

Construction Contracting

**Institute for Facilities Management
Nashville, TN**



**Faculty: Sadie Greiner, PE, MBA, LEED AP
The University of Iowa**

**AIA
Continuing
Education
Provider**

AIA Credits

Credit(s) earned on completion of this course will be reported to American Institute of Architects (AIA) Continuing Education Session (CES) for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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Core Description

408 Construction Contract Administration APPAU201909M

Discuss the various project delivery approaches utilized by colleges and universities. Learn about the basic legal and contractual documents for a design and construction project. Examine the structure of a construction contract. Review bidding strategies and procedures for soliciting a construction bid and explore various techniques for structuring a bid proposal to the owner's advantage.

Faculty: Sadie Greiner

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Learning Objectives

1. Discuss bidding strategies for construction bids
2. Discuss project delivery approaches
3. Learn basic legal and contractual design documents for design and construction.
4. Discuss the construction contract structure

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Outline

1. Contractual Relationships
2. Delivery Approaches
3. Contract Documents
4. Bidding & Award



Contractual Relationships

Agents and Vendors

Agents:

Provide professional services

Vendors:

Provide a specific product or service



Agents and Vendors

Agents:

Act in the owner's interest

Vendors

Act in their own interest



Noah's Architect

Agents and Vendors

Agents:

Selected on the basis of qualifications, experience and integrity

Vendors:

Selected on the basis of cost or value



The Building Committee favored the stick design...
...more structurally sound than straw,
more cost-effective than brick.

Agents and Vendors

Agents:

Serve the owner's loosely defined needs

Vendors:

Meet the specified contract requirements



"I thought it was legal -
I wrote it on legal pad."

Agents and Vendors

Agents:

Follow a professional code of conduct

Vendors:

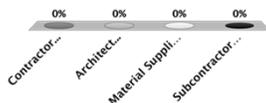
Contract documents define the standard of conduct



"First you'll have to sign this form, releasing me
from any liability."

Which of the following is an Agent...

- A. Contractor...
- B. Architect...
- C. Material Supplier...
- D. Subcontractor...



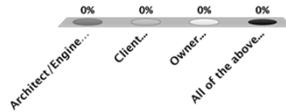
Errors & Omissions



*"Now go forth as an architect and
I shall forgive your errors and omissions."*

Who is responsible for Design Mistakes?

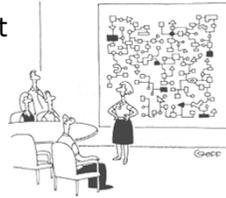
- A. Architect/Engineer...
- B. Client...
- C. Owner...
- D. All of the above...



Delivery Approaches

Delivery Approaches

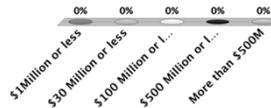
- Design-Bid-Build
- Design-Build
- Construction Management
- Job Order Contracting



"And that's the simple approach.
Now for the way we'll do it."

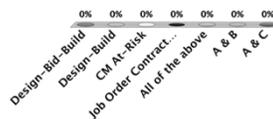
How much Construction does your organization do annually?

- A. \$1 Million or less
- B. \$30 Million or less
- C. \$100 Million or less
- D. \$500 Million or less
- E. More than \$500M

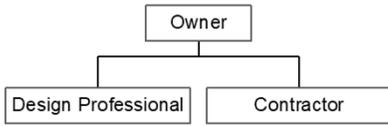


Which delivery method does your organization use with the most?

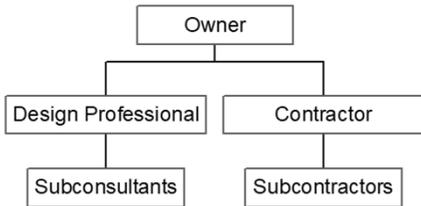
- A. Design-Bid-Build
- B. Design-Build
- C. CM At-Risk
- D. Job Order Contracting
- E. All of the above
- F. A & B
- G. A & C



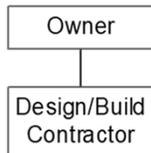
Design/Bid/Build



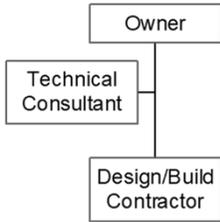
Design/Bid/Build



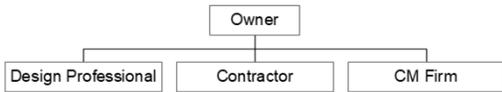
Design/Build



Design/Build (Bridging)

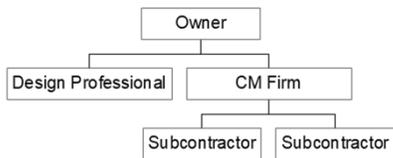


Construction Management



CM For-Fee (agent)

Construction Management



CM At-Risk (vendor)

Job Order Contracting

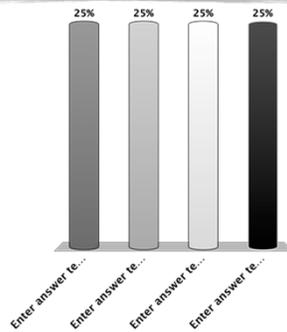
Contract is based on a specification and a unit price book

Bids are based on a multiplier; contract is awarded to the lowest multiplier

Project cost is determined by:
(quantities) x (book unit prices) x (multiplier)

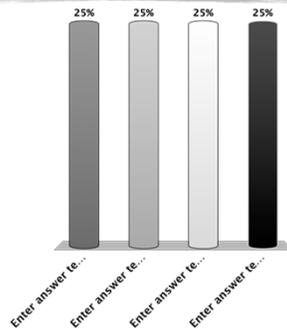
Which delivery method would you choose to use if you were assigned the football stadium renovation project?

- A. Design Bid Build
- B. Design Build
- C. CM Agent
- D. CM @ Risk



What delivery method would you choose to use if you were assigned a new residence hall project?

- A. Design Bid Build
- B. Design Build
- C. CM Agent
- D. CM @ Risk



Contract Documents

Contract Documents

Contracts are a compilation of documents:

- Bidding Requirements
- Contract Forms
- Contract Conditions
- Specifications
- Drawings
- Modifications



"IF YOU'LL JUST SIT TIGHT, I'LL DIVE BACK DOWN INTO THE PRODUCT SPECS, QUOTES AND SAMPLES TO FIND A CONTRACT FOR YOU TO SIGN."

Bidding Requirements

Advertisement or Invitation to Bid

Instructions to Bidders

Bid Form

Bid Bond



Bid Although history has long forgotten them, Lambini & Sons are generally credited with the Sistine Chapel floor.

INSTRUCTIONS TO BIDDERS	
TABLE OF ARTICLES	
1.	RECEIPT AND OPENING OF BIDS
2.	PREPARATION OF BIDS
3.	IOWA TARGETED SMALL BUSINESS PROGRAM
4.	SUBMITTAL OF BIDS
5.	MODIFICATION OF BIDS
6.	WITHDRAWAL OF BIDS
7.	BID SECURITY FOR NON-TARGETED SMALL BUSINESS BIDDERS
8.	BID SECURITY FOR TARGETED SMALL BUSINESS BIDDER
9.	QUALIFICATION OF BIDDERS
10.	SUBCONTRACTORS
11.	BIDDERS' REPRESENTATION
12.	SUBSTITUTIONS
13.	ADDENDA AND INTERPRETATIONS
14.	BID PREFERENCE
15.	METHOD OF AWARD
16.	EXECUTION OF CONTRACT
17.	IOWA STATE BUILDING CODE
18.	PARKING FOR BID OPENING

Legal & Contractual Forms

Performance Bond
Payment Bond
Insurance
Form of Agreement



No, no, no! I said find out if he's bondable.

**FORM OF AGREEMENT
BETWEEN CONTRACTOR AND OWNER**

This AGREEMENT made the day of MONTH in the year Two Thousand Thirteen BY AND BETWEEN CONTRACTOR, hereinafter called the Contractor, and the Board of Regents, State of Iowa, hereinafter called the Owner, on behalf of THE UNIVERSITY OF IOWA, WITNESSETH, that the Contractor and the Owner for the considerations hereinafter named agree as follows:

Article 1. Scope of the Work. - The Contractor shall furnish all of the materials and perform all of the Work shown on the Drawings and/or described in the Specifications entitled:

PROJECT TITLE
PROJECT #

prepared by A/E FIRM acting as and, in these Contract Documents entitled, the Design Professional. The Contractor shall do everything required by this Agreement, and the Contract Documents for the completion of the Contract.

Article 2. Commencement and Completion of Work. - The work to be performed under this Agreement shall be completed in CALENDAR DAYS calendar days from the commencement of the Contract Time. It is agreed that the Contract Time is of prime importance and of the essence of this Agreement and that failure to complete the Work on schedule will cause the Owner to sustain substantial damages. The Contract Time will, however, be extended in the event of occurrence of any conditions described in Paragraph 8.3 of the General Conditions of the Contract.

(OR)

Article 2. Commencement and Completion of Work. - The work to be performed under this Agreement shall be completed by COMPLETELY. It is agreed that the Contract Time is of prime importance and of the essence of this Agreement and that failure to complete the Work on schedule will cause the Owner to sustain substantial damages. The Contract Time will, however, be extended in the event of occurrence of any conditions described in Paragraph 8.3 of the General Conditions of the Contract.

Article 3. The Contract Sum. - The Owner shall pay the Contractor for the performance of the Contract, subject to additions and deductions provided therein, in current funds the NET CONTRACT SUM indicated below:

BASE PROPOSAL	_____
Alternate No. 1	_____

NET CONTRACT SUM	_____

Contract Conditions

Supplementary and Special Conditions...

- Are project specific
- Modify, amplify and tailor the general conditions to the project



"We'd like to change these parts of the contract that deal with souls, ownership and eternity."

MEDICAL LABORATORIES - PROVIDE SUPPLEMENTAL COOLING
(PROJES 411, 452, 472 AND 477)
UNIVERSITY OF IOWA U# 0453401

- c. The Owner shall furnish an electronic set (in .pdf format) of explanatory and changed Construction Documents issued through an ITD at no cost to the Contractor.
- d. The Owner shall furnish an electronic set (in .dwg format) of construction documents for Contractor use to complete Project Work. Contractor shall agree to terms of the Owner's electronic document use agreement and sign form before electronic documents are released.

9. USE OF PREMISES

- a. Care of Project Work Site:
 - 1) The contractor shall be responsible for maintaining the construction site in a reasonably neat and orderly condition by regular cleaning and mowing of the premises as determined by the Owner's Representative.

- b. Access:
 - 1) Access to construction site shall be as indicated on Drawings and as directed by the Owner's Representative. Contractor's main point of access to the building shall be the loading dock. The fourth floor area will be accessible by using either elevator X122 or stair X21426.
 - 2) Fourth (4th) Floor area of work requires use of secure access system. Owner shall coordinate access credentials with contractor after award of bid.
 - 3) Contractor shall maintain access to fire hydrants, free of obstructions.
 - 4) Access and deliveries shall be through the Medical Laboratories loading dock.

- c. Parking:
 - 1) Parking for two construction vehicles will be available in Lot 15. The Contractor shall contact the University Parking Office at (319) 335-1470, located in the Ross Memorial Union Parking Ramp, to obtain temporary permits following preconstruction meeting. Any costs associated with parking shall be paid by the Contractor. No parking is available at the project for employee vehicles.
 - 2) Parking of personal vehicles within project access/way showing areas is prohibited. Violation of this requirement may result in towing and/or leaving at the vehicle owner's expense and suspension of progress payments.
 - 3) Parking or driving on sidewalks, landscaped areas, within fire and service lanes or generally in areas not designed for vehicular traffic is prohibited except as allowed in the contract documents. Violation of this requirement may result in towing and/or leaving at the vehicle owner's expense and suspension of progress payments.
 - 4) Temporary University parking permits may be purchased by contractor employees for use with their personal vehicles on an as available basis by contacting the Parking and Transportation office in the 480 Ramp Parking Structure.
- d. Project Fencing Requirements:
 - 1) Fencing will not be required as a part of work.

Specifications

Define physical character and quality of materials, products and equipment



Specifications

Define physical character and quality of materials, products and equipment

Establish standards for workmanship



Ellis Fischel Guest House, MLI # 980399 3/16/2000
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a listing agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Retain shipping flange protective covers and protective coatings during storage.
- B. Protect bearings and couplings against damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. In-Line Circulators: Bell & Gossett #Series 100
 - a. Amtrol, Inc.
 - b. Armstrong Pumps, Inc.
 - c. Crane Pumps & Systems, Inc. - Waterman Div.
 - d. ITT Fluid Technology Corp. - ITT Bell & Gossett Div.
 - e. Taco, Inc.

2.2 PUMPS, GENERAL

- A. Description: Factory-assembled and -tested, single-stage, centrifugal pump units, complying with US 778, suitable for potable-water service, with all-bronze or stainless-steel construction and components in contact with water made of corrosion-resistant materials.
- B. Motors: Comply with requirements in Division 15 Section "Motors" with built-in thermal-overload protection appropriate for motor size and duty.
- C. End Connectors: Threaded. Pumps available only with flanged ends may be furnished with threaded companion flanges.
- D. End Connectors: Flanged.
- E. Finish: Manufacturer's standard paint applied to factory-assembled and -tested units before shipping.

DOMESTIC WATER DISTRIBUTION PUMPS 15481-2 98191

Specifications

Define physical character and quality of materials, products and equipment

Establish standards for workmanship

Formatted into divisions as outlined by the CSI



Drawings

Graphic depiction of project requirements

Show dimensions and arrangement

Provide basis for quantities

Interrelated and cross
referenced



Modifications

Addenda are changes prior to bidding

Change Orders are changes after award



Bidding & Award

Bid Solicitation

Public or private institution?

Competitive bid or negotiation?



Contractor Qualifications

Pre-qualification vs. Post-qualification

Factors to consider

- Experience
- Personnel
- References
- Finances
- Work in progress



Prequalifying Contractors will ensure quality, budget and schedule are met on a project?

- A. True
- B. False



Alternates

- Contractor priced scope options
- May be additive or deductive
- Protect the budget
- Complicate the bid process
- Selection considerations



BID TABULATION

Bidder's Name	Base Bid	Alt. No. 1	Alt. No. 2	Alt. No. 3	Alt. No. 4
Kidwell Construction	5,422,400.00	70,500.00	74,500.00	71,500.00	94,700.00
Curtiss Manes Schulte	5,498,000.00	79,069.00	54,859.00	49,550.00	89,589.00
Mortenson	5,759,000.00	77,500.00	50,500.00	49,200.00	126,800.00
Sircal Contracting	5,438,000.00	69,800.00	59,700.00	57,900.00	67,800.00
Walton Construction	5,754,000.00	75,000.00	57,000.00	57,900.00	88,000.00
Lico Construction	5,591,000.00	71,500.00	69,180.00	66,780.00	87,370.00

Base Bid \$5,697,768
 Alt. No. 1 44,112.00 - Add Mezzanine
 Alt. No. 2 89,219.00 - Complete construction of 2nd floor West
 Alt. No. 3 89,219.00 - Complete construction of 2nd floor East
 Alt. No. 4 133,688.00 - Upgrade finishes

BID TABULATION

Bidder's Name	Base Bid	Alt. No. 1	Alt. No. 2	Alt. No. 3	Alt. No. 4
Kidwell Construction	5,422,400.00	70,500.00	74,500.00	71,500.00	94,700.00
Curtiss Manes Schulte	5,498,000.00	79,069.00	54,859.00	49,550.00	89,589.00
Mortenson	5,759,000.00	77,500.00	50,500.00	49,200.00	126,800.00
Sircal Contracting	5,438,000.00	69,800.00	59,700.00	57,900.00	67,800.00
Walton Construction	5,754,000.00	75,000.00	57,000.00	57,900.00	88,000.00
Lico Construction	5,591,000.00	71,500.00	69,180.00	66,780.00	87,370.00

Base Bid \$5,697,768
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 Alt. No. 3 89,219.00 - Complete construction of 2nd floor East
 Alt. No. 4 133,688.00 - Upgrade finishes

BB and Alt. #1 & 2
 Kidwell \$5,567,400*
 Sircal \$5,567,500

BB and Alt. #1, 2 & 3
 Kidwell \$5,638,900
 Sircal \$5,625,400*

BB and Alt. #1 & 3
 Kidwell \$5,564,400*
 Sircal \$5,565,700

BB and Alt. #3
 Kidwell \$5,493,500*
 Sircal \$5,495,900

Allowances

Undefined quantities of work

Undetermined product selection

Specialty or proprietary work



Unit Prices

Adjusts allowances and the contract amount

Additive or deductive



(3) The following Unit Prices are required where applicable to particular Base Bid being submitted.

(4) Only a single Unit Price shall be given and it shall apply for either MORE or LESS work than that indicated on Drawings and called for in Specifications as indicated to be included in Base Bid. In event that more or less units than so indicated is actually furnished, Change Orders will be issued for increased or decreased amounts as approved by the Architect.

(5) Bidder understands that the Owner will not be liable for any Unit Price or any amount in excess of Base Bid accepted at time of award of Contract, except as expressed in written Change Orders duly executed and delivered by Owner's Representative.

FILL IN ONLY ONE PRICE PER LINE

(6) Rock Excavation in addition to soil excavation, as defined in Division 2, per cu. yd. and Column Foundation Detail Sheet S 0.00.

(a)	General Excavation-Weathered Shale Base Bid quantity = 1,000 cu. yd.	\$ <u>10.40</u>	per CY
(b)	Trenching, including Footings-Weathered Shale Base Bid quantity = 1,000 cu. yd.	\$ <u>26.10</u>	per CY
(c)	Trenching, including Footings- Shale Bedrock Base Bid quantity = 2,000 cu. yd.	\$ <u>52.20</u>	per CY
(d)	Lean Concrete Fill below footings Base Bid quantity = 750 cu. yd.	\$ <u>25.10</u>	per CY
(e)	Type 1 Base Fill at footings Base Bid quantity = 500 cu. yd.	\$ <u>70.40</u>	per CY

4. PROJECT COMPLETION

a. Contract Period - Contract period begins on the day the Contractor receives unsigned Contract, Performance-Payment Bond, and "Instructions for Execution of Contract, Bonds, and Insurance Certificates." Bidder agrees to complete project within one hundred sixty (160) calendar days from receipt of aforementioned documents. Fifteen (15) calendar days have been allocated in construction schedule for receiving aforementioned documents from Bidder. Reference Special Conditions for Restrictions.

b. Commencement - Contractor agrees to commence work on this project after the "Notice to Proceed" is issued by the Owner. "Notice to Proceed" will be issued within seven (7)

Bidding Process

Advertising and solicitation of interest

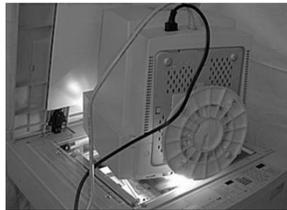
Ooh! Ooh!
The University is bidding a new housing project!



Bidding Process

Advertising and solicitation of interest

Printing of bid document sets



Bidding Process

Advertising and solicitation of interest

Printing of bid document sets

Pre-bid meeting



Bidding Process

- Advertising and solicitation of interest
- Printing of bid document sets
- Pre-bid meeting
- Addenda



Original Plans & Specs

Addenda

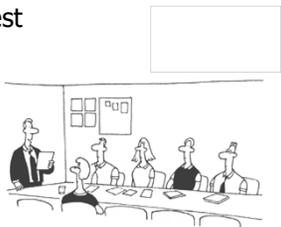
Bidding Process

- Advertising and solicitation of interest
- Printing of bid document sets
- Pre-bid meeting
- Addenda
- Bid closing



Bidding Process

- Advertising and solicitation of interest
- Printing of bid document sets
- Pre-bid meeting
- Addenda
- Bid closing
- Bid opening



With a bid of \$1,455,234, we're awarding the contract to Precision Builders who successfully made the biggest mistake in preparing their bid.

Bid Bond

Surety-backed guarantee
Protects against mistakes in bidding
Covers differences in price between bids



Bid Mistakes

Judgmental Error



Bid Mistakes

Judgmental Error
Clerical Error



"Well I'll be... I must've been holding the dang work order like this"

Evaluation Reminder



Bid Responsiveness

Bid is non-responsive if:

- Qualified or altered
- Lacks a bid bond
- Has unacknowledged addenda
- Doesn't conform to any material bidding requirement



a. Base Bid:

Bidder agrees to furnish all labor, materials, tools, and equipment required to paint the exterior of the Providence Road Warehouse all as indicated on Drawings and described in Specifications for sum of:

EIGHTY SEVEN THOUSAND, FIVE HUNDRED TWENTY
SIX DOLLARS (\$ 87,526.00).

4. PROJECT COMPLETION

a. Contract Period - Contract period begins on day Contractor receives unsigned Contract, Performance Payment Bond, and "Instructions for Execution of Contract, Bonds, and Insurance Certificates." ~~Contractor agrees to complete project within 60 calendar days from receipt of aforementioned documents. If more than 15 calendar days have been required to receive the documents, the contractor will be allowed to extend the contract period by one day for each day that the documents are not received.~~

Amended on page 1-A-3

Commencement - Contractor agrees to commence work on this project after "Notice to Proceed" is issued by Owner. "Notice to Proceed" will be issued within seven (7) calendar days after Owner receives properly prepared and executed Contract documents listed in paragraph 4. above.

5. BIDDER'S ACKNOWLEDGEMENTS

a. Bidder declares that he has had an opportunity to examine site of work; and he has examined Contract Documents therefore; that he has carefully prepared his bid upon the basis thereof; that he has carefully examined and checked bid materials, equipment and labor required thereunder, cost

Award of Contract

Evaluation of bidder responsibility
Bid acceptance period



"Yep. That bid was too high."

ARTICLE 5 - MODIFICATION OF BIDS

5.1 The Form of Bid shall not be modified in any way, and the bid shall not be qualified or conditioned in any way. Modifications, qualifications or conditions placed on the Form of Bid or submitted with the bid may result in the rejection of the bid.

ARTICLE 6 - WITHDRAWAL OF BIDS

6.1 Any bid may be withdrawn prior to the time set for the receipt of bids. No bid may be withdrawn for a period of forty-five (45) calendar days thereafter.

ARTICLE 7 - BID SECURITY FOR NON-TARGETED SMALL BUSINESS BIDDERS

7.1 Bids shall be accompanied by and secured only by a cash deposit, a cashier's check, a certified check, or a bid bond in an amount of at least five percent of the bid. Bids accompanied and secured by any other form of bid security shall automatically be disqualified.

7.2 Certified checks and cashier's checks shall be made payable to the Executive Director, Board of Regents, State of Iowa.

7.3 Bid bonds must be either in the form prescribed by the Board of Regents, State of Iowa, contained elsewhere in this document, or in a form approved by the American Institute of Architects. A copy of the Board of Regents bid bond form is included with the bidding documents or may be downloaded from the Owner's website (<http://www.facilities.uiowa.edu/proc/Contractors/>). The bid bond must be executed solely

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UNIVERSITY OF IOWA

INSTRUCTIONS TO BIDDERS
00 21 13-4

Award of Contract

Evaluation of bidder responsibility
Bid acceptance period
Execution of contract



"Let's just forget a contract. A handshake is the only agreement I've ever needed."

Review and Recap

Contractor - A gambler who never gets to shuffle, cut, or deal.

Bid - A wild guess carried out to two decimal places.

Bid Opening - A poker game in which the losing hand wins.

Low Bidder - A contractor who is wondering what he left out.

Project Estimate - The cost of construction in Heaven.

Project Manager - The conductor of an orchestra in which every musician is in a different union.

Critical Path Method - A management technique for losing your shirt under perfect control.

Liquidated Damages - A penalty for failing to achieve the impossible.

Sureties - People who go in after a battle is lost and bayonet the wounded.

Lawyers - People who go in after the sureties and strip the bodies.

This concludes The American
Institute of Architects Continuing
Education Systems Course

AIA
Continuing
Education
Provider
