




Construction Project Management 



Course 409 & 409A  
APPA Institute  
for Facilities Management

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Swinerton Management & Consulting

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INTRODUCTION



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AGENDA

- Multiple Choice
- Immediate Take-Away
- Managing Expectations
- Process/Controls
- Terms & Conditions
- Start of Construction

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**AGENDA**



**Construction Management**

- Schedules
- Schedule of Values
- Submittals
- Payment Applications
- Requests for Information
- Change Order Requests
- Change Orders

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**AGENDA**

- Substantial Completion
- Close-out
- Case Studies



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**AIA CONTINUING EDUCATION**

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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## COURSE DESCRIPTION

- This session is a complete review of the process of managing a construction project.
- Discuss procedures for construction inspection, change orders, communications, scheduling, payments, and dispute resolution.
- Review the insurance and bonding issues involved in construction contracting.
- Discuss the fundamental project duties and responsibilities of the owner, designer and contractor.
- Review the steps necessary to evaluate and ensure compliance with contract documents, codes and standards.

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## LEARNING OBJECTIVES

- Review the process of managing construction projects.
- Review the steps necessary to evaluate and ensure contract document compliance with codes and standards.
- Discuss construction inspection, change orders, scheduling payments and dispute resolution.
- Review insurance and bonding issues

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## IMMEDIATE TAKE-AWAY

“A colleague of mine is currently faced with the following challenge.....”



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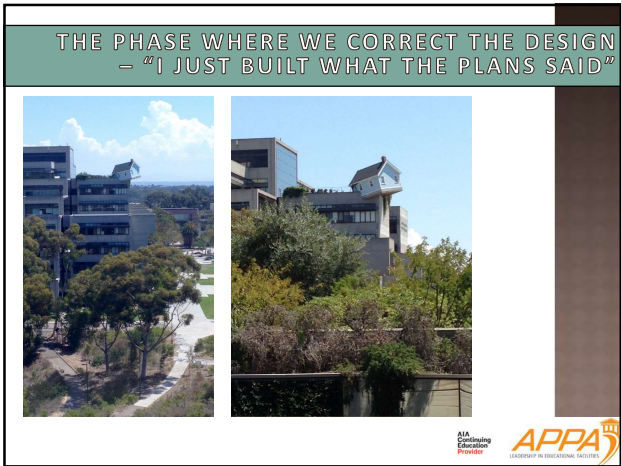
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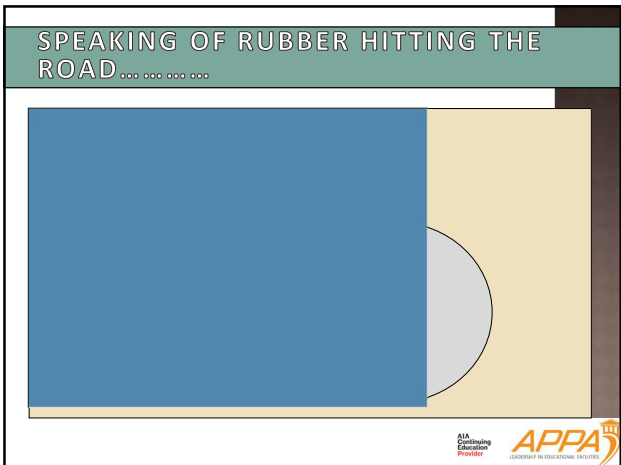
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**MULTIPLE CHOICE - #1**

Standard contracts for design services and for construction provide mutual and clear definitions of project success.

A) True  
B) False



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**MULTIPLE CHOICE - #2**

The construction contract for a summer renovation project has been signed and awarded to a contractor. The schedule is very aggressive. Two weeks before the scheduled start of construction, the Project Manager learns that the classroom has been vacated a few days earlier than anticipated. The Project Manager wants the contractor to start work earlier.

The Project Manager should:

A) Change the Notice to Proceed  
B) Plead with the Contractor to start work early  
C) Review with the Contractor and issue a Change Order  
D) Advise the Contractor that it is in his best interest to start

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**MULTIPLE CHOICE - #3**

The CFO for a major college has advised the construction contractor that he can authorize changes in the work. In addition, the architect and the construction manager are also authorized to approve changes.

Is this a good recipe for a successful project?

A) True  
B) False

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**MULTIPLE CHOICE - #4**

As part of the construction contract, a schedule is required from the Contractor within 30 days of the NTP. The project has a very aggressive schedule and the Contractor is working along with his subcontractors. However, the Contractor has not submitted a schedule for the last 2 pay periods (months). The College is withholding payments valued in excess of \$2 million. This is within the contractual rights of the University.

Will this strategy help the project be completed on time?

A) True  
B) False

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**MULTIPLE CHOICE - #5**

Construction is underway on a renovation project. The Contract duration is 12 months. As part of the submittal process, the contractor has submitted his finishes (carpet, paint, etc.) for review and approval per plans and specifications. The College has decided that they want to revise the interior standards for all campus buildings and management has directed the Project Manager “not to get back to the Contractor” on this submittal for 3-4 months.

Is this a good strategy for addressing this issue?

A) Yes  
B) No

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**MANAGING EXPECTATIONS OWNER**

**EXPECTATIONS**

- On Time
- Within Budget
- Per Contract

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**MANAGING EXPECTATIONS THE CONTRACTOR**

**EXPECTATIONS**

- Maximize Productivity
- Make Planned Profit
- Enhance Reputation
- Per Plans & Specifications

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**MANAGING EXPECTATIONS DESIGN PROFESSIONAL**

**EXPECTATIONS**

- Owner/Client Satisfaction
- Future Commissions
- Professional Recognition

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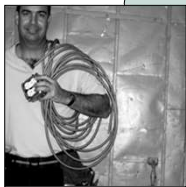

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**MANAGING EXPECTATIONS**

**Inherent differences**

- Owner
- Contractor
- Design Professional

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POTENTIAL CONFLICT



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ALIGNMENT

- Partnering
- Common Definition of Success



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MANAGING CONFLICT

⦿ This is what not to do!



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**MULTIPLE CHOICE - #1**

Standard contracts for design services and for construction provide mutual and clear definitions of project success.

A) True  
B) False



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**IS EVERYTHING IN PLACE?**



- Notice of Intent
- Certificate of Insurance
  - Owner named as additional insured
- Risk Builder's Insurance in place
- Bonds
  - Payment Bond
  - Performance Bond
- Contract is signed



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**OTHER CONSULTANT AGREEMENTS**

- Contract(s) in place
  - Materials/Special Inspections
  - Construction Manager
- Identify scheduling requirements
- Document requests for inspection
- Document cancelled inspections
- Back-charge for cancelled re-inspections (if specified)



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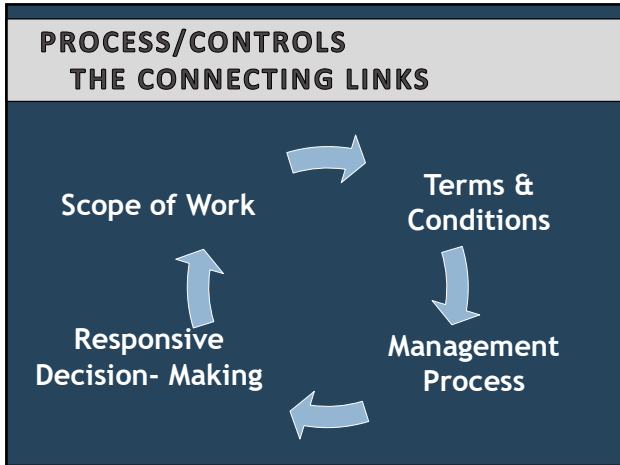
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### PROCESS/CONTROLS

- Read the contract(s)
- Know what is in it
- Document clearly
- Specified controls are part of the contract

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### TERMS

**Examples:**

- Requests for Information (RFI)
- Bulletins
- Architect's Supplementary Instruction (ASI)
- Change Proposal Request (CPR)
- Change Proposal Estimate (CPE)
- Change Order Request (COR)

*Which terms are the right ones?*

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### TERMS & CONDITIONS

**Defined in the Contracts:**

- Design Professional Agreement
- Construction Contract
  - Contract
  - General Conditions
  - Specifications
  - Plans
- Other Consultant Agreements



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### THE START OF THE CONSTRUCTION CONTRACT

- Issuing the Notice to Proceed
- Procedure Meeting
- Pre-construction Meeting
- Contractor's Schedule
- Schedule of Values



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**NOTICE TO PROCEED**

Always use a Notice to Proceed

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**NOTICE TO PROCEED**

- Specify start date of contract
- Identify date as day one of the contract

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**NOTICE TO PROCEED**

Specify contract duration in calendar days from:

- Date of Notice to Proceed
- OR*
- Identification of Completion Date

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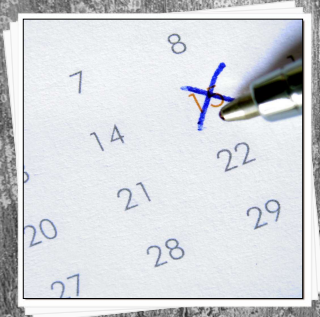
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**NOTICE TO PROCEED**

**Some Basic Strategies:**

- Avoid phased completion dates especially precedent activities
- Notice to Proceed date can be a future date

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**MULTIPLE CHOICE - #2**

The construction contract for a summer renovation project has been signed and awarded to a contractor. The schedule is very aggressive. Two weeks before the scheduled start of construction, the Project Manager learns that the classroom has been vacated a few days earlier than anticipated. The Project Manager wants the contractor to start work earlier.

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**PROCEDURE MEETING**

- **Make sure that the right people attend**
- **May not be the same staff in the field**
  - Staff handling the paperwork
  - Accounting is critical in FEMA-funded projects



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**PROCEDURE MEETING**

- What is the regular meeting schedule?
- Who attends?
- Who takes meeting notes?
- Who is authorized to approve/direct changes?
- Who maintains logs?
- When are Payment Applications Due?
- How will retention be held?

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**MULTIPLE CHOICE - #3**

The CFO for a major college has advised the construction contractor that he can authorize changes in the work. In addition, the architect and the construction manager are also authorized to approve changes.

Is this a good recipe for a successful project?

A) True  
B) False



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**COMMUNICATIONS**

- Protocols and procedures
- Site Visitors
- University Events
- Who is in charge?




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**SITE SAFETY**

- The General Contractor is solely responsible for site safety
- A Contractor's EMR Rate of 1.0 or lower is a good rate, if it is higher, you should ask questions
- Everyone is responsible for pointing out unsafe conditions if observed
- Everyone is responsible for complying with the Contractor's safety requirements



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**SITE SAFETY**

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**SITE SAFETY –  
WHAT WOULD YOU DO IF...**

**The Setting**

- The Chancellor announces that he would like to take a tour of active construction sites on campus.
- The Chancellor arrives at your project site that is under construction, and site work is underway.
- He has a group with him.
- One individual is dressed in jeans, and appropriate clothing, but is only wearing tennis shoes(not hard sole shoes).
- The General Contractor’s Project Manager does not say anything as the group begins walking the construction site.

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**SITE SAFETY –  
WHAT WOULD YOU DO IF...**

**Part 1**

- As the Project Manager for the University, do you say something to the person that is not wearing Personal Protection Equipment?
- If you do say something, what would you say?

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**SITE SAFETY –  
WHAT WOULD YOU DO IF....**

Part 2.....



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**PRECONSTRUCTION MEETING**

- Project focused
- Field focused
- Mobilization
- The right attendance:
  - Contractor's field staff
  - Architect/Key Consultants
  - Owner's staff
  - Inspection forces



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**CONTRACTOR'S BASELINE SCHEDULE**



- Obtain Contractor's Baseline Schedule per contract requirements
- Loaded
  - Include dates/milestones
  - Staffing/Cost
- Requires Approval
- Absolute necessity



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## CONTRACTOR'S BASELINE SCHEDULE

**Remedies:**

- Withhold GC's on Payment Application
- Independently prepared schedule

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## POTENTIAL REMEDIES

- Withholding a stipulated sum
- Holding subsequent pay applications
- 3<sup>rd</sup> Party Preparation, Costs to be deducted from Amounts Owed

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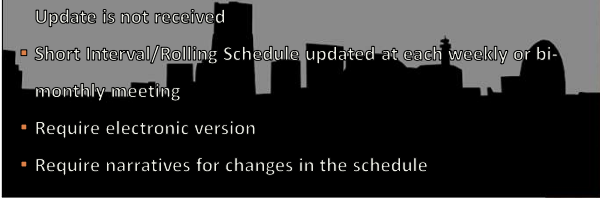

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## SCHEDULE MANAGEMENT

- Baseline Schedule Updated Monthly with Payment Application
- Withhold General Conditions portion of Payment Application if Update is not received
- Short Interval/Rolling Schedule updated at each weekly or bi-monthly meeting
- Require electronic version
- Require narratives for changes in the schedule

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**MULTIPLE CHOICE - #5**

Construction is underway on a renovation project. The Contract duration is 12 months. As part of the submittal process, the contractor has submitted his finishes (carpet, paint, etc.) for review and approval per plans and specifications. The College has decided that they want to revise the interior standards for all campus buildings and management has directed the Project Manager "not to get back to the Contractor" on this submittal for 3-4 months.

Is this a good strategy for addressing this issue?

A) Yes  
B) No



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**MANAGING CONSTRUCTION PAYMENT APPLICATIONS**

- Set regular cycle for review, once every 30 days
- Based on approved Schedule of Values
- Prepare a DRAFT in the field
- Finalize in the office
- Submitted by the Contractor
- Approved by Architect/Owner

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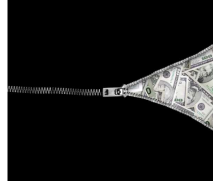

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**MANAGING CONSTRUCTION PAYMENT APPLICATIONS**

- Retention
- Typically 10% of Application
- Options
- Held by Owner
- Securities in lieu of Escrow

- As individual trades are completed, retention can be reduced by Change Order
- As project nears completion, retention can be reduced by Change Order

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## MANAGING CONSTRUCTION PAYMENT APPLICATIONS

### ADDITIONAL REQUIREMENTS

- Updated construction schedule
- Status of As-built drawings/documentation
- Lien releases and Conditional/Unconditional lien releases



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## SAMPLE PAYMENT APPLICATION

Application is made for payment under the Contract as shown below and in Schedule I attached hereto:

1. ORIGINAL CONTRACT SUM.....	\$5,898,712.00
2. NET CHANGE BY CHANGE ORDERS.....	\$500,183.00
3. CONTRACT SUM TO DATE (Line 1 Line 2).....	\$6,298,876.00
4. TOTAL AMOUNT COMPLETED TO DATE (Column E on Schedule 1).....	\$4,835,312.00
5. RETENTION: 10% of Completed Work (Column H on Schedule 1).....	\$0.00
a. Current Value of Securities Deposited in Escrow	\$0.00
b. Current Value of Retention Deposited in Escrow	\$0.00
c. Retention Held by University.....	\$0.00
Current Retention Value (a + b + c).....	\$0.00
6. TOTAL EARNED LESS RETENTION (Line 4 less Line 5).....	\$4,835,312.00
7. TOTAL AMOUNT PREVIOUSLY PAID.....	\$4,220,502.00
8. CURRENT PAYMENT DUE (Line 6 less Line 7).....	\$614,810.00
9. BALANCE TO FINISH, PLUS RETENTION (Line 3 less Line 6).....	\$1,463,563.00

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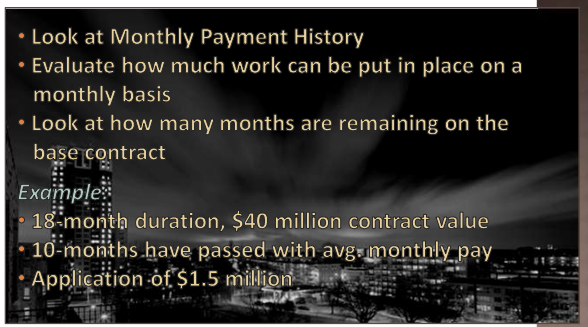
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## IS THE PROJECT GOING TO BE FINISHED ON TIME?

- Look at Monthly Payment History
- Evaluate how much work can be put in place on a monthly basis
- Look at how many months are remaining on the base contract

*Example*

- 18-month duration, \$40 million contract value
- 10-months have passed with avg. monthly pay
- Application of \$1.5 million



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## FINAL COMPLETION

- File Notice of Completion (NOC) only when:  
**all aspects of the contract are completed**
- Starts statutory time limits on liens
- Absent a filing on NOC, lien limits become longer

BUT DO WE REALLY FINISH BEFORE MOVING IN?



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## CHANGE ORDER REQUEST- WHAT WOULD YOU DO IF...

- Construction is underway
- The construction market is very robust
- Construction labor is short and competition for staff is highly competitive
- National policy imposes tariffs on a variety of construction materials specified in plans and specifications
- The Contractor is claiming that subcontractors are facing unknown material costs and product delivery
- What would you do?



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## MULTIPLE CHOICE - #7A

The university has a project under construction with Contractor A. They just awarded another construction contract to Contractor B for a project immediately next door to Contractor A. A Notice to Proceed has been issued to Contractor B for a start date of September 20. Unfortunately, Contractor A has just informed the university's project manager that he will not be able to complete his underground utility work by September 20 - and the work is in the way of Contractor B. Compensable delays for Contractor B are \$5,000/day of delay.

**The University's project manager should:**

- A) Immediately issue a new Notice to Proceed with a start date of September 27
- B) Ask Contractor B to forgive him
- C) Issue a change order to Contractor A to **accelerate the work**
- D) Negotiate a change order with Contractor B



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**MULTIPLE CHOICE - #8A**

The university is implementing construction in an occupied science building one floor at a time. Hazardous materials are being abated by a separate contract managed by the university. The strategy is that one floor at a time will be vacated, hazardous materials abated, then turned over to the contractor for construction. Professor Smith is very unhappy with the disruption to his research and has refused to move. His refusal to move has impacted the construction schedule.

Are the contractors entitled to compensable delay?

Yes  
No

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**MULTIPLE CHOICE - #9A**

During excavation work for the foundations of a new library, some artifacts are being dug up. The debris looks like old bottles, some broken China, and other utensils of unknown origin.



Should the university's project manager stop the work?

A) Yes  
B) No

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**MULTIPLE CHOICE - #10A**

Construction is underway on a new university project. As always, time is critical as the new building needs to open in alignment with the academic calendar. The number of workers on site is low, and construction progress is painfully slow. The subcontractors are constantly complaining to the University's Project Manager that they are not being paid, but no Stop Notices are being filed.

What should the University's Project Manager be doing to help ensure that the project is completed in time for classes?

A) Review the contractor's schedule with a critical eye  
B) Encourage the subcontractor's to file Stop Notices  
C) Pay ahead for work not yet completed to help with cash flow  
D) Replace the Contractor's Project Manager  
E) Other

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**MULTIPLE CHOICE - #11A**

Earlier this year, the University bid a project utilizing lump sum, low bid. A construction contract was awarded to the low bidder, along with a Notice to Proceed. Three months after the work has started, the Contractor has submitted a change order request for \$30,000 increase in the cost of reinforcing steel for the foundations. In his request for a cost adjustment, the contractor submitted articles from ENR, newspapers, etc. on the escalating cost of certain construction materials, along with letters from rebar subcontractors throughout the state indicating cost increases in materials.

**What should the university do?**

- A) Pay the requested increase.
- B) Acknowledge the request, but say no.
- C) Split the difference.
- D) Find a different subcontractor.
- E) All of the Above
- F) None of the Above

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**MULTIPLE CHOICE - #12A**

Great care has been expended by the construction team to make sure that the punch list has been completed and that the quality of the project has met the intent of the plans and specifications. While the punch list is being finalized, the university is moving in faculty and staff. The elevator cab has been damaged and the architect has added repairs of the cab to the contractor's punch list. The contractor is refusing to correct the work, claiming that it was caused by the movers.

**The university's project manager should:**

- A) Remove the item from the architect's punch list
- B) Make the contractor repair the elevator cab at their cost
- C) Have the contractor repair the elevator cab and charge the cost to the mover
- D) Other

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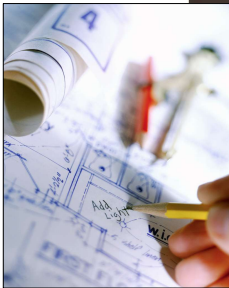
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**CASE STUDIES**

- **Case Study 1:** The problem with the mechanical system
- **Case Study 2:** Obtaining the schedule
- **Case Study 3:** Responding to the RFI's
- **Case Study 4:** On-Site Teamwork?
- **Case Study 5:** The Run-away Materials Testing Lab Fees
- **Case Study 6:** The Uncooperative Local Utility Company and the Potential for Delays



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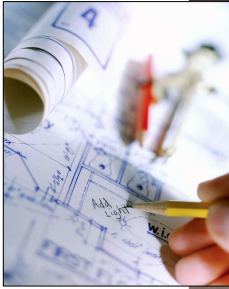
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## CASE STUDIES

- **Case Study 7:** Project completion being held up by a subcontractor
- **Case Study 8:** Subcontractors not being paid
- **Case Study 9:** Is the CMAR at risk for everyone?
- **Case Study 10:** What happens when a Design-Build Team makes a bad decision



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## ALMOST FINISHED ... ..

This concludes The American Institute of Architects Continuing Education Systems Course

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