

Total Construction Project Management, Second Edition

By George J. Ritz and Sidney M. Levy, © 2013

(A book review by R. Max Wideman, FPPI)

The views expressed in this article are strictly those of Max Wideman.

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Introduction

The first edition of this book, Total Construction Project Management was written by George J. Ritz and published by McGraw-Hill Education, LLC, back in 1994. This second edition was in progress when sadly George Ritz passed away. McGraw-Hill selected Sidney Levy to complete this task. George Ritz observed throughout his book that the human element and relationships people form and build on will continue to define a successful project. Sidney Levy recognized this imperative and followed this advice in completing the work of publishing this book.¹

In the introduction, the authors observe:

"If one is going to practice project management within an industry, it is a good idea to define the arena in which management techniques will be applied. We really need to know just what business we are in to evaluate our present goals, find out where we have been, and see where we hope to go from here.

"The theme of this book is the practice of management across all facets of project execution in construction. It is important for many reasons to master the basic technology applicable to your specialized field of construction. Knowledge and understanding of construction operations and technology are key to running a successful project; mastery is an essential ingredient in progressing up the ladder and improving your professional standing."²

And further that:

"One must apply all the techniques presented here over the life of the construction project to be successful. Superficial utilization will not meet the goal of effective construction project management."³

As we shall see, this is a very comprehensive and thorough book on the art of construction project management. In many ways it mirrors a very similarly extensive and detailed book that we reviewed not too long ago: *Project Management, Tenth Edition*, by Dennis Lock, 2013. [Link this title to http://www.maxwideman.com/papers/book_reviews_5/book1.htm] As we observed at the time, Lock's book was "published for the benefit of practicing project managers, and their supporting teams, working in the trenches of **any industry involved with projects**." (Emphasis added.)

So what is the difference? Lock's book was written from the perspective of a project manager working essentially for the project's owners and therefore covered the many varieties of projects encountered in the business environment. Authors Ritz and Levy, on the other hand, focus in depth on one particular type of project, namely construction in all its forms, though not necessarily in all its technological practices. However, similar to Lock, Ritz and Levy adopt the project life span as their basic book structure and like Lock they carefully weave the essentials of project management into the work sequence of construction technology.

Obviously there are overlaps between the two books, but the perspectives tend to be quite opposite and complementary. Further, Lock's book was essentially aimed at the European market, while Ritz and

Levy's book is not only written for the North American market, but especially for those expecting to manage the work intimately involved in site construction. That means actually being "on site" for most of the time acting as the manager of construction, i.e. "Construction Manager" (CM), a third-party position between the owner of the works and the design consultants. Of course this label can also be used to refer to the owner's representative agent,⁴ and both titles can get mutated into yet another project manager on the site.⁵

Having said all of that, we suggest that this book also represents a valuable reference source for the owner's staff involved in overseeing the various aspects of large construction projects.

About the authors

George J. Ritz was a leading expert in construction and project management, with 40 years of experience in executing projects in the US and abroad. He worked on a variety of projects ranging from schools for physically challenged students to world-class petrochemical plants. George was a registered professional engineer and a frequent lecturer on project management and related topics. He wrote the first version of this book back in 1994.

Sidney M. Levy has 35 years experience as a senior executive in a major general-contracting firm in New England. He is the author of 30 books on construction means, methods, and operations in the US and abroad. He has lectured to industry groups in the US, Mexico, Europe, Japan and Korea. His book *Project Management in Construction* was awarded the British Chartered Institute of Building Silver Medal. Sidney currently lives in Baltimore, Maryland, where he is an independent construction consultant.

Book Structure

The contents of this book are set out in 14 chapters and one Appendix as follows:

1. The Construction Management Environment
 2. Bids, Proposals, and Contracts
 3. Project Planning and Initiation
 4. Construction Scheduling
 5. Estimating, Budgeting, and Cost Control
 6. Project Resources Planning
 7. Project Organization
 8. Project Control
 9. Construction-Project Execution
 10. Total Construction Project Management for the Twenty-First Century
 11. Green Buildings and Sustainable Construction
 12. Construction Safety and Health
 13. Project Communications
 14. Human Factors in Construction Management
- Appendix: Job Description – Construction Manager/Project Manager

The book has a total of 456 pages printed in a small font on fine paper. The chapters are well illustrated by tables, charts and diagrams where appropriate, although the font sizes on some illustrations are almost too small to read. Each chapter concludes with a brief Summary.

By far the largest chapter is **Chapter 8: Project Control** at 50 pages. This chapter covers such important items as control of contracting strategy, equipment, material, and labor costs, cash flow, schedule control and quality controls. By comparison, the other chapters generally average around 27 pages. From this detail and the headings of the other chapters, it will be seen that the book digs deep into all aspects of the physical construction process.

The book does not include a Glossary of Terms, a Bibliography, or a list of acronyms used.

What we liked – the project environment

Authors Ritz and Levy have assembled a well-constructed book with exceptionally valuable content for both neophyte and seasoned construction project management personnel. The content is both informative and easy to follow where specific techniques are presented. Plentiful bullets, numbered paragraphs, tables and examples from actual projects are used to illustrate the text throughout the book. Thus we find the book is easy to follow, has the right balance between text and illustrations and, from our own experience, provides sound and realistic advice.

At the outset, the authors observe that:

"The 'total' part of this book's title means that we are addressing the application of construction management practices in an integrated systems context. One must apply all the techniques presented here over the life of the construction project to be successful."⁶

Well, maybe not "all" exactly but certainly "as applicable"! Chapter 1 starts out by recounting a brief history of the construction process dating back from the Egyptian pyramids, around 2600 BC to the present day. It notes how the advances in the sciences, especially physics, enabled building technology to advance, resulting in ever more impressive structures and monuments.

Indeed, the authors observe that:

"Today's designers using computer-assisted design create three-dimensional drawings that can actually permit a building to be built without creating one paper drawing . . . But in the field, we still seek tests to determine proper soil bearing capacity for our foundations, Erector-set structures of steel or concrete, and mechanical, electrical, and plumbing systems installed pipe by pipe, duct by duct."⁷

Chapter 1 goes on to discuss how much the Construction Industry has grown in value in the last two decades (around 240%), the range of trades and support staff involved, and their relative pay rates in the US as of December 2011.

One topic that always draws our attention is the question of project definition and type or size. However, the authors state categorically:

"It is impossible to define a complex operation such as construction management in one simple sentence. We will have to dissect the term and define its many facets. Throughout this book we will use the term construction manager to apply interchangeably to a construction manager (CM) and a general contractor (GC) where we refer to that construction manager as simply a project manager. Although the CM acts as the owner's agent and the GC is a third-party participant in the construction process, both basically perform the same duties – management of the construction process"⁸

Well, we think not quite. The reader should not interpret this as a duplication of effort. Rather, each is

managing those particular project components that serve their respective interests. That is to say, the GC is concerned for profits now, while the owner is looking toward profits in the future. Indeed, the authors go on to describe the differing goals of the Project Team, the Architect/Engineer, the Construction collectively, and the Construction Team personally. Somehow all of these people and their respective incentives have to be meshed together to result in a successful project, see Figure 1 for the number of potential people interfaces for a large construction project.

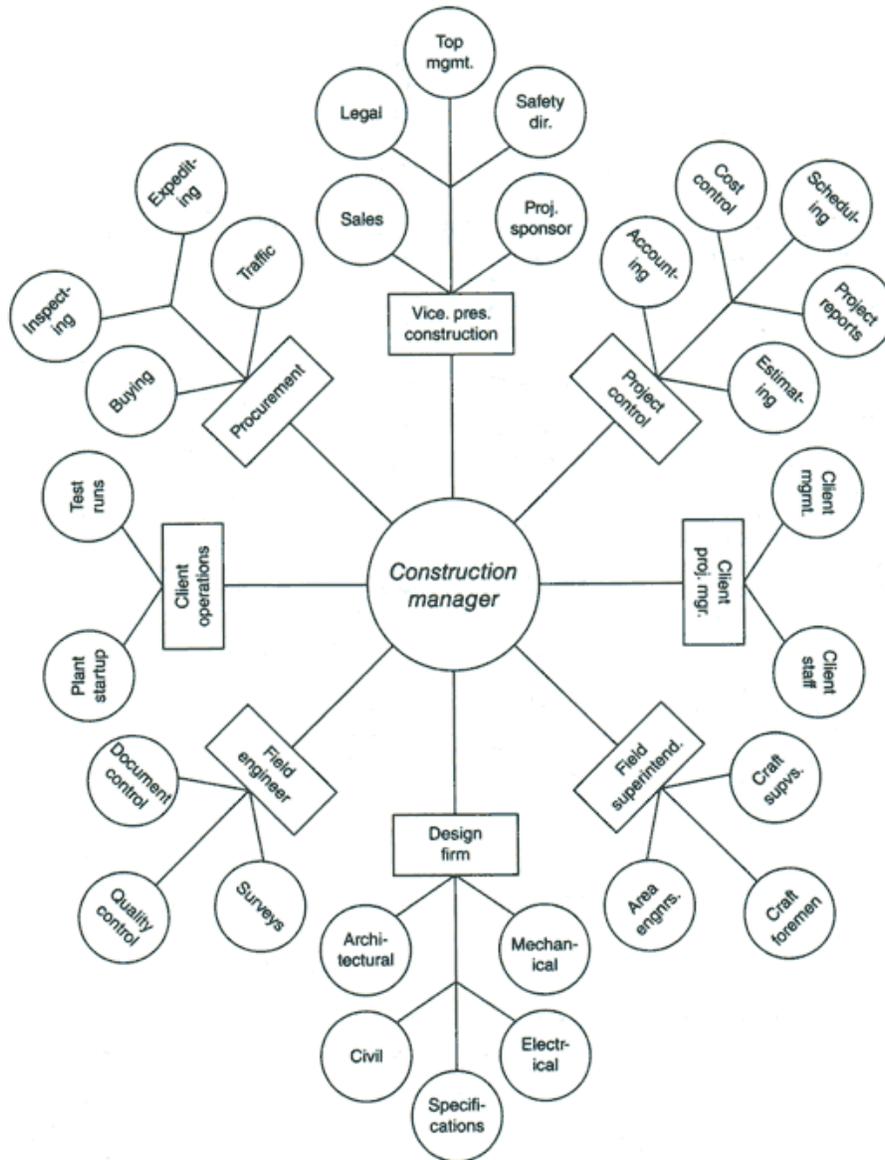


Figure 1: Construction Manager coordination interfaces for a large project⁹

The authors also follow their observations with a two-page table that lists projects under two general headings: Process-Type Projects (28) and Nonprocess-Type Projects (29). Each of these is then divided into four and five specific types respectively. Finally, each specific type then lists Types of Construction Activities involved, and the Key Craft Labor Used. As well as being of academic interest, this table should be a useful starting point for anyone interested in entering into the world of construction projects.

As to project size, the authors observe:

"The one project variable that needs more detailed discussion is project size. Most people seem to have more difficulty with size than with any other aspect of construction management discussions.

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Since a high percentage of capital projects are small to midsize projects, some readers may feel overwhelmed when looking at the numbers for large projects. However, larger projects do come along occasionally, so you should know how to deal with them. We have found that doing a single large project is sometimes easier than running several small ones simultaneously. In many cases because lead times are projected farther out for large projects, allowing for a more orderly acquisition of major components of construction and long-lead items."¹⁰

What we liked – the construction-execution approach

Authors Ritz and Levy state that:

"The bidding, proposal, and contracting process plays the key role in total construction project management. This process is the lifeblood of the engineering and construction industries. Until we have reached an agreement or signed a contract, construction of the facility is on hold . . . The contract itself sets the ground rules and apportions the risks for executing the construction of the work. The overall process is shown schematically in Figure 2.1"¹¹

The figure referred to lists the major activities in the relevant three major phases of the project's contractor selection process. It is shown below in Figure 2 and, as readers will observe, it is very generic. More important, perhaps, is the reference to "apportioning the risks for executing the construction of the work". This is a major subject on which whole books have been written. That's because risk events inevitably occur and, unless each of the parties to the contract clearly understands their respective obligations, arguments over "who pays?" erupt. If the relationships between the parties are adversarial, as is often the case under traditional construction contracts, such differences of opinion quickly escalate to full-scale legal action. Unfortunately, the cost and settlement of such cases may well exceed the cost to fix the original damage.

In Figure 2, the Execution Phase Activities in column 3 obviously represent the biggest part of the project and this is where the risks in question actually assert themselves. From our own experience, the so-called risks, that have now become an issue or serious problem, can impact the success of the project in terms of time and cost. However, don't rush to place blame on the immediately associated construction activities shown in column 3, the responsibility of the contractor. Too often, the source of the problem can be traced to a failure to properly conduct the activities shown in column 1, the responsibility of the owner!

Indeed, the authors state:

"The owner eventually assumes the lion's share of the risks in selecting the basic design of the facility, developing the conceptual design, and selecting the site of the work. The contractor's risk occurs in the construction-management areas of labor supply, productivity, schedule, and local site conditions."¹²

Unfortunately, the division of risk is not that clear cut because a risk/problem may well be traced to

some failure on the part of the owner in its earlier activities. If the resulting problem holds up the work and/or reduces the productivity of the contractor's workforce, then the contractor has a financial claim against the owner.

1. Development Phase Activities	2. Contracting Phase Activities	3. Execution Phase Activities
Project planning Market development Process planning Cost estimating Basic design	Contracting plan Contractor screening Selection of bidders Invitation for proposals Contractors' proposals Bid review Contract award	Detailed engineering Procurement Construction
— By owner	— By owner and contractor	— By contractor

Figure 2: The contractor selection process (and beyond)¹³

The authors also rightly declare that:

"The construction bidding, proposal, and construction process is initiated by the owner, who has a project to build. There are about as many approaches to contracting as there are owners. Each combination of owner and project has some unique features that need to be covered by contract."¹⁴

"Here we are concentrating on how the owner wishes to perform the work. Each one of these approaches is subject to further variations introduced by the type of contract used. The owner can use the following contracting principles:¹⁵

1. Hiring a general contractor who will perform some of the work and/or subcontract the specialized portions of the work via a negotiated process
2. Utilizing a design-build arrangement – often referred to as a turnkey – involving a single entity of designer-contractor: a designer and contractor working together under a joint-venture type contract
3. Awarding the design of the project to the owner's own design consultants and engaging a third-party builder through a competitive bidding process
4. Hiring a construction manager (CM) to act as an owner's agent, usually working through both the design and construction process."

The subsequent chapters in the book deal in detail with the management of these Execution Phase efforts with especial emphasis on project control.¹⁶ Along the way, as will be noted from the list of chapters provided earlier, a couple of chapters are thrown in covering *Total Construction Project Management for the Twenty-First Century* and *Green Buildings and Sustainable Construction*.¹⁷

Downside

This book, *Total Construction Project Management, Second Edition*, covers so much valuable detail that experienced construction management readers are sure to find fault with some of the details. But that is to be expected in a long established industry where many practices, good and bad, have become institutionalized. For us, we were very comfortable with the content and enjoyed all of the long-past memories that it evoked.

However, we did wonder about the advisability of including data, such as pay rates and relative standings of different trades that tend to be localized and quickly become obsolete as the years roll by. While on the subject of data, we did find that many tables and charts had fonts so small that they were difficult to read and required a strong magnifying glass! We also missed the inclusion of a Glossary of Terms¹⁸ to better understand the authors' interpretation of the various technical labels inevitably used in the industry. We *think* we know what the authors intend, but for many readers world wide, this may not be true.

Perhaps a Glossary of Terms for a book of this size is an unreasonable expectation. However, a list of acronyms would definitely be helpful and only take up a page or two. True, that acronyms are explained in the text, but unfamiliar ones are quickly forgotten as you read on through subsequent text. For example, in reading through a section on Construction-Project Initiation¹⁹ on page 86 we suddenly came across a paragraph on "FPM" wherein it states: "The FPM is an important document to have prepared early in the project, to assist in indoctrinating your new people as they come on board."²⁰ It was not until we got to page 181 where we read about *The Field Procedure Manual* (FPM) followed by a long description of its recommended contents.²¹

Interestingly, aside from standing corporate project policies and procedures, we have always prepared and ring-file of vital statistics for our own particular project, to be shared with newcomers to the project. But this is the first time we have seen it described in minute detail. This is typical of the valuable information in the book — we just wish we had known what FPM stands for a little earlier.²²

Another interesting section of the book is the Appendix that purports to be a Job Description for the Construction Manager. Given the seven pages dedicated to this description, including a short final section titled "*Do Not Make These Project-Management Mistakes*", it reads more like a contract than a job description.

Summary

In this book, *Total Construction Project Management*, Second Edition, Authors Ritz and Levy have made an excellent job of assembling what you need to know to be successful in the construction project management industry. We highly recommend it for those who want to comprehend what serious project management in a well-established industry is really all about.

In the introduction to this article, we noted that the authors observed:

"If one is going to practice project management within an industry, it is a good idea to define the arena in which management techniques will be applied. We really need to know just what business we are in to evaluate our present goals, find out where we have been, and see where we hope to go from here."²³

This is a sentiment that we too heartily endorse.

R. Max Wideman
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References

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- ¹ Ritz, George, J., & Sidney M. Levi, *Total Construction Project Management*, McGraw-Hill Education, NY, 2013, pp xvii-xviii.
- ² Ibid, p1
- ³ Ibid.
- ⁴ Instead of "Project Manager", a better term for this "Owner's Representative Agent" is *Project Director*.
- ⁵ Such is the confusing state of the discipline of project management.
- ⁶ Ibid.
- ⁷ Ibid, p2
- ⁸ Ibid, p7
- ⁹ Ibid, p10, Figure 1.4 – Construction manager coordination interfaces
- ¹⁰ Ibid, p21
- ¹¹ Ibid, p23
- ¹² Ibid, p45
- ¹³ Ibid, p24
- ¹⁴ Ibid.
- ¹⁵ Ibid, p25
- ¹⁶ Ibid, Chapter 8
- ¹⁷ Ibid, Chapters 10 & 11
- ¹⁸ One of our favorite hobby horses . . .
- ¹⁹ Ibid, Chapter 3
- ²⁰ Ibid p86
- ²¹ Ibid, see pages 181 to 189
- ²² To be fair, we did subsequently discover "FPM", that we normally referred to as "*Project XXX Guidelines*", in the Project-Initiation Checklist, item 7 on page 84.
- ²³ Ibid, p1