




Construction Project Management 



Course 409  
APPA Institute  
for Facilities Management

Jeffrey Gee, AIA  
Swinerton Management & Consulting

AIA Continuing Education Provider 

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INTRODUCTION



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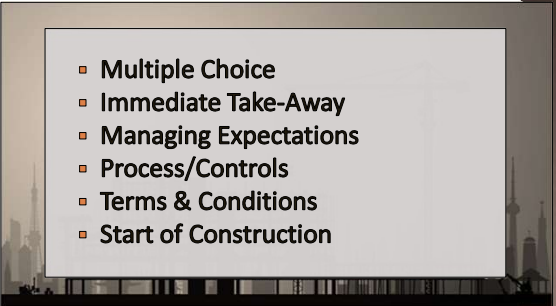
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AGENDA

- 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

- Budget Forecasting
- Substantial Completion
- Close-out
- Managing Construction Time
- Common Issues During Construction
- Construction Claims
- Improving the Construction Process



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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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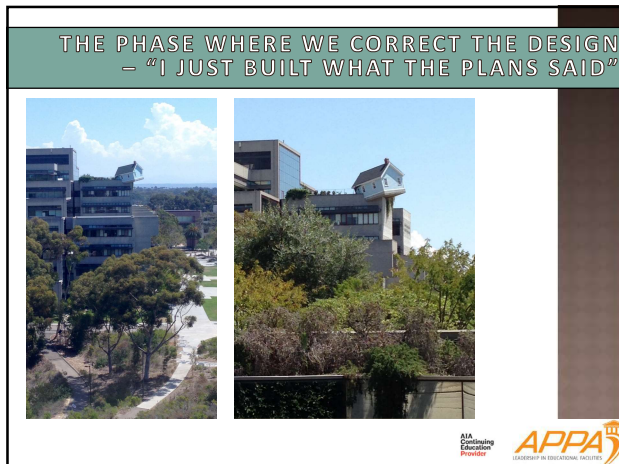
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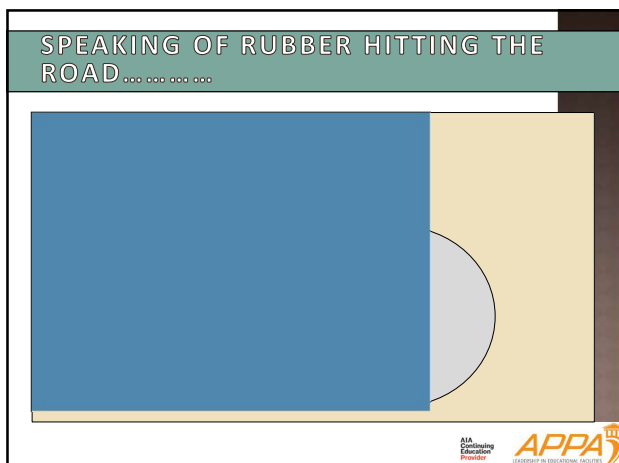
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### MULTIPLE CHOICE - #1

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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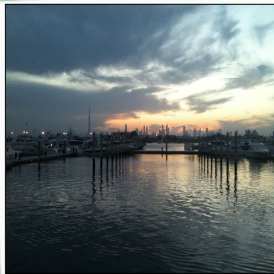
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### MANAGING EXPECTATIONS OWNER

#### 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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**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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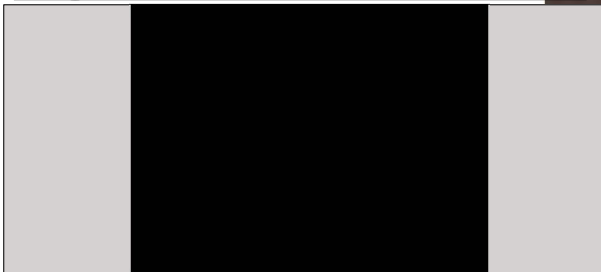
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## MANAGING CONFLICT

- 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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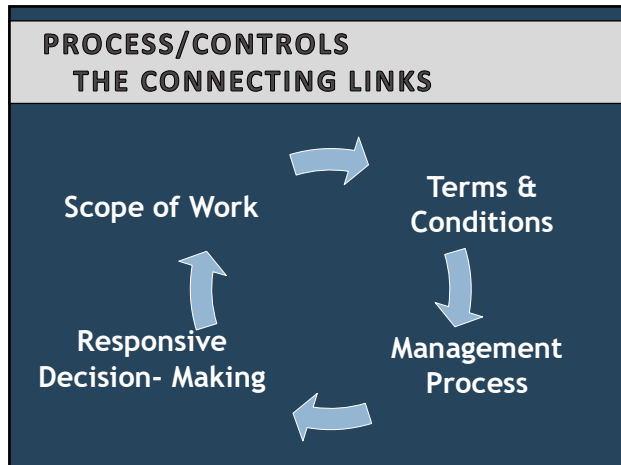
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**PROCESS/CONTROLS**

- 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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**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.

The Project Manager should:

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- D) Advise the Contractor that it is in his best interest to start



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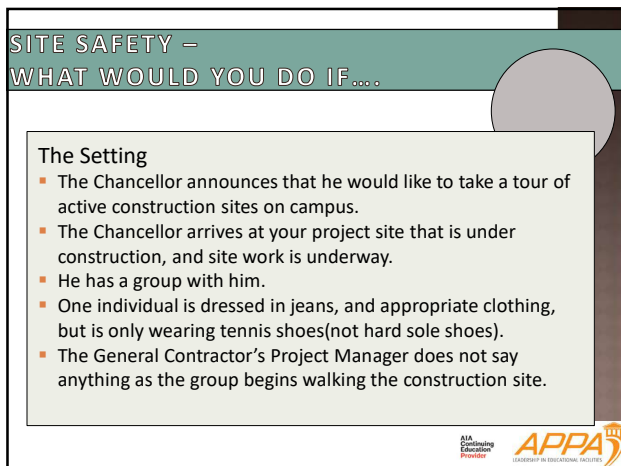
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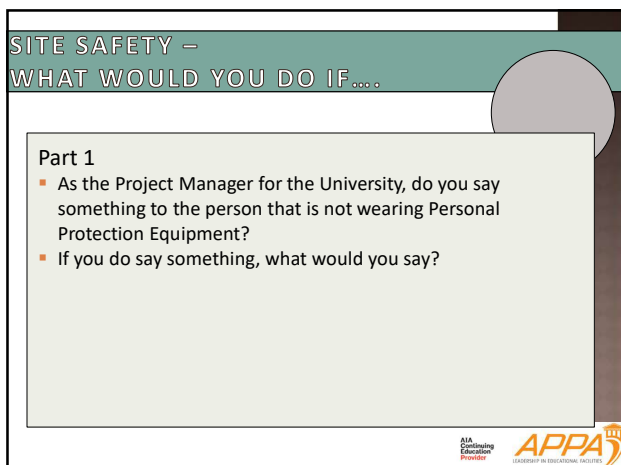
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**SITE SAFETY –  
WHAT WOULD YOU DO IF....**

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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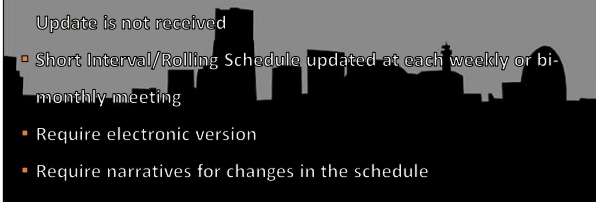
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## SCHEDULE MANAGEMENT

- 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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## SHORT INTERVAL/ROLLING SCHEDULE

### SHORT INTERVAL SCHEDULE #05

Date Submitted: 10/2/2004  
Project Name: S.Y.O.

WEEK OF 8/27/04 - 10/2

ACT. NO.	DESCRIPTION	SUB	CURRENT WEEK							SECOND WEEK							THIRD WEEK							FOURTH						
			S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	TEMP POWER PANEL	SJA / VWS																												
2	LAY OUT FOUNDATION	SJA																												
3	STRUCT. EXCAVATION @ FOUNDATION	SJA / ALLIED																												
4	PLACE FOUNDATION REBAR A-G / 1-4	ALAMILLO																												
5	REBAR TEMPLATES A-G / 1-4	SJA																												
6	SET ANCHOR BOLTS A-G / 1-4	SJA																												
7	CAST FOUNDATION A-G / 1-4	SJA																												
8	PUMP LOWER SECTION EJECTOR WALLS	SJA																												
9	CAST LOWER SECTION EJECTOR WALLS	SJA																												
10	FOUNDATION REBAR D-G / 1-4	ALAMILLO																												
11	REBAR TEMPLATES D-G / 1-4	SJA																												
12	SET ANCHOR BOLTS D-G / 1-4	SJA																												
13	CAST FOUNDATION D-G / 1-4	SJA																												
14	FOUNDATION REBAR A-G / 1-4	ALAMILLO																												
15	REBAR TEMPLATES A-G / 1-4	SJA																												
16	UNDERSLAB PLUMBING A-G / 1-4	FW SPENCER																												
17	ANCHOR BOLTS A-G / 1-4	SJA																												
18	CAST FOUNDATION A-G / 1-4	SJA																												
19	UNDERSLAB PLUMBING A-G / 1-4	FW SPENCER																												
20	STRUCT. EXCAVATION E-H / 1-4	SJA / ALLIED																												
21	FOUNDATION REBAR E-H / 1-4	ALAMILLO																												
22	REBAR TEMPLATES E-H / 1-4	SJA																												
23	ANCHOR BOLTS	SJA																												
24	CAST FOUNDATION E-H / 1-4	SJA																												

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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 withholdings 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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## SCHEDULE OF VALUES

- As required in specifications
  - AIA Format
  - Other Format
- Recognize Multiple Funding Sources
- Requires Approval

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SCHEDULE OF VALUES							
ROW NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	% COMPLETE TO DATE	TOTAL COMPLETED TO DATE (C X D) E	TOTAL AMOUNT OF COMPLETED OR PRIOR APPLICATION FOR PAYMENT F	AMOUNT OF THIS APPLICATION (E - F) G	RETENTION
A	<b>Division 1</b>						
1	General Conditions	\$541,625	100%	\$541,625	\$541,625	\$0	\$0
2	Excavation & Fill	\$655,894	100%	\$655,894	\$655,894	\$0	\$0
3	Foundation (G/F/G)	\$50,848	100%	\$50,848	\$50,848	\$0	\$0
4	Payment and Performance Bonds	\$153,213	100%	\$153,213	\$153,213	\$0	\$0
5	Mobilization	\$25,000	100%	\$25,000	\$25,000	\$0	\$0
6	Owner Owned Documents	\$5,000	20%	\$1,000	\$1,000	\$0	\$0
7	Building Commission	\$5,000	100%	\$5,000	\$5,000	\$0	\$0
8	<b>Division 2</b>						
10	Demolition	\$452,020	100%	\$452,020	\$452,020	\$0	\$0
11	Alterment	\$164,352	100%	\$164,352	\$164,352	\$0	\$0
12	<b>Division 3</b>						
13	Classrooms	\$10,444	100%	\$10,444	\$10,444	\$0	\$0
14	Form Plans & Finish	\$284,218	100%	\$284,218	\$284,218	\$0	\$0
15	Classroom	\$33,654	100%	\$33,654	\$33,654	\$0	\$0
16	<b>Division 4</b>						
17	Room Group	\$43,241	100%	\$43,241	\$43,241	\$0	\$0
18	<b>Division 5</b>						
19	Masonry	\$226,916	100%	\$226,916	\$226,916	\$0	\$0
20	Misc. Structural Steel	\$31,463	100%	\$31,463	\$31,463	\$0	\$0
21	Misc. Metals	\$79,721	100%	\$79,721	\$79,721	\$0	\$0
22	Misc. Steel	\$180,532	100%	\$180,532	\$180,532	\$0	\$0
23	<b>Division 6</b>						
24	Roofing	\$53,282	100%	\$53,282	\$53,282	\$0	\$0
25	<b>Division 7</b>						
26	Sheet Metal & Flashing	\$33,855	100%	\$33,855	\$33,855	\$0	\$0
27	Roofing & Waterproofing	\$49,859	100%	\$49,859	\$49,859	\$0	\$0
28	<b>Division 8</b>						
29	Clock Frames and Hardware	\$224,662	100%	\$224,662	\$224,662	\$0	\$0
30	Info. Storage	\$12,301	100%	\$12,301	\$12,301	\$0	\$0
31	<b>Division 9</b>						
32	Plumbing Fixtures	\$480,439	100%	\$480,439	\$480,439	\$0	\$0
33	Tile	\$14,178	100%	\$14,178	\$14,178	\$0	\$0



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## MANAGING CONSTRUCTION

### A COMMON MISCONCEPTION

**Contract administration involves merely enforcement**




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## MANAGING CONSTRUCTION

**It also involves:**

- Anticipating problems
- Problem solving
- Being proactive
- Being timely




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## MANAGING CONSTRUCTION SUBMITTALS

- Affirms Quality
- As specified in the contract
  - Number of copies
  - Requires approval
- Substitutions
  - Burden of Proof is on Contractor
- Maintain Log
  - Review weekly
  - Do not let submittals age




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## MANAGING CONSTRUCTION SUBMITTALS

### A COMMON MISCONCEPTION

**There is no time limit on the review of submittals unless specified**



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## SUBMITTAL LOG

SUBMITTAL #	DESCRIPTION	RECEIVED FROM SUB	SENT TO RATCLIFF	RETURNED FROM RATCLIFF	STATUS
100-000	TOWER CRANE FOUNDATION	27-Aug-04	27-Aug-04	10-Sep-04	APPROVED
101-7130	RELATORMING MEMBRANE WATERPROOFING	20-Aug-04	20-Aug-04	7-Sep-04	APPROVED
102-7180	TRAFFIC COATINGS	20-Aug-04	20-Aug-04	7-Sep-04	APPROVED
103-15810	DUCTS	20-Aug-04	20-Aug-04	24-Sep-04	APPROVED
104-3351	SHOP DRAWINGS	27-Aug-04	27-Aug-04	8-Sep-04	APPROVED
105-15080	MECHANICAL INSULATION	20-Aug-04	27-Aug-04	24-Sep-04	APPROVED
106-16820	DUCT ACCESSORIES	20-Aug-04	7-Sep-04	24-Sep-04	APPROVED
107-15950	TESTING, ADJUSTING, BALANCING	20-Aug-04	27-Aug-04	24-Sep-04	APPROVED
108-15070	MECH. SOUND, VIBRATION & SEISMIC CONTROL	20-Aug-04	27-Aug-04	24-Sep-04	APPROVED
109-7840	FIRE STOPPING - HEAD OF WALL	20-Sep-04	21-Sep-04		PENDING
110-7812	IMPREGNATION FIREPROOFING - DATA SCHEDULE 1 CERT. MSDS	20-Sep-04	21-Sep-04		PENDING
111-7920	SEALANTS - HEAD OF WALL	20-Sep-04	21-Sep-04	30-Sep-04	APPROVED
112-15738	ENVIRONMENTAL REQUIREMENTS	20-Sep-04	21-Sep-04		PENDING
113-5100	WATER-COLORED AC UNITS	31-Aug-04	31-Aug-04	23-Sep-04	APPROVED
114-15400	STRUCTURAL STEEL - WELDING PROCEDURES / SHOP ONLY	2-Sep-04	2-Sep-04	17-Sep-04	APPROVED
115-1340	PLUMBING - SHOP DRAWINGS UNDERGROUND ONLY	2-Sep-04	2-Sep-04	23-Sep-04	APPROVED
116-1505	SAFETY - SHOP	7-Sep-04	7-Sep-04		OVERDUE
117-1505	CONSTRUCTION WASTE MANAGEMENT PLAN	7-Sep-04	7-Sep-04		OVERDUE
118-1505	DRILLED COWLS & ANCHORS IN CEMENTITIOUS GROUT	7-Sep-04	7-Sep-04	24-Sep-04	APPROVED
119-1505	EXPANSION ANCHORS	7-Sep-04	7-Sep-04	24-Sep-04	APPROVED
120-13255	ICBO - REPORT TO BE SUBMITTED	7-Sep-04	7-Sep-04	17-Sep-04	APPROVED
121-13255	CONCRETE FINISHES - GROUT & CURING COMPOUND	8-Sep-04	8-Sep-04		OVERDUE
122-13255	SPECIAL ENVIRONMENTAL REQUIREMENTS - INDOOR AIR QUALITY	8-Sep-04	8-Sep-04	17-Sep-04	APPROVED
123-13255	CONCRETE REINFORCEMENT - EJECTOR PITS/SLUMP & ELEVATIONS 2.4	8-Sep-04	8-Sep-04	23-Sep-04	APPROVED
124-13255	STRUCTURAL STEEL - ANCHOR BOLTS/INLET COLUMNS	8-Sep-04	8-Sep-04		APPROVED
125-13255	CONCRETE REINFORCEMENT - PCS-C FILE CAP @ C LINE	8-Sep-04	8-Sep-04	21-Sep-04	APPROVED

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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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### MULTIPLE CHOICE - #6



In most cases, construction change orders can be classified into how many basic categories?

- A) 1
- B) 10
- C) 2
- D) 5



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### MULTIPLE CHOICE - #7

When changes to the base contract start to exceed the following percentage, the Project Manager should start to become concerned about the issue of Cardinal Change.

The percentage is:

- A) 5%
- B) 50%
- C) 10%
- D) 25%



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### MULTIPLE CHOICE - #8

The construction contract clearly states that the contract period is 24 months. The contractor is planning to complete the project in 20 months. Seeing that the building will be vacant for 4 months, the Project Manager is directing a change order to complete Additional work. However, the issue of extended General Conditions is in dispute.

Is the Contractor Entitled to additional costs for extended General Conditions?

- A) Yes
- B) No



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### MULTIPLE CHOICE - #9

The General Contractor is responsible for Scheduling and coordinating the work of The University's IT department and other Contractors hired by the University.

- A) True
- B) False



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### MULTIPLE CHOICE - #10

The General Contractor has been raising concerns about the length of time that it is taking the architect and engineers to respond to RFI's, Submittals and Change Order Requests. The architect's comment in response to the Contractor is that the University is not paying me enough.

The Project Manager should:

- A) Pay the architect additional fees
- B) Take over the architect's responsibilities
- C) Pay the contractor for delays
- D) Demand that the architect perform



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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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## 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.....	\$5,698,712.00
2. NET CHANGE BY CHANGE ORDERS.....	\$600,163.00
3. CONTRACT SUM TO DATE (Line 1 Line 2).....	\$6,298,875.00
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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## 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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## MANAGING CONSTRUCTION REQUESTS FOR INFORMATION



- Typically initiated by the Contractor
- Intended for clarification
- Answered by Design Team
- Always should be in writing
- Responses should be timely
- Cautions
  - Excessive RFI's
  - Changes caused by Responses
- Maintain Log
  - Review weekly



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RFI LOG									
RFI #	DESCRIPTION	CONTRACTOR	DATE SENT TO OWNER	REQUIRED FROM OWNER	RECEIVED FROM OWNER	DAYS TO RESPOND	DEADY IMPACT	POTENTIAL COST/CPE#	STATUS
101	Proposed Bay per A-1, A-507	T Dierkes	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
102	Water Flow Data for First Promotion	Value TP	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
103	Carpet Types	Antezano	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
104	Sewage Ejector Pit Depth	Antezano	8/6/2004	8/13/2004	8/11/2004		No	No	Closed
105	Shop Fabrication Methods	Alamille	8/10/2004	8/17/2004	8/7/2004		No	No	Closed
106	Bedroom 102 T Drawings	Antezano	8/13/2004	8/20/2004	8/16/2004		No	No	Closed
107	Pile As-Built	Antezano	8/16/2004	8/20/2004	8/16/2004		No	No	See 107.1
107.1	Pile As-Built	Antezano	8/17/2004	8/24/2004	9/3/2004		No	No	See 107.2
107.2	Pile As-Built	Antezano	9/1/2004	9/8/2004	9/5/2004		No	Yes	CPE 1
108	CMC RFI 100	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
109	CMC RFI 102	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
110	CMC RFI 104	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
111	CMC RFI 105	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
112	CMC RFI 106	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
113	CMC RFI 107	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
114	CMC RFI 111	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
115	CMC RFI 112	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
116	CMC RFI 113	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
117	CMC RFI 116	Gayle	8/17/2004	ASAP	8/9/2004		No	No	Closed
118	CMC RFI 121	Gayle	8/17/2004	ASAP	8/17/2004		No	No	Closed
119	CMC RFI 124	Gayle	8/17/2004	ASAP	8/17/2004		No	No	Closed
120	CMC RFI 125	Gayle	8/17/2004	ASAP	8/17/2004		No	No	Closed

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## MANAGING CONSTRUCTION CHANGE ORDER REQUESTS

- Initiated by Contractor
- Asserts a change in contract conditions, plans or specifications
- Requires timely review
  - Do not age well
- Maintain log
  - Review regularly







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## MANAGING CONSTRUCTION CHANGE ORDER REQUESTS

- The Change Order Request (COR) Log
- Record all COR's
- Include a forecast of potential cost

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MANAGING CONSTRUCTION CHANGE ORDER REQUESTS										
PR / CPE LOG										
PCOR	CPE #	RFI #	DESCRIPTION OF CHANGE	SUBMIT	STATUS	NOTICE	AMOUNT	VALUE	%	\$ DONE
	1	Bull 101	Bulletin 101		NA	VOID		\$0	100%	\$0
	2	Bull 102	Bulletin 102		NA	VOID		\$0	100%	\$0
	3	Bull 6	As-built Floor Grades		X	APPRO		\$100,000	0%	\$0
	4	RFI 133	Electric Room Exhaust Fan		NA	VOID		\$0	100%	\$0
	5	RFI 132	132 Fume Hood Ductwork		NA	VOID		\$0	100%	\$0
	6		14.00-CL-000 Aseptic		X	APPRO		\$100,000	0%	\$0
	7		Temporary Facilities (dewatering, fence, etc)		X	SUBM		\$80,000	0%	\$0
	8	RFI 140	Mesh at Tapping Slab		NA	VOID		\$0	100%	\$0
	9	Bull 104	Bulletin 104		NA	VOID		\$0	100%	\$0
	10	RFI 175	Waterproofing at Sand Pit		X	SUBM		\$800	0%	\$0
	11	RFI 180	AC Units		X	SUBM		\$25,789	0%	\$0
	12	Bull 106	Bulletin 106		X	SUBM		\$7,431	0%	\$0
	13	RFI 180	Piping between Sumps		NA	VOID		\$0	100%	\$0
	14	RFI 180	Backfill Materials		NA	VOID		\$0	100%	\$0
	15	RFI 189	Non Clay Backfill Materials		NA	VOID		\$0	100%	\$0
	16	RFI 191	High Drain at Stair 4		NA	VOID		\$0	100%	\$0
	17	RFI 191	Tailback Covers		NA	VOID		\$0	100%	\$0
	18	Bull 105	Bulletin 105		NA	VOID		\$0	100%	\$0
	19	RFI 201 - 203	Underground Drain Piping Grades		NA	VOID		\$0	100%	\$0
	20	RFI 210	Concrete Wall at Handset Stone		NA	VOID		\$0	100%	\$0
	21	RFI 212	Conformal Coat		NA	VOID		\$0	100%	\$0

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MANAGING CONSTRUCTION CHANGE ORDER REQUESTS										
LINE #	RFI #	DESCRIPTION OF CHANGE	DATE	NEW PRICE	OLD PRICE	DIFFERENCE	PERCENT	STATUS	NOTICE	\$ DONE
1	RFI 101	RFI 101	RFI 101	1000000	1000000	0	0%	VOID		\$0
2	RFI 102	RFI 102	RFI 102	1000000	1000000	0	0%	VOID		\$0
3	RFI 103	RFI 103	RFI 103	1000000	1000000	0	0%	VOID		\$0
4	RFI 104	RFI 104	RFI 104	1000000	1000000	0	0%	VOID		\$0
5	RFI 105	RFI 105	RFI 105	1000000	1000000	0	0%	VOID		\$0
6	RFI 106	RFI 106	RFI 106	1000000	1000000	0	0%	VOID		\$0
7	RFI 107	RFI 107	RFI 107	1000000	1000000	0	0%	VOID		\$0
8	RFI 108	RFI 108	RFI 108	1000000	1000000	0	0%	VOID		\$0
9	RFI 109	RFI 109	RFI 109	1000000	1000000	0	0%	VOID		\$0
10	RFI 110	RFI 110	RFI 110	1000000	1000000	0	0%	VOID		\$0
11	RFI 111	RFI 111	RFI 111	1000000	1000000	0	0%	VOID		\$0
12	RFI 112	RFI 112	RFI 112	1000000	1000000	0	0%	VOID		\$0
13	RFI 113	RFI 113	RFI 113	1000000	1000000	0	0%	VOID		\$0
14	RFI 114	RFI 114	RFI 114	1000000	1000000	0	0%	VOID		\$0
15	RFI 115	RFI 115	RFI 115	1000000	1000000	0	0%	VOID		\$0
16	RFI 116	RFI 116	RFI 116	1000000	1000000	0	0%	VOID		\$0
17	RFI 117	RFI 117	RFI 117	1000000	1000000	0	0%	VOID		\$0
18	RFI 118	RFI 118	RFI 118	1000000	1000000	0	0%	VOID		\$0
19	RFI 119	RFI 119	RFI 119	1000000	1000000	0	0%	VOID		\$0
20	RFI 120	RFI 120	RFI 120	1000000	1000000	0	0%	VOID		\$0
21	RFI 121	RFI 121	RFI 121	1000000	1000000	0	0%	VOID		\$0
22	RFI 122	RFI 122	RFI 122	1000000	1000000	0	0%	VOID		\$0
23	RFI 123	RFI 123	RFI 123	1000000	1000000	0	0%	VOID		\$0
24	RFI 124	RFI 124	RFI 124	1000000	1000000	0	0%	VOID		\$0
25	RFI 125	RFI 125	RFI 125	1000000	1000000	0	0%	VOID		\$0
26	RFI 126	RFI 126	RFI 126	1000000	1000000	0	0%	VOID		\$0
27	RFI 127	RFI 127	RFI 127	1000000	1000000	0	0%	VOID		\$0
28	RFI 128	RFI 128	RFI 128	1000000	1000000	0	0%	VOID		\$0
29	RFI 129	RFI 129	RFI 129	1000000	1000000	0	0%	VOID		\$0
30	RFI 130	RFI 130	RFI 130	1000000	1000000	0	0%	VOID		\$0
31	RFI 131	RFI 131	RFI 131	1000000	1000000	0	0%	VOID		\$0
32	RFI 132	RFI 132	RFI 132	1000000	1000000	0	0%	VOID		\$0
33	RFI 133	RFI 133	RFI 133	1000000	1000000	0	0%	VOID		\$0
34	RFI 134	RFI 134	RFI 134	1000000	1000000	0	0%	VOID		\$0
35	RFI 135	RFI 135	RFI 135	1000000	1000000	0	0%	VOID		\$0
36	RFI 136	RFI 136	RFI 136	1000000	1000000	0	0%	VOID		\$0
37	RFI 137	RFI 137	RFI 137	1000000	1000000	0	0%	VOID		\$0
38	RFI 138	RFI 138	RFI 138	1000000	1000000	0	0%	VOID		\$0
39	RFI 139	RFI 139	RFI 139	1000000	1000000	0	0%	VOID		\$0
40	RFI 140	RFI 140	RFI 140	1000000	1000000	0	0%	VOID		\$0
41	RFI 141	RFI 141	RFI 141	1000000	1000000	0	0%	VOID		\$0
42	RFI 142	RFI 142	RFI 142	1000000	1000000	0	0%	VOID		\$0
43	RFI 143	RFI 143	RFI 143	1000000	1000000	0	0%	VOID		\$0
44	RFI 144	RFI 144	RFI 144	1000000	1000000	0	0%	VOID		\$0
45	RFI 145	RFI 145	RFI 145	1000000	1000000	0	0%	VOID		\$0
46	RFI 146	RFI 146	RFI 146	1000000	1000000	0	0%	VOID		\$0
47	RFI 147	RFI 147	RFI 147	1000000	1000000	0	0%	VOID		\$0
48	RFI 148	RFI 148	RFI 148	1000000	1000000	0	0%	VOID		\$0
49	RFI 149	RFI 149	RFI 149	1000000	1000000	0	0%	VOID		\$0
50	RFI 150	RFI 150	RFI 150	1000000	1000000	0	0%	VOID		\$0
51	RFI 151	RFI 151	RFI 151	1000000	1000000	0	0%	VOID		\$0
52	RFI 152	RFI 152	RFI 152	1000000	1000000	0	0%	VOID		\$0
53	RFI 153	RFI 153	RFI 153	1000000	1000000	0	0%	VOID		\$0
54	RFI 154	RFI 154	RFI 154	1000000	1000000	0	0%	VOID		\$0
55	RFI 155	RFI 155	RFI 155	1000000	1000000	0	0%	VOID		\$0
56	RFI 156	RFI 156	RFI 156	1000000	1000000	0	0%	VOID		\$0
57	RFI 157	RFI 157	RFI 157	1000000	1000000	0	0%	VOID		\$0
58	RFI 158	RFI 158	RFI 158	1000000	1000000	0	0%	VOID		\$0
59	RFI 159	RFI 159	RFI 159	1000000	1000000	0	0%	VOID		\$0
60	RFI 160	RFI 160	RFI 160	1000000	1000000	0	0%	VOID		\$0
61	RFI 161	RFI 161	RFI 161	1000000	1000000	0	0%	VOID		\$0
62	RFI 162	RFI 162	RFI 162	1000000	1000000	0	0%	VOID		\$0
63	RFI 163	RFI 163	RFI 163	1000000	1000000	0	0%	VOID		\$0
64	RFI 164	RFI 164	RFI 164	1000000	1000000	0	0%	VOID		\$0
65	RFI 165	RFI 165	RFI 165	1000000	1000000	0	0%	VOID		\$0
66	RFI 166	RFI 166	RFI 166	1000000	1000000	0	0%	VOID		\$0
67	RFI 167	RFI 167	RFI 167	1000000	1000000	0	0%	VOID		\$0
68	RFI 168	RFI 168	RFI 168	1000000	1000000	0	0%	VOID		\$0
69	RFI 169	RFI 169	RFI 169	1000000	1000000	0	0%	VOID		\$0
70	RFI 170	RFI 170	RFI 170	1000000	1000000	0	0%	VOID		\$0
71	RFI 171	RFI 171	RFI 171	1000000	1000000	0	0%	VOID		\$0
72	RFI 172	RFI 172	RFI 172	1000000	1000000	0	0%	VOID		\$0
73	RFI 173	RFI 173	RFI 173	1000000	1000000	0	0%	VOID		\$0
74	RFI 174	RFI 174	RFI 174	1000000	1000000	0	0%	VOID		\$0
75	RFI 175	RFI 175	RFI 175	1000000	1000000	0	0%	VOID		\$0
76	RFI 176	RFI 176	RFI 176	1000000	1000000	0	0%	VOID		\$0
77	RFI 177	RFI 177	RFI 177	1000000	1000000	0	0%	VOID		\$0
78	RFI 178	RFI 178	RFI 178	1000000	1000000	0	0%	VOID		\$0
79	RFI 179	RFI 179	RFI 179	1000000	1000000	0	0%	VOID		\$0
80	RFI 180	RFI 180	RFI 180	1000000	1000000	0	0%	VOID		\$0
81	RFI 181	RFI 181	RFI 181	1000000	1000000	0	0%	VOID		\$0
82	RFI 182	RFI 182	RFI 182	1000000	1000000	0	0%	VOID		\$0
83	RFI 183	RFI 183	RFI 183	1000000	1000000	0	0%	VOID		\$0
84	RFI 184	RFI 184	RFI 184	1000000	1000000	0	0%	VOID		\$0
85	RFI 185	RFI 185	RFI 185	1000000	1000000	0	0%	VOID		\$0
86	RFI 186	RFI 186	RFI 186	1000000	1000000	0	0%	VOID		\$0
87	RFI 187	RFI 187	RFI 187	1000000	1000000	0	0%	VOID		\$0
88	RFI 188	RFI 188	RFI 188	1000000	1000000	0	0%	VOID		\$0
89	RFI 189	RFI 189	RFI 189	1000000	1000000	0	0%	VOID		\$0
90	RFI 190	RFI 190	RFI 190	1000000	1000000	0	0%	VOID		\$0
91	RFI 191	RFI 191	RFI 191	1000000	1000000	0	0%	VOID		\$0
92	RFI 192	RFI 192	RFI 192	1000000	1000000	0	0%	VOID		\$0
93	RFI 193	RFI 193	RFI 193	1000000	1000000	0	0%	VOID		\$0
94	RFI 194	RFI 194	RFI 194	1000000	1000000	0	0%	VOID		\$0
95	RFI 195	RFI 195	RFI 195	1000000	1000000	0	0%	VOID		\$0
96	RFI 196	RFI 196	RFI 196	1000000	1000000	0	0%	VOID		\$0
97	RFI 197	RFI 197	RFI 197	1000000	1000000	0	0%	VOID		\$0
98	RFI 198	RFI 198	RFI 198	1000000	1000000	0	0%	VOID		\$0
99	RFI 199	RFI 199	RFI 199	1000000	1000000	0	0%	VOID		\$0
100	RFI 200	RFI 200	RFI 200	1000000	1000000	0	0%	VOID		\$0

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LINE #	RFI #	DESCRIPTION OF CHANGE	DATE	NEW PRICE	OLD PRICE	DIFFERENCE	PERCENT	STATUS	NOTICE	\$ DONE
100	RFI 101	RFI 101	RFI 1							
101	RFI 101	RFI 101	RFI 1							
102	RFI 101	RFI 101	RFI 1							
103	RFI 101	RFI 101	RFI 1							
104	RFI 101	RFI 101	RFI 1							
105	RFI 101	RFI 101	RFI 1							
106	RFI 101	RFI 101	RFI 1							
107	RFI 101	RFI 101	RFI 1							
108	RFI 101	RFI 101	RFI 1							
109	RFI 101	RFI 101	RFI 1							
110	RFI 101	RFI 101	RFI 1							
111	RFI 101	RFI 101	RFI 1							
112	RFI 101	RFI 101	RFI 1							
113	RFI 101	RFI 101	RFI 1							
114	RFI 101	RFI 101	RFI 1							
115	RFI 101	RFI 101	RFI 1							
116	RFI 101	RFI 101	RFI 1							
117	RFI 101	RFI 101	RFI 1							
118	RFI 101	RFI 101	RFI 1							
119	RFI 101	RFI 101	RFI 1							
120	RFI 101	RFI 101	RFI 1							
121	RFI 101	RFI 101	RFI 1							
122	RFI 101	RFI 101	RFI 1							
123	RFI 101	RFI 101	RFI 1							
124	RFI 101	RFI 101	RFI 1							
125	RFI 101	RFI 101	RFI 1							
126	RFI 101	RFI 101	RFI 1							
127	RFI 101	RFI 101	RFI 1							
128	RFI 101	RFI 101	RFI 1							
129	RFI 101	RFI 101	RFI 1							
130	RFI 101	RFI 101	RFI 1							
131	RFI 101	RFI 101	RFI 1							
132	RFI 101	RFI 101	RFI 1							
133	RFI 101	RFI 101	RFI 1							
134	RFI 101	RFI 101	RFI 1							
135	RFI 101	RFI 101	RFI 1							
136	RFI 101	RFI 101	RFI 1							
137	RFI 101	RFI 101	RFI 1							
138	RFI 101	RFI 101	RFI 1							
139	RFI 101	RFI 101	RFI 1							
140	RFI 101	RFI 101	RFI 1							
141	RFI 101	RFI 101	RFI 1							
142	RFI 101	RFI 101	RFI 1							
143	RFI 101	RFI 101	RFI 1							
144	RFI 101	RFI 101	RFI 1							
145	RFI 101	RFI 101	RFI 1							
146	RFI 101	RFI 101	RFI 1							
147	RFI 101	RFI 101	RFI 1							
148	RFI 101	RFI 101	RFI 1							
149	RFI 101	RFI 101	RFI 1							
150	RFI 101	RFI 101	RFI 1							
151	RFI 101	RFI 101	RFI 1							
152	RFI 101	RFI 101	RFI 1							
153	RFI 101	RFI 101	RFI 1							
154	RFI 101	RFI 101	RFI 1							
155	RFI 101	RFI 101	RFI 1							
156	RFI 101	RFI 101	RFI 1							
157	RFI 101	RFI 101	RFI 1							
158	RFI 101	RFI 101	RFI 1							
159	RFI 101	RFI 101	RFI 1							
160	RFI 101	RFI 101	RFI 1							
161	RFI 101	RFI 101	RFI 1							
162	RFI 101	RFI 101	RFI 1							
163	RFI 101	RFI 101	RFI 1							
164	RFI 101	RFI 101	RFI 1							
165	RFI 101	RFI 101	RFI 1							
166	RFI 101	RFI 101	RFI 1							
167	RFI 101	RFI 101	RFI 1							
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242	RFI 101	RFI 101	RFI 1							
243	RFI 101	RFI 101	RFI 1							
244	RFI 101	RFI 101								

## CAUSES OF CHANGE ORDERS

### Typical Causes of Change Orders:

- Unforeseen/Differing Site Conditions
- Document Problems
- Approval Agency/Inspections
- Owner Scope Changes
- Poor Management



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## DIFFERING SITE CONDITIONS



▪ Different site conditions  
*are not* the contractor's  
responsibility



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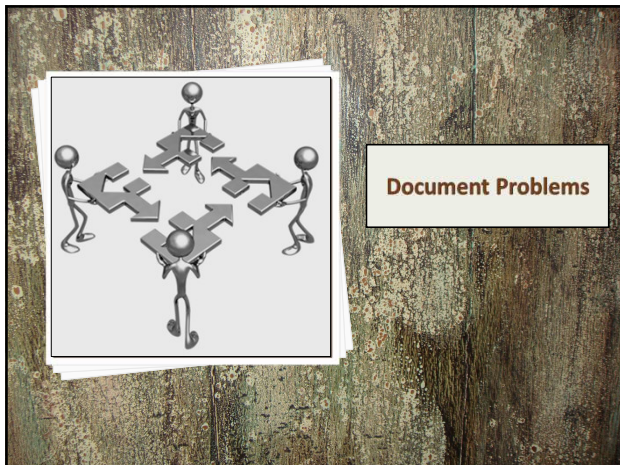
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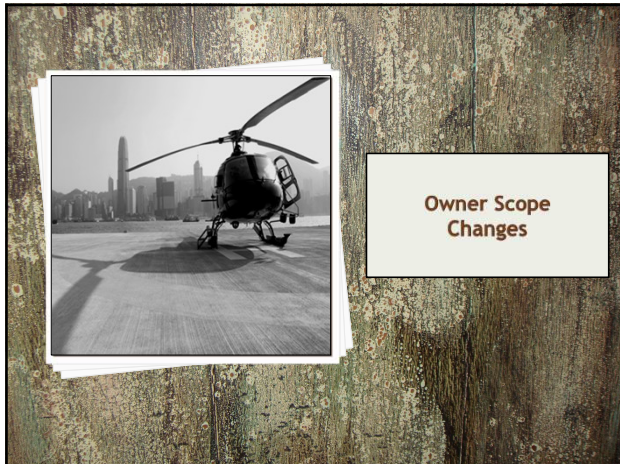
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## SITE CONDITIONS

Site Condition Video

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## MULTIPLE CHOICE - #6

In most cases, construction change orders can be classified into how many basic categories?

- A) 1
- B) 10
- C) 2
- D) 5



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## MANAGING CONSTRUCTION CHANGE ORDERS

Formal change to the contract should include:

- Description of scope
- Actual cost of the work
- Any time extension
- Any extended overhead

Reservation of Rights should be an exception – not the norm



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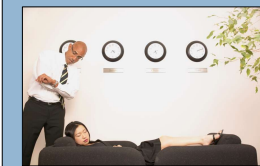
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## MANAGING CONSTRUCTION CHANGE ORDERS



Owner has the right to expect that once the change order is signed, contractor WILL NOT come back and request additional time or money.



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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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### CARDINAL CHANGE

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### MULTIPLE CHOICE - #7

When changes to the base contract start to exceed the following percentage, the Project Manager should start to become concerned about the issue of Cardinal Change.

The percentage is:

- A) 5%
- B) 50%
- C) 10%
- D) 25%



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## BUDGET FORECASTING

- Critical key to successful project management
- Accounting reports tell what you have and where you have been
- Accounting reports do not tell you where you are going
- Needs to be combined with forecasts of time and money



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## WAG'S

- It is better to anticipate then to be unpleasantly surprised
- Take the number of RFI's, COR's, etc. that have Cost impacts and have been approved to date
- Divide the numbers to obtain an average
- Apply the average to the number of RFI's, COR's, etc. that are open
- Budget for these potential cost impacts



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## SUBSTANTIAL COMPLETION

- Owner's use of the project for its intended purpose, but not all requirements of the contract are complete
- Similar to Beneficial Occupancy
- Document:
  - Specify parts of the project occupied
  - Specify parts of building systems that are taken over
  - Starts warranty period on occupied spaces
  - Responsible for utility costs and maintenance



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## CLOSE OUT

- Commissioning
  - Systems check
  - Start-up
  - Testing and Balancing
- Pre-Punch
- Punch-list
- Contract Requirements
  - As-Built
  - Warranties
  - Operation and Maintenance Manuals



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## COMMISSIONING

- Commissioning begins during the design phase
- Identify participants
  - Architect/Engineer
  - General Contractor/Subcontractors
  - Commissioning Agent
- Quality Assurance/Quality Control Plan
- Commissioning Plan

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## PUNCH LIST

- Pre-punch Lists
  - Punch list as construction proceeds
- Punch List
  - Specify procedures and participants
  - Architect/engineers
  - Building engineer
  - Facilities staff

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## AS-BUILTS

Separate line item on Schedule of Values

- **As-builts**
  - Continuously maintained at the site
  - Reviewed monthly w/ Payment Application
  - Final documents at completion



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## WARRANTIES

- Procedures
- Call list
- Follow-up



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## OPERATIONS & MAINTENANCE

- Training
- Extra Stock
- Preventive Maintenance
- Operations and Maintenance Manuals



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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



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## MANAGING CONSTRUCTION TIME

- The meter is running once the Notice to Proceed is issued
- Time is money:
  - During design, time will erode the buying power of your budget
  - During construction, extended general conditions can be substantial



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## TIME EXTENSIONS DUE TO CHANGES

- Do not give a time extension unless the affected activity(ies) is on the critical path
- Contractor **MUST** demonstrate it is entitled to extensions.
- Settle time extensions at the time the change order is agreed upon
- Contractor **MUST** demonstrate it is entitled to extensions.

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## EARLY COMPLETION

### WHO OWNS THE FLOAT?

- Contract specifies completion of project on JUNE 30
- The contractor's schedules shows a completion date of JUNE 1
- The owner **ADDS ONE CHANGE ORDER** to the contract which delays the contractor one month

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## EARLY COMPLETION

- The contractor completes the project on JUNE 30



- Had it not been for the **CHANGE ORDER**, the contractor would have completed on JUNE 1

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## EARLY COMPLETION

- A contractor is entitled to the RIGHT OF EARLY COMPLETION provided the following are met:
  - The contractor's intent was to complete early from the beginning
  - The contractor formally advised owner about the early completion
  - Early completion date is reasonable



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## MULTIPLE CHOICE - #8

The construction contract clearly states that the contract period is 24 months. The contractor is planning to complete the project in 20 months. Seeing that the building will be vacant for 4 months, the Project Manager is directing in a change order to complete Additional work. However, the issue of extended General Conditions is in dispute.

Is the Contractor Entitled to an add for extended general conditions?

- A) Yes
- B) No



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## SPECIFIC TO A UNIVERSITY

- Missed Expectations
- Coordination of Campus Service Providers
- Conflicts with the Academic Calendar
- Conflicts with University Events
- Conflicts with University Housing Contracts
- Contractor Workforce Parking
- Restoration of Landscape Areas



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## SEPARATE CONTRACTORS

The General Contractor is not responsible for coordination of separate contractors



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## MULTIPLE CHOICE - #9

The General Contractor is responsible for Scheduling and coordinating the work of The University's IT department and other Contractors hired by the University.

- A) True
- B) False

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## ADMINISTRATION

Owner has obligation to provide sufficient resources to process submittals, drawings, vendor data, samples, and change orders in a timely manner. Failure to do so may result in constructive change.

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## MULTIPLE CHOICE - #10

The General Contractor has been raising concerns about the length of time that it is taking the architect and engineers to respond to RFI's, Submittals and Change Order Requests. The architect's comment in response to the Contractor is that the University is not paying me enough.

The Project Manager should:

- A) Pay the architect additional fees
- B) Take over the architect's responsibilities
- C) Pay the contractor for delays
- D) Demand that the architect perform



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## MANAGING CONSTRUCTION

- Before Starting
  - Board/Trustee/State approvals are obtained
  - All of your paperwork is signed
  - All contracts are in place
  - Procedure Meeting
  - Preconstruction Meeting
- Issue the Notice to Proceed



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## MANAGING CONSTRUCTION

- Determine the construction meeting schedule
- Determine who will have the "Power of the Pen"



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## MANAGING CONSTRUCTION

- Construction Meeting Agenda:
  - Document Issues
  - Assign responsible party(ies)
  - Identify critical due dates
  - Track delays
  - Manage to close items




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## MANAGING CONSTRUCTION

OAC MEETING MINUTES				
Mtg & Item #	Description	Firm/ Resp.	Due Date	Open / Closed
1.1.3	3 week look ahead schedule □ No new 3 week schedule issued. <i>Closing closure inspection by Mechanical engineer before 7/13 &amp; 7/26, Diego to send notification to N&amp;T.</i>	BCI	6/28	OPN
1.1.4	Noise, Dust and Mud Control. <i>Agreed to enforce strict dust control, truck tire cleaning, careful handling of soil throughout the duration of project.</i> □ (6/21) On going monitor and clean up by Bogard. □ Complaint by Hotel manager about noise, suite have been starting work at 7 a.m. BCI to enforce start time of 8 a.m. BCI sent letter out to all subcontractors enforcing 8 a.m. start time. No new complaints □ Site debris clean-up on regular basis, BCI letter sent to subs.	BCI	6/28	OPN
1.1.5	SWPPP Monitoring: □ (6/21) On going, no issues.	BCI	6/28	OPN
1.1.7	Utilities: □ (6/21) Power shut down by PG&E to raise splice box on 6/17/21. Lewis & Tibbels to see traffic rated vault. More work needed to be done, another shut down required. □ Gas leaks - Lewis & Tibbels to do term as part of their contract with Town when the scaffold is down. □ Comcast internet connection for commissioning needs. (5/24) Comcast received. Bruce to forward to BCI. □ Water needs, (5/10) 2 backflows will to be built when curbs are built. □ Verizon phone - (5/10) 50 per copper and VOIP ordered, Bruce to follow up.	BCI	6/28	OPN



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## MANAGING CONSTRUCTION

OAC MEETING MINUTES				
Mtg & Item #	Description	Firm/ Resp.	Due Date	Open / Closed
1.4.3	FFE Tracking: □ (6/7) Bruce met with 3 vendors and has ordered required Furniture.	Town	6/28	OPN
45.4.3	Mosaic salvaged from old site - Bruce to follow up with Town Manager's office. (6/21) Bruce to walk with Pamela after bio-swale is done.	BCI	6/28	OPN
V	Payment			
1.5.2	Payment Applications: □ (6/14) Play app #12 on 6/28.	Town	6/28	OPN
2.5.3	Potential Back Charges: □ (5/24/10) Item to remain on minutes pending action	BCI	6/28	OPN
VI	Holiday / Vacation schedule for the core group			
	Diego - 6/13-17 Abe - 6/18-22 Natalie - 7/21-23 Bruce - 7/28 - 8/8 Frank - 7/18-19	All	6/28	OPN
VII	COR Log			
1.7.1	PCO Log - ongoing (see attached log) □ Town requested for gates to the back patio to deter entry into area during off hours.	All	6/28	OPN
VIII	Supplemental Meeting Schedule			
16.6.2	Identify library systems with Town facilities manager, Library staff, N&T, BMC, Bogard.	All	TBD	OPN



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## MANAGING CONSTRUCTION

- ◎ As part of meeting, review:
  - Submittal Log
  - RFI Log
  - COR Log
  - Three-week Rolling Schedule
  - Monthly Schedule Update
  - Monthly Payment Application

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## MANAGING CONSTRUCTION

◎ Some days, managing construction is like being a referee!

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## CONSTRUCTION CLAIMS

- Claims are a common part of the construction process.



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## GENERAL COUNSEL'S VIEW

- What does the contract say?
- Is the claim time barred?
- What was the approved schedule?
- What did the Owner do to affect the critical path?
- What was the Change Order rate on the project?
- How has the Owner been damaged?
- Who else can we get involved?



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## WHAT HAPPENS IF THERE IS A CLAIM?



- Do not get overly excited
- Notify the administration
- Gather resources
  - Administration
  - Legal Counsel
  - 3<sup>rd</sup> Party Experts
- Pay close attention to timelines



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## MANAGING CONSTRUCTION

- Determine if there is a entitlement
  - Typically this first starts with the designer of record
  - Make them decide yes or no
- Look for the root cause
- Evaluate time and money components
- Document agreement through a Change Order



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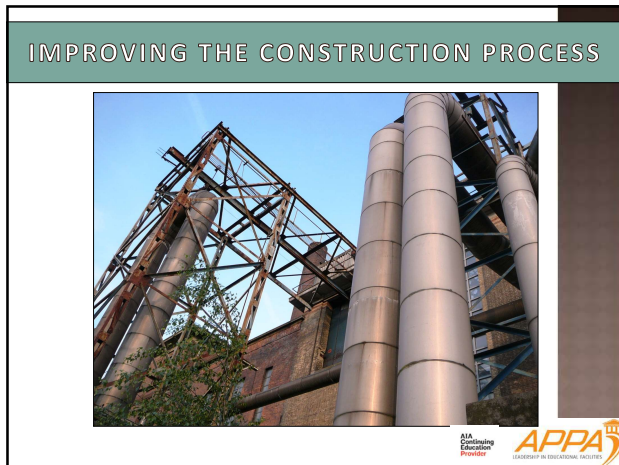
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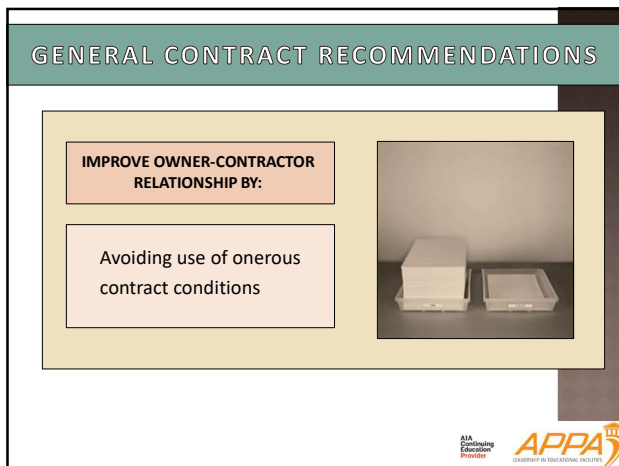
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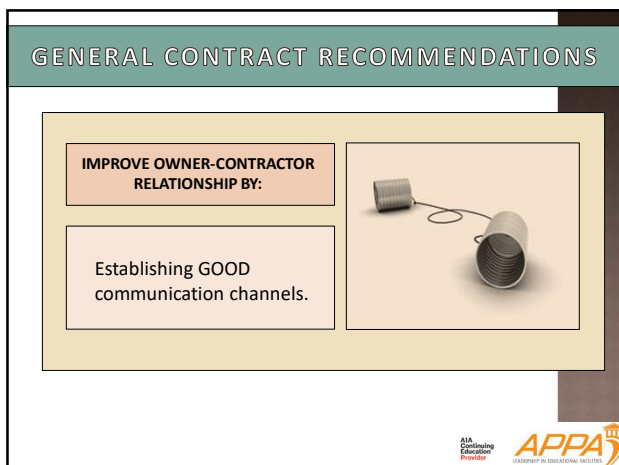
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**GENERAL CONTRACT RECOMMENDATIONS**

**IMPROVE OWNER-CONTRACTOR RELATIONSHIP BY:**

Giving authority to On-Site Managers



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**GENERAL CONTRACT RECOMMENDATIONS**

**IMPROVE CONTRACT EXECUTION BY:**

More owner investment in preconstruction studies



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**GENERAL CONTRACT RECOMMENDATIONS**

**IMPROVE CONTRACT EXECUTION BY:**

Better defining risk



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### GENERAL CONTRACT RECOMMENDATIONS

**IMPROVE CONTRACT EXECUTION BY:**

- Developing procedures for handling risks
- Independent cost estimates
- Constructability review
- Peer review



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### DETERMINANTS OF PROJECT SUCCESS

**Project Manager**

- Experience
- Total construction experience
- Ability to communicate with all parties
- Some suited to design phase, others to construction phase



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### DETERMINANTS OF PROJECT SUCCESS

**Project Team**

- Team turnover/ players remaining
- Commitment to project



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### DETERMINANTS OF PROJECT SUCCESS

#### Control Systems

- Usable & understandable systems
- Ability to get budget/accounting updates often



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### DETERMINANTS OF PROJECT SUCCESS

#### Planning

- Overall approach to control of project



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### WAS THE PROJECT SUCCESSFUL?

#### Planning

- On time?
- On budget?
- Did all participants agree that the achieved performance outcome was better than expected?

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