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8 EIGHTH
EDITION



CONSTRUCTION CONTRACTING

A PRACTICAL GUIDE TO
COMPANY MANAGEMENT

WILEY

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Chapter 1

The Construction Industry

1.1 Introduction

The construction industry is very large by any standard, and it can be described and defined in a number of different ways. This chapter will begin to characterize the industry in terms of its size and economic impact, and will proceed to define by name and by function some of the practitioners who perform their professional work in the industry. Also to be examined are terminology relative to types of contracts, public and private; single and separate contracts; competitive bid and negotiated contract formation; different project delivery methods; different types of construction contractors; and various types or categories of construction projects. All of these are vantage points from which the construction industry can be observed, and all of these terms provide descriptors for various aspects of the professional practice of construction contracting in the industry.

1.2 The Construction Project

Humans are compulsive builders who have demonstrated throughout the ages a remarkable and continually improving talent for construction. As knowledge and experience have increased, the ability of humankind to build structures of increasing size and complexity has expanded enormously. In the modern world, everyday life is maintained and enhanced by an impressive array of construction of all kinds, awesome in its diversity of form and function. Buildings, highways, tunnels, pipelines, dams,

docks, canals, bridges, airports, and a myriad of other structures are designed and constructed so as to provide us with the goods and services we require. As long as there are people on earth, structures will be built to serve them.

Construction projects are complex and time-consuming undertakings. The structure to be built must be designed in accordance with applicable codes and standards, culminating in working drawings and specifications that describe the work in sufficient detail for its accomplishment in the field. The building of a structure of even modest proportions involves many skills, numerous materials, and literally hundreds of different operations. The assembly process must follow a certain order of events that constitutes a complicated pattern of individual time requirements and sequential relationships among the various segments of the structure.

Each construction project is unique in its own way, and no two are ever quite alike. Each structure is tailored to suit its environment, designed and built to satisfy the needs of its owner, arranged to perform its own particular function, and designed to reflect personal tastes and preferences. The vagaries of construction sites and the infinite possibilities for creative and utilitarian variation of the structure, even when the building product seems to be standardized, combine to make each construction project a new and unique experience. The designer produces a design for each project to meet the needs of the owner within the constraints of the owner's budget. The contractor sets up a production operation on the construction site and, to a large extent, custom-builds each project.

The construction process is subject to the influence of numerous highly variable and often unpredictable factors. The construction team, which includes various

combinations of contractors, owners, architects, engineers, consultants, subcontractors, vendors, craft and management workers, sureties, lending agencies, governmental bodies, insurance companies, and others, changes from one project to the next. All of the complexities inherent in different construction sites, such as subsoil conditions, surface topography, weather, transportation, material supply, utilities and services, local subcontractors, and local labor conditions, are an innate part of the construction project.

As a consequence of the circumstances noted above, construction projects are typified by their complexity and diversity, and by the nonstandardized nature of their design and construction. Despite the use of prefabricated units in certain applications, it seems unlikely that field construction can ever completely adapt itself to the standardized methods and the product uniformity of assembly-line production.

1.3 Economic Importance

For a number of years, construction has been the largest single production industry in the American economy. It is not surprising, therefore, that the construction industry has a great influence on the state of this nation's economic health. In fact, construction is commonly regarded as the country's bellwether industry. Times of prosperity are accompanied by a high national level of construction expenditure. During periods of recession, construction is depressed, and the building of publicly financed projects is often one of the first governmental actions taken to stimulate the general economy. When the construction industry is prospering, new jobs are created, both in direct employment in construction, as well as in related industries, such as materials and equipment manufacturing

and supply. A high level of construction activity and periods of national prosperity are simultaneous phenomena; each is a natural result of the other.

Some facts and figures pertaining to construction in the United States are useful in gaining insight into the tremendous dimensions of this vital industry. The total annual volume of new construction in this country at the present time is approximately \$1.75 trillion. The annual expenditure for construction normally accounts for about 10 percent of the dollar value of our gross domestic product. Approximately 80 percent of construction is privately financed, and 20 percent is paid for by various public agencies. The U.S. Department of Labor presently indicates that construction contractors directly employ more than 7 million workers during a typical year. If the production, transportation, and distribution of construction materials and equipment are taken into account, construction creates, directly or indirectly, about 12 percent of the total gainful employment in the United States.

1.4 The People Involved on a Construction Project

Construction projects are designed and built through the combined efforts of a number of people. Each has a defined role and a set of accompanying responsibilities in the total effort. These roles, as well as the rights and responsibilities of those who participate in the process, are defined in contracts that are formed between the various participants.

While the construction industry is often described in terms of materials, such as concrete, steel, masonry, and many others, or in terms of project delivery systems and contracting methods, it can also be typified in terms of the