Engineers & Society

CHAPTER 5 (Part 1)

Engineering Contracts / Entrepreneurship

by

Ir. Dr. Muhamad Zahim Sujod
Faculty of Electrical & Electronics Engineering
zahim@ump.edu.my

CONTENTS

* Engineering contract
* Contract documents

Engineering Contract

* Engineering contract involves:
  * Planning
  * Achievement of mutual understanding and expectations
  * Financial management and controls
  * Risk management and allocation
* What is a contract?
  * Legally binding document that describes the responsibilities and rights of the parties
* Type of contracts?
  * A contract based upon terms and conditions proposed by the purchaser
  * A contract based upon the terms and conditions proposed by the contractor
  * A contract based upon a ‘neutral’ set of term and conditions, or an agreed compromise
  * No contract

Engineering Contract

* How are contracts formed?
  * Owner issues Invitation for Bids (IFB)
  * Contractor prepares and submits bid
  * Owner reviews and accepts bid
  * A contract document is developed, reviewed, and agreed upon by parties
  * The contract is signed by parties

Engineering Contract

* Commercial contract requires:
  * Offer
  * Acceptance
  * Capacity
  * Legality
  * Intention to create legal relations
  * Consideration

Engineering Contract

Communication sent by purchaser:

1. The invitation to tender
2. An acknowledgement of the tender
3. A letter of intent
4. A formal order based on the tender

Communication sent by the seller:

1. The tender or quotation
2. An acknowledgment of the letter of intent
3. An acknowledgement of the order

LETTER OF INTENT

* Letters of Intent (LOI), also known as Memoranda of Understanding and Memoranda of Agreement, are a device used to signal parties' agreement to the basic structure of serious negotiations to close a deal
* An LOI typically comes into play after a round of initial discussions and after the signing of a Confidentiality Agreement and a second round of more serious discussions about the proposed transaction.
* LOIs are often used in construction and engineering contracts to enable a contractor to commence work on site at a time when, for one reason or another, a full, formal contract cannot be executed by the parties.

http://www.letter-of-intent.com/

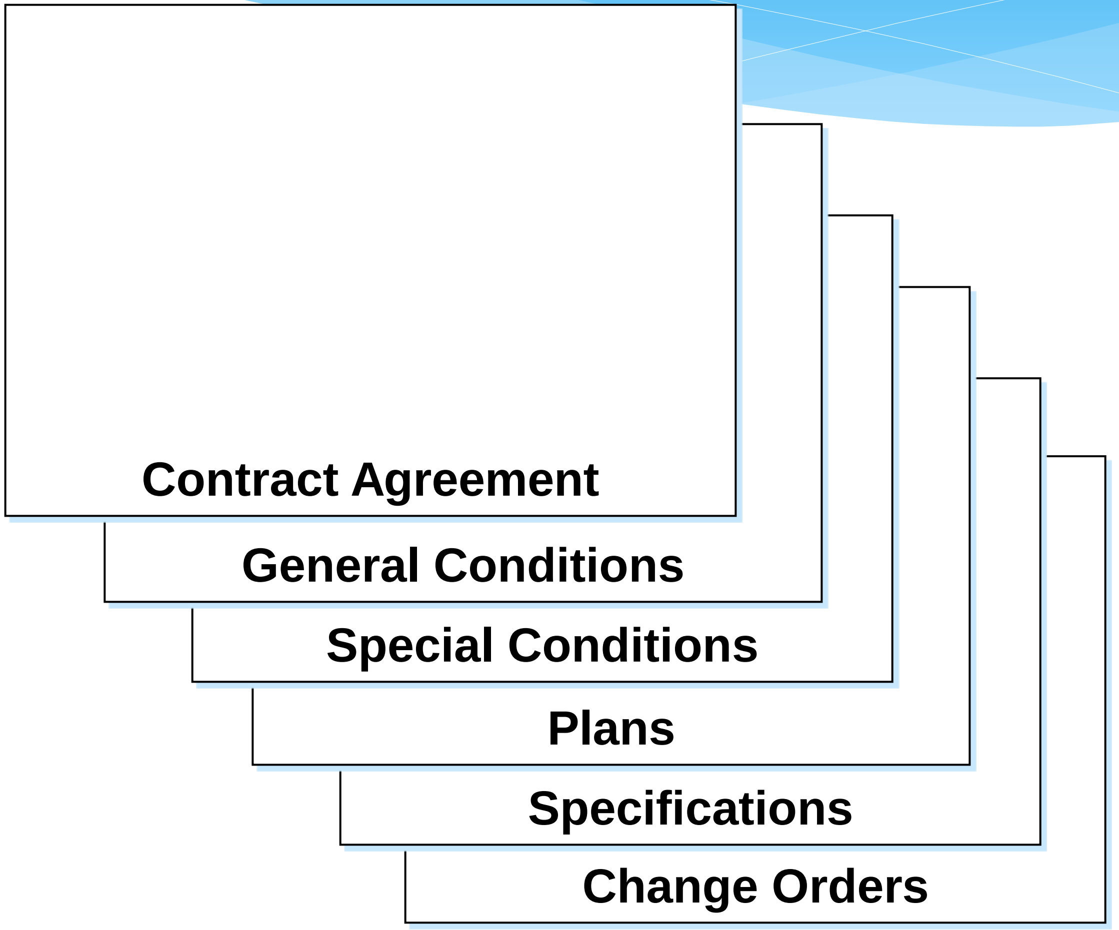
LETTER OF INTENT

* Why LOI?
  * **Commitment to Each Other and to the Deal:** Signing a letter of intent, from a business perspective, indicates that each party has obtained senior management's approval to work towards closing the proposed business transaction and that the parties have moved into a stage of serious negotiations.
  * **Commitment to the Deal for Others to See:** After signing a letter of intent, the parties usually issue a joint press release announcing the event. This is usually to provoke a positive reaction in the stock market to the news and some times to send a message to competitors in the marketplace.
  * **Commitment to a Time Line:** An LOI will set forth a time line for negotiations, including a deadline for closing the deal and what will occur if the parties fail to meet the deadline.
  * **Partial Performance and Authorization of Expenditures:** After signing a letter of intent, parties will often begin due diligence for the transaction and/or preparation of a formal estimate regarding the transaction. Research and preparation of such documents involves expenditure of significant funds for the time and materials of employees designated to perform these tasks. Senior management will usually authorize spending such funds based on signing the letter of intent, although rarely will the LOI specify that there is any way to recoup these funds if the deal does not close.
  * **Confidentiality:** If not already agreed to in a Confidentiality Agreement, each party will agree to keep the transaction and information exchanged in negotiations confidential in an LOI.

http://www.letter-of-intent.com/

CONTRACT DOCUMENT

- Contract documents include:



CONTRACT PRICING

- Fixed cost or lump-sum
  - Contractor agrees to perform the work for a predetermined price that includes profit
  - Scope of work is typically well-defined
  - Costs can only be changed with owner approval
- Unit price
  - Another form of fixed cost
  - Used when quantities of materials are not known, such as earth work
  - Often used for public works projects
  - Neither the owner nor the contractor know what the project cost will be

CONTRACT PRICING

* Cost-plus-fixed-fee contracts
  * Contractor agrees to perform the work for the cost of materials and labor plus a fixed fee to cover overhead costs and profit
  * Fee is a fixed amount regardless of actual cost of work
* Cost-plus-percentage-fee contracts
  * Contractor agrees to perform the work for the cost of materials and labor plus a percentage fee to cover overhead costs and profit
  * Fee is a percentage of the total cost of the project

CONTRACT PRICING

* Cost-plus-incentive-fee contracts
  * Similar to other cost-plus contracts
  * Fee varies and depends on the contractors performance
* Guaranteed maximum price contracts
  * Contractor agrees to a fixed fee and profit at a cost not to exceed pre-established max. price
  * Costs above the guaranteed price are absorbed by the contractor
  * Savings may be reverted to the owner or, in many cases, shared by the owner and the contractor

Procurement Methods

* Competitive Bid
  * Invitation for Bid (IFB) is issued by owner
  * Contractors prepare bid plus alternates
  * Contract is typically awarded based on lowest responsive or responsible bid
* Negotiated Bid
  * Bidders are often selected by owner
  * Bidders prepare price, schedule, and presentation on qualifications
  * Owner selects successful bidder and negotiates a final price

Bonds

* Bond
  * Used to guarantee the performance of the contractor
* Bid bond
  * Guarantees the successful bidder will enter into a contract with the owner
  * If contractor defaults, owner is paid the face value of the bond

Bonds

* Payment bond
  * Guarantees that the contractor will pay their subcontractors and suppliers
  * If contractor defaults, the subcontractor or supplier will be paid by the bonding company
* Performance bond
  * Guarantees the contractor will successfully complete the project
  * If contractor defaults, the bonding company will bring in another contractor to complete the work OR will pay the owner the additional cost of hiring another contractor

Insurance

* Insurance is used by the contractor and owner to cover some of the risks on the project

* Types of insurance
  * Builder’s risk
  * General liability
  * Property damage
  * Workers’ compensation
  * Others

REFERENCES

Robert Ribeiro, Engineering Contracts: A Management Guide, 1996, Butterworth Heineman

Editor: Ir. Dr. Muhamad Zahim Bin Sujod

Authors: Ir. Dr. Muhamad Zahim Bin Sujod
Prof. Dr. Mahamod Bin Ismail (UKM)