



CEM 525 COURSE INTRODUCTION

CEM 525

Project Delivery Systems

BY

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CEM 525 Overview

- Syllabus
- Text
- Course description
- Course objectives
- Course Website
- Software
- Term projects
- Examinations
- Grading plan
- Article Presentation
- Contact information

Text



- *Suggested textbooks :*
 - ◆ **Selecting Project Delivery Systems**
By Victor Sanvido and Mark Konchar

 - ◆ **Project Delivery Systems: CM at Risk, Design-Build, Design-Bid-Build**
Prepared by the Construction Industry Institute

- *Class Notes and Handouts*

- *Course material will be made available through the **WEBCT** web site.*



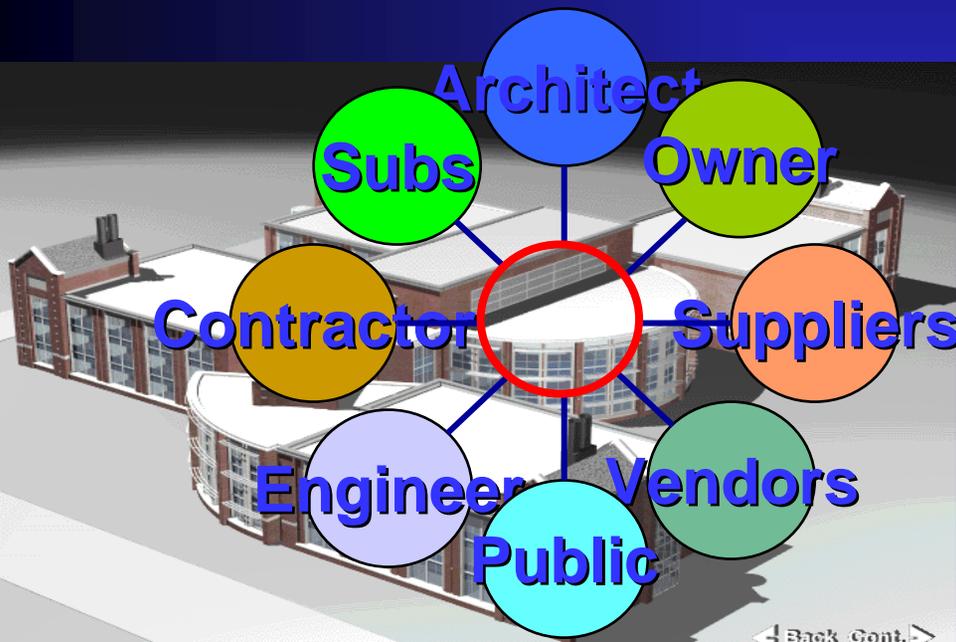
Course Aims & Objectives

- At the completion of this course, the student will understand the following concepts and advise owners, developers, and construction professionals in selection of PDS:
 - To define Project Delivery systems, its key terms, discuss its historical evolution, procurement methods and contracting methods.
 - To provide an comprehensive understanding of each Types of Project Delivery Systems (both traditional and non-traditional): Description of each system, Roles of the main parties, selection of parties, strength and weakness of each system and contract issues and case studies
 - To gain an understanding of selection of best Project delivery method for a project. Discuss its key factors in selection , approaches to selection of the best project delivery systems and know which project delivery method is best suited for your project.
 - To provide an understanding of alternative Project Delivery systems such as Public/Private partnerships , Build Operate Transfer (BOT), BOO and performance based procurement.
 - To discuss the Impact of Information Technology on Project Delivery systems

Course Organization:

The course is divided into major subject areas:

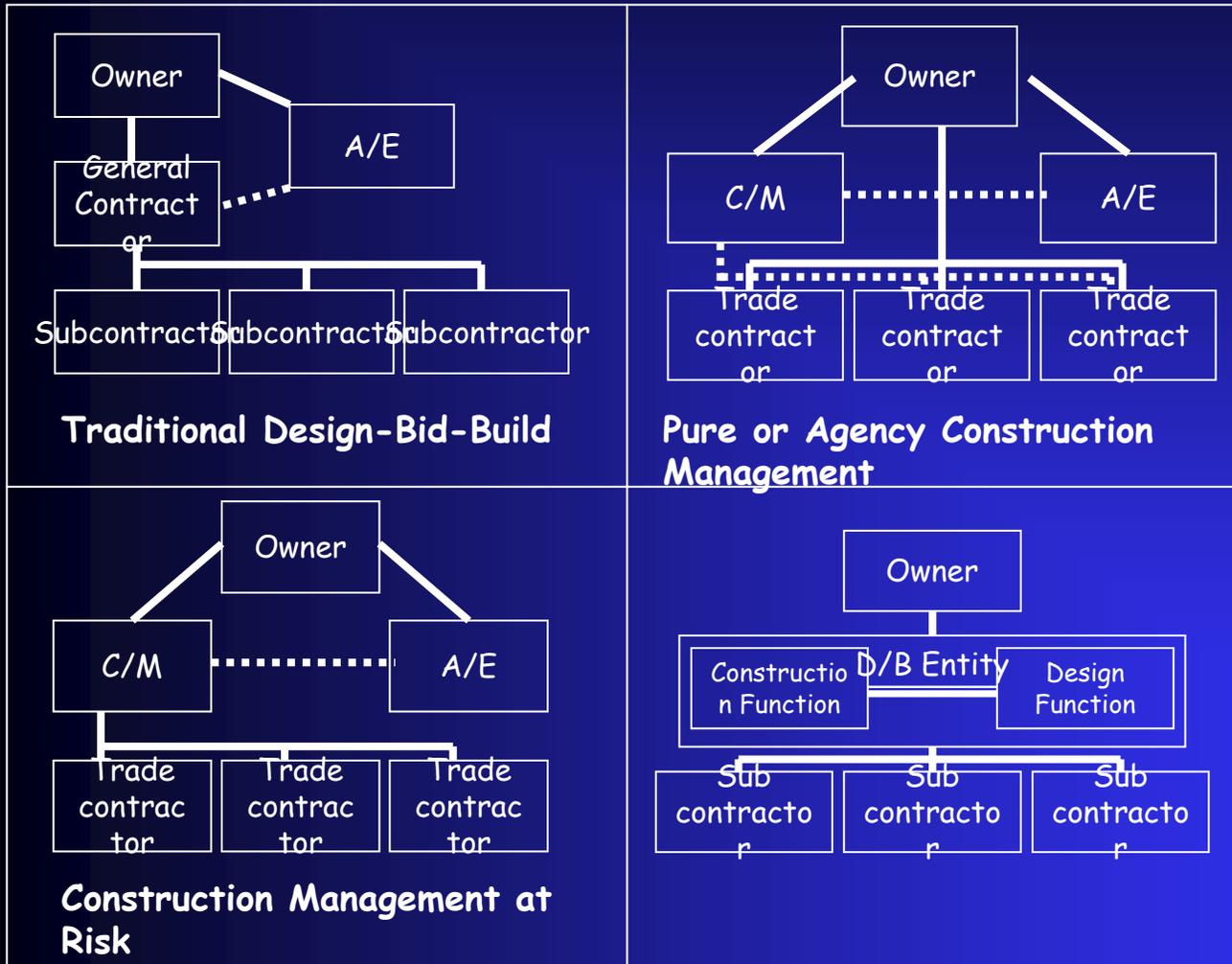
PART - A: Overview Of Project Delivery Systems



Definition of Project Delivery System
Key Project Delivery Terms
Historical Overview
Procurement Methods
Contracting methods

And Why Alternative Project Delivery
Methods Are Being Considered And
Current Industry Trends

PART - B: Types of Project Delivery Systems



Description of each system,

Roles of the main parties, selection of parties,

Strength and weakness of each system and contract issues

Traditional

Design-Build

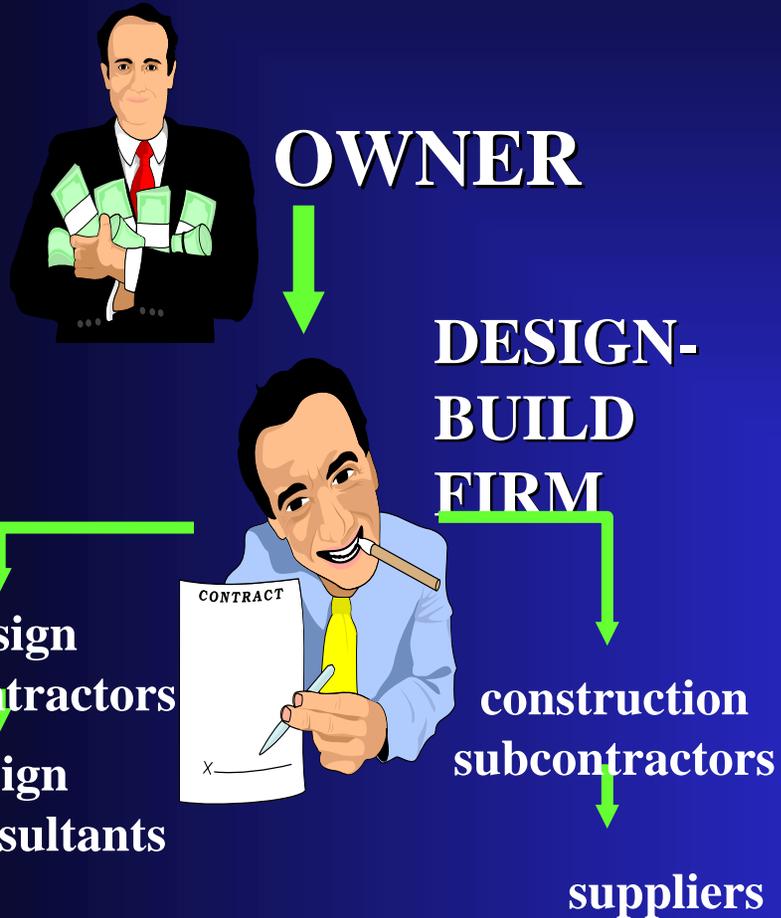
Construction Management

———— Contractual Relationship
 Communicational Relationship

PART - C: Design-Build (The design & construction process and



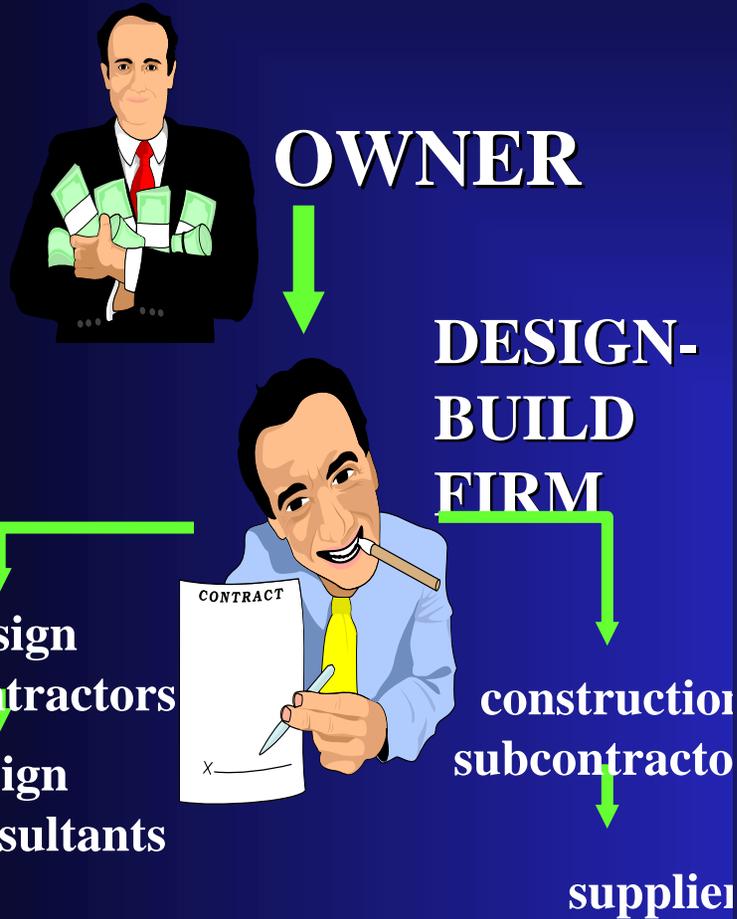
how it is managed, specifically the Design-Build method of project delivery



- History of design-build
- Where and when to use design-build
- Roles of individuals in the design-build process
- Owners? responsibilities in design-build
- Design-build entity organization and management of projects
- Process variations
- Procurement and selection of design-build entities
- Developing RFQs and RFPs
- Conceptual estimating and scheduling

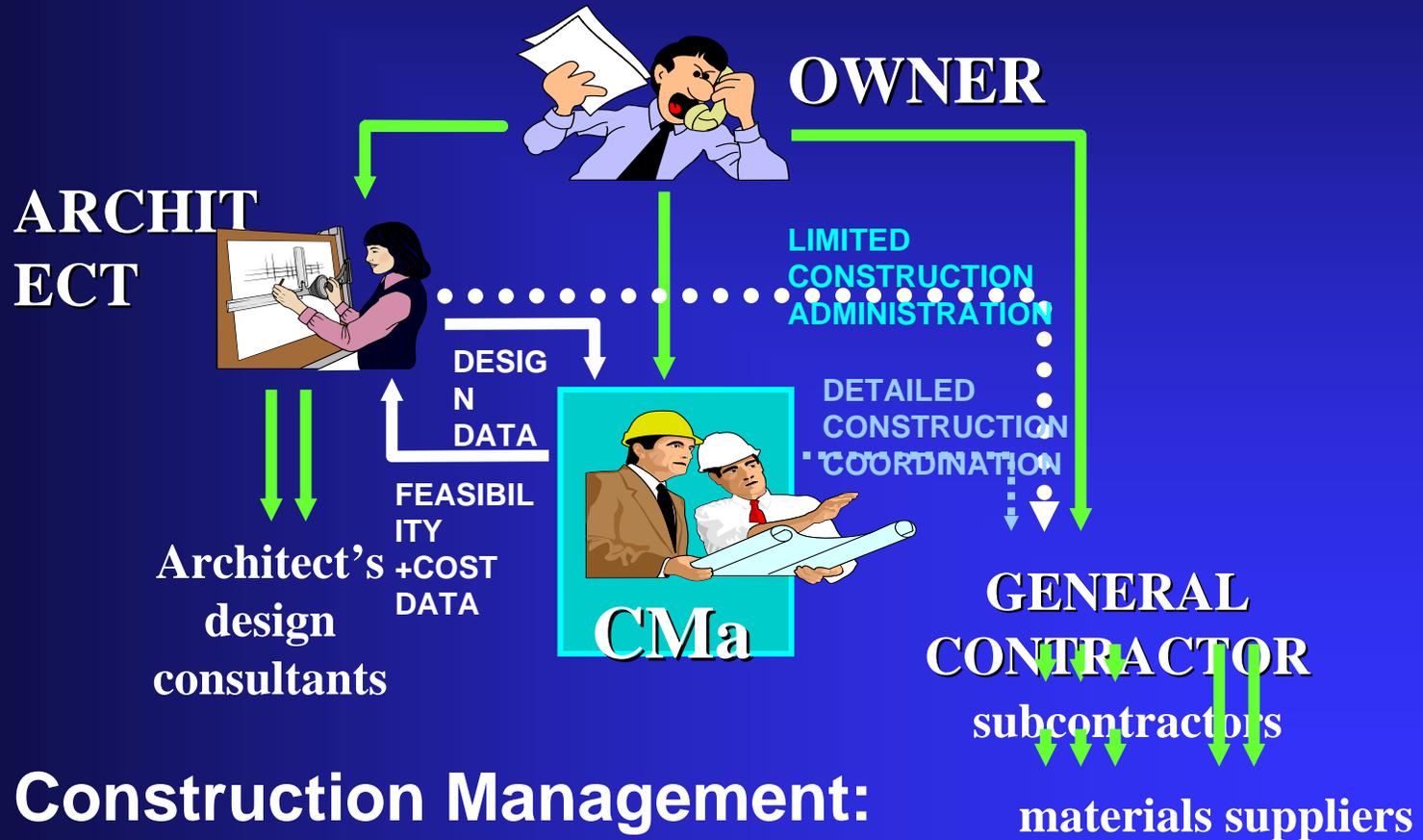
PART - C: Case Studies of Design-Build Projects

Over 600,000 Miles of Roadway!!!



PART - D: Construction Management Project Delivery System

- Construction Management PDS and variations
- Where and when to use Construction Management PDS



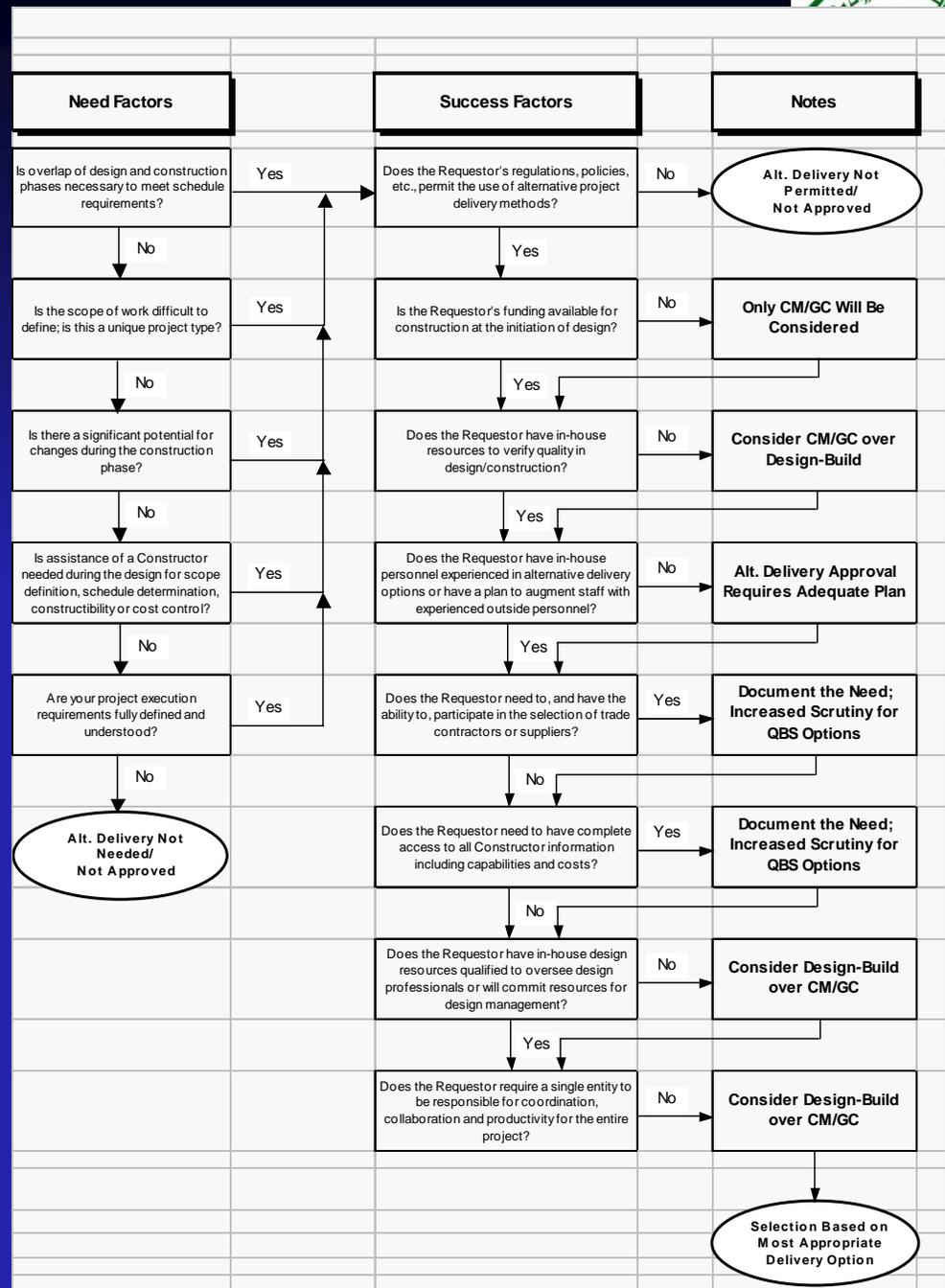
**Construction Management:
"Agency" Form**



PART - E: Selection of best Project delivery method for project

- Know which project delivery method is best suited for your project.
- Selecting an Appropriate Delivery Method – The Major Factors
 - ◆ a. Project Related Factors
 - ◆ b. External Factors
 - ◆ Contributing Factors
- Research reports

Selecting the appropriate Project Delivery Method



PART - E: Selection of best Project delivery method for project

Delivery Options Matrix

SELECTION TYPES	CONTRACTS	
	Designer & Contractor (2 separate contracts)	Design/Builder (1 combined contract)
Low Bid Total Construction Cost is sole criteria for final selection (Total Construction weighted 100%)	Design-Bid-Build	Design-Build Low Bid
Selecting the appropriate Project Delivery Method	CM At-Risk * or D/B/B *	Design-Build Best Value
	CM at-Risk	Design-Build QBS

Total Construction Costs are not a



The REAL Challenges Going Forward...

Implementing the
chosen Project
Delivery
Method

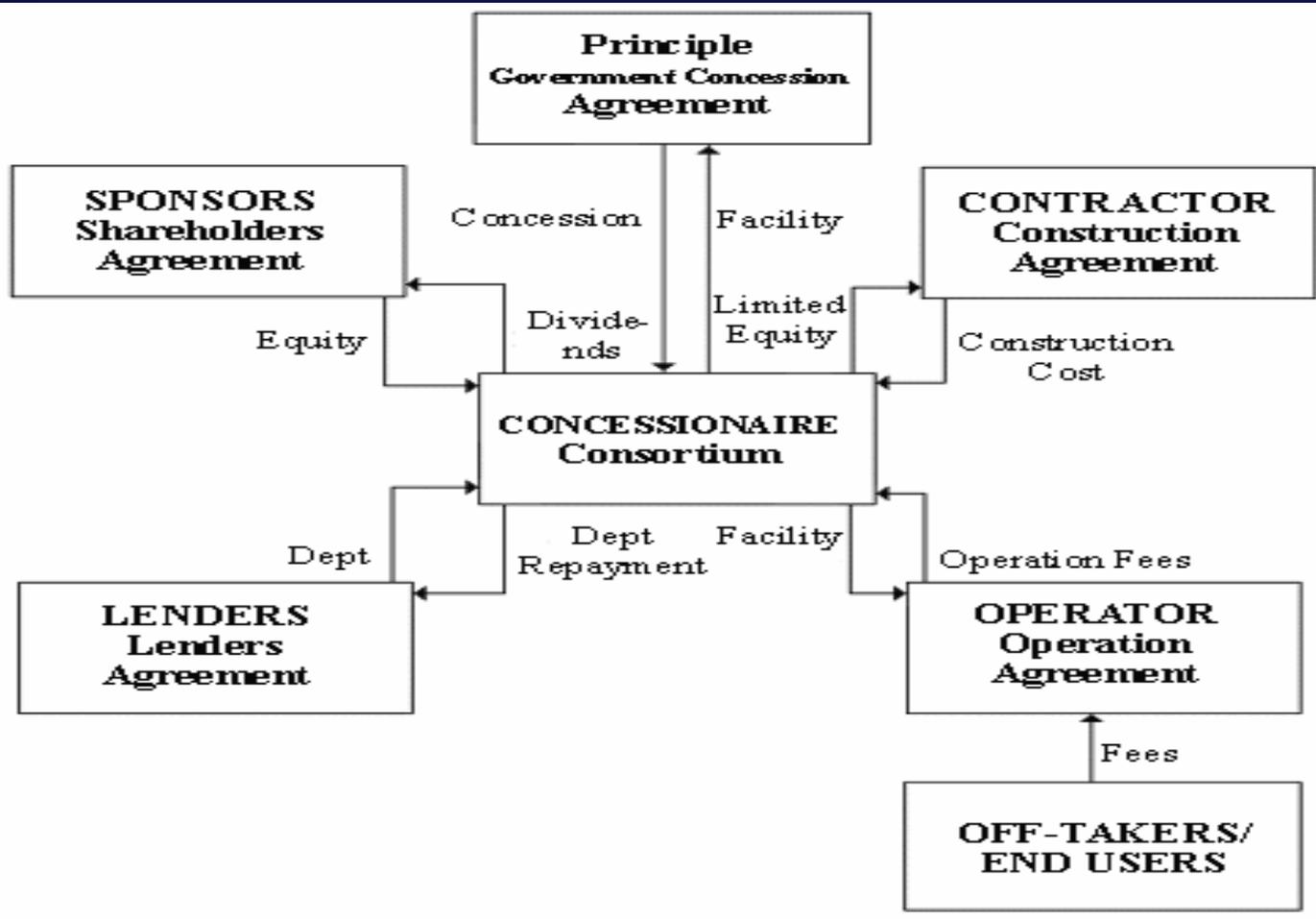
- Contracts
- Selection Procedures
- Lessons Learned
- Case Studies
- Continuous Improvement

PART - F: Alternative Project Delivery Methods



Current Project Delivery Methods
Build Operate Transfer (BOT)
Build Operate Own (BOO)
And other new PDS like
Performance Based Procurement

BOT Contractual Structure



BOT Case studies

Saudi Railways Expansion: Landbridge



Construction of a 950 km new line between Riyadh and Jeddah
Construction of a 115 km new line between Dammam and Juba

PART - G: Impact of Information Technology and project Delivery systems



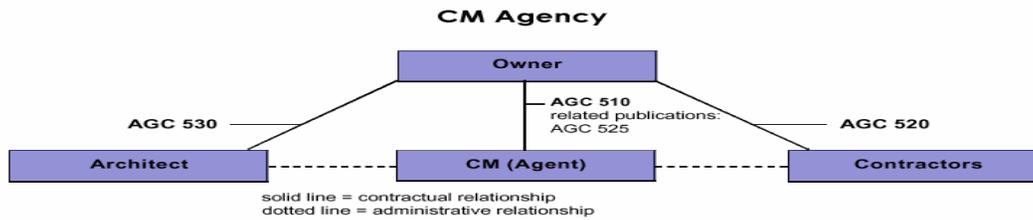
Activate System Requirements	Jul20/99	Aug3/99	0.00m	100.00%	tongz	<input checked="" type="checkbox"/>
System Design	Aug2/99	Aug27/99	0.00m	100.00%	adsfgdfg	<input checked="" type="checkbox"/>
Prepare Drawings for Temp Control Equipment	Aug16/99	Aug27/99	0.00m	100.00%	rsis15	<input checked="" type="checkbox"/>
Prepare Drawings for System Controller	Aug16/99	Aug25/99	0.00m	100.00%		<input checked="" type="checkbox"/>
Approve System Design	Aug30/99	Sep10/99	0.00m	100.00%		<input checked="" type="checkbox"/>
Review and Approve Designs	Aug30/99	Sep21/99	0.00m	100.00%		<input checked="" type="checkbox"/>
Review and Approve Temp Control Equipment	Aug30/99		0.00m	100.00%		<input checked="" type="checkbox"/>
Assemble Brick Samples	Sep20/99	Sep25/99	0.00m	100.00%		<input checked="" type="checkbox"/>
Begin Building Construction	Sep20/99	Sep20/99	0.00m	?	Power Generation Division	<input checked="" type="checkbox"/>

11 of 10 of 170 [Next 10 >>](#)

- ✓ Case Studies
- ✓ Overview of the Emerging Computer applications in construction project delivery systems:
- ✓ Computer applications in construction Estimation
- ✓ Computer applications in contract administration and specification etc.

PART - G: Impact of Information Technology and project Delivery systems

AGC 500 Series (Construction Management Documents)



Standard Form of Construction Management Agreement Between Owner and Construction Manager (Where the Construction Manager is the Owner's Agent and The Owner Enters Into All Trade Contractor Agreements): AGC 510

This contract may be used with the CM process when the owner awards all the trade contracts. 1997. (Order No. 1100)

Standard Form of Agreement Between Owner and Trade Contractor (Where the Construction Manager is the Owner's Agent): AGC 520

This document describes the legal relationship between the owner and each trade contractor, who becomes prime to the owner. This document is compatible with AGC 510. 1997. (Order No. 1101)

Change Order/Construction Manager Fee Adjustment: AGC 525

This form is for projects built under the Construction Management method of contracting. Pad of 25. (Order No. 1102)

Standard Form of Agreement Between Owner and Architect/Engineer (Where a Construction Manager Acting as an Agent Has Been Retained by the Owner): AGC 530

AGC 530 was developed expressly to coordinate with AGC's other CM agency forms, specifically AGC Document Nos. 510 and 520. AGC 530, however, should not be used with CM at risk forms such as AGC Document Nos. 565 and 566. 2000. (Order No. 1110)

- ✓ Case Studies
- ✓ Overview of the Emerging Computer applications in construction project delivery systems:
- ✓ Computer applications in construction Estimation
- ✓ Computer applications in contract administration and specification etc.



Article Presentation

Article Presentation:

Each student will present and prepare summary of journal article related to project delivery systems in construction. With the approval of the instructor, the student will choose the journal article. Specific requirements will be distributed and discussed in class later.

CEM 525 ARTCILEPRESENTATIONS



INSTRUCTIONS

PROJECT DELIVERY SYSTEMS



Term Project:

Term Project:

With the approval of the instructor, the student will work on term project. The term projects will involve an topic related to construction project delivery systems. Specific term project requirements will be distributed and discussed in class later

CEM525 TERMPROJECTINSTRUCTIONS



PROJECT DELIVERY SYSTEMS

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King Fahd University of Petroleum & Minerals

Key Dates and Important Instructions:

- Approval of the topic by the instructor is required before submittal of the presentation and report and progress reports
- If there is any question concerning preparation of the paper the instructor will be available for help. It is recommended to choose the project as soon as possible. No two students can write on the same project without instructor approval, in that case a more detailed presentation may be required
- The presentation is due on **May 21, 2006 onwards**
- The term paper is due no later than **May 21, 2006**.
- Failure to meet this deadline shall result a grade penalty.

GRADING

- Grading policy for this course will be based on the following table.

Article Presentation	5 %
Midterm	20 %
Term Project	40%
Final Exam	35%



SCHEDULE

Week	Date	Lecture	Remarks
1	Feb-11(S)	Course Registration & Confirmation	
	Feb-12 (U)	Course Introduction	
	Feb-14 (T)	Overview Of Project Delivery Systems	
Definition of Project Delivery System,Key Project Delivery Terms,Historical Overview			
2	Feb-19 (U)	Types of Project Delivery Systems,Description of each system	
	Feb-21(T)	Strength and weakness of each system,Roles of the main parties, selection of parties etc	Submit Term Project Topic
			Discuss Term Project
3	Feb-26 (U)	DESIGN-BUILD :History of design-build ,Where and when to use design- build	
	Feb-28 (T)	Roles of individuals in the design-build process	
4	Mar-5(U)	DESIGN-BUILD :Owners? responsibilities in design-build ,	Finalize Term Project Topic
		Design-build entity organization and management of projects	Discuss and submit Article
	Mar-7(T)	DESIGN-BUILD : Process variations	
		Procurement and selection of design-build entities	



SCHEDULE

contd

5	Mar-12(U)	DESIGN-BUILD :Developing RFQs and RFPs	
	Mar-14(T)	DESIGN-BUILD :Conceptual estimating and scheduling	
6	Mar-19(U)	Construction Management Project Delivery System ,Where and when to use	Term Project: Progress Report # 1
	Mar-21(T)	Construction Management Project Delivery System and variations	
7	Mar-26(U)	Article Presentation	
	Mar-28(T)	Article Presentation	
8	Apr 1--2(U)	Mid Term Break	
	Apr-4(T)	MIDTERM EXAM	MIDTERM EXAM
9	Apr-9(U)	Factors affecting Selection of PDS	
	Apr-11(T)	Selection of best Project delivery method for a project,Research reports , Discussion	
10	Apr-16(U)	Current Project Delivery Methods, Build Operate Transfer (BOT)	Progress Report # 2
	Apr-18(T)	Alternative Project Delivery Methods	

contd



11	Apr -23(U)	Current Project Delivery Methods, Build Operate Transfer (BOT)	
	Apr- 25(T)	Build Operate Own (BOO)	
		And other new PDS like Performance Based Procurement	
12	Apr- 30(U)	Disucssion and case studies of Current Project Delivery Methods	
	May- 2(T)	Disucssion and case studies of Current Project Delivery Methods	
		Alternative project delivery systems Case studies	
13	May-7(U)	Guest Lectures	
	May-9(T)	Guest Lectures and site Visits	
14	May-14(U)	Impact of Information Technology and project Delivery systems	
	May-16(T)	Computer applications in contract administration and specification etc.	
		Case Studies, Overview of the Emerging Computer applications in PDS	
15	May -21(U)	Course Review	Final Submission of Term Project
	May -23(T)	Term Project Presentations	Term Project Presentations
16	28-May	Term Project Presentations	Term Project Presentations
	29 May- 8 Jun	Final Exam Week	



Summary

- This is about **YOUR** course
- Basics of Project Delivery systems
- Keep up with term project submissions
- Attend classes

THANK YOU

■ QUESTIONS

