



Knowledge for Creating
and Sustaining
the Built Environment

CONSTRUCTION DOCUMENTS TECHNOLOGIST PROGRAM

CDT EXAMINATION STUDY GUIDE

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CONSTRUCTION DOCUMENTS TECHNOLOGIST EXAMINATION STUDY GUIDE

(For use in preparation of exams to be administered March 2008 or thereafter)

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PROGRAM OVERVIEW

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

Objective

This program was developed for those who assist specifiers or design professionals in preparation of project specifications and who are the users of construction documents. The objective of the CDT Program is to improve construction documentation and to accomplish the following:

1. Allow individuals to demonstrate through examination their knowledge of CSI's recommended practices in:
 - a. Construction Process
 - b. Contractual Relationships
 - c. Relationship and Organization of Construction Documents
2. Encourage individuals to become familiar with the fundamental principles of specification writing and construction document organization as recommended by CSI.

Definition of a Construction Documents Technologist

A CDT is a person who has demonstrated basic knowledge of fundamentals and formats of construction documents as prescribed by CSI and the general conditions of the contract for construction.

Qualifications of a Construction Documents Technologist

1. Fulfill Application Requirements:
 - a. Submit written application for examination.
 - b. Pay examination fee.
2. Pass the CDT examination with a score of 75 or higher.
3. A **renewal is not required** to maintain the CDT designation.

There are no prerequisites to qualify to take the exam. Membership in CSI is not required.

EXAMINATION OVERVIEW

The exam includes 100 multiple-choice questions, each worth 1 point for a total of 100 points. The passing score on the exam is 75 correct answers. Candidates have two hours to complete the exam.

Source Materials

The examination is based solely on the following documents:

The Construction Specifications Institute's *Project Resource Manual - CSI Manual of Practice* (PRM) and its most recent appendices:

- *MasterFormat™* (2004 Edition)
- *UniFormat™* (1998 Edition)
- *SectionFormat™* (1997 Edition)
- *PageFormat™* (1999 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
E mail: csi@csinet.org
www.csinet.org (click on Bookstore)

AND

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

AIA Document A201
American Institute of Architects
1735 New York Avenue, NW
Washington, D.C. 20006
Ph: (202) 626-7300; Fax: (202) 626-7547
www.aia.org

- OR -

EJCDC C-700
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314
Ph: (800) 417-0348
www.nspe.org

Exam Summary

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

Study Unit No. 1: Introduction	2%
Study Unit No. 2: Project Conception	5%
Study Unit No. 3: Project Delivery	15%
Study Unit No. 4: Design	10%
Study Unit No. 5: Construction Documents	45%
Study Unit No. 6: Bidding/Negotiating/Purchasing	5%
Study Unit No. 7: Construction	15%
Study Unit No. 8: Facility Management	3%

Exam Site

Candidates sitting for the national exam will select from one of the more than 400 Prometric testing sites after receiving registration confirmation. Candidates can view available sites before registering for the exam at www.prometric.com/csi.

Candidates sitting for paper and pencil exams at a conference or convention will receive the exam site confirmation information in the mail prior to the exam date. For questions, contact CSI's Member Services at (800) 689-2900, Monday-Friday, 8:30am-6pm ET.

Exam Materials

Candidates sitting for a paper and pencil exam should bring several sharpened No. 2 lead pencils with erasers to the exam site. The exam proctor will provide examination booklet and answer sheet. Reference materials and electronic devices are not allowed in the examination room.

Grading the Exam

Candidates sitting for the computer-based exam will receive documented test results before leaving the exam site, within about 20 minutes of completing the exam.

Candidates sitting for paper and pencil exams will receive exam results in the mail approximately six weeks after the test date.

PREPARING FOR THE EXAM

Performing a Self-Evaluation

The following 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 its appendices? Do you thoroughly understand them?
2. Do you use, or are you thoroughly familiar with, listed editions of either the AIA or EJCDC General Conditions of the Contract?
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

Many 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. They are generally led by group leaders who have passed the CDT and/or certification examinations. 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. Practice answering test questions. A small sample of the type 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. Note: None of the questions in this study guide will be used on the actual examination.

3. This can be a difficult examination for the unprepared candidate. The exam thoroughly tests the candidate's knowledge and comprehension of the PRM and its appendices and the general conditions in common use (AIA Document A201 /EJCDC C-700).
4. Before the day of the examination, candidates should obtain directions to their 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. The purpose of the CDT exam is to test basic knowledge of the processes and documents involved in the facility life cycle. Units that cover the basic topics are therefore weighted more heavily than those that deal with more specialized areas of expertise. Make sure to budget your study time accordingly.

Examination Objectives

Each unit has a statement summarizing the basic knowledge and comprehension expected of a successful CDT 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

The study guide also includes additional information to assist in preparing for the examination.

Sample Questions

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

Summaries of AIA and EJCDC Documents

The CDT examination includes questions that are sourced directly from the American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction or the Engineers Joint Contract Documents Committee (EJCDC) C-700, Standard General Conditions of the Construction Contract. Note that answers to questions on the exam can be found in either of the two documents. Thorough knowledge of one of these documents is required to pass the exam.

ABBREVIATIONS/ACRONYMS

A/E	Architect/Engineer
AIA	American Institute of Architects
CAD	Computer-Aided Drafting
CDT	Construction Documents Technologist
CSI	Construction Specifications Institute
DBIA	Design Build Institute of America
EJCDC	Engineers Joint Contract Documents Committee
GMP	Guaranteed Maximum Price
O&M	Operations & Maintenance
PPD	Preliminary Project Description
PRM	<i>Project Resource Manual - CSI Manual of Practice</i>
UCC	Uniform Commercial Code

Study Unit No. 1 – Introduction

Weight on Examination: 2%

Approximately 2 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 process and document overview.
- Measure knowledge of the construction participants and relationships between them.
- Measure understanding of typical stages of a project.

Source Material

PRM Module 1 – Introduction

The Introduction to the PRM provides an overview of the main stages of a typical construction project cycle, the types of documents produced in each project phase, and the relationship between the Project Participants. Each of these concepts is critical to passing the exam and becoming a CDT. While only 2% of the exam questions have a direct reference to this study unit, a thorough understanding of this study unit will provide a basis for understanding material included in the rest of the exam.

Study Checklist

A. The Project (PRM Module 1.1)

The project is the process for completing a facility, which is a constructed entity or space design to perform a certain function. Understand the factors that contribute to unique facilities, the attributes that the documents used for projects describe and the basic costs that projects include.

B. The Project Team (PRM Module 1.2)

Understand the composition and responsibilities of each of the four basic project teams: The owner team, design team, contractor team and supplier team. Pay careful attention to Figure 1.2-A as it will help in learning which participants belong to each team.

C. Project Participants (PRM Module 1.3)

Participants are defined by their role on the project. Understand the basic responsibilities of each project participant.

D. Project Team Participation (PRM Module 1.4)

Proactive cooperation during execution of a project ensures its success. Understand the basic purpose of industry and professional societies and the factors that contribute to successful cooperation on a project.

E. Facility Life Cycle (PRM Module 1.5)

Nearly all projects will undergo similar stages in evolution from idea to tangible result. The key to earning a CDT designation is demonstrating knowledge of the definitions of the stages of the life cycle of a facility, the activities and documents produced during each stage, and which team member is responsible for each as defined by CSI's PRM. This section provides a thorough overview of these concepts and serves as a summary of much of the material covered in subsequent study. It therefore warrants special attention.

Study Unit No. 2 – Project Conception

Weight on Examination: 5%

Approximately 5 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 Project Conception Stage.
- Measure knowledge and comprehension of the concepts of schematic programming and program development.

Source Materials

PRM Module 2 - Project Conception

Project conception is the stage in the facility life cycle in which activities related to identifying requirements, performing initial studies, selecting a site and establishing a preliminary budget are performed. Activities in this phase provide a foundation for successful progression through subsequent project stages. Successful candidates will illustrate a *basic* knowledge of concepts included in this module.

Study Checklist

A. Introduction (PRM Module 2.1)

Some of the activities in the project conception stage include programming, planning and pre-design. Be able to define these activities and understand which participants are responsible for each activity.

B. Defining the Project (PRM Module 2.2)

Identifying goals, collecting and analyzing facts, identifying and testing concepts, prioritizing, determining feasibility, preparing program statements and commissioning are all activities related to defining a project. Understand the *basic* components of these activities, why they are performed, and who is responsible for completing them.

C. Preliminary Studies/Due Diligence (PRM Module 2.3)

Determining the viability of a project is the responsibility of the owner. Preliminary studies may include feasibility studies, impact studies, physical facilities evaluations, site studies and studies of other issues that may influence a project. Be familiar with the definitions and purposes of each of these activities.

D. Site Selection (PRM Module 2.4)

The A/E may assist the owner in site selection and acquisition. Understand the basic purposes of site selection activities. Focus on the timing and the roles of the participants in this process.

E. Budget (PRM Module 2.5)

The project budget includes costs for the entire project. Understand the difference between the project budget and construction budget. Also be familiar with basic budget considerations and the influence of timing on the ability of participants to make changes to the budget.

F. Project Scheduling (PRM Module 2.6)

Understand the reasons why a well-prepared project schedule is important to a project's success.

G. Facility Performance Criteria (PRM Module 2.7)

Performance criteria help the A/E in creating a building design. Know the basic factors affecting built element performance. Understand the purpose of the *PerSpective*® program developed by CSI and the Design-Build Institute.

H. Information Integration (PRM Module 2.8)

Communication methods will vary by project. Know the basic considerations required in making decisions about and the methods and the timing related to information integration as defined by the PRM.

Study Unit No. 3 – Project Delivery

Weight on Examination: 15%

Approximately 15 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

- Measure knowledge, benefits, and limitations of each type of construction project delivery.
- Measure knowledge and comprehension of substitution procedures.

Source Materials

PRM Module 3 – Project Delivery

Project delivery refers to the contractual relationships between the project teams. Successful candidates will understand the methods of contractor selection as related to the number of contracts and the various contract types. They will also demonstrate knowledge of the differences in relationships among the parties of the construction contract in different types of contract situations.

Study Checklist

- A. Introduction (PRM Module 3.1)
- B. Services (PRM Module 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. Be very familiar with the tripartite relationship among owner, contractor and A/E for traditional bid or negotiated contract as illustrated in Figure 3.2-A.

- C. 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.

- D. 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

Have a basic understanding of the benefits and limitations of each method and 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 the figures 3.4-A through 3.4-F.

E. The Project Team (PRM Module 3.5)

Selecting the right team members is important to project success. Understand the basics of selecting team members and the documents used to evaluate qualifications.

Study Unit No. 4 – Design

Weight on the Examination: 10%

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

Examination Objectives

- Measure knowledge of and ability to identify the benefits and use of Preliminary Project Descriptions and Outline Specifications.
- Measure knowledge and comprehension of the schematic design and design development stages.
- Measure knowledge of and ability to identify the differences between allowances, alternates and unit prices.

Source Materials

PRM Module 4 - Design

Successful candidates will demonstrate understanding of the process of converting the owner's program into written and graphic documents to define the activities relating to the project. Note that some sections may not have direct questions on the exam.

However, a basic understanding of the concepts may be necessary for demonstrating knowledge on other topic areas that are included on the exam.

Study Checklist

A. Introduction (PRM Module 4.1)

At the conclusion of the project conception stage a project delivery method is determined and design team selected by the owner. The design stage begins when the owner provides the program and other relevant information to the design team. Understand the basic activities related to the design stage and the parties responsible for each.

B. 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 purpose 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.

C. 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.

D. 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.

E. 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, value analysis and how decisions are documented.

F. Schematic Design Documentation (PRM Module 4.8)

Both the AIA and EJCDC standard forms of agreement require the A/E to furnish the owner with a report as part of schematic design documentation. The report should include a preliminary project description (PPD). Understand the information included in the PPD, the format and the methods of specifying used. Specifically, understand the difference between performance and descriptive specifying.

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.

Study Unit No. 5 – Construction Documents

Weight on the Examination: 45%

Approximately 45 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 relationships between various construction documents.
- Measure knowledge and comprehension of the organization and intent of the specifications and the project manual.
- Measure knowledge and comprehension of the organization and intent of drawings.
- Measure knowledge and comprehension of the organization and intent of Division 01 - General Requirements.
- Measure knowledge and comprehension of the organization and intent of the procurement requirements.

Source Materials

PRM Module 5 - Construction Documents

AND

AIA Document A201 OR EJCDC C-700

Successful candidates will understand the elements of the construction documents; the project manual concept and arrangement of elements in a project manual; the uses and characteristics of different types of drawings, and the importance and proper methods for coordinating drawings and specifications; the components and purposes of the General Requirements; and the components and uses of the Procurement Requirements.

Successful candidates will also understand the concept of *MasterFormat*, its history, development, and applications for organizing specifications, data filing, and cost classifications; the concept of *UniFormat* as a uniform classification of construction elements or systems and as a system for organizing preliminary construction information into a standard order or sequence; the concepts of *SectionFormat* and *PageFormat*; and the hierarchy of the various formats as used in writing specifications, preliminary project descriptions, and outline specifications.

This study unit includes the most heavily tested subject material on the exam. Candidates will do well to focus extra time on this study unit to ensure thorough knowledge of its concepts and definitions. Some exam questions are sourced directly from AIA or EJCDC material. Note that questions will address material common to BOTH documents. Knowledge of the material in one of these documents will be sufficient to correctly answer examination questions.

Study Checklist

A. Introduction (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).

Have a **thorough** understanding of the definitions, purposes and content of each of the procurement and contract documents. Figure 5.1-A provides a summary list of documents and illustrates their grouping into procurement and contract documents. Be very familiar with this organization and know which documents are included in the project manual. The subject material in this section provides source material for a significant number of test questions.

B. Procurement Requirements (PRM Module 5.2, AIA A201 or EJCDC C-700)

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.

When coordinating study with between the PRM and AIA201 or EJCDC C-700, focus on the information that the PRM notes as concepts that both the AIA and EJCDC define. Also note definitions and statements that the PRM states are common to the two documents. In other words, understand the general subject matter that is covered in both documents. Do not be as concerned with the specific differences in interpretation of the subject matter.

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, AIA A201 or EJCDC C-700)

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 associates such as the AIA, EJCDC and DBIA. When coordinating study between the PRM and AIA201 or EJCDC C-700, focus 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.

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 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.

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 those describing 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.

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 for abbreviations, symbols, capitalization, punctuation and grammar to be used in specifications. Know who the specifications should be directed to 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 organization 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 Module 5.12)

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 Directive Work Change
- Change Orders

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

M. 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.

N. 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.

Study Unit No. 6 – Bidding/Negotiating/Purchasing

Weight on the Examination: 5%

Approximately 5 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objective

- Measure knowledge of Bidding/Negotiating/Purchasing Activities, collectively known as Procurement.

Source Materials

PRM Module 6 – Bidding/Negotiating/Purchasing

Successful candidates will understand, on a *basic* level, the concepts of pricing; pricing considerations for the various project delivery methods; the bidding, negotiating, and subcontracting processes; the participants and the processes of purchasing of goods; and the effect of funding sources on the project delivery method. They will also understand the role of the A/E and Contractor in interpreting the Construction Documents during the Procurement Process.

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 is a complex process that includes a comprehensive cost analysis of project requirements, based on the information contained in the procurement documents and other information. Understand the general types of costs involved. Also have an understanding of how the delivery method affects the pricing process.

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. Agreements (PRM Module 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.

Study Unit No. 7 – Construction

Weight on the Examination: 15%

Approximately 15 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objectives

- Measure knowledge of roles and responsibilities between parties during construction.
- Measure knowledge of construction stage submittals.

Source Materials

PRM Module 7 – Construction

AND

AIA Document A201 **OR** EJCDC C-700

Successful candidates will demonstrate knowledge of the roles of the A/E, owner, and contractor during construction; the application and certification/recommendation for the payment process; the source of expectations by each party to the contract; and the expectations of the A/E, owner, and contractor by others in the construction contract administration process.

They will also understand the contractor's role in interpreting the construction documents to prepare submittals, such as shop drawings, product data, and samples and the A/E's role in interpreting the construction documents when serving in the role of construction observer.

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 and how contract administration and contractor project management vary between delivery methods.

B. Roles and Responsibilities (PRM Module 7.2, AIA A201 or EJCDC C-700)

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 as identified in the AIA and EJCDC general conditions and understand the implications of oral and written communication.

When studying AIA Document A201 **or** EJCDC C-700, focus on the rights and responsibilities of the parties that are common to both documents. Also, focus study on the paragraphs listed in the study outlines for these documents.

C. Submittals (PRM Module 7.5)

During the construction of a project the contractor is usually required by the contract to submit product data, shop drawings and samples for the A/E to review. Understand the role of these documents as they relate to the contract documents and the information that should be contained in the documents. Know the names and definitions of the various types of documents, who is responsible for completing them, who is responsible for reviewing them and approving them and the appropriate timing of each.

Study Unit No. 8 – Facility Management

Weight on the Examination: 3%

Approximately 3 questions from material directly referenced in the source materials for this study unit will appear on the exam.

Examination Objective

- Measure knowledge of the concept of facility management, the facility manager's role in project closeout, and the transition between the construction phase and the facility management phase of the facility lifecycle.

Source Materials

PRM Module 8 – Facility Management

Successful candidates will understand the basic concept of facility management, the facility manager's role in project closeout, and the construction contract administrator's role in this process. Questions from this module are general in nature and focus on the roles and responsibilities of the participants as well as how documents prepared during the previous stages of a facility's life cycle are used during facility management.

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 maintaining O&M services.

Study Outline - AIA Document A201

Questions on the examination may be sourced directly from AIA Document A201. General knowledge of the document is helpful in achieving a passing score on the exam. This synopsis uses the titles and numbering sequence of AIA Document A201 to help focus study of this document on sections applicable to actual questions on the exam. Use it in conjunction with the actual document and with CSI's PRM.

1. GENERAL PROVISIONS

- 1.1 Basic Definitions
 - 1.1.1 The Contract Documents
 - 1.1.2 The Contract
 - 1.1.3 The Work
 - 1.1.4 The Project
 - 1.1.5 The Drawings
 - 1.1.6 The Specifications
 - 1.1.7 The Project Manual
- 1.2 Correlation and Intent of the Contract Documents
- 1.3 Capitalization
- 1.4 Interpretation
- 1.5 Execution of Contract Documents
- 1.6 Ownership and Use of Drawings, Specifications and Other Instruments of Service

2. OWNER

- 2.1 General
- 2.2 Information and Services Required of the Owner
- 2.3 Owner's Right to Stop the Work
- 2.4 Owner's Right to Carry Out the Work

3. CONTRACTOR

- 3.1 General
- 3.2 Review of Contract Documents and Field Conditions by Contractor
- 3.3 Supervision and Construction Procedures
- 3.4 Labor and Materials
- 3.5 Warranty
- 3.6 Taxes
- 3.7 Permits, Fees and Notices
- 3.8 Allowances
- 3.9 Superintendent
- 3.10 Contractor's Construction Schedules
- 3.11 Documents and Samples at the Site
- 3.12 Shop Drawings, Product Data and Samples
- 3.13 Use of Site
- 3.14 Cutting and Patching
- 3.15 Cleaning Up
- 3.16 Access to Work
- 3.17 Royalties, Patents and Copyrights
- 3.18 Indemnification

4. ADMINISTRATION OF THE CONTRACT

- 4.1 Architect
- 4.2 Architect's Administration of the Contract
 - 4.2.4 Communications Facilitating Contract Administration
- 4.3 Claims and Disputes
 - 4.3.1 Definition

4.3.2	Time Limits on Claims
4.3.3	Continuing Contract Performance
4.3.4	Claims for Concealed or Unknown Conditions
4.3.5	Claims for Additional Cost
4.3.7	Claims for Additional Time
4.3.8	Injury or Damage to Person or Property
4.3.10	Claims for Consequential Damages
4.4	Resolution of Claims and Disputes
4.4.1	Decision of Architect
4.5	Mediation
4.6	Arbitration
4.6.4	Limitation on Consolidation or Joinder
4.6.5	Claims and Timely Assertion of Claims
4.6.6	Judgment on Final Award
5.	SUBCONTRACTORS
5.1	Definitions
5.2	Award of Subcontracts and Other Contracts for Portions of the Work
5.3	Subcontractual Relations
5.4	Contingent Assignment of Subcontracts
6.	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
6.1	Owner's Right to Perform Construction and to Award Separate Contracts
6.2	Mutual Responsibility
6.3	Owner's Right to Clean Up
7.	CHANGES IN THE WORK
7.1	General
7.2	Change Orders
7.3	Construction Change Directives
7.4	Minor Changes in the Work
8.	TIME
8.1	Definitions
8.2	Progress and Completion
8.3	Delays and Extensions of Time
9.	PAYMENTS AND COMPLETION
9.1	Contract Sum
9.2	Schedule of Values
9.3	Applications for Payment
9.4	Certificates for Payment
9.5	Decisions to Withhold Certification
9.6	Progress Payments
9.7	Failure of Payment
9.8	Substantial Completion
9.9	Partial Occupancy or Use
9.10	Final Completion and Final Payment
10.	PROTECTION OF PERSONS AND PROPERTY
10.1	Safety Precautions and Programs
10.2	Safety of Persons and Property
10.3	Hazardous Materials
10.6	Emergencies

- 11. INSURANCE AND BONDS**
 - 11.1 Contractor's Liability Insurance
 - 11.2 Owner's Liability Insurance
 - 11.3 Project Management Protective Liability Insurance
 - 11.4 Property Insurance
 - 11.4.2 Boiler and Machinery Insurance
 - 11.4.3 Loss of Use Insurance
 - 11.4.7 Waivers of Subrogation
 - 11.5 Performance Bond and Payment Bond

- 12. UNCOVERING AND CORRECTION OF WORK**
 - 12.1 Uncovering of Work
 - 12.2 Correction of Work
 - 12.2.1 Before or After Substantial Completion
 - 12.2.2 After Substantial Completion
 - 12.3 Acceptance of Nonconforming Work

- 13. MISCELLANEOUS PROVISIONS**
 - 13.1 Governing Law
 - 13.2 Successors and Assigns
 - 13.3 Written Notice
 - 13.4 Rights and Remedies
 - 13.5 Tests and Inspections
 - 13.6 Interest
 - 13.7 Commencement of Statutory Limitation Period

- 14. TERMINATION OR SUSPENSION OF THE CONTRACT**
 - 14.1 Termination by the Contractor
 - 14.2 Termination by the Owner for Cause
 - 14.3 Suspension by the Owner for Convenience
 - 14.4 Termination by the Owner for Convenience

Article Title Synopsis - EJCDC Document C-700

Questions on the examination may be sourced directly from EJCDC Document C-700. General knowledge of the document is helpful in achieving a passing score on the exam. This synopsis uses the titles and numbering sequence of EJCDC Document C-700 to help focus study of this document on sections applicable to actual questions on the exam. Use it in conjunction with the actual document and with CSI's PRM.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY	00700- 6
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1.02 Terminology	00700- 8
ARTICLE 2 - PRELIMINARY MATTERS	00700- 9
2.01 Delivery of Bonds and Evidence of Insurance	00700- 9
2.02 Copies of Documents	00700- 9
2.03 Commencement of Contract Times; Notice to Proceed	00700- 9
2.04 Starting the Work	00700- 9
2.05 Before Starting Construction	00700- 9
2.06 Preconstruction Conference	00700- 10
2.07 Initial Acceptance of Schedules	00700- 10
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE	00700- 10
3.01 Intent	00700- 10
3.02 Reference Standards	00700- 10
3.03 Reporting and Resolving Discrepancies	00700- 11
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3.06 Electronic Data	00700- 11
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS	
4.01 Availability of Lands	00700 - 11
4.02 Subsurface and Physical Conditions	00700 - 12
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5.02 Licensed Sureties and Insurers	00700 - 15
5.03 Certificates of Insurance	00700 - 15
5.04 CONTRACTOR's Liability Insurance	00700 - 15
5.05 OWNER's Liability Insurance	00700 - 16
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6.10	Taxes	00700 - 22
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Sample Questions (CDT)

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.

1. A facility's "life cycle" includes all of the following EXCEPT:
 - a. Project Conception
 - b. Financing
 - c. Construction
 - d. Facility Management

2. The objective of the competitive bidding process is:
 - a. To ensure that all qualified bidders may submit bids on public work projects
 - b. To ensure that public works contracts are always awarded to the lowest bidders
 - c. To ensure that the intent of the governing public laws is maintained in the awarding of contracts
 - d. To ensure that the cost of the project is reasonable and consistent with the prevailing conditions in the building industry

3. Multiple-prime contracts are normally a part of:
 - a. Turn-key construction
 - b. Negotiated contracts
 - c. Long duration construction projects
 - d. Fast-track construction

4. The specification-type document prepared during the Design Development phase is called the:
 - a. Outline Specification
 - b. Rough Draft Specification
 - c. *UniFormat* Elements
 - d. Cost Estimate

5. The contractual relationship governed by the Conditions of the Contract is between:
 - a. Owner and Contractor
 - b. A/E and Contractor
 - c. Owner and Subcontractors
 - d. A/E and Subcontractors

6. The Procurement Documents include all of the following EXCEPT:
 - a. Procurement Requirements
 - b. Contract Modifications
 - c. Project Manual
 - d. Drawings

7. To be effective in communicating, specifications should be:
 - a. Complete, concise, and correct
 - b. Concise, clear, and correct
 - c. Clear, correct, complete, and concise
 - d. Concise, correct, and complete

8. Which of the following is NOT a contract modification:
 - a. Change Orders
 - b. Construction Change Directives/Work Change Directive
 - c. Addenda
 - d. Architect's Supplemental Instructions/Field Order

9. Who is solely responsible for control over construction means and methods?
 - a. Contractor
 - b. Supplier of equipment being installed
 - c. Owner
 - d. A/E

10. AIA Document A201 and EJCDC C-700 state who will interpret and decide matters concerning performance based on the Contract Documents upon written request:
 - a. Contractor
 - b. Building Official
 - c. Owner
 - d. A/E

11. "Resource Drawings" serve which purpose?
 - a. Show existing work that is to be modified
 - b. Show construction related to the work, but which is not included in the contract
 - c. Provide the Owner with a set of documents that will facilitate operation
 - d. Drawings prepared by manufacturers, suppliers and the contractor to illustrate portions of the work.

Answers to Sample Questions

1. b PRM 1.4
2. d PRM 3.4
3. d PRM 3.4
4. a PRM 4.9
5. a PRM 5.1
6. b PRM 5.1
7. c PRM 5.8
8. c PRM 5.12
9. a AIA Document A201, 3.3.1 /EJCDC C-700, 6.01
10. d AIA Document A201, 4.2.11/EJCDC C-700, 9.05
11. b PRM 7.1

NOTES

NOTES

USER RESPONSE FORM - CDT EXAMINATION STUDY GUIDE

As part of CSI's effort to keep documents current, we encourage you to comment on the contents and effectiveness of this document. Please use this form to record recommended changes or additions. Thank you for sharing your experience and helping to keep CSI a leader in the industry.

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