Construction Project Management

Course 409 & 409A

APPA Institute
for Facilities Management

Jeffrey Gee, AIA
Swinerton Management & Consulting

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INTRODUCTION

Laney College
City College of San Francisco
Palo Alto University
UC Riverside
Skyline College
College of San Mateo
Solano Community College
Merced College
College of Marin
Las Positas College
West Valley College
Mission College
Santa Clara, California
Chabot College
Cañada College

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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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CONSTRUCTION PHASE
"Where the rubber hits the road…"

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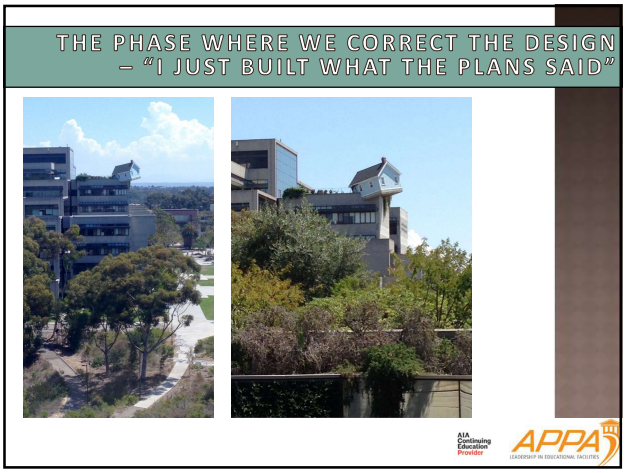
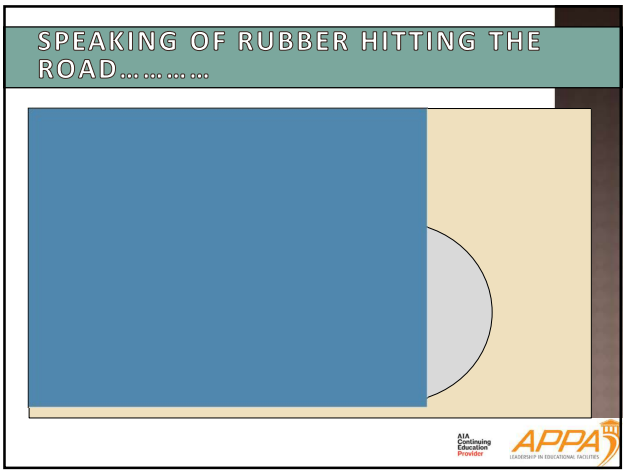

THE PHASE WHERE WE CORRECT THE DESIGN – "I JUST BUILT WHAT THE PLANS SAID"

11


SPEAKING OF RUBBER HITTING THE ROAD……

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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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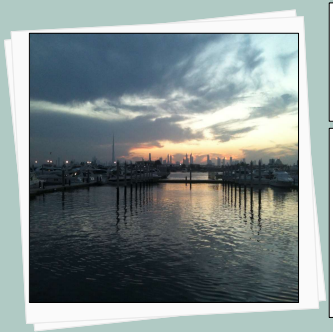
MULTIPLE CHOICE - #5

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

17



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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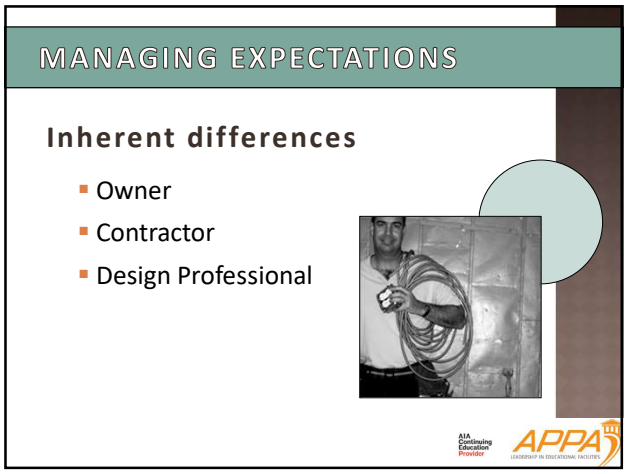
MANAGING EXPECTATIONS
Inherent differences
Owner
Contractor
Design Professional
APPA

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POTENTIAL CONFLICT

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ALIGNMENT

- Partnering
- Common Definition of Success

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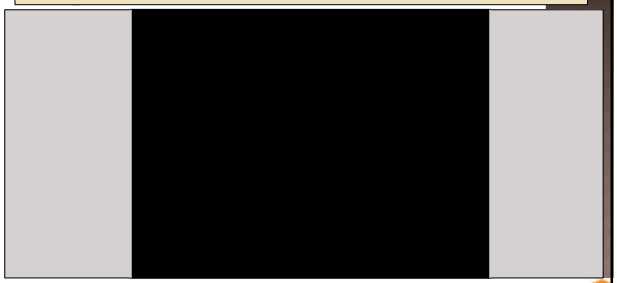
MANAGING CONFLICT

- 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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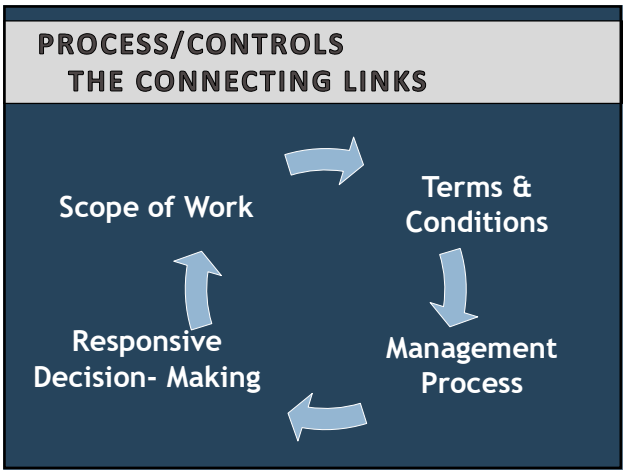
PROCESS/CONTROLS THE CONNECTING LINKS



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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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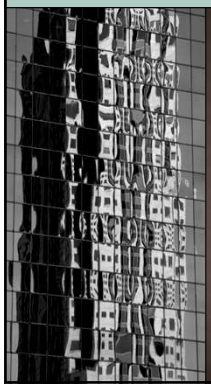
THE START OF THE CONSTRUCTION CONTRACT



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

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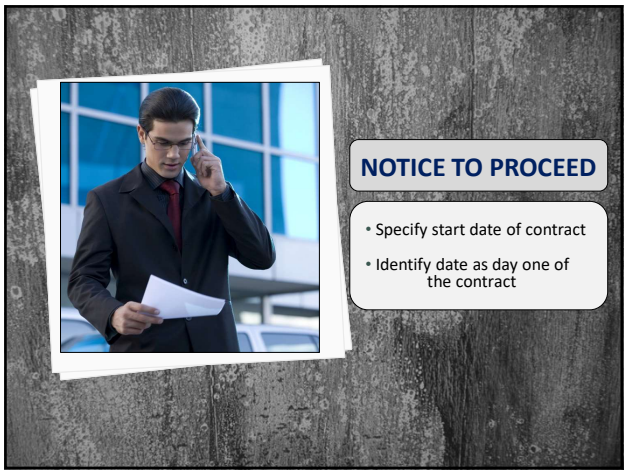
NOTICE TO PROCEED
• Specify start date of contract
• Identify date as day one of the contract

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MAY
5
Cinco De Mayo
NOTICE TO PROCEED
Specify contract duration in calendar days from:
• Date of Notice to Proceed
OR
• Identification of Completion Date

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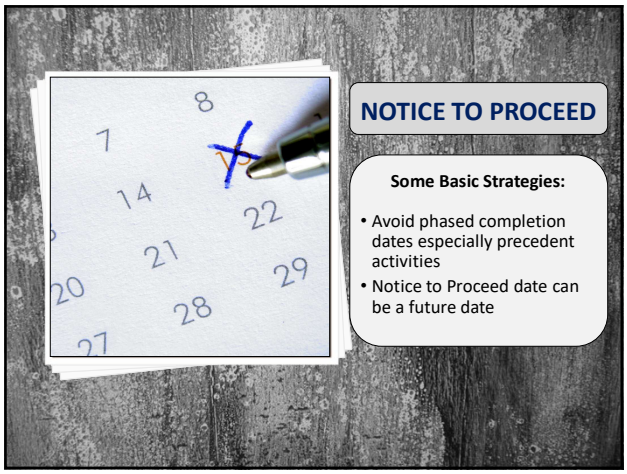
NOTICE TO PROCEED
Some Basic Strategies:
• Avoid phased completion dates especially precedent activities
• Notice to Proceed date can be a future date

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MULTIPLE CHOICE - #2

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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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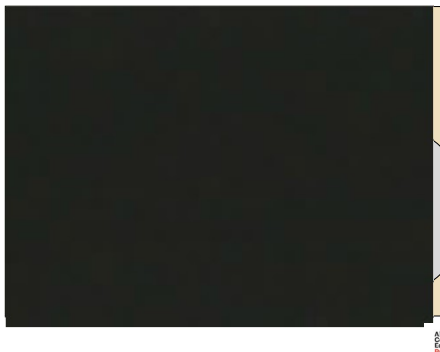
SITE SAFETY



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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
- 3rd Party Preparation, Costs to be deducted from Amounts Owed

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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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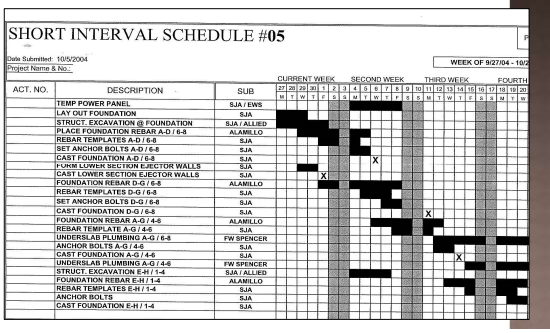
SHORT INTERVAL/ROLLING SCHEDULE


SHORT INTERVAL SCHEDULE #05

Date Submitted: 10/5/2004
Project Name & No.:

WEEK OF 9/27/04 - 10/2

ACT. NO.	DESCRIPTION	SUB
	TEMP POWER PANEL	SJA / EWS
	LAY OUT FOUNDATION	SJA
	STRUCT. EXCAVATION @ FOUNDATION	SJA / ALLIED
	PLACE FOUNDATION REBAR A-D / 6-8	ALAMILLO
	REBAR TEMPLATES A-D / 6-8	SJA
	SET ANCHOR BOLTS A-D / 6-8	SJA
	CAST FOUNDATION A-D / 6-8	SJA
	FUHW LUWER SECTION EJECTOR WALLS	SJA
	CAST LOWER SECTION EJECTOR WALLS	SJA
	FOUNDATION REBAR D-G / 6-8	ALAMILLO
	REBAR TEMPLATES D-G / 6-8	SJA
	SET ANCHOR BOLTS D-G / 6-8	SJA
	CAST FOUNDATION D-G / 6-8	SJA
	FOUNDATION REBAR A-G / 4-6	ALAMILLO
	REBAR TEMPLATE A-G / 4-6	SJA
	UNDERSLAB PLUMBING A-G / 6-8	FW SPENCER
	ANCHOR BOLTS A-G / 4-6	SJA
	CAST FOUNDATION A-G / 4-6	SJA
	UNDERSLAB PLUMBING A-G / 4-6	FW SPENCER
	STRUCT. EXCAVATION E-H / 1-4	SJA / ALLIED
	FOUNDATION REBAR E-H / 1-4	ALAMILLO
	REBAR TEMPLATES E-H / 1-4	SJA
	ANCHOR BOLTS	SJA
	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

ITEM No.	DESCRIPTION OF WORK	SCHEDULED VALUE	% COMPLETE TO DATE	TOTAL COMPLETED TO DATE (C X D)	TOTAL AMOUNT OF COMPLETED ON PRIOR APPLICATION FOR PAYMENT	AMOUNT OF THIS APPLICATION (E - F)	RETENTION
A	B	C	D	E	F	G	H
1	***Division 1***						
2	General Conditions	$541,525	100%	$541,525	$541,525	$0	$0
3	Supervision & Fee	$655,604	100%	$655,604	$655,604	$0	$0
4	Insurance (GL/WC)	$55,848	100%	$55,848	$55,848	$0	$0
5	Payment and Performance Bonds	$103,213	100%	$103,213	$103,213	$0	$0
6	Mobilization	$25,000	100%	$25,000	$25,000	$0	$0
7	Project Closeout Documents	$5,000	20%	$1,000	$1,000	$0	$0
8	Building Commissioning	$5,000	100%	$5,000	$5,000	$0	$0
9	***Division 2***						
10	Demolition	$452,020	100%	$452,020	$452,020	$0	$0
11	Abatement	$164,550	100%	$164,550	$164,550	$0	$0
12	***Division 3***						
13	Reinforcing	$29,586	100%	$29,586	$20,688	$0	
14	Form, Place & Finish	$286,618	100%	$286,618	$286,618	$0	$0
15	Shotcrete	$33,654	100%	$33,654	$33,654	$0	$0
16	***Division 4***						
17	Stone Flooring	$43,241	100%	$43,241	$43,241	$0	$0
18	Masonry	$226,916	100%	$226,916	$226,916	$0	$0
19	***Division 5***						
20	Misc. Structural Steel	$31,493	100%	$31,493	$31,493	$0	$0
21	Misc. Metals	$79,761	100%	$79,761	$79,761	$0	$0
22	Metal Stairs	$180,532	100%	$180,532	$180,532	$0	$0
23	***Division 6***						
24	Millwork	$53,282	100%	$53,282	$53,282	$0	$0
25	***Division 7***						
26	Sheet Metal & Flashing	$33,895	100%	$33,895	$33,895	$0	$0
27	Roofing & Waterproofing	$49,826	100%	$49,826	$49,826	$0	$0
28	***Division 8***						
29	Doors Frames and Hardware	$224,662	100%	$224,662	$224,662	$0	$0
30	Misc. Glazing	$12,301	100%	$12,301	$12,301	$0	$0
31	***Division 9***						
32	Drywall and Plaster	$460,839	100%	$460,839	$460,839	$0	$0
33	Tile	$54,174	100%	$54,174	$54,174	$0	$0

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MANAGING CONSTRUCTION

A COMMON MISCONCEPTION

Contract administration involves *merely* enforcement

APPA LEADERSHIP IN EDUCATIONAL FACILITIES

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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	ELASTOMERIC MEMBRANE WATERPROOFING	30-Aug-04	30-Aug-04	1-Sep-04	APPROVED
	102-7180	TRAFFIC COATINGS	30-Aug-04	30-Aug-04	7-Sep-04	APPROVED
	103-15810	DUCTS	26-Aug-04	26-Aug-04	24-Sep-04	APPROVED
	104-3361	SHOTCRETE	27-Aug-04	30-Aug-04	8-Sep-04	APPROVED
	105-15080	MECHANICAL INSULATION	26-Aug-07	27-Aug-04	24-Sep-04	APPROVED
	106-15820	DUCT ACCESSORIES	26-Aug-04	7-Sep-04	24-Sep-04	APPROVED
	107-15950	TESTING, ADJUSTING, BALANCING	26-Aug-04	27-Aug-04	24-Sep-04	APPROVED
	108-15070	MECH. SOUND, VIBRATION & SEISMIC CONTROL	26-Aug-04	27-Aug-04	24-Sep-04	APPROVED
	109-7840	FIRESTOPPING - HEAD OF WALL	20-Sep-04	21-Sep-04		PENDING
	110-7812	SPRAYED-ON FIREPROOFING- P. DATA/SCHEDULE/ CERTS./MSDS	20-Sep-04	21-Sep-04		PENDING
	111-7920	SEALANTS - HEAD OF WALL	20-Sep-04	21-Sep-04	30-Sep-04	APPROVED
		ENVIRONMENTAL REQUIREMENTS				
	112-15736	WATER-COOLED AC UNITS	20-Sep-04	21-Sep-04		PENDING
	113-5100	STRUCTURAL STEEL - WELDING PROCEDURES / SHOP ONLY	31-Aug-04	31-Aug-04	23-Sep-04	APPROVED
	114-15400	PLUMBING - SHOP DRAWINGS (UNDERGROUND ONLY)	2-Sep-04	2-Sep-04	17-Sep-04	APPROVED
	115-1340	SAFETY - SWPPP	2-Sep-04	2-Sep-04	23-Sep-04	APPROVED
	116-1505	CONSTRUCTION WASTE MANAGEMENT PLAN	7-Sep-04	7-Sep-04		OVERDUE
	117-3250	DRILLED DOWELS & ANCHORS IN CEMENTITIOUS GROUT	7-Sep-04	7-Sep-04	24-Sep-04	APPROVED
	118-3255	EXPANSION ANCHORS	7-Sep-04	7-Sep-04	24-Sep-04	APPROVED
	118.1-3255	ICBO - REPORT TO BE SUBMITTED				
	119-3350	CONCRETE FINISHES - GROUT & CURING COMPOUND	7-Sep-04	7-Sep-04	17-Sep-04	APPROVED
	120-1350	SPECIAL ENVIRONMENTAL REQUIREMENTS- INDOOR AIR QUALITY	8-Sep-04	8-Sep-04		OVERDUE
	121-3200	CONCRETE REINFORCEMENT - EJECTOR PIT/SUMP & ELEVATORS 2-4	8-Sep-04	8-Sep-04	17-Sep-04	APPROVED
	122-5100	STRUCTURAL STEEL - ANCHOR BOLTS/STUB COLUMNS	8-Sep-04	9-Sep-04	22-Sep-04	APPROVED
	123-3200	CONCRETE REINFORCEMENT - PCS-C PILE CAP @ C LINE	8-Sep-04	9-Sep-04	21-Sep-04	APPROVED

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APPA LEADERSHIP IN EDUCATIONAL FACILITIES

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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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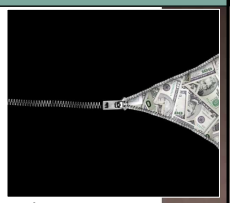
MANAGING CONSTRUCTION PAYMENT APPLICATIONS

- 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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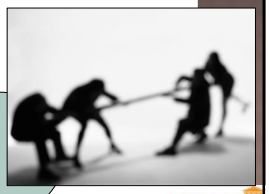
MANAGING CONSTRUCTION PAYMENT APPLICATIONS

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 RESPONDE	DELAY IMPACT	POTENTIAL COST/CPE #	STATUS
101	Fireproofing per A-1, A-507	J Darden	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
102	Water Flow Data for Fire Protection	Value FP	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
103	Carpet Types	Amoroso	8/5/2004	8/12/2004	8/10/2004		No	No	Closed
104	Sewage Ejector Pit Depth	Amoroso	8/6/2004	8/13/2004	8/11/2004		No	No	Closed
105	Shop Fabrication Methods	Alemillo	8/10/2004	8/17/2004	9/7/2004		No	No	Closed
106	Bulletin 102 T Drawings	Amoroso	8/13/2004	8/20/2004	8/16/2004		No	No	Closed
107	File As-Built	Amoroso	8/16/2004	8/20/2004	8/16/2004		No	No	Closed
107.1	File As-Built	Amoroso	8/17/2004	8/24/2004	9/1/2004		No	No	See 107.1
107.2	File As-Built	Amoroso	9/1/2004	9/8/2004	9/21/2004		No	Yes	CPE 3
108	GMC RFI 700	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
109	GMC RFI 702	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
110	GMC RFI 704	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
111	GMC RFI 705	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
112	GMC RFI 706	Gayle	8/17/2004	ASAP	9/1/2004		No	No	Closed
113	GMC RFI 707	Gayle	8/17/2004	ASAP	8/20/2004		No	No	Closed
114	GMC RFI 711	Gayle	8/17/2004	ASAP	8/20/2004		No	No	Closed
115	GMC RFI 712	Gayle	8/17/2004	ASAP	8/20/2004		No	No	Closed
116	GMC RFI 713	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
117	GMC RFI 716	Gayle	8/17/2004	ASAP	9/9/2004		No	No	Closed
118	GMC RFI 721	Gayle	8/17/2004	ASAP	8/17/2004		No	No	Closed
119	GMC RFI 724	Gayle	8/17/2004	ASAP	9/1/2004		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

5-Oct-04

PCO#	CPE #	RFI #	DESCRIPTION OF CHANGE	SUBM'TD	STATUS	NOTICE	AMOUNT	VALUE	%	$ DONE
	1	Bull 101	Bulletin 101	N/A	VOID			$0	100%	$0
	2	Bull 102	Bulletin 102							
	3	Bull 6	As-built Pier Grades							
	4	RFI 135	Electric Room Exhaust Fan							
	5	RFI 132	SS Fume Hood Ductwork	N/A	VOID			$0	100%	$0
	6		SLDE/SELBE Award	X	APP'D			$200,000	0%	$0
	7		Temporary Facilities (dewatering, fence, etc)	X	SUBM.			$86,896	0%	$0
	8	RFI 140	Mesh at Topping Slab							
	9	Bull 104	Bulletin 104	N/A	VOID			$0	100%	$0
	10	RFI 175	Waterproofing at Sand Pit	X	SUBM.			$898	0%	$0
	11		AC Units	X	SUBM.			$26,798	0%	$0
	12	Bull 106	Bulletin 106	X	SUBM.			$7,431	0%	$0
	13	RFI 180	Piping Between Sumps							
	14		Backfill Materials	N/A	VOID			$0	100%	$0
	15		Non Clay Backfill Materials							
	16	RFI 189	Hub Drain at Stair 4							
	17	RFI 191	Tieback Covers							
	18	Bull 105	Bulletin 105							
	19	RFI 203 - 205	Underground Drain Piping Grades							
	20	RFI 210	Concrete Wall at Handset Stone							
	21	RFI 212	Curtainwall Color							

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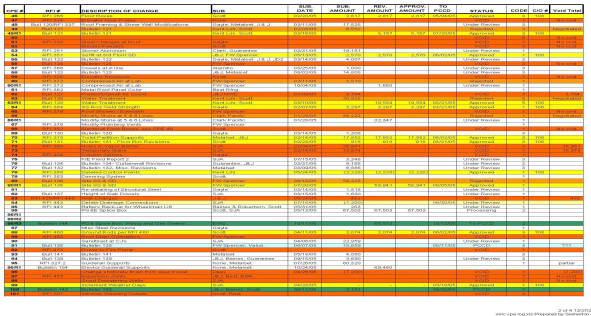
MANAGING CONSTRUCTION CHANGE ORDER REQUESTS



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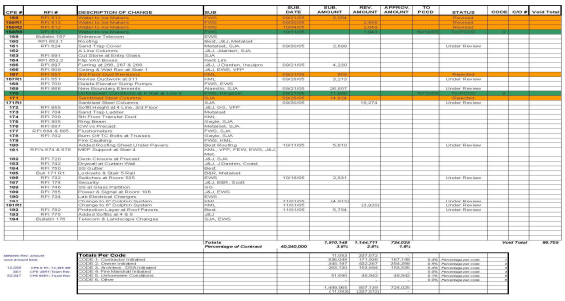
MANAGING CONSTRUCTION CHANGE ORDER REQUESTS



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SITE CONDITIONS

Site Condition Video

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CLOSE OUT

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

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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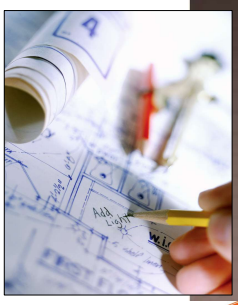
CASE STUDIES

- 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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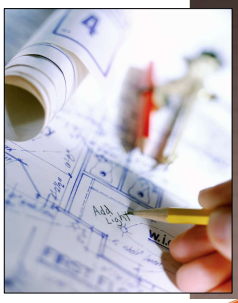
CASE STUDIES

- 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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FEEDBACK AND REVIEW

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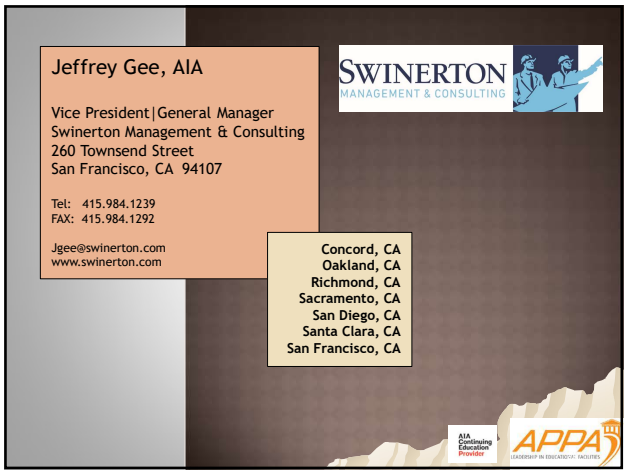
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