



Knowledge for Creating
and Sustaining
the Built Environment

CERTIFIED CONSTRUCTION PRODUCT REPRESENTATIVE PROGRAM

CCPR EXAMINATION STUDY GUIDE

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CERTIFIED CONSTRUCTION PRODUCT REPRESENTATIVE EXAMINATION STUDY GUIDE

(For use in preparation for exams to be administered March 2009 or thereafter)

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PROGRAM OVERVIEW

Congratulations on taking the career-enhancing step of studying for the Certified Construction Product Representative (CCPR) examination! The Construction Specifications Institute (CSI) sincerely hopes that you will be among the candidates who can successfully demonstrate knowledge of the construction process by achieving a passing score on the exam.

Objective

The objective of the CCPR is to provide a means for construction product representatives to do the following:

1. Demonstrate their knowledge in the following areas:
 - a. Construction product representation
 - b. Preparation of construction documents
 - c. Use of construction documents
 - d. The construction process
2. Encourage the elevation of the competence of construction product representatives
3. Enhance the image of construction product representatives as construction documents technologists

Definition of Certified Construction Product Representative

A CCPR is a person who has successfully completed both the Construction Documents Technologist (CDT) and CCPR examinations, has the required experience, and has demonstrated knowledge and ability in construction product representation and in using and advising in the preparation of construction documents as recommended by CSI.

Qualifications of a Certified Construction Product Representative

1. Fulfill application requirements:
 - a. Submit written application for examination.
 - b. Pay examination fee.
2. Meet application prerequisites:
 - a. CDT certificate holder.
 - b. A minimum of two years of experience in representing construction product(s) exclusive of academic preparation.
 - c. Submit contact information for a manufacturer or employer reference who will attest that the candidate has the required experience in representing construction product(s).
3. Pass the CCPR examination with a score of 75 or higher.
4. Maintain designation by adhering to renewal requirements.

Membership in CSI is not required.

EXAMINATION OVERVIEW

Exam Structure

The exam includes 200 questions, each worth 1/2 point for a total of 100 points. A passing score on the exam is 75 or higher. Candidates have four hours to complete the exam.

Exam Summary

The proportion of the exam dedicated to each subject area is as follows:

Study Unit No. 1:	Project Delivery	5%
Study Unit No. 2:	Design	10%
Study Unit No. 3:	Construction Documents	30%
Study Unit No. 4:	Procurement	30%
Study Unit No. 5:	Construction	20%
Study Unit No. 6:	Facility Management	5%

Reminder to Candidates

Questions on the exam will occur in the percentages given above. Exam candidates are urged to focus their studying accordingly to be sure that they are adequately prepared. The importance of a topic in the exam should not be judged merely by the amount of space devoted to it in the PRM.

SOURCE MATERIALS

The examination is based solely on the following documents and this study guide:

CSI Publications

- *Project Resource Manual – CSI Manual of Practice (PRM)*
- *MasterFormat™* (2004 Edition)
- *UniFormat™* (1998 Edition)
- *SectionFormat™* (2007 Edition)
- *PageFormat™* (2007 Edition)

These materials are available from:

The Construction Specifications Institute
99 Canal Center Plaza, Suite 300
Alexandria, VA 22314
Ph: (800) 689-2900
Fax: (703) 684-0465
Email: csi@csinet.org
www.csinet.org (click on Bookstore)

General Conditions

The general conditions of the contract and contract forms **common** to the following documents, available through the organizations listed:

AIA Document A201 - 2007
American Institute of Architects
1735 New York Avenue, NW
Washington, DC 20006-5292
Ph: (800) 242-3837
Fax: (202) 626-7547
www.aia.org

- OR -
EJCDC C-700 - 2007
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314-2794
Ph: (703) 684-2800
Fax: (703) 836-4875
www.nspe.org

Study Guide Addendum

Addendum to CSI Examination Study Guides, September 1, 2008

Important Note About Source Materials

The Project Resource Manual – CSI Manual of Practice (PRM) has not yet been updated to reflect the 2007 versions of *SectionFormat™*, *PageFormat™*, and the AIA and EJCDC contract documents. While a brief summary of the changes is provided in the Addendum to this study guide, candidates are **strongly urged** to obtain and study the 2007 versions of the AIA and EJCDC source documents and not rely solely on the PRM or on older versions of the documents.

PREPARING FOR THE EXAM

Performing a Self-Evaluation

These questions will help you decide if you are ready to prepare for taking the examination:

1. Do you have access to the *Project Resource Manual – CSI Manual of Practice* (PRM) and the other CSI publications relevant to the exam? Do you thoroughly understand them?
2. Do you use, or are you thoroughly familiar with, listed **current editions** of either the EJCDC or AIA General Conditions of the Contract and agreement forms? While CCPR exam questions are sourced to the PRM, understanding of these documents is assumed. Candidates will have become familiar with one of these documents in order to pass the CDT exam.
3. If the answer to question 1 or 2 is “No,” are you willing to study the required reference materials in a disciplined manner over several months?
4. Are you willing to attend a series of CSI chapter-sponsored study groups extending over several weeks, if available in your area?

Using the Study Guide

A thorough reading, study, and understanding of the referenced source materials is necessary to achieve a passing score. A candidate whose study efforts thoroughly cover the source materials listed in each study unit will not encounter subjects on the exam that were not covered in the material.

Please use this study guide to help you through the source materials, and call upon the local CSI chapter representatives for assistance as you continue in your quest for knowledge of the construction process. Note that successful candidates prepare for the exam well ahead of the test date. Best wishes for a successful result.

Utilizing Study Tools Not Included in This Guide

Study Groups

A few local CSI chapters offer group independent study sessions for this exam. Exam candidates are not required to enroll in study sessions. The discipline of these structured classes and the interaction with fellow candidates, however, has proven helpful to most candidates. Most chapter study groups are coordinated through the Certification and Education Committees. Contact your local CSI chapter for more information.

Online Resources

The CSI website, www.csinet.org/certification, lists additional study information and resources.

Passing the Exam

Candidates may have been away from an academic, test-taking environment for many years. We offer the following suggestions:

1. Preparation should start as soon as possible. Putting off study until the last minute so that information is fresh in your mind is a faulty concept. Cramming the night before or the morning of the examination is also discouraged.

2. A small sample of the types of questions on the examination is included in this study guide. Remember, in multiple-choice questions, usually one or two answers are definitely incorrect. Two answers may seem correct, but only one is right based on the reference materials.
3. This can be a difficult examination for the unprepared candidate. The examination thoroughly tests the candidate's knowledge of the PRM and other relevant CSI publications and the general conditions in common use (AIA Document A201 and EJCDC C700). Candidates who took the CDT exam prior to 2009 will have studied different source material and should take care to review all sections of the PRM as well as the current source documents referenced above.
4. Before the day of the examination, candidates should obtain directions to the test site and, if driving, find out where to park. Allow ample time. Dress comfortably. A good night's sleep and a relaxed attitude are more important than trying to "learn one more thing."
5. Remember that the exam is based on CSI's recommended practices as stated in the PRM. Departures from PRM principles as practiced by individual offices must be disregarded to succeed on this examination.

STUDY GUIDE ORGANIZATION

The study guide is organized in the same manner as the PRM. It follows the chronological order of the facility life cycle, with study units that correspond to each stage of the life cycle of the facility. The study units in this guide are intended to serve as a "road map" for study of the source materials.

Study Unit Organization

Each study unit is organized as follows:

Weight of the Unit on the Examination

The PRM is a comprehensive document. It serves as the primary source for the CDT examination as well as the advanced certification exams, including the CCPR. As passing the CDT exam is a prerequisite to taking the CCPR exam, basic knowledge of the PRM is assumed. Study units are focused on more in-depth knowledge of the PRM. Therefore, some units are weighted more heavily than others. Candidates should pay close attention to each unit's weight on the exam and budget study time accordingly.

Examination Objectives

Each unit has a statement summarizing the basic knowledge and comprehension expected of a successful CCPR candidate.

Source Materials

Questions included on the examination are carefully referenced to specific statements in the source materials. Some study units specify basic knowledge of the source materials, while others require a more detailed knowledge of source materials. This section will provide guidance as to the level of knowledge and comprehension of the source materials that is required for each subject area

Study Checklist

This section outlines the specific elements of information that the candidate should study, and the primary location in the source materials where the information can be found.

Additional Study Materials Included in the Study Guide

Sample Questions

The sample questions are designed to illustrate the format used for test questions and as practice in selecting correct answers from among several alternatives. These questions will not appear on the exam as presented and are NOT a summary of tested material.

ABBREVIATIONS/ACRONYMS

A/E	Architect/Engineer
AIA	American Institute of Architects
CADD	Computer-Aided Drafting and Design
CCPR	Certified Construction Product Representative
CDT	Construction Documents Technologist
CSI	Construction Specifications Institute
DBIA	Design Build Institute of America
EJCDC	Engineers Joint Contract Documents Committee
MSDS	Material Safety Data Sheet
O&M	Operation and Maintenance
PRM	Project Resource Manual - CSI Manual of Practice

Study Unit No. 1 – Project Delivery

Weight on Examination 5%

Approximately 10 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

- Measure knowledge and comprehension of project delivery methods, factors affecting project delivery, and factors related to project quality as they apply to the delivery method.

Source Materials

PRM Module 1 - Introduction

PRM Module 3 – Project Delivery

PRM Module 4 - Design

The candidate is expected to understand the significance of the decisions made early in the facility life cycle with respect to the services, delivery methods, and team participants to carry a project from conception to reality. The candidate must understand contractual relationships between participants and how they vary between delivery methods. The candidate must also understand considerations such as time, cost, quality, and extent in project delivery.

Study Checklist

A. Services (PRM Modules 1.2, 3.2)

Although each project requires unique services to develop a design and construct a project, these services are basic variations of design and construction services. Understand the basic types of services and the recommended documentation for each.

B. Factors Affecting Project Delivery (PRM Module 3.3)

Extent, time and cost are the primary factors that establish the quality of a project and its component parts. Understand these factors. Know the definitions of terms relating to extent, time, and cost and the basic considerations that go into the decision making process relating to each. Also understand the effects of decisions on the documentation process. Know the definitions of and the differences between different types of contracts.

C. Project Delivery Methods and Services (PRM Module 3.4)

Decisions about the project delivery method affect the relationships between participants on the project team and how the participants will work together to design and construct a project. Understand the differences between each of the following delivery methods:

- Design-Bid-Build
- Design-Negotiate-Build
- Construction Management
- Design-Build
- Owner-Build

Understand the benefits and limitations of each method, and have a thorough understanding of the contractual relationships between each of the participants. Pay careful attention to the relationships as described in the text and illustrated in Figures 3.4-A through 3.4-F.

D. Role of the Product Representative (PRM Modules 1.2, 4.4, 4.10)

Understand who may be part of the supplier team and the various types of relationships that may exist between the individuals and organizations on the supplier team. Also know the important principles guiding the product representative's work.

Study Unit No. 2 - Design

Weight on Examination: 10%

Approximately 20 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

Measure the candidate's knowledge and understanding of the following:

- Activities in the schematic design and design development phases of a project
- Role of the product representative in the design process
- Types of information required by each of the participants, the appropriate means to present that information, and methods by which to communicate with the team
- Sales process and the roles and responsibilities of participants

Source Materials

PRM Module 4 - Design

The candidate is expected to understand the design process and the role of the product representative in the process, and how that role differs depending on the stage of the design process, the participants, and the project delivery method. The candidate must understand the different methods for presenting information, and the benefits of each depending on the situation.

Study Checklist

A. Design Processes and Phases (PRM Module 4.2)

All projects proceed through multiple stages of design, with variations depending on the nature of the work and needs of the owner. The labels and definitions also vary somewhat between industry associations. For the purposes of this exam, design is defined as having two phases: schematic design and design development. Understand the activities associated with each of these phases, as well as the roles of the participants and the documents produced.

B. Design Considerations (PRM Module 4.3)

Design considerations are requirements the A/E must take into account in designing the project. These requirements influence the size, arrangement, and extent of project elements, systems, subsystems, and components. Understand the two basic types of requirements: regulatory requirements and owner requirements. Also understand the roles and responsibilities of the parties in meeting those requirements.

C. Product Evaluation and Selection (PRM Module 4.4)

To move the project from schematic design to design development, the design team, led by the A/E, must select products that will fulfill the project criteria. By

identifying and selecting individual products, the A/E can develop drawings, specifications, and construction cost information to bring the design stage to completion. Thoroughly understand the product selection process. Also understand the different types of products including commodities, standard products, custom products, and proprietary products and systems. Also understand considerations necessary in selecting each product type. Be familiar with how the priority of product selection is determined and the considerations involved in specifying performance.

Thoroughly understand the services that product representatives provide to the design team including the following:

- Technical assistance
- Assistance in preparing specifications
- Assistance in preparing drawings
- Estimating costs
- Assisting in creating representative construction
- Determining project conditions
- Providing other information about products and manufacturers

D. Quality (PRM Module 4.5)

The quality of a project is the result of a process that is continuously defined throughout the life cycle of the project from conception through facility management. Understand the terms quality, quality assurance, and quality control and the activities related to each. Also understand how to establish quality, how participants affect quality, and the concurrent quality assurance quality control processes.

E. Controlling the Variables (PRM Module 4.6)

The A/E must consider project variables and implement procedures for controlling them through the use of allowances, alternates, and unit prices. Understand the definitions and types of each and in what circumstances each is used. Also be familiar with the advantages and disadvantages of using these methods to control variables.

F. Cost Estimating and Value Analysis (PRM Module 4.7)

The A/E normally provides cost estimates at the conclusion of each design phase. Understand the basic types of estimates and the estimating techniques used by the A/E during design. Also understand the concepts of life cycle costs and value analysis and how decisions are documented.

G. Design Development Documentation (PRM Module 4.9)

Understand the purpose and use of outline specifications, their organization, and their content. Be familiar with the three components of project design team coordination: organization, execution, and quality assurance. Be familiar with possible problems resulting from incomplete coordination. Understand the organization, timing, and coordination of drawings with outline specifications. Also be familiar with how cost estimates may be organized at this stage.

H. Product Presentation (PRM Module 4.10)

Understand the important role that product representatives play throughout the design and construction process. Specifically, understand the product representative's role related to working with the project team, providing information, filing product information, and distributing product information. Understand the various forms of product presentation and types of product representation as well as the sales process.

Study Unit No. 3 – Construction Documents

Weight on Examination: 30%

Approximately 60 questions from material directly referenced in the source materials from the study unit will appear on the exam.

Examination Objectives:

Measure the knowledge and understanding of the following:

- How construction documents define the procurement and contracting requirements; the rights, responsibilities, and relationships of the parties involved; and the scope of work.
- How and where Division 01—General Requirements and its subsections specify administrative, procedural and performance requirements that govern the work and the other sections
- Types of specifications, guidance for their use, and the methods of writing each.
- Standardized formats for organizing types of construction information including *UniFormat™*, *MasterFormat™*, *SectionFormat™*, and *PageFormat™*.
- Standardized formats for drawings and the process for coordinating drawings and specifications.
- Basic types of bonds and how they are used to reduce risk.
- Procedures for dealing with changes and questions during procurement and construction.
- Common variations in construction documents created to deal with specific types of projects.

Source Materials

PRM Module 5 – Construction Documents
PRM Module 7 - Construction
AIA Document A201 – 2007
EJCDC C-700 – 2007

Note: This section refers to AIA Document A201 and EJCDC document C-700. Candidates should have a basic understanding of the material in these documents. In previous years, a thorough understanding of the material included in the PRM was sufficient to answer questions correctly. However, this year, the underlying documents have changed.

The Project Resource Manual – CSI Manual of Practice (PRM) has not yet been updated to reflect the 2007 versions of the AIA and EJCDC contract documents, *SectionFormat™*, and *PageFormat™*. Therefore, some of the information in the PRM is out of date. While a brief summary of the changes is provided in the Addendum to this study guide, candidates are **strongly urged** to obtain and study the 2007 versions of the source documents and not rely solely on the PRM or on earlier versions of the documents.

The candidate is expected to understand how construction documents define the project requirements and the rights, responsibilities, and relationships of the parties involved. In addition to a general understanding of the basic types of documents and their formats, the candidate is expected to understand Division 01 concepts in detail. Candidate must know how Division 01 sections serve as a bridge between the conditions of the contract and the technical specifications, the relationship between Division 01 sections and other contract documents, and the requirements of commonly used Division 01 sections, particularly those that may affect the product representative's responsibilities and the bid price.

Study Checklist

A. Introduction to Construction Documents (PRM Module 5.1)

Effective communication of the project requirements depends largely on having complete and coordinated construction documents. Understand how the construction documents define the rights of, responsibilities of, and relationships between the parties. Understand the benefits of the standard documents created by the AIA, EJCDC, and Design Build Institute of America (DBIA).

B. Procurement Requirements (PRM Module 5.2)

Procurement requirements are the procedures for soliciting pricing for the work of a project. Be familiar with the types of documents and the definitions of terms including types of bids and proposals. Understand the procurement requirements for bidding and the types of information included in an invitation to bid and advertisement to bid. Know the basic information included in the instructions to bidders. Understand the procurement requirement for proposals and the differences between this process and the bidding process.

C. Construction Agreements (PRM Module 5.3)

The agreement is the document that legally obligates the signing parties. It is only one of the various documents that make up the contract documents. Understand which pieces of information are included in the agreement, how the agreement defines relationships and obligations between the signers, and how it incorporates the other documents that make up the contract documents. Know which documents make up the contract documents. Be familiar with the concepts of project delivery, basis of payment, and various standard agreement forms.

D. Conditions of the Contract (PRM Module 5.4)

Conditions of the contract define the basic rights, responsibilities and relationships of the parties involved in the performance of the contract. Understand the purpose and content of the general conditions and supplementary conditions. Be familiar with the standard documents available from professional associations such as the AIA, EJCDC, and DBIA. Focus study on the information that the PRM notes as concepts that both the AIA and EJCDC define and on definitions and statements that the PRM notes are common to the two documents. Focus specifically on understanding the concepts common between the documents relating to the work, contract documents, payments, terminations, claims and disputes. Candidates should have a **basic** understanding of the material in these documents.

Understand the purpose and process for making modifications, deletions, and expansions of articles in the general conditions through the use of supplementary conditions.

E. Formats (PRM Module 5.5)

Formats provide a standardized means of organizing, storing, and retrieving information. Understand the place in the hierarchy, definition, and **general** content of each of the following formats:

OmniClass™
UniFormat™
MasterFormat™
SectionFormat™
PageFormat™

Understand why, when, and how each is used and how each format is organized. Questions will be limited to material that is presented in the PRM; however, candidates should refer to the 2007 versions of *SectionFormat™* and *PageFormat™* to verify the information.

F. Division 01 – General Requirements (PRM Module 5.6)

The sections in Division 01 are referred to as the General Requirements. Understand what information is included in the General Requirements, how it is organized, and how *SectionFormat™* is used to lay out a consistent and logical organization of titles. Know how Division 01 relates to other documents including the procurement requirements, contracting requirements, specifications, and contract drawings. Understand the hierarchy of general and procedural requirements. Be familiar with the commonly used Division 01 Sections. This section is heavily weighted on the exam.

G. Methods of Specifying (PRM Module 5.7)

There are four methods of specifying: descriptive, performance, reference standard, and proprietary. Understand the definition and purpose of each method, what factors to consider when selecting a method, and the possible benefits and liabilities of each method. Understand the attributes of proper specifications.

H. Specification Language (PRM Module 5.8)

The four Cs for effective communication are: clear, concise, correct, and complete. Be familiar with the four Cs and how writing style, vocabulary, spelling, and sentence structure contribute to well written specifications. Also know the correct standards to be used in specifications for abbreviations, symbols, capitalization, punctuation, and grammar. Know to whom the specifications should be directed and what level of detail should be included in the specifications.

I. Project Manual and Specifications Practices (PRM Module 5.9)

The project manual concept provides an organized format and standards for the various construction documents involved. Understand the recommended order of information and documents in a project manual.

Specifications are an important component of the project manual. Understand the basic ways specifications can be produced. Also be familiar with the basic steps in developing specifications, including gathering information and selecting products. Understand the types of decisions required to organize and prepare specifications including procedural decisions, format, method, and language of specifications. Know the terms related to specifying workmanship, quality assurance, and quality control. Understand the considerations the A/E must keep in mind related to level of requirements, extent, cost, and schedule of a project during development of specifications.

J. Drawings (PRM Module 5.10)

A variety of drawing types and views are used to convey comprehensive information about a project. Be familiar with the definitions of the types and categories of drawings, when and how they are used, and who uses the drawings during each stage of the project. Be familiar with the concept of the U.S. National CAD Standard.

K. Coordinating Drawings and Specifications (PRM Module 5.11)

The drawings and specifications are complementary and both are needed to fully describe a construction project. Know which information should be conveyed in drawings and which information should be conveyed in specifications. Understand the concept of schedules. Also be familiar with the process of coordinating information between drawings and specifications.

L. Procurement and Contract Document Modifications (PRM Modules 5.12, 7.8)

Procurement and contract document modifications provide methods for the A/E, owner, and contractor to deal with situational changes during the project life cycle. The method of changing the documents varies based on the stage of the project and the type of change. Have a thorough understanding of the following instruments of change and when each is used:

- Addenda
- Change orders
- AIA Architect's Supplemental Instructions or EJCDC Field Orders
- AIA Construction Change Directive or EJCDC Work Change Directive

Understand which of these include changes in contract sum or contract time and who is responsible for producing and signing the documentation.

M. Master Guide Specifications (PRM Module 5.13)

Most A/E firms, government agencies, and large corporations use master guide specifications as a basis for their individual construction documents. Understand the contents of master guide specifications and the reasons for using them. Also understand strategies for developing and organizing an office master specification. Know the names of the commercially available master guide specifications. Be familiar with the additional considerations suggested when using master specifications.

N. Shortform Specifications (PRM Module 5.14)

Some projects of limited scope and extent may need less-detailed descriptions than those provided by a typical or normal specification. Similarly, for projects

with a negotiated contract or design-build delivery method, a specification with reduced detail may be appropriate. In these cases, an A/E may choose, or an owner may request, to use a *shortform* specification. Understand the concepts, and characteristics of shortform specifications and when to use them.

O. Performance Specifying (PRM Module 5.15)

Performance specifying is a method of indicating performance characteristics and requirements with measurable properties. Performance specifying can be extended from a single attribute to an entire project, with numerous variations in between. Understand how and when the performance specifying method might be used and the roles of the participants in preparing performance specifications.

P. Specifying for the Purchasing of Goods (PRM Module 5.16)

Purchasing is the direct acquisition of materials and equipment by an owner for the owner's use or for installation in the owner's project. Understand the differences between purchasing contracts and construction contracts. Also understand the basic concepts of the Uniform Commercial Code.

Q. Specifying for Federal Agencies (PRM Module 5.17)

Government agencies often have unique procurement and contracting requirements. Understand basic differences between preparing contract documents for government projects and other products. Focus on the basic terms used to describe concepts in procurement and contracting requirements. Take note of the policies regarding use of manufacturers' names.

R. Warranties (PRM Module 5.18)

There are different types of implied and express warranties. Understand the definition and general purpose of the various types of warranties and the role of the UCC in governing warranties. Understand the implications of specifying warranties.

S. Construction Bonds (PRM Module 5.19)

There are three basic types of bonds used in construction projects: bid bonds, performance bonds, and payment bonds. Understand the basic definition and purpose of each type.

T. Construction Insurance (PRM Module 5.20)

Understand insurance terms, some of the risks involved in construction projects, and the kinds of construction insurance policies available.

Study Unit No. 4 – Procurement

Weight of the Unit on the Examination: 30%

Approximately 60 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

The exam will measure knowledge and comprehension of the following:

- How construction documents and other product information are distributed to prospective construction participants for pricing and bidding or negotiation.
- The types of funding sources and their relation to project delivery and pricing methods.
- The relationship between the stages of the project, pricing methods, and their effects on a project's scope and schedule.

Source Materials

PRM Module 5 – Construction Documents

PRM Module 6 – Bidding/Negotiating/Purchasing

The candidate is expected to thoroughly understand the differences between the methods of pricing, the restrictions based on delivery method and funding sources, and the effects on the project. The candidate must also understand his or her role in the process and how he or she should serve as a resource to the project team.

Study Checklist

A. Introduction (PRM Module 6.1)

The transition from the design stage to the construction stage of a project is the bidding/negotiating/purchasing stage collectively known as procurement. Understand the basic activities in this stage. Also be familiar with the terms associated with pricing and purchasing.

B. Pricing Considerations (PRM Module 6.2)

Pricing involves a comprehensive cost analysis of the project requirements, based on the information contained in the procurement documents and other information obtained during the period preceding bidding or negotiating. Understand the pricing categories, what is involved in competitive pricing, and the different considerations for pricing depending on project delivery method.

C. Project Information (PRM Module 6.3)

Pricing activities require written and graphic project information. Know who needs to have access to this information, methods of distribution of the information, and procedures for controlling the information.

D. Bidding (PRM Modules 6.4, 5.7)

In competitive bidding, prospective contractors are invited to prepare and submit bids stating, in a specified format, the sum of money and sometimes the length of time required to execute the project. Understand the bidding process and the activities associated with the process. Understand the documents used in the process, the roles and responsibilities of team members, the general considerations necessary during bidding, and the basic differences between public and private bidding processes. Also understand how substitution processes vary depending on the specification type.

E. Negotiating (PRM Module 6.5)

Negotiating is a process of dialog, offer, compromise, and resolution between two parties, precedent to an agreement or contract modification. Understand when negotiating takes place, the participants in negotiation in the procurement process, and the concepts of value analysis of construction prices.

F. Subcontracting (PRM Module 6.6)

Because of their unique role in the construction process, subcontractors have concerns that affect their relationships with A/Es, prime contractors, and owners. Understand these concerns, specifically as they relate to pricing and bid shopping.

G. Purchasing of Goods (PRM Modules 6.1, 6.8)

Although not identified as a project delivery method, purchasing is used to obtain goods for a project or completed facility. Understand the basic considerations when purchasing goods. Also know the participants involved in the purchase of goods, as well as the documents and processes involved.

H. Agreements (PRM Modules 6.7, 6.9)

The form of agreement to be used for a project is identified in the procurement documents. Understand who is responsible for filling in all necessary information and signing the document. Be familiar with the concept of standard forms published by professional associations. Also understand the activities that occur around the time of execution of the agreement.

Study Unit No. 5 - Construction

Weight on Examination: 20%

Approximately 40 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

Measure knowledge and comprehension of the following:

- Members of the construction team, design team, owner team, and supplier team and the responsibilities of each during the construction stage of a project.
- Activities associated with construction contract administration and contractor project management and how they differ between project delivery methods.
- Activities associated with each phase of the construction stage, methods of communication between team participants, and tools used to enhance communication within teams and between teams.
- Responsibilities of each team member to achieve the highest overall project quality.
- Methods of dealing with claims related to the work.
- Measurements of project progress and success and methods and schedules for payment.

Source Materials

PRM Module 7 – Construction

The candidate is expected understand the roles and responsibilities of each team member throughout the construction process, recommended methods and processes for communication, and the role of construction documents in communication. The candidate must also understand issues related to interpreting and modifying contract documents and resolving differences from pre-construction through final completion; types of payments and associated milestones; and activities associated with completing a construction project.

Study Checklist

A. Introduction (PRM Module 7.1)

Construction is the execution of the work as required by the contract documents. Understand the roles of the participants and their basic responsibilities. Be familiar with activities related to construction contract administration and contractor project management. Understand the importance of working as a team and how the relationships between team members, contract administration, and contractor project management vary between delivery methods.

B. Roles and Responsibilities (PRM Module 7.2)

Construction contract administration and contractor project management involve the activities necessary to fulfill contract requirements. Each participant has

certain rights and responsibilities under the contract. Understand the rights and responsibilities of each of the participants including the following:

- Owner
- A/E
- Contractor
- Subcontractor
- Supplier
- Consultants
- Authorities having jurisdiction
- Testing agency inspectors
- Commissioning agent
- Product representatives

Be familiar with the basic lines of communication that the PRM identifies as those included in the AIA and EJCDC general conditions and understand the implications of oral and written communication.

C. Preconstruction (PRM Module 7.3)

The contract documents require many of the preconstruction activities. Good business practices, the contractor's organization, duration of the project, interaction with outside agencies, and interface with the project team determine other preconstruction activities. Understand what documents are used in preconstruction activities, the roles and responsibilities of participants in preconstruction activities, the purpose of and participants in preconstruction meetings, and verification of site conditions.

D. Meetings (PRM Module 7.4)

Effective meetings are an important part of contractor project management and construction contract administration. They give the participants an opportunity to share information, exchange ideas, and make decisions. Understand the types of meetings that are typically specified in the contract documents, where they are specified, and who generally participates in these meetings.

E. Submittals (PRM Module 7.5)

Understand the various types of submittals including preconstruction submittals, construction submittals, and closeout submittals. Understand who is responsible for and the general procedures of preparing and reviewing submittals. Also understand the record keeping and processing procedures involved throughout the submittal process.

F. Site Visits, Observation, and Inspection (PRM Module 7.6)

All participants in the construction process have certain responsibilities for making observations and inspections. This process of monitoring the work is basic to quality control. Understand the difference between observing and inspecting. Also know the responsibilities of each of the participants in the process including who is responsible for keeping records. Understand the documents in the process and who is responsible for preparing them.

G. Quality Assurance and Quality Control (PRM Module 7.7)

The construction stage of a project is the process of executing the requirements of contract documents and thus providing the required quality. Contractor project management and construction contract administration involve the quality assurance (QA) and quality control (QC) processes. Understand the definitions of quality assurance and quality control, the basic processes for both, and the roles of the team members.

H. Interpretations and Modifications (PRM Module 7.8)

Understand the process of interpreting contract documents. Understand the differences in procedures and documentation for changes that modify that contract sum or time and those that do not. Know the processes for substitutions and the considerations that affect review and approval of substitutions.

I. Executing the Work (PRM Module 7.9)

Documents are used throughout the process of executing the work. Know the basic types of documents and the activities involved in executing the work including a **general** understanding of the following:

- Site and Workplace Safety
- Contractor Record Keeping
- Field Engineering
- Supervision of Construction
- Coordinating Activities
- Sequencing the Work
- Scheduling the Work
- Construction Means and Methods
- Product Delivery, Storage, and Handling
- Examination and Verification
- Preparation
- Erection, Installation, and Application
- Cleaning and Waste Management
- Protecting Installed Construction
- Testing and Inspection

J. Claims and Disputes (PRM Module 7.10)

Contract document modifications are a natural part of the construction process. When either an interpretation or a modification affects contract sum or time of completion of construction, a claim may be submitted. An unresolved claim may lead to a dispute. Other factors relative to performance obligations of each party may also give rise to claims. Understand the basic types of claims and how they are resolved. Understand the basic process of dispute resolution.

K. Measurement and Payment (PRM Module 7.11)

Quantifying the work eligible for payment and disbursing the money proportionate to that quantity of work is an important part of the construction process. Understand the following terms and concepts, the documents involved with each, and the parties involved:

- Applications for Payment
- Payment Intervals
- Basis of Payment
- Contractual Responsibilities
- Measurement
- Schedule of Values
- Application for Payment
- Progress Payments
- Retainage
- Withholding Payment
- Failure to Make Payments
- Liens
- Liquidated Damages and Penalty/Bonus Clauses
- Substantial Completion, Partial Occupancy, Final Acceptance and Payments
- Final Payment

L. Project Closeout (PRM Module 7.12)

Construction contract administration culminates in project closeout, which includes activities involved with the orderly transfer of the completed project from the contractor to the owner. Understand the participants in this process, their roles, and the activities involved.

Study Unit No. 6 – Facility Management

Weight on the Examination: 5%

Approximately 10 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

Measure knowledge and comprehension of the following:

- Role of the facility manager throughout the life cycle of a facility.
- Processes by which facility managers procure goods and services.
- Documents used by facility managers.

Source Materials

PRM Module 8 – Facility Management

The candidate is expected to understand the role of the facility manager throughout the facility life cycle, particularly as it relates to the construction process. The candidate must also understand the role of construction documents in the ongoing operation of a facility and the role of representatives and material suppliers in continued operation of a facility.

Study Checklist

A. Introduction (PRM Module 8.1)

Facility management is the process that provides for continued performance of the facility's intended function. Understand the role and responsibilities of the facility manager throughout the facility life cycle.

B. Facility Manager's Role in Project Closeout (PRM Module 8.2)

The facility manager is involved in project closeout to assist in the successful transfer of the completed facility for the owner's use. Understand the facility manager's role in this process. Also understand the role of other participants in creating and submitting operations and maintenance data, performing demonstrations and training, and creating punch lists. Understand the difference between total project commissioning and systems and equipment commissioning. Be familiar with the documents used by the facility manager including project record documents.

C. Operations and Maintenance (PRM Module 8.3)

Operations and maintenance include management of day-to-day functions of a facility and its systems. Understand the basic types of maintenance and the documents associated with operations and maintenance.

D. Resource Materials (PRM Module 8.4)

The facility managers require resource materials to ensure efficient and effective operations and maintenance (O&M). Know the basic types of record documents and their intended use.

E. Facility Evaluation (PRM Module 8.5)

The facility manager develops and maintains an ongoing evaluation program. Be familiar with when this process begins and the definitions of the basic components.

F. Documents for Life Cycle Activities (PRM Module 8.6)

The need to obtain O&M services begins a new project life cycle. Understand the basic process of and documents involved in ongoing O&M services.

SAMPLE QUESTION FORMATS

The sample questions used in this study guide do NOT necessarily represent those questions used in the examination. They are intended to familiarize you with the types of questions and formats that will be presented on the examination. Examination questions may not be limited to the types represented below.

Multiple Choice Question

Multiple choice questions are questions where the participant selects from a number of choices as answers in reply to a text or formula question. The participant must select a single choice as the answer.

1. Construction Contract Administration begins
 - A. when the contract documents are issued for bid or negotiation.
 - B. when the owner-contractor agreement is executed.
 - C. when construction commences.
 - D. during the contract document phase of the A/E's services.

Answer: B

Matching Question

Matching questions are questions where the participant match a number of choices as answers in reply to a series of text or formula questions. Choices may be used more than once.

2. Match the appropriate party or parties with the corresponding duty or responsibility. A letter may be used more than once in the exercise.
 - A. Contractor
 - B. Architect/Engineer
 - C. Architect/Engineer AND Contractor
 - D. Owner OR Contractor
 1. Initiates requests for interpretation. D
 2. Interprets the documents. B
 3. Is responsible for job site safety. A
 4. Reviews submittals. C

NOTES

NOTES

USER RESPONSE FORM - CCPR EXAMINATION STUDY GUIDE

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