

Construction Contracts

Construction Project Management

2013. 3.19.

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Classifications of Law

- Criminal vs. civil
- Substantive vs. procedural
- Public vs. private
- Domestic vs. international
- Common vs. civil
- ...

Common vs. Civil Law Systems

- Common law
 - Uncodified [1]
 - largely based on precedents [1]
 - Judicial decisions are binding [2]
 - Extensive freedom of contract [2]
 - Practiced in those that were under British influence [3]
 - Most public private partnership (PPP) projects are subject to private law [2]

1. <http://www.law.berkeley.edu/library/robbins/CommonLawCivilLawTraditions.html>

2. <http://ppp.worldbank.org/public-private-partnership/legislation-regulation/framework-assessment/legal-systems/common-vs-civil-law>

3. http://en.wikipedia.org/wiki/List_of_national_legal_systems

Common vs. Civil Law Systems (cont'd)

- Civil law
 - Codified [1]
 - Based on continuously updated legal codes [1]
 - Only legislative enactments are considered binding for all [2]
 - Less freedom of contract [2]
 - Practiced in those that were under French, German, Scandinavian, Spanish or Portuguese influence and East Asian countries [3]
 - Most public private partnership (PPP) arrangements are subject to public administration law [2]

1. <http://www.law.berkeley.edu/library/robbins/CommonLawCivilLawTraditions.html>

2. <http://ppp.worldbank.org/public-private-partnership/legislation-regulation/framework-assessment/legal-systems/common-vs-civil-law>

3. http://en.wikipedia.org/wiki/List_of_national_legal_systems

Contract Elements

- “A contract is an agreement having a lawful object entered into voluntarily by two or more parties, each of whom intends to create one or more legal obligations between or among them [1].”

Elements of Valid Contract

- Mutual agreement in the form of offer and acceptance
- Capacity to contract
- Consideration
- Lawful purpose

Taxonomy of Construction Contracts

- Contract types
 - Lump (stipulated) sum
 - Unit price
 - Cost plus
- Contracting methods
 - Competitively bid
 - Negotiated
- Project delivery methods
 - Design-bid-build
 - Design-build
 - Construction management

Lump Sum Contract

- Also known as stipulated sum or single fixed price contract
- The lump sum price includes direct cost, indirect cost, and profit for the contractor
- The contractor promises to complete the project with the lump sum price
- Appropriate for a project of which scope is well known (e.g. office building project)
- Widely used in the design-bid-build approach
 - Allows for price-based competitive bidding
 - Contract awarded to lowest responsible bidder
 - No room for favoritism; ideal for public projects
 - Deters fast track or phased construction
 - Deters value engineering

Lump Sum Contract (cont'd)

- High-precision progress measurement is not needed
- Theoretically, high risk to the contractor and low risk to the owner
- Not well suited for development of unexpected conditions
- Significant variation from the original plan has to be accommodated through change order
- Change order requests may lead to conflicts
- In reality, lump sum contract can be more expensive to the owner than other types of construction contracts

Contractor Prequalification Criteria

- Financial status
- Bonding capacity
- Past performance
- Owner-contractor relationship
- Technical ability
- Equipment/plant ownership
- Management capability
- Current work under way

Unit Price Contract

- Contractors propose unit prices instead of a single fixed price
- The bill of quantities (BOQ) shows the cost items and guide quantities
- The proposed unit prices are multiplied with the guide quantities to produce the price of each item
- Summation of all the items results in the total construction price on which the owner can choose the lowest bidder
- Appropriate for a project of which cost items may have high variability in quantity (e.g. heavy engineering projects)
- Unit price adjustment mechanism can be embedded in the contract

Unit Price Contract (cont'd)

- For example, if actual quantity is more than 10% larger [smaller] than expected, the price is adjusted downward [upward] by the request of owner [contractor]
- High level of progress measurement is needed
- Theoretically, high risk to the owner and low risk to the contractor
- Fast track/phased construction is possible
- Significant variation from the original plan can be accommodated under the frame of unit price contract
- Less potential for conflicts and litigations
- Can be abused by “unbalanced bid”

Unit Price Contract (cont'd)

Cost Items	Unit	Guide Quantity	Bidder A		Bidder B	
			Unit Price	Bid Amount	Unit Price	Bid Amount
Soil Excavation	CM	180,000	4.5	810,000	3.0	540,000
Rock Excavation	CM	20,000	20.0	400,000	30.0	600,000
Total				\$1,210,000		\$1,140,000

Bidder B wins the contract

Unit Price Contract (cont'd)

Cost Items	Unit	Guide Quantity	Bidder B		Actual	
			Unit Price	Bid Amount	Quantity	Amount Paid
Soil Excavation	CM	180,000	3.0	540,000	160,000	480,000
Rock Excavation	CM	20,000	30.0	600,000	40,000	1,200,000
Total				\$1,140,000		\$1,680,000

If Bidder B had the boring data showing the accurate subsurface conditions and purposely proposed the wrong unit prices, it would earn \$540,000 by the unbalanced bid.

Cost Plus Contract

- The owner reimburses the cost and pays the profit
- A well defined list of permissible cost items is needed
- Appropriate for a project of which scope is unclear
- A few bidders can be invited for negotiation
- Theoretically, higher risk to the owner and lower risk to the contractor
- Enables fast track/phased construction

Cost Plus Contract (cont'd)

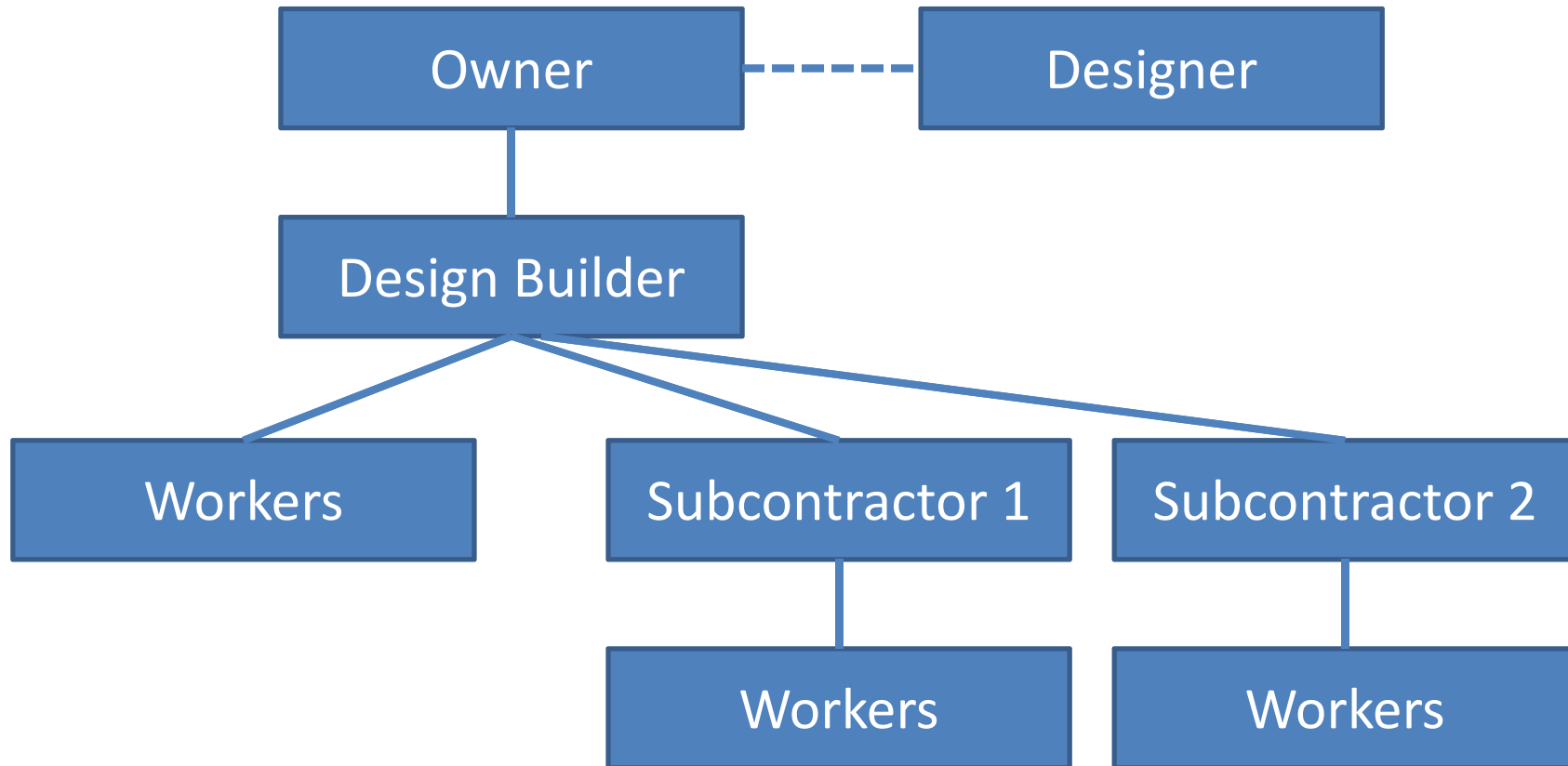
Evolution of cost plus contract

- Cost plus percentage of cost
 - No incentive for time and cost control
- Cost plus fixed fee
 - No incentive for cost control
- Cost plus incentive fee
- Guaranteed maximum price (GMP)

Design Build (DB) Contract

- Considered as a project delivery method
- Also known as turnkey contract although turnkey is slightly different from DB
- Contractor or contractor's consortium does both design and construction
- Devised as a way of providing a single point of contact
- Appropriate for large and complex projects
- Enables phased/fast track construction
- Minimizes the adversarial relations between design and construction teams
- Design builder's quality is more important than ever.
- Enables best value contracting

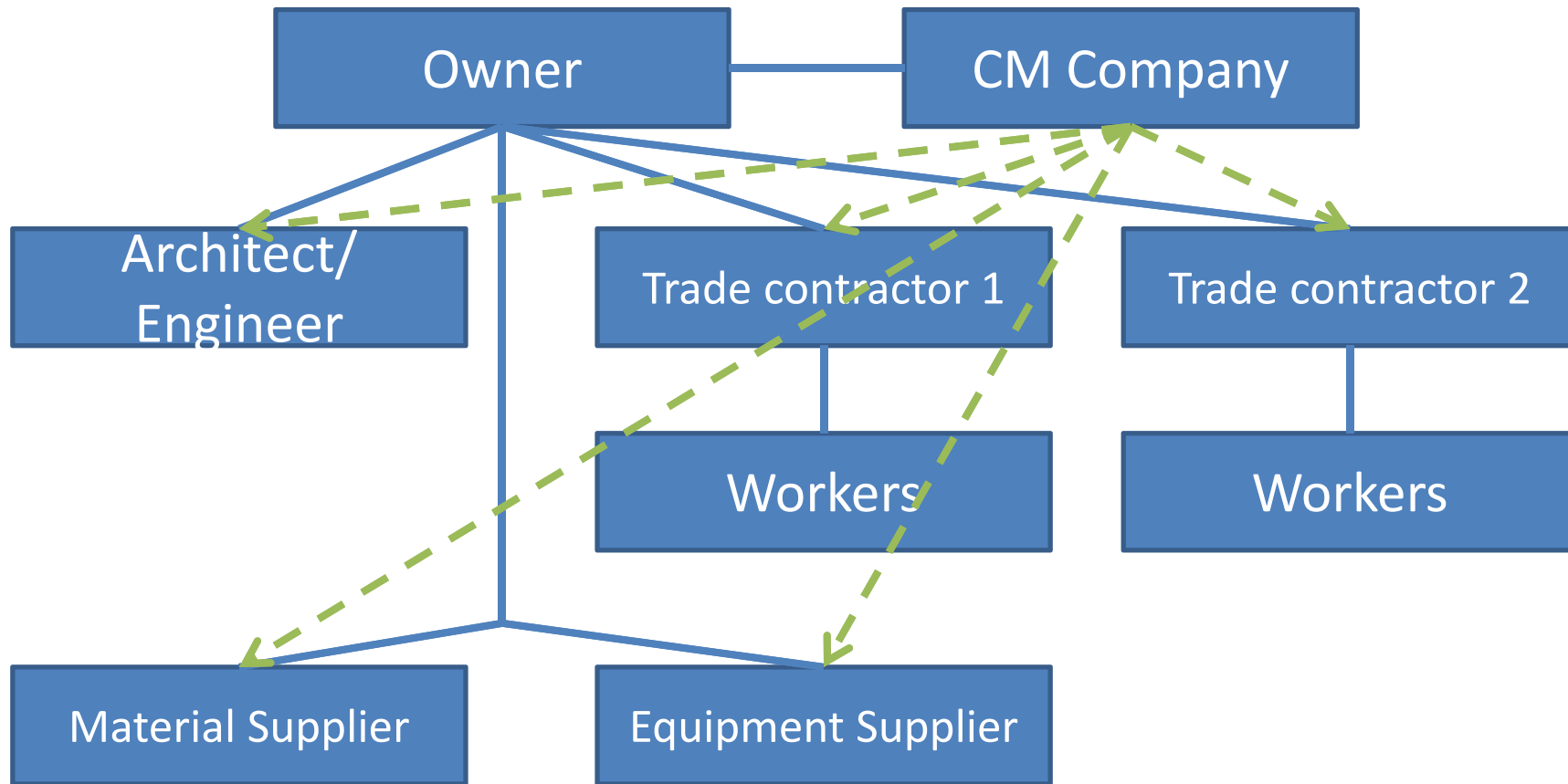
Bridging Design Build



Construction Management (CM) Contract

- Considered as a project delivery method
- Classified into two different types: CM for fee and CM at risk
- CM for fee
 - CM company is retained as agency for the owner
 - The owner has privity with the designer and contractors
 - CM company coordinates activities of project participants
 - Enables value engineering
 - The owner takes the risk of construction failure

Construction Management for Fee



Construction Management (CM) Contract (cont'd)

- CM at risk

- CM company coordinates activities of project participants
- CM company takes the full responsibility for construction
- The owner has privity with the designer
- Before design is fully completed, the CM company is invited
- But it is the CM company who has privity with trade contractors
- Enables value engineering
- Enables phased/fast track construction
- Enables best value contracting

Construction Management at Risk

