

CONSTRUCTION PROJECT MANAGEMENT

A Complete Introduction

Second Edition

Alison Dykstra

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Preface

Background

This textbook is a direct outgrowth of years spent teaching college courses in planning and organizing construction projects. Anyone who teaches introductory classes understands a fundamental truth: basics are not always simple. Often the concepts and ideas that seem most obvious are the ones that need to be the most thoroughly explained. The primary challenge is how to convey the basics of a complex subject and yet address the needs of a student body with diverse life and professional experiences.

Equally challenging to the task of conveying complicated information is the critical choice of which textbook to assign. There are many excellent books on construction management. But many skip too lightly over the necessary basics or fail to address adequately the ways in which students absorb introductory information. Sometimes even superior textbooks gloss over the very concepts that deserve the most in-depth explanatory background information. For example, it is not difficult to find information on the various types of owner-contractor construction contracts—their characteristics, strengths, and weaknesses. It's more difficult to find basic details that can help explain the context: What, exactly, *is* a contract? Why is the type of contract important? How do different construction contracts shift risk on a job? What kind of potential problems might arise for a contractor (or an owner) in the absence of a contract or an enforceable contract? Why is it in the contractor's interest to

have a contract in writing? Similarly, the subject of delivery systems presents persistent student confusion and warrants a detailed explanation not typically provided to students. The goal of *Construction Project Management: A Complete Introduction* is to deconstruct complex information such as this and present it in a highly accessible, readable, and understandable way.

Who is the reader?

This book is suitable as a textbook for a one-semester course in a baccalaureate or associate degree program. As alluded to earlier, the anticipated readers are likely to have different backgrounds and interests: they are laborers, apprentices and licensed contractors, aspiring architects and engineers, owners and property managers. Some hope to be superintendents or project managers; others imagine someday running their own construction company. The book is directed at those unfamiliar with the construction industry as well as experienced professionals interested in broadening their understanding of development and management processes.

Organization of the book

The coordination and management of the construction stage of a project is the responsibility of the general contractor, and this book, as with the first edition, looks primarily through the GC's lens. But the general contractor's work does not happen in a vacuum. Construction is a team effort and it is helpful, sometimes critical, that those involved, in any role, understand the context. Therefore, this text takes a broad perspective by reviewing how projects get started; the roles of the owner and designer, as well as other players such as regulatory agencies, funders, and insurers; programming, design, and the role of building codes, zoning ordinances, and standards; how contractors find jobs and make assessments regarding risk; hiring and managing subcontractors; sustainable construction, estimating, and scheduling; and much more.

The book is organized into five parts, with chapters roughly following the natural sequence of project development. Although each chapter builds on those that come before (and not all activities fit neatly into a chronological order), the reader can use individual chapters as stand-alone descriptions of various aspects of project development and management.

Part 1: *The Context* introduces the reader to the industry and to the players—who they are and their various roles in the construction process—and the different stages of construction, from development through occupancy.

Part 2: *The Project Begins* looks at the early stages of a project: how an owner makes the decision to develop a project, the potential problems, and how to balance risk with possibility. The reader is introduced to the concept of project delivery systems, the different ways that projects are organized and administered, and is provided with a look at programming and design.

Part 3: *Bidding and the Contractor* provides an overview of how contractors identify, assess, and get jobs. An expanded three chapter section introduces the reader to cost estimating: what estimates are, who creates them and when, their different types, and how they are used.

Part 4: *The Contract Documents* explores the basics of the legal agreement between the owner and the general contractor and between the general contractor and subcontractors. Although this text does not pretend to provide legal advice, Part 4 introduces the reader to the ingredients required to make a contract, the difference between a legal contract and an enforceable contract, how various construction contracts distribute risk between the parties, and what documents make up a construction contract.

Part 5: *Project Execution* focuses on the general contractor's many management activities, which start before the physical work begins and extend throughout construction and occupancy.

This part begins with the contractor's management activities before the physical work begins: clarification of project goals and objectives; putting a team together and assigning responsibilities; assessing ways to accomplish the work; determining time and money constraints and developing budgets and schedules; identifying potential problems and possible solutions; and clarifying the resources (money, labor, and equipment) that will be needed to complete the job.

Chapters 19 and 20 review the coordination, management, and administrative tasks assumed by the contractor once construction begins: managing subcontractors, and monitoring, evaluating and controlling time, costs, and quality of the work. Chapters 21 and 22 look at the fundamentals of scheduling and how they are used and the following chapters review how subcontractors are hired and the procedures for making changes to the scope of work. Chapters 23–27 continue with a review of payment procedures; claims, disputes,

and mechanic's liens and concludes with a review of the contractor's role after the completion of construction: the close-out tasks, and the mechanisms for tracking warranty work.

To reinforce student-learning objectives, each chapter ends with a glossary of terms (which are also included in a complete glossary at the end of the book) and topics for further investigation and discussion. Explanatory notes or comments regarding additional important concepts are enclosed in boxes throughout the text.

The second edition includes two new appendices: Appendix A: *Sustainability and a Changing Construction Industry*, provides readers with an overview of sustainable building practices and how the increasing emphasis on energy performance is impacting the construction industry and its workers.

Appendix B: *Selected AIA Contract Documents*, is a compilation of the documents used in the text and offers the reader a sampling of published contract forms and documents available to the construction industry.

*

It's not possible to write a book such as this one without help. *Construction Project Management* took shape during my years teaching at Santa Rosa Junior College and benefited greatly from the industry experts who very generously gave their time to share their wisdom with my students and me. Much of that wisdom has been incorporated into these pages. As the book was developed, initially as a class reader, these experts and others, as well as my students, gave invaluable suggestions, opinions, and guidance as it became a comprehensive textbook: Dave Buckle, Alan Butler, Michael Chambers, Don Shaw, Scott Thomas, Jay True, Bryan Varner, Dixon Wright, Jerry Yudelson, Curt Groninga, Tim Bosma stand out. In addition, Christina Mead, Willis Eschenbach, Reny Slay, Linda Lange, Gretchen Dykstra, and Pamela Ward provided helpful feedback. I am very grateful to Lauren Woodrow, the designer for the second edition, who has created a book design that skillfully meets the high bar established by Andrea Young, the designer and principal photographer for the 1st edition. Stephanie Marohn has been my editor throughout both editions, and I thank her for all her help. Finally, thank you to my husband, Andrew Schulman, an extraordinary editor, critic, and writer, who's been invaluable since the beginning.

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