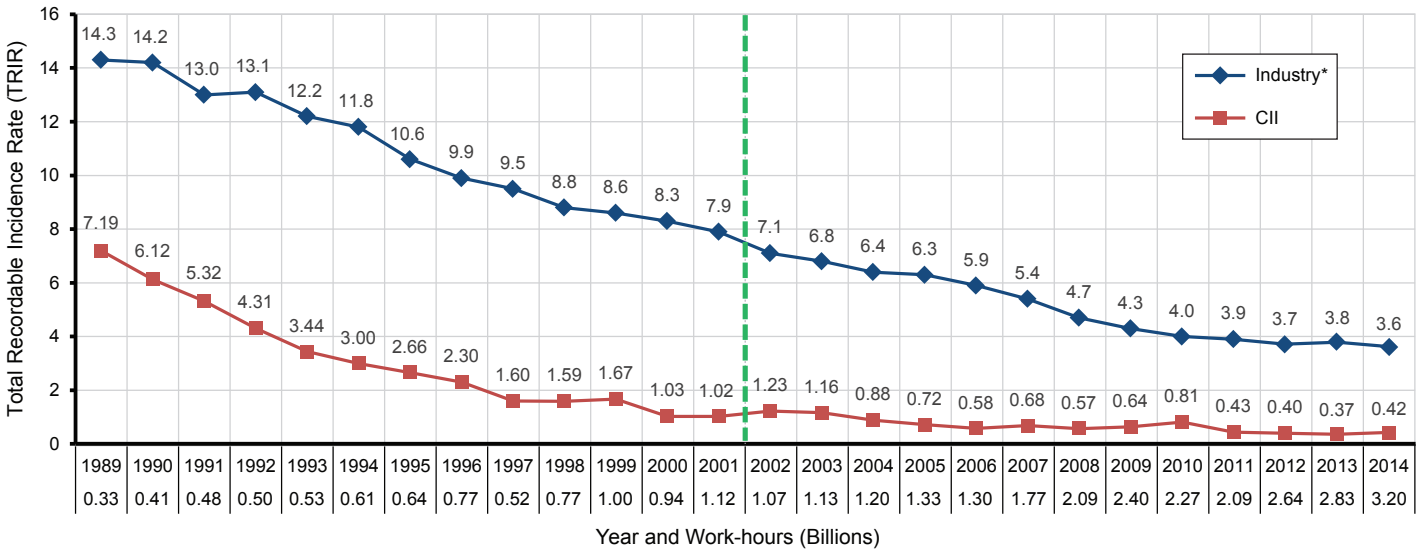
Research Team 317’s definition of operational excellence guided its research into developing a rigorous model for construction project safety. Such a model has multiple levels, with the highest level determining which elements drive a project towards operational excellence, and its lowest level identifying specifications and measurements that quantify those elements. RT-317’s initial efforts resulted in the Operational Excellence Model for Construction Project Safety, an extensive model with over 300 specifications and measurements. After multiple assessments and modifications within the research team, the model was scrutinized by 92 owner and contractor industry experts from all levels of their organizations and from all sectors of the capital projects delivery industry. The RT-317 deliverable is a conceptually validated model that synthesizes previous work from fields as varied as psychology, sociology, behavioral safety, organizational culture, Six Sigma, and Quality Function Deployment. The model prescribes the elements necessary to drive behavior, and the consistent execution of desired behaviors should improve safety outcomes.

Introduction

Construction Industry Institute (CII) member companies have consistently been model organizations for project safety. With Total Recordable Incidence Rates (TRIR) well below 1.0, CII companies historically see statistical evidence of the success that results from their emphasis on safety. However, recent trends show that members' TRIR averages have plateaued over the last three years. (See Figure 1.) In line with its goal of continuous improvement, CII tasked Research Team 317 (RT-317) with investigating whether the concept of operational excellence could be the next thrust forward in safety performance.

The essential question CII posed to the team was, "Can a sustainable step change in safety performance be achieved through an enhanced culture of rigorous operational excellence, also known as performance excellence?" To answer that question, RT-317 envisioned two distinct phases of research. During Phase I, the team would develop a conceptual model for operational excellence for construction project safety. It was critical that the model build from a solid theoretical framework, to ensure its validity and reliability. Phase II work would collect data against the model and seek a verifiable relationship between operational excellence and actual safety performance. The continued effort would result in a detailed implementation and assessment guide.

Operational excellence (OE) has been defined in numerous ways, as its formal existence is relatively new. Its origins can be traced back to the chemical process industry's efforts to improve process safety. From the start, OE referred to the optimal execution of day-to-day activities by all organization personnel. From upper management to field professionals, all employees must fully commit to the process and take responsibility for adhering to its procedures.



*OSHA Construction Division, NAICS 236–238 (SIC 15-17)

--- Reflects OSHA reporting change

Figure 1. Total Recordable Incidence Rate, CII Firms vs. Industry Operational Excellence
(from PAC 2015-2, *2015 Safety Report*, Figure 2, p. 8)