



SACRAMENTO STATE

Construction Management

CM 22
Construction Documents
Course Syllabus
Spring 2009

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Lecture 8 – 8:50 AM Monday Wednesday – Academic Resources Center 1009
Lab Section 1: 2:00- 4:50 PM Monday- RVR 4003
Lab Section 2: 2:00- 4:50 PM Wednesday RVR 4003

CM 22—Construction Documents

Course Description

This course focuses on the documents used in construction contracts, including agreements, general conditions, drawings, specifications, addenda, sub and material contracts and daily logs among others, and views them in light of their technical and legal implications to managers of the construction process. Methods of quantity surveying are the focus of most of the lab work.

Prerequisites

Student must have basic knowledge of construction materials and processes and construction graphics. Knowledge of American business law is helpful. They must have completed CM 20, and CM 21, or the equivalent with a C- or better grade to be admitted to this class. Qualified students who have enrolled through Casper will be given the highest priority for admittance to overenrolled classes. Other qualified students will be admitted if room exists for them, with the permission of the instructor.

Academic Honesty and Grading System

All students are subject to the policies described in the University Catalogue. In particular, students should be familiar with policies described on pages 88-89, pages 97-105, and pages 353-356 in the 2008-2010 CSUS Catalogue. (The online catalogue may differ in its pagination.)

Course Objectives

The purposes of this course include developing a working knowledge of the technical and legal documents currently used in the construction industry; how they are formed, applied, and interpreted; where critical information may be found, and how contractors view it. Methods for determining material quantities and organizing material quantity spreadsheets are important elements of the class.

Specific Educational Outcomes

At the conclusion of the class, students should be able to:

1. Explain how construction contracts originate
2. List several methods by which constructors procure work, and the different services that a contractor might perform
3. Identify and describe the contents of the principal components of the construction contract
4. Explain how the principal contract components function and interrelate
5. Identify the location(s) of specific information regarding project administration constraints, material quality, quality of work, and construction process guidelines
6. Explain the difference between prescriptive and performance specifications
7. List the proper format for organizing most building construction projects
8. Apply contract interpretation techniques to resolve simple project conflicts
9. Identify at least four common construction project delivery systems and explain the advantages and disadvantages of each
10. List and explain the roles and responsibilities of the architect/engineer, owner, and contractor in the typical construction contract

11. Explain the differences between public and private works construction and list several constraints unique to each
12. Describe how lien and stop notices differ and how each is used
13. List the requirements for fulfilling the doctrine of promissory estoppel as it relates to construction
14. Identify how the Uniform Commercial Code affects the construction industry
15. Explain the differences between public and private works contracting
16. Explain the role of regulatory law in the construction industry, and list the most common regulatory entities that affect a contractor's work
17. Describe the function of insurance and bonds, and be able to explain the fundamental differences between them
18. List the most commonly used course-of-construction documents
19. Perform accurate quantity surveys for simple earthwork projects and moderately complex building components in a timely and efficient way, following techniques commonly found in the industry

Textbook

Required:

Construction Graphics: A Practical Guide to Interpreting Working Drawings, by Keith A. Bisharat, John Wiley & Sons.

Construction Specifications Writing: Principles and Procedures, 5th edition, Harold J. Rosen and John Regener, Jr., John Wiley & Sons

Recommended references:

Beautiful Evidence; The Visual Display of Quantitative Information; Visual Explanations; Envisioning Information, four books by Edward Tufte, Graphics Press LLC.

Walker's Building Estimator's Reference Book, 26th edition, Frank R. Walker Company

Copies of **AIA form A101 and A201**, 1997 editions, available in the appendices of various books and at the local office of the American Institute of Architects.

Construction Cost Estimating and Bidding: A Managerial Approach, an unpublished manuscript of R. A. Nickles, Professor Emeritus, CSUS CM Program (Hornet Bookstore)

Project Resource Manual, CSI Manual of Practice, fifth edition, Construction Specifications Institute

Project Delivery Systems for Construction, 2d, Associated General Contractors of America

The Construction Industry—Processes, Players, and Practices, Ralph Liebing. Prentice Hall.

Legal Aspects of Architecture, Engineering, and the Construction Process, 7th ed. Justin Sweet and Marc Schneier, Thomson Publishing

Construction Contracting, 6th ed. by Richard Clough and Glenn Sears. Wiley & Sons, Inc.

Selected reading assignments from various sources will be assigned from time to time.

Course Organization and Evaluation

The lecture portion of the class will be devoted to the various topics covered in the class. Students should be prepared to discuss the reading and assignments. The lab periods will be devoted primarily to exercises in the analysis of construction drawings and specifications, where the orderly and systematic measurement of materials and work quantities will represent the bulk of the problems. Quantity surveying will be performed for a variety of components, including earth quantities, concrete foundations, wood light framing, and others. Lab assignments will be graded on format, thoroughness, accuracy, readability and the quality of the audit trail. Students will be required to submit their assignments on time. Projects turned in late will not be accepted.

Individuals who work in construction-related businesses may conduct lectures and lab exercises from time to time. Each student shall compile and submit a well organized, neatly prepared semester reference binder containing all coursework, including lecture notes. During the third week of the semester, students must submit their binder for review during conferences with the instructor. The final edition of the reference binder is due at the end of the semester, or for those students taking the final, when they turn in their exam. Students who fail to submit complete binders will receive an F for the semester. Grades will be determined using the University catalogue criteria for letter grades (see page 97 of the current catalogue). Eight weekly quizzes worth 125 points each will be administered during the semester. An optional final examination will be given to students who choose to influence their grades. Five lab assignments worth 100 points each will be factored into the semester grade. Expectations of student work are high. Regular attendance is encouraged, since much of what is covered is not in the textbook.

Note: Students are required to have a Sac Link account for this class.

Registration is available at <https://www.saclink.csus.edu/saclink/> or at the Academic Information Resource Center (the ARC, west of the University Union building).

**Suggested Lecture Schedule
CM 22 Spring 2009**

	<i>Date</i>	<i>Topic</i>	<i>Notes</i>
<i>Mtg</i>	January		
1	26	Introduction	Read syllabus, "Appendix 1" from Construction Graphics; Record class goals and plan
2	28	The Construction Business Environment and the Origin of Construction Contracts: Players and Projects	Read Chapters 1 and 2, Construction Graphics; Submit SacLink email address
	February		
3	2	Construction Business Environment and the Origin of Construction Contracts: Players and Projects	
4	4	Delivery Systems	Skim "Delivery Systems for Construction" Reference Library
5	9	Contract Documents – Five Components; Agreements	Assignment: analysis and comparison of common agreements; due in one week
6	11	Construction Drawings; Quiz	
7	16	Specifications – MasterFormat, Page Format, and Section Format; Review agreements matrix	Read Chapters 1,3,5 Rosen
8	18	Division 1 Specifications; Quiz	Read Chapters 12-17 Rosen
9	23	Division 2-16 Specifications—Type, Applications and Content	<u>Read Chapters 4, 6- 8 Rosen</u>
10	25	Contract Interpretation – Five Fundamentals; General Conditions; Quiz	<u>Read AIA Form A201 and Chapters 2, 11 Rosen</u>
	March		
11	2	Supplementary Conditions	
12	4	Competitive Bidding – an Overview; Quiz	
13	9	Competitive Bidding – an Overview	Review advertisements to bid in Daily Pacific Builder or Sacramento Builders' Exchange weekly newsletter, bring to class

14	11	Competitive Bidding – Documents and legal concepts; Quiz	<u>Read Drennan v. Star Paving, write abstract</u>
15	16	Allowances, Alternates and Substitutions, Addenda	Read Chapter 21, Rosen
16	18	Bonding; Quiz	
17	23	Insurance— Structure, Types, and Coverage	Read A201 regarding insurance
18	25	Course of Construction Documents— Submittals – Purpose, Nature, and Extent; Quiz	Read Chapter 14, Construction Graphics
	30	Spring Break	
April			
	1	Spring Break	
19	6	Subcontracts	Read AIA Form A401
20	8	Quiz	
21	13	The UCC and Construction - Critical Interface	Read handout
22	15	Material Contracts and Purchase Orders	Read handout
23	20	Payment	TBA
24	22	Change Orders and Entitlement	TBA
25	27	Liens and Stop Notices	Read handout
26	29	Logs- Sub Status	
May			
27	4	Logs- RFI's	
28	6	Project Close-out	Read handout
29	11	UCC- Warranty, Guaranty	Read Chapter 10, Rosen, and handout
30	13	Review	

**Tentative Lab Schedule
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Week	Topic	Notes (assignments due prior to the start of lab)
1	Skills survey; Problems Solving for Managers of the Construction Process; Reference Manual Guidelines	Handouts*—Problem Solving.ppt; Reference Manual Guidelines.ppt; Reference Manual Scoring Sheet
2	Fundamentals of the take-off; RFI's, RFD's and DCR's	In-class assignment due at end of lab period; Handouts*—Take-off Process Notes; Take-off tips.doc;
3	Student conferences: review class goal statement and plan	<u>In-class reference manual review</u>
4	Earth quantity takeoff	Due in two weeks; Read Chapter 6 Construction Graphics
5	Work on earth quantity take-off	
6	Review earth quantity takeoff; assign concrete quantity take-off	Due in two weeks; Read Chapters 7, Construction Graphics
7	Specifications exercise; work on concrete take-off	Specifications exercise due at end of class
8	Review concrete quantity take-off; assign conditions exercise	Due in one week; Read A 201
9	Review conditions exercise; assign lumber take-off	Due in two weeks; Read Chapter 8 Construction Graphics
10	In class specifications assignment; work on lumber take-off	Specifications assignment due at end of class
11	Review lumber take-off; assign masonry take-off	Due in one week; Read handout
12	Review masonry take-off; assign roof covering and flashing take-off	Due in one week; Read Chapter 10 Construction Graphics
13	Review roof covering and flashing take-off; assign mechanical system take-off	Due in one week; Read Chapter 12 Construction Graphics
14	Review mechanical system take-off; assign finishes take-off	Due in one week; read Chapter 11, Construction Graphics
15	Review finishes take-off; Semester lab review	

* see WebCT for electronic copies