

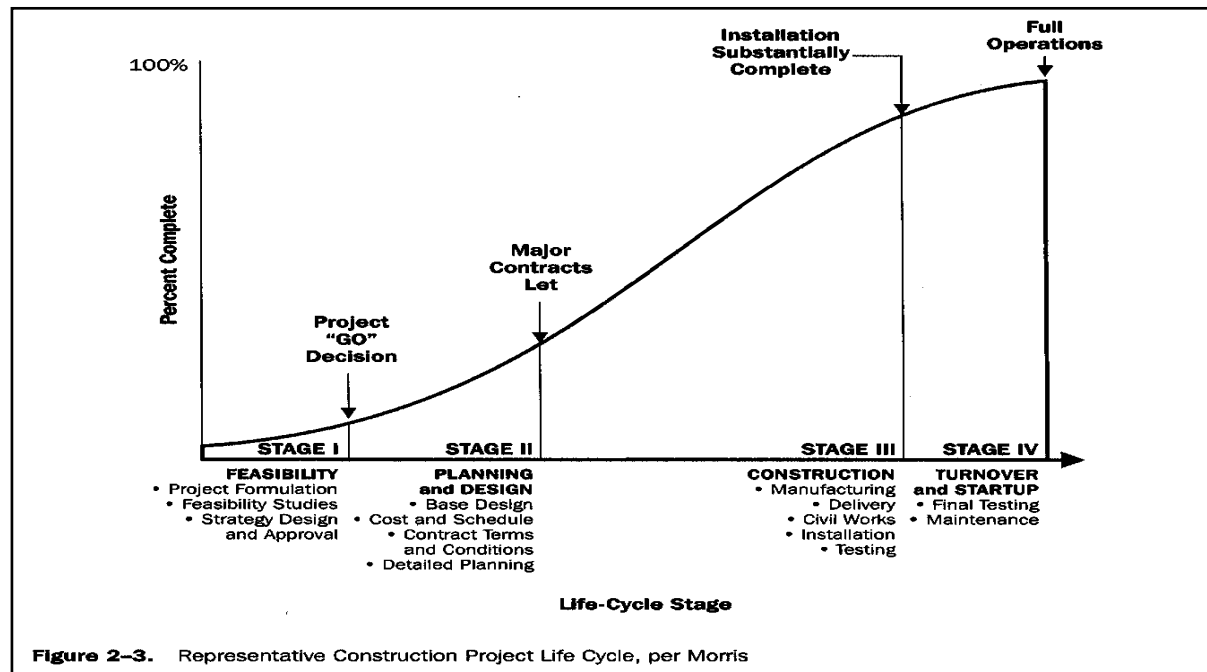
CENG 6101 Project Management

Introduction to Procurement Management

Works and Service

Abraham Assefa Tsehayae, PhD

Construction Project Life Cycle



Source: PMBOK (PMI)

British Property Federation (BPF)	Royal Institute of British Architects (RIBA)
1. Concept	1. Preparation
2. Preparation of the brief	2. Concept design
3. Design development	3. Developed design
4. Tender documentation and tendering	4. Production
5. Construction	5. Specialist design
	6. Construction (on and off-site)
	7. Use and aftercare

Source: Baldwin and Bordoli (2014)

Introduction to Service Bidding Process

**International
Competitive
Bidding (ICB)**



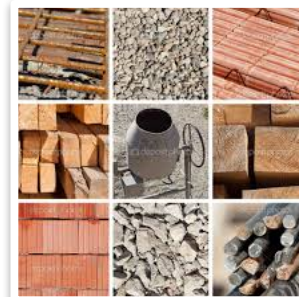
Works: Contractors

Procurement
in
Construction

Service: Consultants



**National
Competitive
Bidding (NCB)**



Goods: Suppliers

Introduction to Service Bidding Process

**International
Competitive
Bidding (ICB)**

Procurement
in
Construction

**National
Competitive
Bidding (NCB)**



Service: Consultants

Introduction to Service Bidding Process

Steps in Competitive Bidding for Service Contract:

1. Owner issues request for bids:
 - Advertisements: newspapers (Addis Zemen, The Reporter, etc.)
 - Letters of invitation (direct invitation), esp. private sector
 - Requests for prequalification: Expression of Interest (EOI)
2. Consultant views/obtains tender documents
3. Consultant makes decision to bid or not to bid based on several factors.
4. Consultant prepares estimate and tender submission
6. Owner opens bids and awards contract:
 - public bid opening
 - closed bid opening

REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTANT SERVICES)

COUNTRY: Federal Democratic Republic of Ethiopia

PROJECT: Hamusit – Estie Road Upgrading Project (76.8km)

SECTOR: Transport

CONSULTING SERVICES: Design Review, Tender Document Preparation and Supervision of Construction Works

Expressions of Interest

The Federal Democratic Republic of Ethiopia (FDRE) has applied for financing from the Arab Bank for Economic Development in Africa (BADEA) and The OPEC Fund for International Development (OFID) towards the cost of upgrading of **Hamusit – Estie Road Upgrading Project (76.8km)** and intends to apply part of the proceeds for consultant services. The services include Design Review, Tender Document Preparation, supervision of the construction works, implementation of associated environmental, safety, and resettlement plans and adverse social impact mitigation measures for the project mentioned above.

The Detailed Engineering Design and Tender Document preparation, feasibility and environmental impact studies for the above contract has been carried out with the assistance of Bahirdar University.

The expected time of commencement for the project will be July, 2017.

The Ethiopian Roads Authority now invites eligible Consultants to indicate their interest in providing the service. Participation is restricted to **Arab, African and Arab-African** firms. Interested consultants must provide information indicating that they are qualified to perform the services (brochures, core business, years of experience in the business, description of similar assignments, experience in similar conditions, technical and managerial organizational structure of the firm, number of key staffs, availability of appropriate skills among staff, general qualification etc.). Consultants may associate to enhance their qualifications.

A Consultant will be selected in accordance with the procedures set out in the Funds' guideline.

Interested consultants may obtain further information at the address below during office hours: from 09:00 A.M to 12:30 A.M hours and from 2:00 P.M to 5:00 P.M hours, Mondays to Thursdays and 09:00 A.M to 11:30 A.M and 2:00 P.M to 5:00 P.M hours on Fridays.

Expression of interest must be delivered in three (3) copies to the address below on or before February 10, 2017.

N.B:

- Firms who would like to participate in association shall indicate the form of association specifically; and
- The **Arab firms** will be shortlisted and nominated by **BADEA**.

Ethiopian Roads Authority

Attn:W/t Tirsit Tamiru, Engineering Procurement Directorate, Director of ERA

Ras Abebe Aregay Street,

P.O.Box 1770

Addis Ababa, Ethiopia

Tel: +251 011 551-50-02

Fax: +251 011 554-44-34

Addis Ababa, Ethiopia

Introduction to Service Bidding Process

Scopes of Service Contracts

- Feasibility studies
- Design
- Design review
- Tender document preparation
- Construction supervision
- Property valuation
- Facility management
- etc.

Introduction to Service Bidding Process

What is Included in Request for Proposal (RFP)?

- Notice to bid
- Part 1: Bidding Procedures
 - Section-1: Instruction to Bidders (ITB)
 - Section-2: Bid Data Sheet (BDS)
 - Section-3: Evaluation Criteria
 - Section-4: Bidding Forms
 - Section-5: Eligible Countries
- Part 2: Schedule of Requirement
 - Section-6: TOR
- Part 3: Contract
 - Section-7: General Condition of Contract (GCC)
 - Section-8: Special Condition of Contract (SCC)
 - Section-9: Contract Forms

Value for Money Concept

- Clients have a duty to get the best value for money (VFM) from investments in infrastructure:
 - Service and price are optimized
 - Benefits or outcomes are optimized compared with whole of life cycle costs when considered against alternative investments
- VFM selection decisions are based on total performance rather than price alone and relies on:
 - Pre-qualification systems
 - Performance reporting on quality, time, cost; and
 - User evaluations

Prequalification of Consultants

- Consultants are assessed against predetermined criteria as a basis for identifying their capability with respect to particular types of work associated with typical projects.
- Advantages:
 - Enhanced confidence in the ability of consultants,
 - Streamline the consultant selection process,
 - Permit clients to set clear and transparent consultant performance standards,
 - Allow clients to build a knowledge base of prospective consultants,
 - Provide scope to encourage industry.
- Disadvantages:
 - Intensive resource requirements (human resource and information systems)

Prequalification of Consultants

- ***Expressions of Interest (EOI)***
- Is used where special skills or a high level of innovation is required.
- Clients need to prepare EOI Terms of Reference.
- The information sought at the first stage is:
 - the objectives and the nature of the task to be undertaken by the consultants,
 - a statement of the purpose of the first stage (to develop a short-list, etc),
 - an indicative timetable for the commencement of the second stage,
 - selection criteria for short-listing; and
 - conditions of responding to the invitation.

Selection Methods of Consultants

- ***Price Based Selection (PBS)***
- ***Value Based Selection (VBS) or Selection Based on Least Cost***
- ***Quality Based Selection (QBS)***
- ***Quality and Cost Based Selection (QCBS)***
- ***Selection under Fixed Budget (FBS)***
- ***Selection of Consultants Qualifications (CQS)***

Selection Methods of Consultants

- ***Price Based Selection (PBS)***
- PBS is defined as occurring when submissions are solicited (publicly or by invitation) by means of a competitive bidding process, and a consultant is selected taking into consideration only price and compliance with the specification.
- PBS will only be a relevant value for money selection method for government where proposed commissions are low risk and low fee value and where it is a partial service or is relating to a single discipline.

Selection Methods of Consultants

- ***Value Based Selection (VBS)***
- VBS is defined as a selection method where submissions are solicited (publicly or by invitation) by means of a request for proposals (RFP) process and a consultant is selected whose submission offers best value for money, taking into consideration both the qualifications of the consultant and other essentials such as quality, reliability and price.
- Value based selection does not mean 'lowest price'. However, the lowest price bid might offer the best value if it can be clearly demonstrated that it meets other essential criteria.

Selection Methods of Consultants

- ***Qualifications Based Selection (QBS)***
- There has been a continuing drive for adoption of Qualification Based Selection (QBS).
- QBS is defined as a selection method where, based on submissions received, consultants are ranked by their qualifications and capability to provide the required services but without consideration of price.
- Price is negotiated with the highest ranked consultant.

Selection Methods of Consultants

- **Quality and Cost Based Selection (QCBS)**
- QBS is a selection method where, based on submissions received, consultants are ranked by taking proportion of technical evaluation score and financial evaluation score.

Technical evaluation score:

Evaluation Criteria (Indicative)	Points
(a) Consultant's specific experience	05 to 10%
(b) The method applied in doing the study or research	20 to 50%
(c) The ability to transfer knowledge	05 to 10%
(d) Competence of key professionals engaged in the consultancy service	30 to 60%
(e) Participation of Ethiopian Nationals	05 to 10%
Total Points should be:	100%

Final Score = 70% of TES + 30% of FES

Financial evaluation score:

Proposals	Cost	Points	Weight	Score
Lowest financial proposal	ETB 100,000	100	20%	20
Next highest financial proposal	ETB 120,000	83.3	20%	16.66
Next highest financial proposal	ETB 150,000	66.6	20%	13.32

Selection/ Assessment Criteria

- The criteria used to evaluate consultant proposals should, as a minimum, include:
 - Consultant's expressed understanding of the project objectives and the proposed TOR,
 - Methodology i.e. proposed process for delivery of the services and solutions offered that deliver value for money,
 - Resource strategy i.e. human, technical specialist resources to be applied,
 - Any value add proposals, and
 - Service fees.

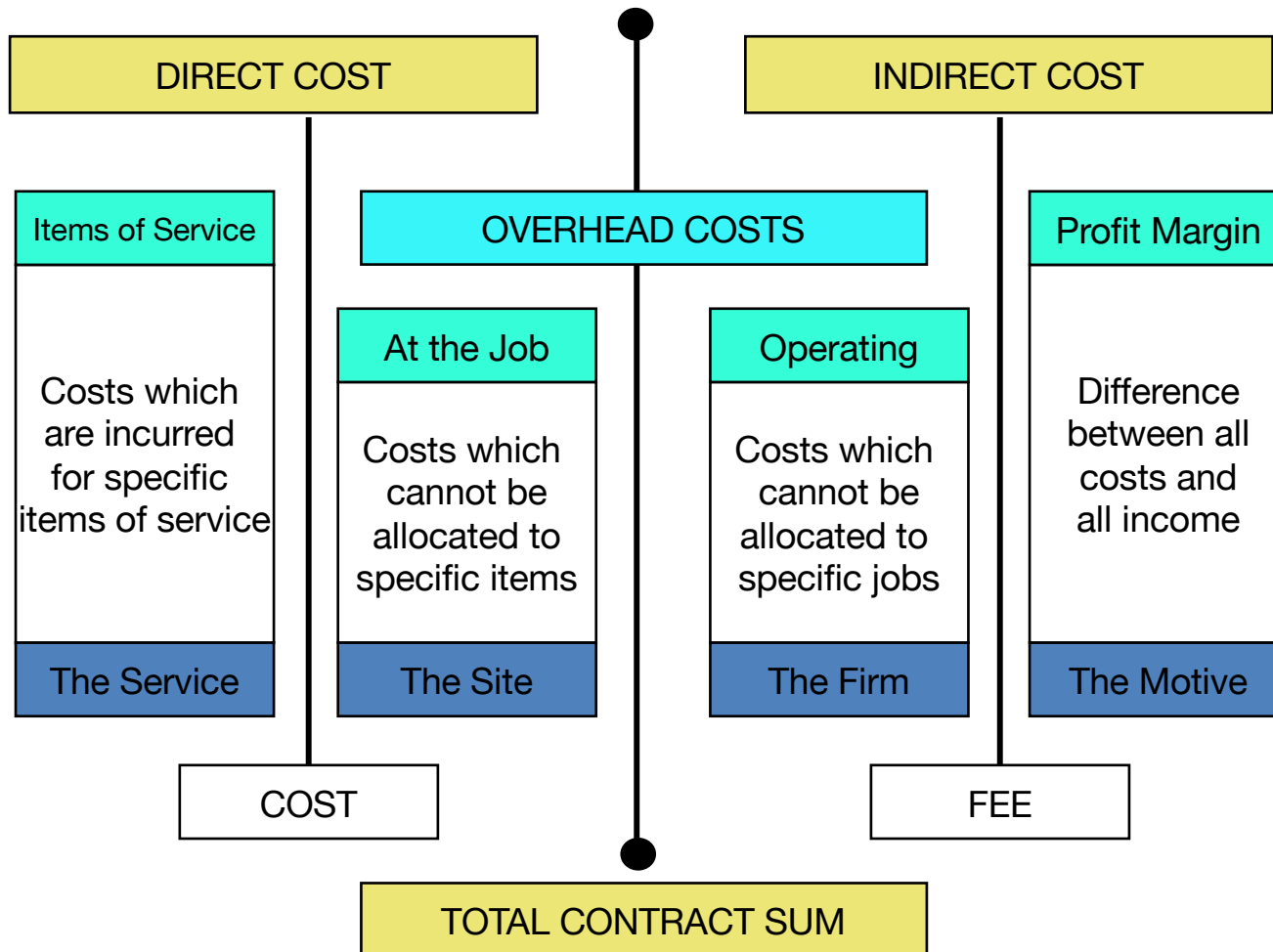
Types of Service Contracts

- Lump Sum (firm fixed price) Contract- Based on deliverables
- Time Based Contract – Based on agreed weekly or monthly rates + Expenses
- Retainer and/or ‘success fee’ – Based on commercial outcome or profit
- Indefinite delivery contract – Stand by contract based or Call On & on agreed rates

Service Contracts

- Important Provisions
 - Currency
 - Price Adjustment – Projects Lasting more than 12 Months
 - Payment provisions – Instalment allocations
 - Advance Payment (Guarantee) – Usually 20 %
 - Bid and Performance Security – Not Recommended
 - Borrower's contribution
 - Professional liability
 - Staff Substitution
 - Applicable law and settlement of disputes

Analysis of Consulting Service Fee



Analysis of Consulting Service Fee



Introduction to Service Bidding Process

**International
Competitive
Bidding (ICB)**

Procurement
in
Construction



Works: Contractors

**National
Competitive
Bidding (NCB)**

Introduction to Bidding Process

- Process by which a contract to perform work is awarded - determines the “winner” of a contract
- Conducted by the **client** (owner) or its consultant
- **Bidders** (contractors) submit a **tender (bid)** to the owner
- A tender (bid) is a formal offer to do works based upon certain terms
- Purpose of competitive tendering is to provide competition and thereby reduce costs to owner

Introduction to Bidding Process

Steps in Competitive Bidding

1. Owner issues request for bids:
 - Advertisements: newspapers, trade journals
 - Letters of invitation (direct invitation), esp. private sector
 - Oral requests (followed-up), esp. for subcontracts
 - Requests for prequalification
2. Contractor views/obtains tender documents - government office, owner's office - deposit paid
3. Contractor makes decision to bid or not to bid based on several factors.



ALBERTA TRANSPORTATION & UTILITIES

SEALED TENDERS will be received by the undersigned at the Tender Deposit Counter, Third Floor, Twin Atria Building, 4999 - 98 Avenue, Edmonton, up to 11 o'clock a.m. on Tuesday, May 19, 1987, for the following work:

Construction of a steel girder bridge to carry SR 757 over the Paddle River, 9 km North of Sangudo

Contracts and Specifications may be obtained at the office of the Director - Contracts Engineering Branch, 3rd Floor, TWIN ATRIA BUILDING, 4999 - 98 Ave., Edmonton; the office of the District Transportation Engineer, Room 107, Hill Park, 2411 - 4 St. N.W., Calgary; the office of the District Transportation Engineer, Administration Building, Lethbridge; the office of the Regional Director, 4th Floor, Provincial Building, 4920 - 51 St., Red Deer; the office of the Regional Director, Provincial Building, 5025 - 49 Ave., St. Paul; the office of the Regional Director, 9621 - 96 Ave., Peace River, and will be available to individuals operating in the Province of Alberta or to partnerships or corporations registered in the Province of Alberta. A deposit of One Hundred Dollars (\$100.00), payable to the Provincial Treasurer, will be required for each copy of Contract and Specifications taken. Each bid must be accompanied by a Bond or Certified Cheque equal to 10% of the Tender. Tenders will be opened in public. The lowest or any tender not necessarily accepted.

H. M. Alton
H. M. Alton, P. Eng.
DEPUTY MINISTER
Alberta Transportation & Utilities

← location
closing date & time

← work to be done

← where to obtain
plans & Specs

← deposit required

← bid bond 10%

← public opening

← not necessarily
lowest tender

Introduction to Bidding Process

- Factors Considered in Contractor's Decision to Bid
 - volume of work on hand/need for work
 - type of work - suits company?
 - size and location of project
 - resources available - labour, equipment, supervisory, financial
 - bonding capability
 - strategic value of project
 - future opportunity with client
 - likelihood of winning project - number of competitors
 - corporate business plan

Introduction to Bidding Process

4. Contractor prepares estimate and tender submission:
 - visit site
 - prepare estimate - calling of subcontracts and supply contracts
 - assemble bid
5. Contractor submits bid - by date and time of closing at specified location
6. Owner opens bids and awards contract:
 - public bid opening
 - closed bid opening

Introduction to Bidding Process

Types of Bid Openings

Public bid opening:

- Public sector owners: government authorities (e.g. roadworks), schools, hospitals
- Basis for award - generally lowest price if prequalified

Closed bid opening:

- Private sector (non-government) owners
- Basis for award - not necessarily lowest price (experience, capability, realistic bid, quality of subcontractors and suppliers)

Introduction to Bidding Process

How Many Bidders?

- Objective is to provide competition
 - Too few – problems?
 - Too many – problems?
- Minimum
- Desirable number
- How do we limit number?

Introduction to Bidding Process

Reasons for Rejecting Bids

- Too few bids
- Substantially over budget
- Irregularities
- Qualifications lacking
- Obvious error

Introduction to Bidding Process

Methods of Tendering

- Open competitive
- Prequalified
- Invited
- Negotiated
- Joint ventures

Introduction to Bidding Process

Scopes of Contracts

- Construct only
- Design and construct
- Turnkey (design, construct, manage, commission) or EPCM (engineer, procure, construct, manage)
- Management (construction or project)
- BOT or BOOT (build, own, operate, transfer) or Public Private Partnerships (P3)

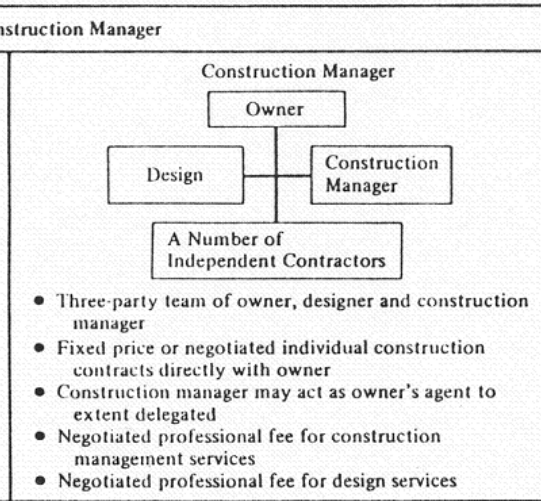
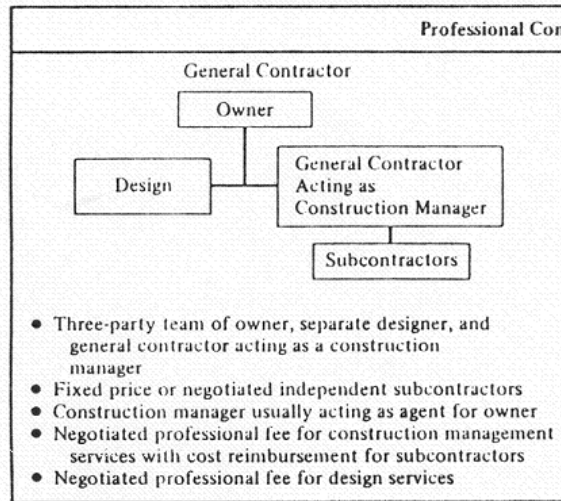
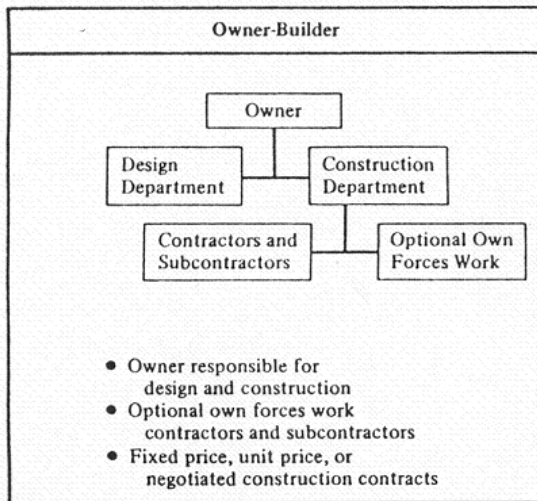
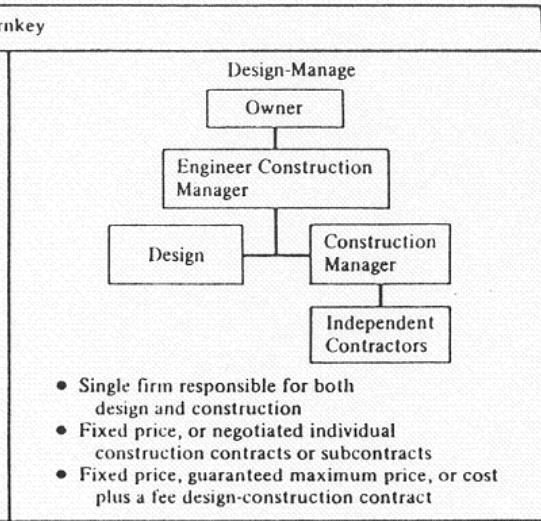
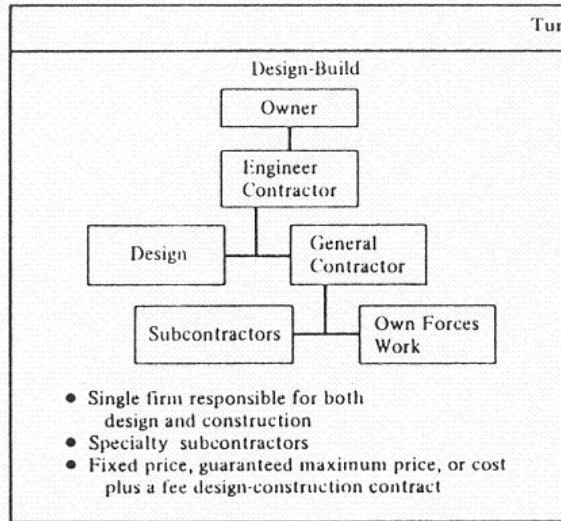
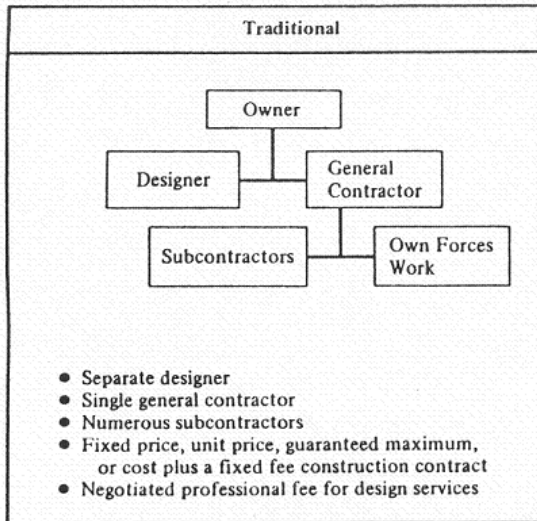


Figure 2-6 Alternate contractual approaches

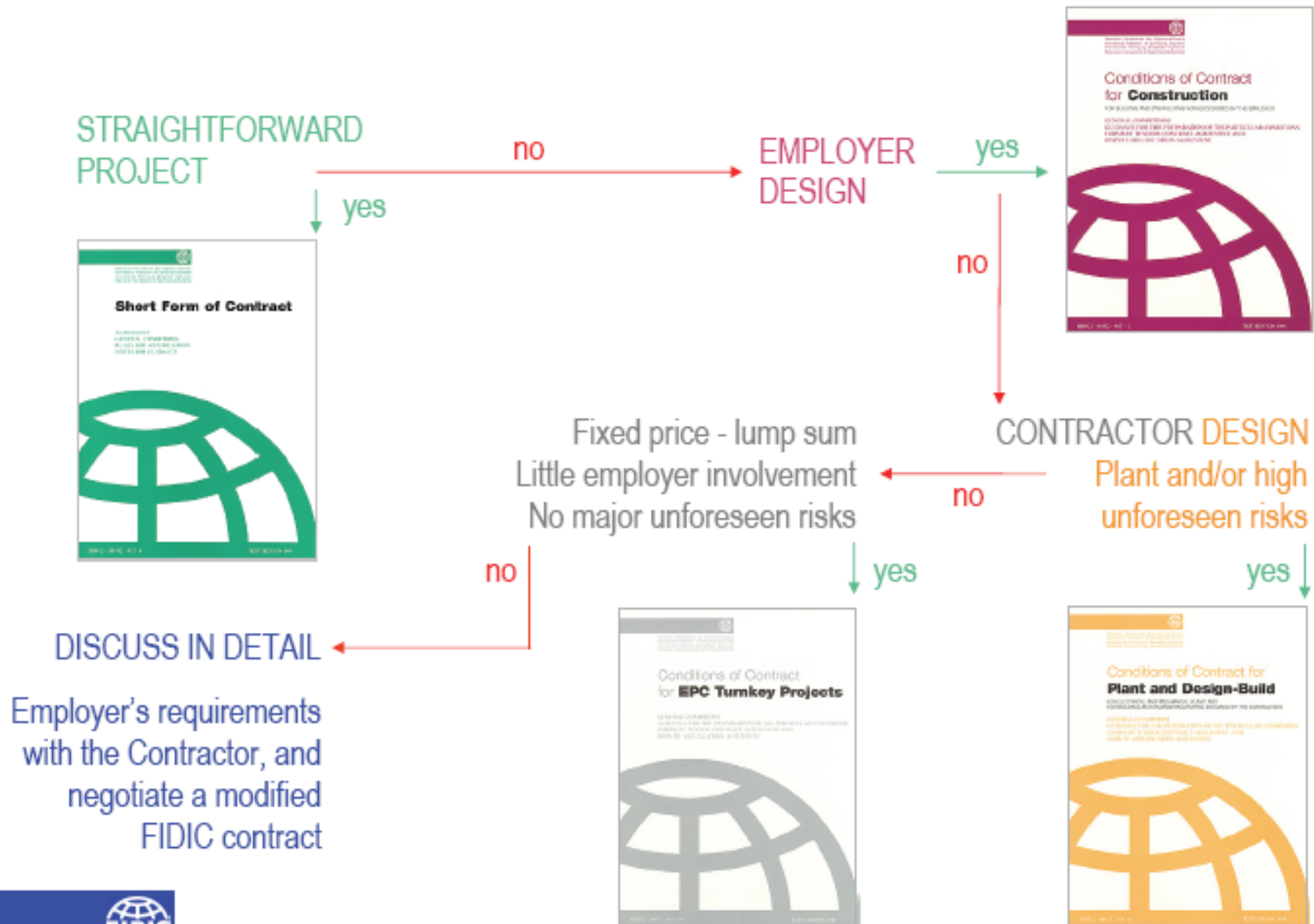
From: **Professional Construction Management, 3rd Edition, Barrie and Paulson (1992)**

Introduction to Bidding Process

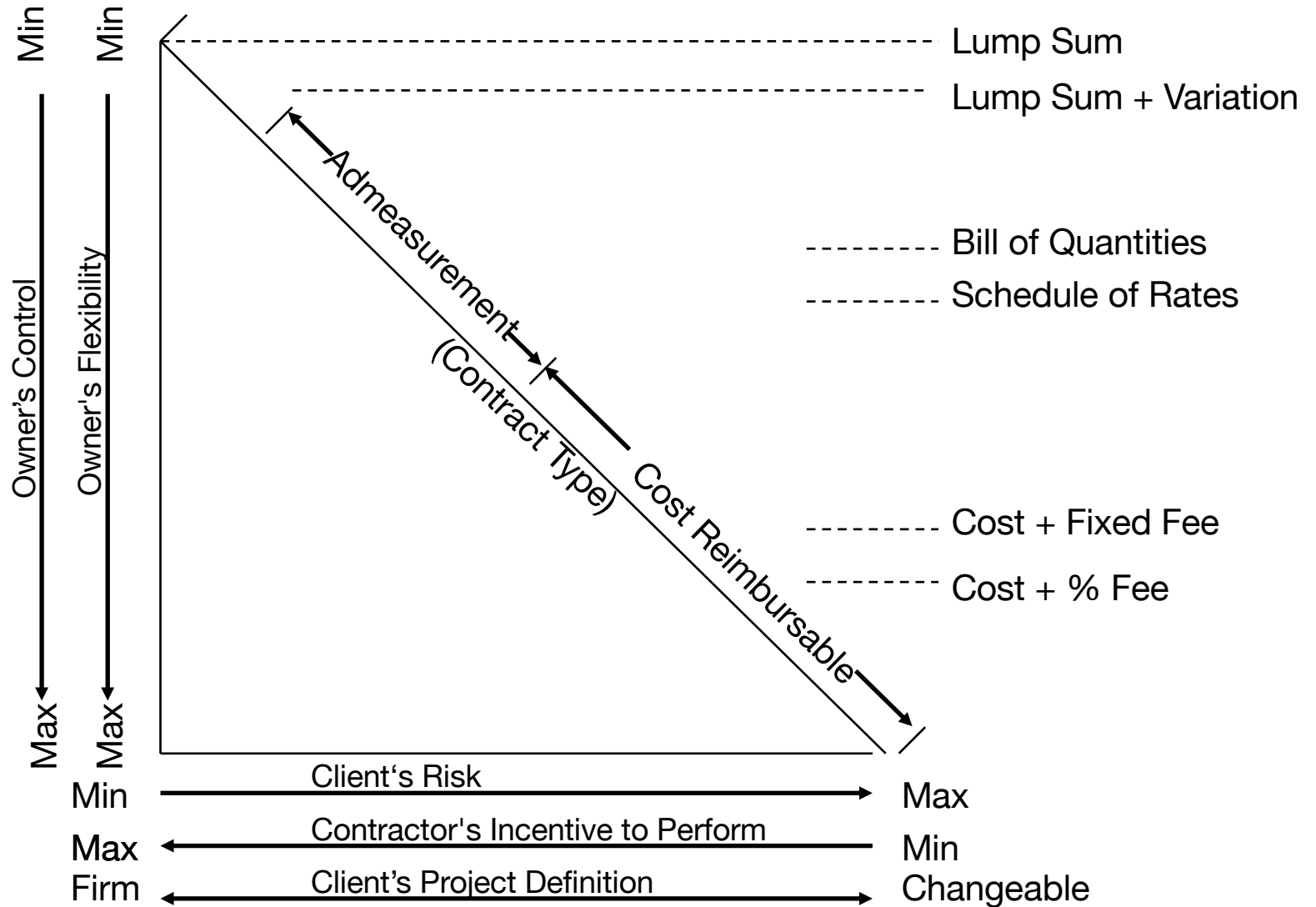
Types of Contracts

- Lump sum (stipulated price)
- Unit price (schedule of rates)
- Lump sum with schedule of rates
- Cost reimbursable:
 - Cost plus (fixed) percentage fee
 - Cost plus (fixed) lump sum fee
- Guaranteed Maximum Price

Which contract to use



Types of Contracts



Introduction to Bidding Process

Lump Sum Contracts

- Well defined scope
- Contractor is responsible for quantity takeoff
- Contractor is responsible for lump sum price

Unit Price Contracts

- Prices for defined units
- Approximate quantities usually provided by owner
- Payment is based on final measured quantities
- Reasons for using unit price?

Introduction to Bidding Process

Cost Reimbursable Contracts

- For fast-track projects
- For complex work
- Large part of risk assumed by owner

Guaranteed Maximum Price

- Variation of the cost plus fixed fee by having a cap, or GMP
- The contractor assumes any additional costs after the “ceiling” point is reached
- The GMP is a defined price for an undefined product
- Variation on GMP: savings below the guaranteed maximum are shared between owner and contractor

Introduction to Bidding Process

What is Included in Bid Documents?

- Bid solicitation – notice to bid
- Instructions to bidders
- Information available to bidders (geotechnical reports, materials testing, etc.)
- Contract agreement
- Bid forms (unit rate schedule)
- Bidding addenda (as they arise)
- General conditions (contract administration: bonding, insurance, payment, dispute resolution); can use standards (FIDIC)
- Supplementary (special) conditions: special legal requirements; supersede general

Introduction to Bidding Process

What is Included in Bid Documents?

- General specifications: can use standards (CSI); generally follow standard order (e.g., Masterformat divisions)
- Project-specific specifications: supersede general
- Drawings
- Other attachments: list of subcontractors, project personnel, company information
- Rule: written quantities supersede numbers; special conditions supersede general conditions
- Bid documents become contract documents at time contract agreement signed by owner and contractor

SECTION 00002 – INSTRUCTIONS TO BIDDERS:

RECEIPT AND OPENING OF BIDS:

Bids will be received by the Owner at the time and place set forth in the Advertisement for Bids and then at said place be publicly opened and read aloud.

BID SUBMISSION:

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted, and addressed as specified in the Bid Form.

SUB-CONTRACT:

Any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner.

WITHDRAWAL OF BIDS:

Bids may be withdrawn on written or telegraphic or facsimile request received from bidders prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

BASIS OF BID:

The bidder must include all unit cost items and all alternatives shown on the Bid Forms; failure to comply may be cause for rejection. No segregated bids or assignments will be considered.

QUALIFICATION OF BIDDER:

The Owner may make such investigation as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

TIME OF COMPLETION:

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to substantially complete the project **within 180 consecutive calendar days thereafter**.

CONDITIONS OF THE WORK:

Each bidder must inform himself fully of the conditions relating to the construction of the project and employment of labor hereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

ADDENDA AND INTERPRETATIONS:

All addenda so issued shall become a part of the contract documents. No interpretation of the meaning of the plans, specifications, or other contract documents will be made to any bidder orally.

LAWS AND REGULATIONS:

The bidder's attention is directed to the fact that all applicable State Laws, Municipal Ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

OBLIGATION OF BIDDER:

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda).

FIGURE 2.2 | Example instructions to bidders.

Source: Peurifoy and Oberlender, 2002

Item	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	lump sum	job		
2	Water control	lump sum	job		
3	Common excavation	20,000	cy		
4	Rock excavation	12,000	cy		
5	Drilling piers	5,350	lin.ft		
6	Concrete foundation	250	cy		
7	Anchor bolts	185	each		
8	Rock anchors	17,500	lb		
9	Slope protection	260	each		
10	Compacted fill	620,000	cy		
11	Random fill	1,790,730	cy		
12	Riprap – 24 in.	3,700	cy		
13	Drainage structure #1	lump sum	job		
14	Drainage structure #2	lump sum	job		
15	Lime-treated subgrade	25,500	sy		
16	Aggregate base course	3,350	cy		
17	Asphalt pavement	40,100	sy		
18	Concrete pavement	150	cy		
19	Bermuda sodding	2,080	sy		
20	Traffic control	lump sum	job		
21	Demobilization	lump sum	job		

FIGURE 2.4 | Bid form for unit-price contract.

Source: Peurifoy and Oberlender, 2002

Assignment

- Assignment: Selection of Project Delivery Method and Associated Contract
- From the most commonly used Project Delivery Methods, i.e., Design-Bid-Build, Design-Build, BOT or P3 select one delivery method, and prepare a report, not exceeding 5 pages, discussing the following:
 - What is the main scope of the delivery contract?
 - Pros and Cons of the selected delivery method.
 - The recommended contract type for the selected delivery method?
 - Its current practice or need in Ethiopia.
 - Highlight two case projects, either locally or internationally, that used the selected method.
- Due date: January 21, 2017 before 5 a.m.

Assignment: Marking Rubric

Rank Category	Excellent (A+; A; A-) (80 - 100)	Very Good (B+; B; B-) (60 - 80)	Satisfactory (C+; C; C-) (40 - 60)	Marginal (D+; D) (20 - 40)	Unacceptable (F) (0 - 20)
Title page: As per ASCE CRC Format	Title, Name of students, Instructor's Name, Course Name, Semester, Date, Neatly finished-no errors	Evidence of 5	Evidence of 4	Evidence of 3 or less	Absent
Problem statement	Clearly and concisely states the paper's select delivery method	Clearly and states the paper's select delivery method	States the paper's select delivery method	Incomplete and unfocused	Absent or no evidence
Introduction	The introduction is engaging, states the main topic and previews the structure of the paper	The introduction states the main topic and previews the structure of the paper	The introduction states the main topic but does not adequately previews the structure of the paper	There is no clear introduction or main topic and the structure of the paper is missing	Absent or no evidence
Body	Each paragraph has thoughtful supporting detail sentences that develop the main idea	Each paragraph has sufficient supporting detail sentences that develop the main idea	Each paragraph lacks supporting detail sentences	Each paragraph fails to develop the main idea	Not applicable
Details on submission requirements:	The paper clearly demonstrates each of the submission requirements and subtle sequencing of the requirements through well-developed paragraphs; transitions are used to enhance organization	The paper demonstrates each of the submission requirements and some sequencing of the requirements through well-developed paragraphs; transitions are used to enhance organization	The paper presents each of the submission requirements and the requirements through well-developed paragraphs; transitions are not used to enhance organization	The paper presents each of the submission requirements without any logic and no sequencing of the requirements through well-developed paragraphs; transitions are not used to enhance organization	Not applicable
Conclusion	The conclusion is engaging and clearly explains the studied delivery method	The conclusion is clearly explains the studied delivery method	The conclusion does not clearly explain the studied delivery method	Incomplete and unfocused	Not applicable
Write up	No errors in punctuation, capitalization and spelling. No errors in sentence structure and word usage.	Almost no errors in punctuation, capitalization and spelling. Almost no errors in sentence structure and word usage	Many errors in punctuation, capitalization and spelling. Many errors in sentence structure and word usage	Numerous and distracting errors in punctuation, capitalization and spelling. Numerous and distracting errors in sentence structure and word usage	Not applicable
Citation : As per ASCE Format	All cited works, both text and visual, are done in the correct format with no errors	Some cited works, both text and visual, are done in the correct format with no errors	Few cited works, both text and visual, are done in the correct format with no errors	Absent	Not applicable
Bibliography	Done in the correct format with no errors. Includes more than 5 major references (e.g. construction journal articles, books, but no more than two internet sites)	Done in the correct format with few errors. Includes 5 major references (e.g. construction journal articles, books, but no more than two internet sites)	Done in the correct format with many errors. Includes 4 major references (e.g. construction journal articles, books, but no more than two internet sites)	Done in the correct format with many errors. Includes 3 major references (e.g. construction journal articles, books, but no more than two internet sites)	Absent or the only sites are internet sites

References:

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- Federal Public Procurement Agency, Public Procurement Manual, 2011.
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- *Project Management: Techniques in Planning and Controlling Construction Projects*, 2nd Edition, Ahuja, Dozzi, and AbouRizk, John Wiley and Sons, 1994.
- Estimating Construction Costs, Peurifoy and Oberlender, 2002, McGraw-Hill.