Project phases II.
Tendering-construction-operation

Construction management 2.
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In practice, design, procurement and construction often overlap.
Tendering - contracting

Documentation for building consent → realising?

Terms

• **Client** (owner): gets the project financed, designed and built
  • **Public owners** – have to proceed in accordance with law
  • **Private owners** – individuals, partnerships, corporations
• **Construction work** is accomplished by **contractors**
  • **Specialty** contractors – concentrating on particular tasks
  • **Prime** contractors – assuming broader responsibility
  • **General** contractor and subcontractors
• **Procurement** is the acquisition of goods or services.
• **Tendering** = bidding process
Tendering - contracting

Documentation for building consent → realising
• The client selects a prime contractor on the basis of references, acquaintance, competitive bidding and/or negotiation (competition)
• Documentation for tendering
  • Complete construction details – construction drawings
  • Complete specifications (the documentation of the planning consent and precise descriptions of quality, performance requirements)

Tendering

• Methods of selecting the contractor
  • Direct contracting (choosing contractor by acquaintance or references)
  • Simple competition (competitive bidding or negotiation)
  • Public procurement
    • One-stage procedure
    • Two-stage procedures
Tendering

• Process of tendering
  • Tender process is determined:
    • the type of tender
    • what will be involved
  • Request for tender is prepared (documentation for tendering):
    • what is required
    • the contractual requirements
    • how to respond
  • Tenders are invited
    • by publication of contract notice
    • by invitation

Tendering

• Process of tendering
  • Tenderers respond: obtaining all relevant documentation, then:
    • Attending pre tender briefing sessions
    • Clarifying any uncertainties
    • Preparing response
    • Submitting response in the right format, on time and at the right location
  • Evaluation and selection:
    • tenders checked for compliance
    • evaluated against the criteria specified
    • The tender that offers best value for money/ lowest price wins the business.
Tendering

• Process of tendering
  • Notification and debriefing:
    • all the tenderers are advised of the outcome
    • unsuccessful tenderers are offered a debriefing interview.
  • Contracts established and managed: between the successful tenderer and the client.

Tendering

Public procurement

• Council directive 93/37/EEC (EU)
  • on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts
• Act CVIII of 2011 on Public Procurement (Hungary)
• COMMISSION REGULATION (EU) No 1336/2013 – application thresholds:
  • the Community thresholds (€ 5 186 000.- / 1 520 483 340.-HUF)
  • the National thresholds (15 000 000 and 100 000 000.- HUF)
  • based on a cost calculation
Tendering

Public procurement procedure types

- **Open** procedure: a contract award procedure whereby all those interested may submit tenders;
- **Restricted** procedure: a contract award procedure whereby only those invited by the contracting authorities may submit tenders;
- **Negotiated** procedure: a contract award procedure whereby contracting authorities negotiate the terms of the contract with one or more of the tenderers of their choice;

Tendering

Public procurement procedure types

- **Competitive dialogue**: a public procurement procedure, in which the contracting authority shall conduct with the candidates they select a dialogue with the aim to identify exactly the subject-matter of the public procurement, and/or the type of and the conditions for the relevant contract, within the frame of conditions as defined by the contracting authority;
Tendering

Process of public procurements
- **Participation stage**
  - the first stage of two-stage procedures
  - tenders are not submitted – the contracting authority decides about the candidate’s suitability or unsuitability

- **Preparing and publishing a contract notice**
  - **Publication** in the Official Journal of the European Union and in the Tenders Electronic Daily databank and in the Public Procurement Bulletin (paper form/online);
  - The contract notice has a **standard form**, stating the **subject-matter** and **value** of the public procurement. The contracting authority (client) specifies the **method**, the **final date** and the **place** for collecting the tender documentation and the **terms of payment** for the documents.

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Tendering

- **Contents of a contract notice**
  - The **date of announcement of the results** and the planned date of signing the contract.
  - The **language(s)** of the tender.
  - The **evaluation criteria**: the lowest price tender, or the most economically advantageous tender.
  - The **criteria** of both economic and financial standing, technical and professional abilities of the tenderer, and the **certification** thereof. There can be **specific conditions**, requirements – e.g. environmental protection, quality assurance.
  - The **type and the extent of the guarantee(s)** (a performance guarantee, a guarantee for good performance or other guarantee).
Tendering

Process of public procurements

• “Buying” the tender documentation – contents:
  • draft contract
  • list of the certificates, declarations to be submitted
  • technical specifications (performance, functional requirements)

• Requesting additional information
  • The tenderer may request additional information no later than ten days before the expiry of the time-limit to submit tenders.
  • The additional information is provided to all tenderers no later than six days before the deadline.
  • Additional information may also be provided in the form of consultation.

• Providing the tender guarantee (if necessary)

• Preparing and submitting the tenders
  • The tendering deadline is not less than 52 (in special cases 22) days from the date of dispatch of the notice.
  • Tenders are submitted in writing, in a sealed envelope.
  • Tenders indicate the price (tender calculation), the deadlines and technical variations (if permitted).
  • Tenderers provide proof of the adequacy of their financial and economic standing, technical and professional ability required for the performance of the contract.
Tendering

- How to prove adequacy
  - a description of major works carried out over the past five years (public work concerning a historic monument);
  - a statement of the tools, plant and technical equipment available to the contractor for carrying out the work;
  - the contractor’s education and qualifications;
  - a statement of the firm’s average annual manpower statistics and the number of executive officers for the last three years;
  - etc.

Tendering Process of public procurements

- Opening the tenders - announced date, time, place
- Evaluation of the tenders
  - Checking the tenders for compliance with the conditions.
  - Determining invalid tenders or tenderers to be disqualified.
  - Assessing tenders based on the evaluation criteria.
- The announcement of the results
  - The client prepares a written summary of the tenders.
  - The results of the procedure shall be publicly announced within sixty days from the opening of the tenders.
Tendering

- Process of public procurements

Participation
Preparing and publishing a contract notice
“Buying” the tender documentation
Preparing and submitting the tenders
Requesting and providing additional information
Providing the tender guarantee
Deadline, opening the tenders
Report on the opening
Evaluation of the tenders
The announcement of the results

min. 52 days
10d
6d
max. 60 days
5d

Contracting

- Lots of contract forms and types are available to the client;
- The selection of the proper contract form is an important decision.
- Standards for contracting: FIDIC, VOB contract templates
- Range of contract:
  - Main contracting
  - General contracting
  - Co (-general-) contracting
  - (Sub-) Contracting
  - Service / Supply
  - Representation (agency)
Contracting

• The construction contract may include:
  • Construction services;
  • Design-construct;
  • Construction management services.

• Construction services:
  • The general contractor has the responsibility only for the accomplishment of the field construction.
  • The contractor has no input into the design process.

Contracting

• Design-construct
  • The client contracts a single firm for both design and construction.
  • The client, the designer and the builder work cooperatively in the total development of the project.
  • The contractor provides substantial input into the design process about materials construction methods cost estimates and construction time schedules.

• Construction management – project management
  • The objective is to achieve high quality at minimum cost.
  • Project planning, design, and construction are integrated tasks.
  • Management services range from coordinating contractors to broad-scale responsibilities over the whole project.
Contracting

• Types of contracts
  • **Fixed-sum contract**
    • Lump-sum contract – the contractor completes a package of work for a single lump sum of money.
    • Unit-price contract – the contractor performs certain well-defined items of work for a fixed price for each unit.
  • **Cost-plus-fee contract** – the client pays all the construction costs and a fee for construction services. Bonuses and penalties for efficiency.
  • **Work-by-force account** – the client is its own constructor.
    • Working with own forces
    • Subcontracting some parts or the entire project.

Contracting

• Types of contracts
  • **Turnkey contract** – the client delivers the facility design requirements, the contractor delivers the key of the building.
  • **Build-operate-transfer (BOT) contract** – an extension of the turnkey method:
    • The contractor designs, constructs, operates, and maintains the facility for a predetermined concessionary period;
    • Usually the contractor receives no payment from the client, but gets all the money earned by the project;
    • At the end of the concession period, ownership transfers from the contractor to the owner.
  • **Speculative construction** – the client builds structures for sale or lease to other parties (known or unknown buyers). The developers act as their own prime contractors.
Contracting

- **Single-contract system** – one prime contractor
  - The contractor brings together all the diverse elements and inputs;
  - Has the responsibility for the delivery of the finished job;
  - Fully responsible for the performance of the subcontractors.

Contracting

- **More separate contracts** – no centralised control of one prime contractor
  - Several independent contractors, each is responsible for its own work;
  - Each of these contractors are prime contractors;
  - The coordination of these contractors may be undertaken by the client, the architect, a construction manager or one of the contractors.
There is no contractual relationship between the client and the subcontractors.

Traditional method

- Long construction period
- Consecutive organisation
- Clear contracting relations


Contracting

**Turnkey method**

Characteristics

- Single point responsibility
- Can be overlapped
- Client can be sure of maximum cost before final commitment
- Integrated design and construction
  - Improves buildability
  - Fits to constructor’s expertise, working condition, organisation
- Thus costs should be lower – shorter time on site

Contracting

**Construction management** and **management contracting**

1. Client
2. Management
   - Designer
   - Contractor
   - Sub.
3. Construction
4. Planning
5. Tendering
6. Construction

Client

**Management**

**Designer**

**Contractor**

**Sub.**

**Sub.**

**Sub.**

**Sub.**
Contracting

Project management
- In-house project manager
- In-house and external project management team
- External project management

Characteristics
- Management team is involved at early stage
- Design can be influenced (buildability)
- Claims can be solved, delays reduced
- Save time – series of tenders, work packages
- Flexibility in design – to suit the client and the budget
- More risk in design – higher requirement in design
- No assured final cost at the start of construction
Contracting

- **Essential data of contracts**
  - Contractor (Who)
  - Client (Whom for)
  - Subject (What)
  - Deadlines (What time)
  - Offset (What price)

- **Appendices of contracts**
  - Referred standard contractual schemes, sets of regulations (FIDIC, VOB, ...)
  - Technical documentation (plans, specifications, budgeting, ...)
  - Referred technical standards (quality- and performance expectations)

Construction process

- **The process of erecting the building**
  - Putting the materials and equipment into place
  - Providing manpower, construction equipment, materials, supplies, supervision and management

- **Construction process – influenced by highly variable and sometimes unpredictable factors**
  - The construction team changes from one job to the next
  - Different construction sites – differing subsoil conditions, surface topography, utilities and services...
  - Different time, location – differing weather, transportation, material supply, local subcontractors, labour conditions, available technologies...
Construction process

- Construction process involves many skills, materials, hundreds of operations
- Communication with
  - The client
  - Engineers, architects
  - Lawyers
  - Financial organisations
  - Government or local authorities
  - Insurance companies
  - Material manufacturers and suppliers
  - Building tradesmen

Construction process

- Main phases of the construction
  - Site preparation, setting up
  - Earthwork, excavation
  - Foundation
  - Substructure (basement)
  - Superstructure, loadbearing structure
  - Inner and outer finishing works (+building services)
  - Test run
  - Handover procedure
Construction process

• Main phases of the construction
  • Earthwork, excavation

• Main phases of the construction
  • Substructure (basement)
  • Superstructure, loadbearing structure
    • in situ reinforced concrete
    • masonry
    • precast concrete
    • steel/timber structure
Construction process

• Main phases of the construction
  • Inner and outer finishing works (+building services)

Construction process

• Controlling the construction process
  • Controlling quality, quantity → quality surveyor
  • Cost controlling
  • Schedule, time control
• Supervising the construction
  • continuous control of the construction logbook
  • note all failures (deficiencies and faults) in the construction logbook
  • controlling hidden structures and volume of the completed work (before getting covered e.g. reinforcement)
  • controlling the conformance of the used materials (CE, etc.)
• informing the client about the work done and in progress (Are they according to the contract (volume, standards, prescriptions, etc. – Is it suggested for the client to pay all the bills or not?)
Construction process

Handover procedure
• It is the legally prescribed final period of the construction process
• Statement of completeness prepared by the contractor
  • the construction works are finished in accordance with the contract
  • the works are in accordance with the technical standards and legal prescriptions
  • the building is ready for proper use -> the process for the permission of use can be started
• If there are failures in the building, they are recorded and corrected by the contractor – the last bill is settled thereafter

Operation
• Evaluation of the project / Benchmarking (comparing with other closed projects)
• Operation and maintenance of the building → setting up and operating a Facility Management System
• Preparing plans for renovations, modernisations, reconstructions;
• Feed-back for future projects and FM – POE (post occupancy evaluation)
  • Operational Review, carried out 3 - 6 months after occupation
  • Project Review carried out 12 - 18 months after occupation
  • Strategic Review carried out 3 - 5 years after occupation.
References

- http://www.wto.org/english/tratop_e/gproc_e/gpa_overview_e.htm
- http://de.wikipedia.org/wiki/Vergabe-und_Vertragsordnung_f%C3%BChr_Bauleistungen
- http://fidic.org/