

**ICSC European Retail Property School** 

# Construction Administration & Construction Management

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#### Lecturer

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## AGENDA

- DEFINITIONS AND ROLES
- PRE-QUALIFICATION AND SELECTION OF CONTRACTOR
- CONSTRUCTION AGREEMENTS
- CONSTRUCTION PROCESS





**Construction** is the process of preparing and forming buildings and building systems. **Construction** starts with planning, design, and financing and continues until the structure is ready for occupancy.

**Construction management** or construction project management is the overall planning, coordination, and control of a construction process from beginning to completion. Construction project management is aimed at meeting a client's requirement in order to produce a functionally and financially viable project.



**BUDGET** 

#### SCHEDULE

#### QUALITY









 Owner's Rep / Project Manager
 Company or person planning, organizing and managing the process of design and construction

Program Manager

Person who manages a retail store rollout program, planning organizing and managing design and construction process.

**European Retail Property School Construction Administration** ICSC **RELATIONS OWNER** Investor OWNER'S REPRESENTATIVE Project Manager **DESIGN PROFESSIONAL** CONSTRUCTION Construction Manager (CM) Architect General Contractor (GC) Engineer



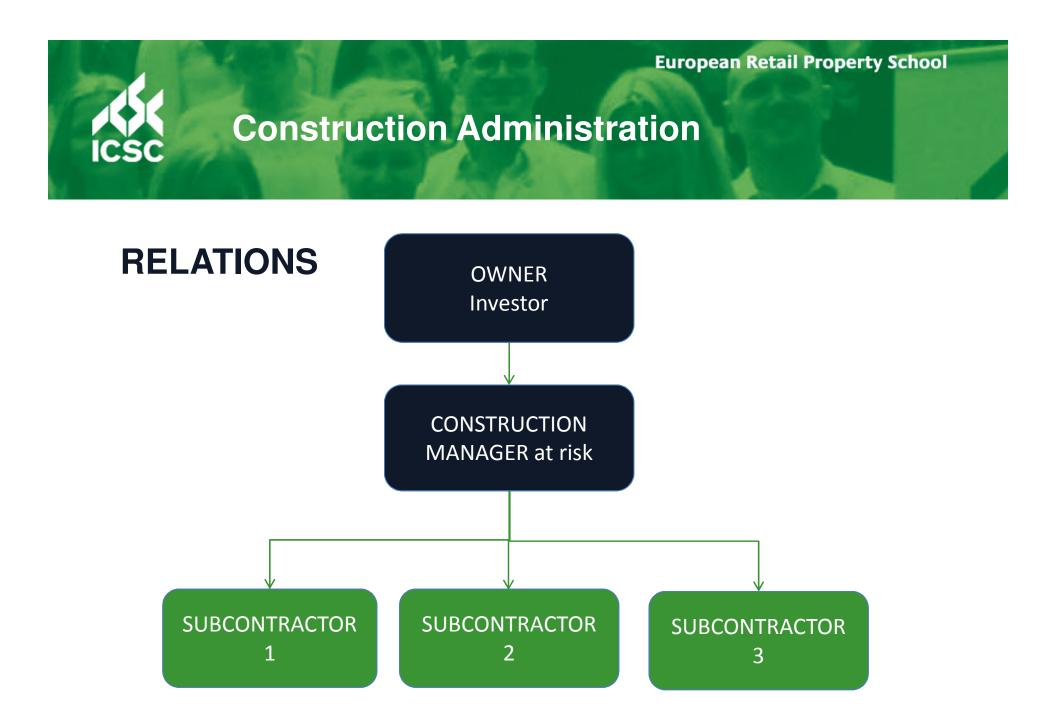
Construction Manager

 At Risk (Construction Manager as Contractor)
 Agency

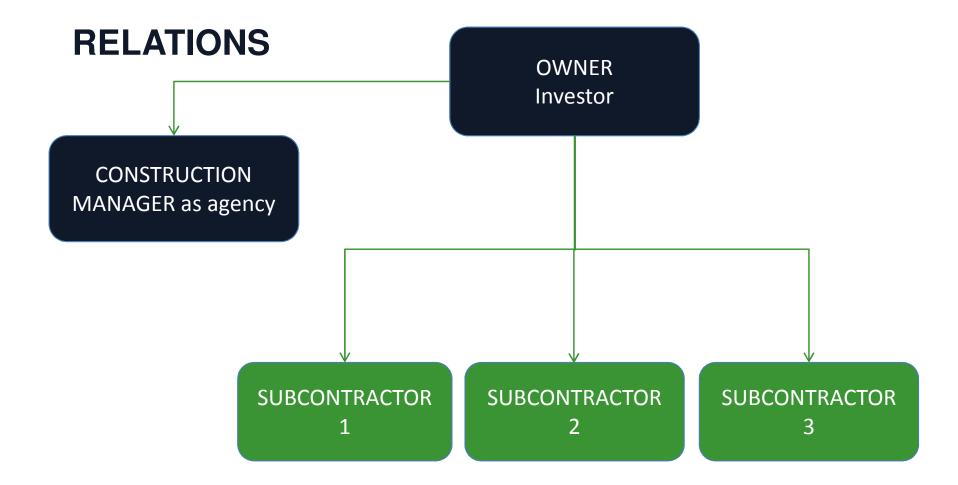
 The difference is just in level of risk assumed

#### General Contractor

Company appointed to execute construction works and deliver the building as per agreed cost, schedule and quality









## What would be the difference between Construction Manager at risk and General Contractor?



- A. Pre-Qualification Questions
- Company
- People
- Legal
- Track Record
- Contractual
- B. Selection Methods
- Bidding the Job
- Negotiated Agreement



#### Considerations

- Relevant experience, references, general reputation
- Financial stability of company / credit reports, bonding capability
- Schedule control
- Quality of performed works on representative projects
- Prior experience with contractor, strategic relationship
- Litigations



#### Company

- Does the size of the company match the size of the project?
- What is the safety record of a company?
  - EMR / experience modification rate
  - <1 more safe
  - >1 less safe

Personnel who will be working on project

- Do they have experience on this particular job?
- What do former client say about superintendent?
- What is a current team workload?



#### Price

- Best possible work at the lowest possible price
- Pay a little more for company with grater experience
- Extremely high and low bids should be eliminated quickly



#### Depends on MAIN PROJECT OBJECTIVE

- Budget Bidding the job after design is completed
- Schedule Negotiate agreement to involve contractor early
  - Quality Combination



#### TO BID OR NOT TO BID ?

- Type of Job Project Delivery Method
- Size of Job
- Profit Potential
- Client Relationship
- Resource Availability
- Competition
- Bonding Issues
- Quality of Owner
- Quality of Architect



#### **BIDDING THE JOB**

- Primarily based on price
- Clear design documentation
- Clear scope of work
- Most suitable for traditional design/bid/build project delivery method
- Requires longer schedule
- Lowest cost
- Open vs. Restricted bidders list
- Bid room atmosphere

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## **Construction Administration**

## **SELECTION METHODS**

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#### **BIDDING THE JOB / PITFALLS**







#### **NEGOTIATED AGREEMENT**

The contractor is selected in competitive negotiation based on:

- The team
- Appropriate experience
- Understanding of the job
- Fee for preconstruction services
- General conditions costs



#### **NEGOTIATED AGREEMENT**

#### **Preconstruction services**

- budgeting,
- scheduling,
- system analysis,
- value engineering

Should be expressed in \$



#### **NEGOTIATED AGREEMENT**

**General conditions** are indirect costs generally related to

contractors on-site staffing and creating construction environment

- Price for on site personnel
- Field office establishment, equipment
- Temporary toilets
- Job safety officer
- Dumpsters
- General clean-up
- First aid equipment and fire extinguishers
- Small tools purchase ...
   Should be expressed in \$



#### **NEGOTIATED AGREEMENT**

#### **Cost Summary**

Preconstruction Services	\$	
General Conditions	\$	
Professional Fee		%
Mark-Up on Self-Performed Work		%
General Liability Insurance		%
Savings / Split	Owner / CM	
Mark-Up on Changes		
For Subcontractors		%
For General Contractor		%
Performance Bond		%



## **REQUESTING PROPOSALS**

#### **RFP = Request for proposal**

- General information about Investor
- General information about the Project itself
- Requested quality of work
- Requested form of proposal / documents to be provided
- Drawings and specifications
- Bill of Quantities
- Deadline for submitting proposals



## **EVALUATING PROPOSALS**

- Completeness of documentation submitted
- References
- Price comparison

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## **Construction Administration**

				A REAL PROPERTY AND A REAL	
	Contractor No 1	Contractor No 2	Contractor No 3	Contractor No 4	Contractor No 5
TOTAL	939,241.69	1,002,213.80	1,057,775.04	1,152,806.61	1,288,005.49
01. DEMOLITION WORKS	40,316.90	46,967.21	46,691.72	51,941.53	65,279.36
01.1 Demolition - Architectural	28,547.55	32,380.11	34,447.32	33,393.91	55,412.08
01.2 Demolition - Water and sewage	177.00	40.00	336.00	440.04	203.20
01.3 Demolition - Mechanical	10,642.35	13,797.10	10,858.40	16,957.57	8,500.08
01.4 Demolition - High voltage	770.00	630.00	870.00	1,000.00	1,032.00
01.5 Demolition - Low voltage	180.00	120.00	180.00	150.00	132.00
02. PREPARATION WORKS	1,565.07	2,121.72	3,446.20	3,276.63	7,712.40
03. CONSTRUCTION WORKS	22.257.75	34.050.48 <sup>:</sup>	38.657.29 <sup>:</sup>	50.007.28 <sup>:</sup>	41.801.30
03.1 Masonary works	2,709.24	2,793.57	2,846.50	5,751.62	3,989.24
	3,775.69		-	8,742.64	5,777.29
03.2 Concrete works		4,902.16	4,690.06		
03.3 Steel structure 04. FACADE	15,772.82 22,765.00	26,354.75 15.066.15	31,120.73 23,864.80	35,513.02 21,657.05	32,034.77 <b>24,574.14</b>
		15,000.15	23,004.00	21,037.03.	24,374.14
05. FINISHING WORKS	292,992.95	362,114.23	387,631.82	416,241.37	506,833.65
05.1 Insulation	15,087.85	25,420.57	17,871.39	26,971.38	44,685.06
05.2 Carpenter's works	23,333.00	17,413.00	19,800.50	20,902.35	31,051.00
05.3 Metal works	33,640.75	44,231.50	41,411.45	60,278.01	67,342.38
05.4 Ceramic flooring	63,485.49	79,876.26	89,704.89	93,107.24	99,206.21
05.5 Other flooring	10,109.61	17,555.90	15,995.30	12,274.77	13,743.52
05.6 Gypsum works	95,893.59	119,133.54	123,588.81	128,665.62	147,396.29
05.7 Painting works	8,216.15	12,437.10	14,580.57	15,766.50	24,715.78
05.8 Miscelaneous	43,226.52	46,046.36	64,678.91	58,275.50	78,693.42
06. WATER AND SEWAGE INSTALLATIONS	6,356.10	9,109.85	6,175.32	10,395.01	9,849.94
06.1 Water installations	3,583.10	5,076.85	3,789.02	5,500.05	5,220.68
06.2 Sanitary equipment	2,773.00	3,883.00	2,321.80	4,044.96	4,199.26
06.3 Miscelaneous	0.00	150.00	64.50	850.00	430.00
07. MECHANICAL INSTALLATIONS	348,316.06	341,761.76	334,652.89	365,852.84	396,446.48
07.1 HVAC	178,597.44	173,098.76	178,088.29	180,300.93	221,712.40
07.2 Radiator heating and air curtains	13,768.10	15,531.60	13,565.80	16,800.46	8,880.45
07.3 VRF	124,951.58	119,726.80	117,536.80	112,320.85	120,641.44
07.4 Split system	1,885.36	1,850.00	1,600.00	1,186.50	2,306.00
07.5 Remote control, automatics	24,309.58	26,634.60	21,962.00	33,978.52	36,784.38
07.6 Preparation and finishing works	4,804.00	4,920.00	1,900.00	21,265.58	6,121.80
08. ELECTRICAL INSTALLATIONS	99,796.21	98,997.20	108,614.50	122,310.93	123,594.91
08.1 Distribution boards	9,754.06	11,475.60	9,694.40	11,695.18	12,064.92
08.2 Electrical supply instalations	10,684.03	10,822.00	10,017.90	12,612.49	13,312.22
08.3 Sockets	29,593.66	29,047.80	28,680.30	34,093.65	32,627.46
08.4 Lights	47,635.49	44,531.80	57,971.90	61,109.61	63,210.30
08.5 Compensation	1,476.80	2,320.00	1,800.00	2,150.00	1,780.00
08.6 Finishing electrical works	652.17	800.00	450.00	650.00	600.00
09. LOW VOLTAGE	23.980.15	26.912.20	25,749.50	28.886.34	29,537.32
09.1 Telephone and networks	12,120.67	13,938.40	12,909.00	11,765.55	14,609.95
09.2 Sound system	3,472.44	3,668.50	3,695.00	7,118.69	3,291.28
09.3 Access control	3,923.87	3,699.00	4,133.00	5,041.93	5,083.71
09.4 Anty tefth system	142.66	180.90	352.00	158.30	197.54
09.5 Video survailance	1,501.86	1,779.40	1,783.00	1,621.14	2,235.00
09.6 Cable trays	2,818.65	3,646.00	2,877.50	3,180.74	4,119.84
10. FIRE DETECTION	21,495.50	19,763.00	20,591.00	17,369.29	23,216.00
······					
11. ELEVATORS	44,900.00	33,000.00	44,100.00	48,093 <b>.3</b> 3	41,160.00
12. FURNITURE AND EQUIPMENT	14,500.00	12,350.00	17,600.00	16,775.00	18,000.00
TOTAL	939,241.69	1.002.213.80	1,057,775.04	1,152,806.61	1,288,005.49
I UIAL:	533,241.07	1,002,213.00	1,057,773.04	1,132,000.01	1,200,003,43



#### CONTRACT ELEMENTS

- The parties
- The work (described by plans and specs)
- The price (including payment conditions)
- Schedule



- Stipulated lump sum contract
- Design/build
- Unit price
- Construction management at risk
- Construction management as agency



#### 1. Stipulated lump – sum contract

- contractor is performing works for fixed lump sum
- well defined quality and scope of works
- risk for extras/savings is shared between contractor and owner
- no additional cost, known price



#### 2. Design/build agreement

- designer works for construction entity
- no issues with constructability
- higher risk for owner's budget



#### 3. Unit price

- works are contracted as per unit price for material and labor
- when scope of work is not precisely defined
- when expecting significant changes
- fair for both parties
- total price is not known until the end of construction



#### 4. Construction management at risk

- usually, contractor is selected based on qualifications, not price
- contractor is brought early in design phase
- cost and fees are open book
- allowable and unallowable costs
- guaranteed maximum price (GMP)



#### 5. Construction management as agency

- CM is in consultancy role
- separate agreements with each subcontractor



## **STANDARD CONTRACT FORMS**

#### FIDIC – Europe vs AIA – USA

FIDIC is the International Federation of Consulting Engineers. Its members are national associations of consulting engineers

- the most widely used standard conditions for the construction contract
- Used by World Bank, EBRD, EIB ...

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### **Construction Administration**

## **STANDARD CONTRACT FORMS**

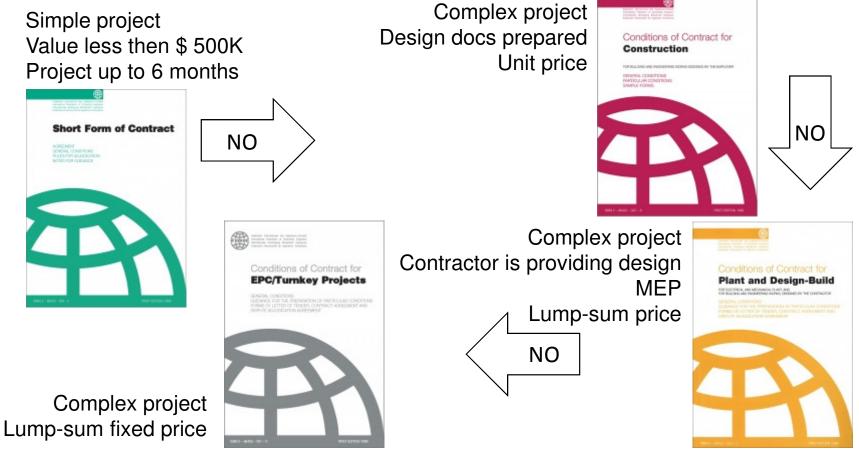
#### **FIDIC CONTRACTS**

- Red book / construction
- Yellow book / design/build
- Silver book / turnkey projects
- Green book / short form of contract
- Gold book / design, construct & operate
- White book / project management





## **STANDARD CONTRACT FORMS**



### **Construction Administration**

### **Major Contract Business Issues**

- General conditions describing project and parties
- Investor's responsibilities
- Contractor's responsibilities
- Appointed subcontractors
- Contractor's employees
- Requested quality of works
- Start, delays and temporary breaks in construction
- Changes and modifications during construction
- Price: lump-sum, GMP, unit price and payment conditions including advance
- Advance payment guaranty
- Performance bond and retention money 10%
- Handover between Contractor and Owner
- Deficiencies
- Guaranty period and bonds
- Risk and responsibility liquidated vs. consequential damages
- Force majeure (Excusable delay)
- Disputes and Arbitration

## **Construction Administration**

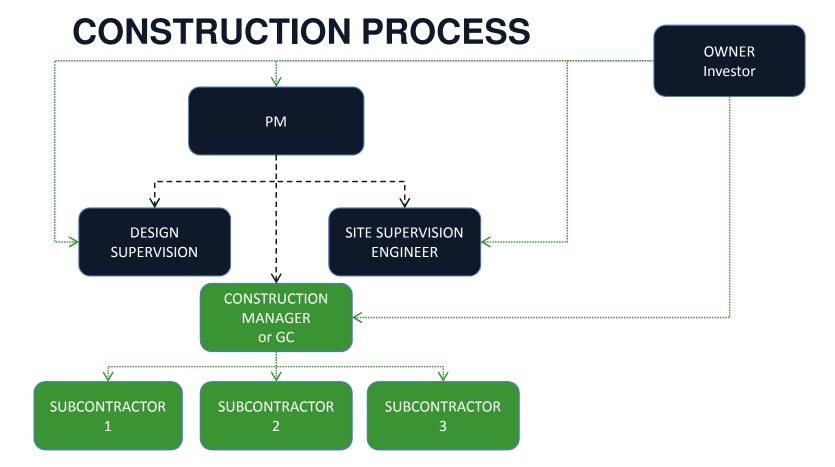
### **Priority of documents**

Contract

ICS(

- The Letter of Acceptance
- The form of Tender
- The Specifications
- The Drawings
- The Schedules





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### **Construction Administration**

## **CONSTRUCTION PROCESS**

#### Pre construction phase

- Development of Plans and Specifications
- Financing, Budgets, Permits, Schedules
- Tendering and contracting works

#### Initial construction phase

- Site preparation works
- Building the foundations, structure and exterior envelope including roof
- Installing windows, doors, vertical transportation

#### **Finishes phase**

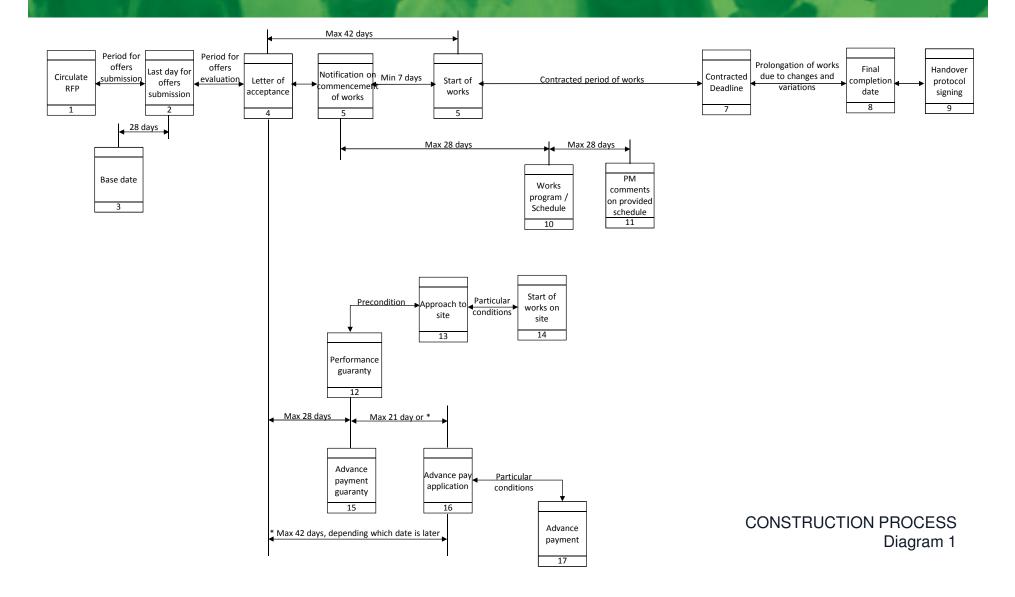
- MEP
- Interior finishes applied
- Exterior landscaping, planting and hardscape

#### Post construction phase

• Testing and commissioning, close out, completion inspections, handover



### **Construction Administration**





### **Construction Administration**

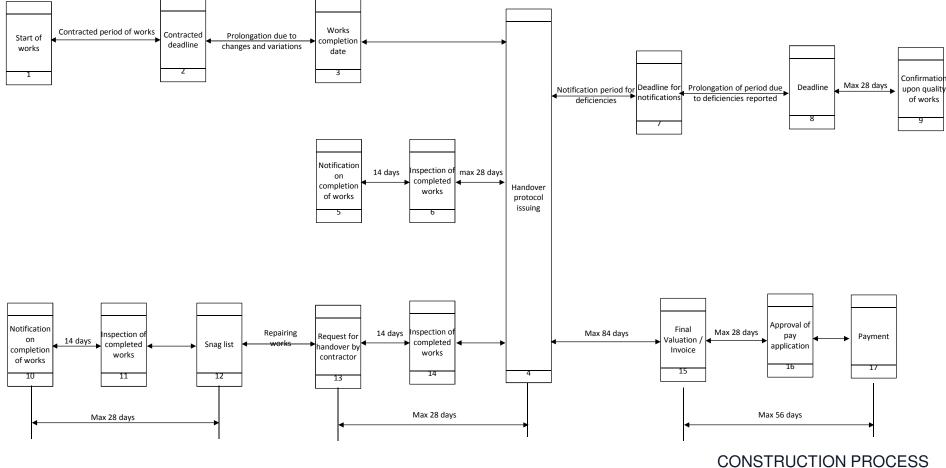


Diagram 2

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### **PRECONSTRUCTION SERVICES**

- Budgeting estimating cost for building
- Scheduling creating works program
- Building system analysis determine most cost effective solution
- Value engineering best solution for the available budget
- Constructability review review plans and specifications
- Life cycle costing price of system over its entire life span



#### **ESTIMATING / BUDGETING**

#### Who budgets jobs?

architect/engineer cost manager construction professional

#### How the job is budgeted?

Week One	Week Two	Week Three
Receive bid documents	Visit site	Method of bid delivery
Review documents	Pre-Bid meeting	Receive subcontractors bids
Prepare estimate survey sheet	Self performed works	Complete survey sheet
Determine sub list	Preliminary schedule	Add profit
Distribute drawings	Develop subcontractors scope of works	Submit bid proposal
Learn about Job		



#### **BUDGET DURING DESIGN**

	Documents and Information	Pricing Type	Pricing Accuracy	Schedule Type
Conceptual Design	<ul> <li>Napkin</li> </ul>	<ul> <li>Data Bank</li> </ul>	+/- 15%	<ul> <li>Past Projects</li> </ul>
Schematic Design	<ul> <li>Site Plan</li> <li>Preliminary Layouts</li> <li>Systems</li> </ul>	ts • Systems Pricing	.7 1070	<ul><li>Bar Chart</li><li>Master Schedule</li></ul>
Design Development	<ul><li>Systems Complete</li><li>Some Details</li><li>Building Sections</li></ul>	<ul><li>Quantities</li><li>Trade Items</li></ul>	., .,	<ul><li>Long Leads</li><li>Preliminary Cost</li></ul>
Final Design Construction Documents	<ul> <li>"Complete"         <ul> <li>(no such thing as a complete set of CD's!)</li> </ul> </li> </ul>	<ul> <li>Detailed Quantities Unit Prices</li> <li>Sub Bids</li> <li>GMP / Final Budget</li> </ul>		<ul> <li>Detailed Cost</li> </ul>



### **BUDGETING PITFALLS**

- Lack of Details
- Make allowance for "hidden" and unforeseen works
- Inadequate research : geographical and weather conditions
- Update budget frequently at least once a month



### **Construction Administration**

#### Project Budget Report

€		(1)	(2)	(3=2+6)	(4)	(5=3-4)	(6)	(7= <b>∆</b> 3:2)
No	Description	Budget (€)	Contracted (€)	Actual (€)	Invoiced (€)	Remaining to be invoiced	Variations approved ±	Variations as % of contracted
Σ	TOTAL	1,320,000.00	1,207,456.77	1,225,757.27	283,082.24	942,675.04	18,300.50	1.52%
0	CONSTRUCTION COST	1,000,000.00	958,507.32	976,807.82	239,626.83	737,180.99	18,300.50	1.91%
01	Demolition	55,000.00	49,639.58	52,097.58	12,409.90	39,687.69	2,458.00	4.95%
02	Preparation works	5,000.00	3,688.55	3,688.55	922.14	2,766.41	-	0.00%
03	Civil works	35,000.00	32,171.50	39,735.50	8,042.88	31,692.63	7,564.00	23.51%
04	Facade	30,000.00	24,865.00	33,143.50	6,216.25	26,927.25	8,278.50	33.29%
05	Finishing works	350,000.00	348,749.99	348,749.99	87,187.50	261,562.49		0.00%
06	Water and sewage	10,000.00	6,881.85	6,881.85	1,720.46	5,161.39	-	0.00%
07	Mechanical	320,000.00	319,653.13	319,653.13	79,913.28	239,739.85	-	0.00%
08	Electrical	85,000.00	81,159.22	81,159.22	20,289.81	60,869.42	-	0.00%
09	Low voltage	28,000.00	26,841.50	26,841.50	6,710.38	20,131.13	-	0.00%
10	Safety systems	12,000.00	10,591.00	10,591.00	2,647.75	7,943.25	-	0.00%
11	Vertical transportation	55,000.00	51,454.00	51,454.00	12,863.50	38,590.50	-	0.00%
12	FF&E	15,000.00	2,812.00	2,812.00	703.00	2,109.00	-	0.00%
1	CONSTRUCTION CONTINGENCY	50,000.00	47,925.37	47,925.37	-	47,925.37	-	-
1.1	Contigency 5%	50,000.00	47,925.37	47,925.37	-	47,925.37		0.00%
2	CONSULTANTS	195,000.00	168,144.95	168,144.95	39,576.26	128,568.68	-	-
2.1	Project Management	90,000.00	83,144.95	83,144.95	5,471.32	77,673.62	-	0.00%
2.2	Designers	75,000.00	60,000.00	60,000.00	33,744.28	26,255.72	-	0.00%
2.3	Others	30,000.00	25,000.00	25,000.00	360.66	24,639.34	-	0.00%
3	PERMITS AND APPROVALS COSTS	40,000.00	3,879.14	3,879.14	3,879.14	-	-	-
3.1	Taxes	27,000.00	2,371.56	2,371.56	2,371.56	-	-	0.00%
3.2	Invoices	-	-	-	-	-	-	
3.3	Permits	4,000.00	-	-	-	-	-	
3.4	Other conditions and approvals	6,000.00	1,507.58	1,507.58	1,507.58	-	-	0.00%
3.5	Occupancy permit	3,000.00	-	-	-	-	-	
4	FINANCING COST	19,000.00	19,000.00	19,000.00	-	19,000.00	-	-
4.1	Escrow agency	15,000.00	15,000.00	15,000.00	-	15,000.00	-	0.00%
4.2	Bank Fee	4,000.00	4,000.00	4,000.00	-	4,000.00	-	0.00%
5	SIGNAGE	16,000.00	10,000.00	10,000.00	-	10,000.00	-	-
5.1	Exterior signage	16,000.00	10,000.00	10,000.00	-	10,000.00		0.00%

### **Construction Administration**

## **CONTRACTORS SERVICES**

#### **OVER BUDGET?**

- recognize the problem early
- evaluate major building systems: structure, building envelope, HVAC, electrical ...
- review the finishes









### SCHEDULING

Creating a works program / schedule is simply identifying the needed activities, calculating the length of time for each activity, determining how the activities relate to each other, developing logical sequence and identifying a critical path.

- Milestone schedule
- Master project
- Bar chart
- Critical path



### **MILESTONE SCHEDULE**

a list of start or completion dates of major steps in the project, such as when:

- Ground will be broken
- The foundations or the superstructure are finished
- Walls are completed
- The roof will be water tight
- MEP will begin
- The interior start and finish will commence and be completed
- FF&E
- Occupation



### **MASTER PROJET SCHEDULE**

Incorporating all of the activities of the entire team on the same schedule:

- Design development finish
- Government and municipal approvals
- Construction could be just one line item on the master project schedule
- Any other target dates for pre construction or construction activities ...



#### **BAR CHART**

List of activities required for the project, with beginning and ending date indicated by straight, horizontal line:

- Usually activities are plotted on weekly time scale
- Each activity is listed separately
- Presents overlapping activities
- Not completely detailed
- Does not indicate the consequences of delays

		We		Week 1			Week 2			T	Week 3			2	Week 4			Week				
	Deys	4	12	6	4	à	6	7			i de	it hi	dia	14	14	96	σþ	alı	12	22	22	20
Ē			1				1				1		r					T	T			T
E	SITE PREPARATION	12									Т						T	T				
	FOOT NOS										Т						Т	T	Т			
	FOUNDATIONS:																					
0	<b>FEMPORARY ELECTRIC SERVICE</b>	8						-			Т						-	Т				
	WATER AND SEWER TAP			1					1		Т						1	T	Т			
6	504 TREATHENT										т						10		T			
Ľ	FRAMING										Т			10						200	-	
Ē	MASONEY INALLS										Т						т	Т	Т			
61	KOOP						-				т					. 1		т	1			
6	WINDOWS										Т						т	Т				
2	EXTERIOR DOOPS										Т											
а	CONNER, WAREH, & BRITTHAN			-	-						т	-	-				-	T	-			-



#### **CRITICAL PATH METHOD**

It presents graphically the first and last activities and all others in between, that combine to establish the overall duration of the project:

- Each activity is given four parameters
  - earliest start
  - earliest finish
  - latest start
  - latest finish
- Each item on a critical path is essential and affects other items
- Any change in a critical path activity will delay the overall project time

### **Construction Administration**

## SCHEDULING

### **DETERMING THE SCHEDULE**

- Break down the activities
- Determine manpower
- Consider materials delivery
- Consider weather conditions

#### Long lead items determining and monitoring

materials or equipment need to be bought well before they are needed, even before construction begins

#### Time contingency

Make allowance in schedule to accommodate delays for weather and unforeseen circumstances (i.e. permitting issues)



### SCHEDULING PITFALLS

- Always insist on realistic time schedule. Accepting impossible schedule makes sense for no one
- Update schedule regularly to accommodate both the minor and major delays that can take place

### **Construction Administration**

### SCHEDULING

### **GETTING BACK ON SCHEDULE**

- Increase productive manpower
- Increase shift work or overtime
- Increase cleanup
- Complete selective areas
- Remove subcontractors trailers
- Do not allow early move in!



"WHAT DO YOU MEAN 'AM I <u>SURE</u> WE'RE BEING DELAYED BY WEATHER'?!!"



### LOGISTICS

- Identifying all civilian and project safety parameters
- Incorporating physical location and constraints on project
- How traffic flows through project, access points
- Site boundaries and fences, neighborhood concerns
- How Project is accessed for materials
- How hoisting for project will be accomplished
- How property is utilized for material staging/storage
- How property is used for offices, trailers, trade parking

### **Construction Administration**

### **CONSTRUCTION PROCESS**

#### LOGISTICS PLANING

Mobilization and Site Security / Safety

- Pedestrian / Civilian Traffic Safety
  - Walkway Canopies
  - Positive Barriers
  - Signage
- Site Boundaries / Fencing
  - Access Points Gates
  - Shared Points with Occupant?
- Neighborhood Concerns
  - Starting Time (Noise, Traffic)
  - Dust and Debris Control
  - Street Cleaning / Maintenance

### **Construction Administration**

### **CONSTRUCTION PROCESS**

#### LOGISTICS PLANING

Mobilization and Site Security / Safety

- Vehicular Traffic Flows
   Construction Truck Traffic
  - Tradesmen Vehicle Traffic
- Street and Lane Closings
  - Permit
  - Lane Closure Fees
  - Lost Revenue Fees for Parking
  - Signage
- Re-mobilize Construction Offices and Parking
  - From Trailer to Building
  - Parking Constraints



### LOGISTICS PLANING

Hoisting

- Crane
  - **Crane Selection** 
    - Adjacent Obstructions
    - Reach / Capacity
    - **Overhead Obstructions**
- Tower Crane
  - Foundation, Electrical Requirements, FAA, Permitting, Etc.
  - Location
  - Structural Design Tie-Ins / Support
  - Communications



### **ON SITE CONSTRUCTION**

- Existing Utilities
- Geo tech survey ground conditions
- Environmental handling hazardous materials
- Site Work organization and sequences
- Building Shell
- Interior Build-out
- Operating Property Issues



### **BUILDING IN OPERATIONS – safety and undisturbed operation**

- Emergency Procedures
- Additions to Existing Buildings
- Designated Entrances
- Maintain Proper Egress Paths
- Delivery Locations / Scheduling
- Temp Partitions and Barricades Dust, Air, Weather, Sound
- Tie-In Points for Structure, Skin, Roof
- MEP Shut Down and Tie-Ins



### **CONSTRUCTION ADMINISTRATION**

- Request for Information (RFI)
- Request for Change (RFC)
- Change Orders (CO)
- Change Orders Register
- Product Data
- Submittals
- Samples and Sample Schedules
- Mock ups and Mock ups schedule
- Payment Applications



### **Construction Administration**

#### **Request for Change**

#### Zahtev za Izmenom

RFC	
-----	--

Projec Naziv Pr	t Title/ ojekta:			D I R No./ D I R Br:	
	act No/ vor Br:			Date requested/ Datum zahteva:	
Requested by/ Zahtevano od:		tractor D=Designer T= Tenant djač D=Projektant T=Zakupac			
To be circulated	to / Dos	aviti:			
Date Required / Rok za dostavu o	dgovora	:			
Code / Šifra:		ding M=Mechanical E=Electrical đevinski M=Mašinski E=Elektro			
From / Od: Company / Komp	anija:				
DESCRIPTION OF OPIS IZMENE	CHANG	Ε/	PHOTO DOCUMENTS ( FOTO DOKUMENACIJA		
Referenced Draw	ings / R	ef. Crteži:	-		
Cost Impact /			-		
Izmena Cene:		YES / DA NO / NE			
AMOUNT / IZNO			-		
Izmena Dinamike		YES / DA NO / NE			
No. Days / Br. Da Site supervisor's			Assessed by Deciset A	A(	
Predlog Nadzora		lendation /	Approved by Project N Odobreno od strane N		
			APPROVED ODOBRENO	REJECTED ODBIJENO	
			Signature / Potpis		
			Date / Datum		



## **Construction Administration**

European Retail Property School

#### MATERIAL & EQUIPMENT DELIVERY SCHEDULE

No.	Description	Supplier	Planned Date of purchase order	Estimated Producing time	Estimated time for transport	Custom clearance	Estimated time on site	Remark



### **Construction Administration**

Number:	1		Period:	Month					
Project Name:	Constr	uction	Owner:	Myself					
Contractor:	AA Bu	ilder							
Address:	47 Brid	k Ave							
Project Number	1045								
Facility:	School								
Contract Start Date		1-1-11							
Application Date:		may 20	11						
Change Order Summary:		Additions Deductions \$15,000 \$3000							
Previous Change Orders	\$15,000	\$15,000 \$300							
Total Change Orders		\$12000							
Change Orders Approved This Month									
Number		Date Ap	proved						
12		may 23,	2011	rd					
13		may 30,	2011						
Total		\$4,000							
Net Change By Change Orders		\$16,000							
Application is made for payment unde	er the Contract a	is shown b	elow:						
1. ORIGINAL CONTRACT SUM			\$1	00,000					
2. NET CHANGE BY CHANGE OR			\$1	6,000					
3. CONTRACT SUM TO DATE (Lin				16,000					
4. TOTAL AMOUNT COMPLETED	TO DATE (Fro	om Schedi	ile 1) \$0.	.00					
5. RETENTION: % of Completed Wo			\$0	.00					
6. TOTAL EARNED LESS RETENT	ION (Line 4 le	ss Line 5)	\$0	.00					
7. TOTAL AMOUNT PREVIOUSLY			\$0	.00					
8. CURRENT PAYMENT DUE (Line	e 6 less Line 7)		\$0	.00					
9. BALANCE TO FINISH, PLUS RE	TENTION (Lir	te 3 less L	ine 6) \$1	16,000					

The undersigned Contractor hereby represents and warrants to Owner that all Work,

for which Certificates For Payment have previously been issued and payment received from Owner,

is free and clear of all claims, stop notices, security interests, and encumbrances in favor of

Contractor, any Subcontractor, and any other persons or firms entitled to make claims by reason

of having provided labor, materials, or equipment related to the Work.

The following Schedules are attached and incorporated herein, and made a part of this Application For Payment:

Schedule 1 Cost Breakdown Schedule

Schedule 2 List of Subcontractors

Schedule 3 Declaration of Releases of Claims

(Contractor)

(Name)

(Title)

L

By:\_\_

DECLARATION

\_, hereby declare that I am the \_

of Contractor submitting this Application For Payment; that I am duly authorized to execute

and deliver this Application For Payment on behalf of Contractor, and that all information set

, State of

forth in this Application For Payment and all Schedules attached hereto are true, accurate,

and complete as of its date.

I declare, under penalty of perjury, that the foregoing is true and correct and that this

declaration was subscribed at

, 20 On

.

Signature

Print Name



### **CLOSE OUT**

- Commissioning and Start-Up
- Third parties Inspections
- Punch list / Snag list Completion
- Final cleaning
- Close out documentation
- Guarantees and Warranties handing over to investor
- Final Payment and Retention



### **COMMISIONING AND START UP**

- Purpose to determine whether constructed building achieves set parameters in design
- Basic Equipment Start-Up Versus Full Building Commissioning
- Commissioning Effort Begins During the Design Phase, by setting the parameters, Through Project Completion
- Greatest Value to Owner When it Provides a Means of Continuously Verifying Compliance with Building Systems Criteria



### SNAG / PUNCH / LIST ADMINISTRATION

- Snag List Format
- Pre-Snag by Contractor
- Sequence of Snag List
- Snag List Process
- Snag List Completion



### DOCUMENTATION

- Operations and Maintenance Manuals
- As-Built / Record Drawings
- Materials attests and certificates
- Warranties / Guarantees
- Final Inspection Reports
- Spare Parts
- Final Cleaning



### FINANCIAL CLOSE OUT

- Release of Retention money
- Final release of lien
- Final Valuation Payment



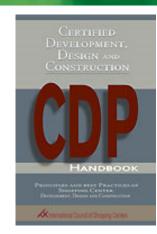
### **Construction Administration**



### **Construction Administration**

### REFERENCES

CDP Handbook, Chapter 6 ICSC



#### Modern Construction Management SEVENTH EDITION

Frank Harris and Ronald McCaffer



#### Modern Construction Management, 7th Edition

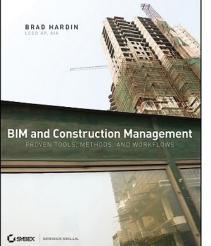
Frank Harris, Ronald Mc Caffer with Francis Edum-Fotwe

#### **BIM and Construction Management**

Proven Tools, Methods and Workflows Brad Hardin, LEED AP, AIA

**FIDIC Publications** 

#### **AIA Contract Documents**





# **Class Evaluation:**

Please remember to complete the class evaluation by using your smartphone or tablet.

**Class Evaluations Link:** 

# survey.icsc.org/2014ERPS

John T. Riordan School for Reta	Real F	ctate Pr	ofessio	nals			
istanbul, T 17-21 Februa	riev						
ESSION:	7. 2014					♦ ▷ □ ↓ ★ survey.icsc.org/2014isi	
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ESSION:	Es	cellect			Poor		
1. Satisfaction with the program overall.	5	4	3	2	1	Brind Bester to Defense 1 Determine	
2. Session increased my knowledge.		4		2	1	Session	······································
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of the information.						<ul> <li>Two final</li> <li>Two final</li> </ul>	To help us plan future schools, please answer
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			3			Beatles and materials uses equation."	Select Session to Evaluate *
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OMMENTS:						o two Instructor	Session
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2. What is the most valuable takeaway you gain	ed from	be sessi	e?				O Excellent
							⊖ Very Good ⊖ Good
3. What enhancement would you recommend for	othe ses	ios?					OFair
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<ol> <li>Additional comments?</li> </ol>							
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