

# PRACTICE NOTES FOR QUANTITY SURVEYORS

## Procurement Strategy

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## Disclaimer

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## PREFACE

A Working Committee with representatives of The Hong Kong Institute of Surveyors, Association of Consultant Quantity Surveyors and Hong Kong Construction Association was set up in October 2010 to establish a set of Practice Notes for the benefit of Quantity Surveying professionals in Hong Kong.

The Practice Notes are not intended to promulgate a standard of practice, but rather to produce some basic guidelines for the following core practices:

Name of Practice Notes	Latest Version
Pre-contract Estimates and Cost Plans	October 2016 *
Procurement Strategy	July 2021 ^
Tendering	November 2012 *
Cost Control and Financial Statements	November 2012 *
Valuation for Interim Payment Certificates	August 2014 *
Valuation of Variations	November 2012 *
Contractual Claims	November 2012 *
Final Accounts	November 2012 *

\* jointly prepared by The Hong Kong Institute of Surveyors, Association of Consultant Quantity Surveyors and Hong Kong Construction Association with input from Architectural Services Department and Hong Kong Housing Authority

^ jointly prepared by The Hong Kong Institute of Surveyors and Association of Consultant Quantity Surveyors

As different employer organisations will have their own procedures and requirements, the Practice Notes, which are prepared mainly for private sector projects using the HKIA/HKIS Standard Forms of Building Contract, should be adapted as appropriate. Employers should consult professional quantity surveyors for advice to suit the specific requirements of individual projects.

The members of the Working Committee who prepared the Practice Notes for the Procurement Strategy are:

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## 1. INTRODUCTION

- 1.1 Selecting the correct procurement strategy is one of the most important decisions for the Employer. It is this decision which establishes the risk allocation and management for the construction project required by the Employer.
- 1.2 The Employer (usually advised by a team of experienced consultants) chooses the procurement strategy for the project. The choice would involve a two-step decision process:
  - (a) Step 1 : Choose the relationship models
  - (b) Step 2 : Decide the contract types
- 1.3 After that the Employer should, through its consultants, start preparing the tender documents for the construction project.
- 1.4 The relationship models and contract types described here are the most common models and types. In actual practice, the actual procurement strategy adopted may be a hybrid of the different relationship models and contract types to take their best advantageous features suiting the particular need of a project. There are also less common models and types such as: serial contracting, build-operate-transfer and its many variances, prime contracting, framework agreement, private finance initiative, public-private partnership, integrated project delivery, partnering, etc. some of which have become more popular these days.

## 2. PROCUREMENT STRATEGY

### Importance of Procurement Strategy

- 2.1 The procurement strategy developed should result from an objective assessment of the needs of the Employer and the project characteristics.
- 2.2 Generally speaking, there is no single procurement strategy suitable for all projects and all employers. Furthermore, a mismatch/inappropriate procurement strategy can result in failure to achieve the Employer's objectives in terms of time, cost and quality.
- 2.3 Accordingly, the selection process should therefore provide a best-fit solution, which is acceptable in terms of the identified criteria and acceptable allocation of risks.

### Factors in Deciding the Appropriate Procurement Strategy

- 2.4 The common factors that should be taken into account in deciding what procurement strategy to use include the following:

Factors to Consider	Examples
Time	<ul style="list-style-type: none"><li>• The Employer may require the project to be completed quicker than normal</li><li>• There is sufficient time for a full specification (Drawings and/or Employer's requirements) to be systematically developed</li></ul>
Cost	<ul style="list-style-type: none"><li>• The Employer may require cost certainty with limited exposure to cost increases</li><li>• There is a desire for the Employer to transfer complete risk as much as possible to the Contractor</li></ul>
Quality	<ul style="list-style-type: none"><li>• The Employer may require a high-quality building irrespective of costs</li><li>• The project may involve complicated buildability issues which may benefit from having a contractor involved in the design stage</li></ul>

- 2.5 The reality is that although the three most important considerations are usually cost, time and quality, the business of construction project procurement invariably calls for some compromise or conscious balancing of these priorities. There is a need for careful balancing of priorities in which adequate thinking time and careful thought are required.

# Procurement Strategy

- 2.6 Furthermore, with growing awareness of the complexities associated with delivering an end product that optimizes the Employer's various needs and objectives, the following factors are required to be considered:
- (a) Variation – Reduce or manage cost of change?
  - (b) Responsibility – Need for single contractual link for project execution?
  - (c) Professional Responsibility – Need for the design team to report to the Employer?
  - (d) Risk Avoidance – Desired to transfer complete risk to the Contractor?
  - (e) Buildability – Contractor's input to economic construction considered important?
- 2.7 There are also minor factors such as dispute avoidance, safety, health, environment, social responsibility, innovation, tax management, import and export restrictions, etc. that may affect the appropriate choice of procurement strategy.

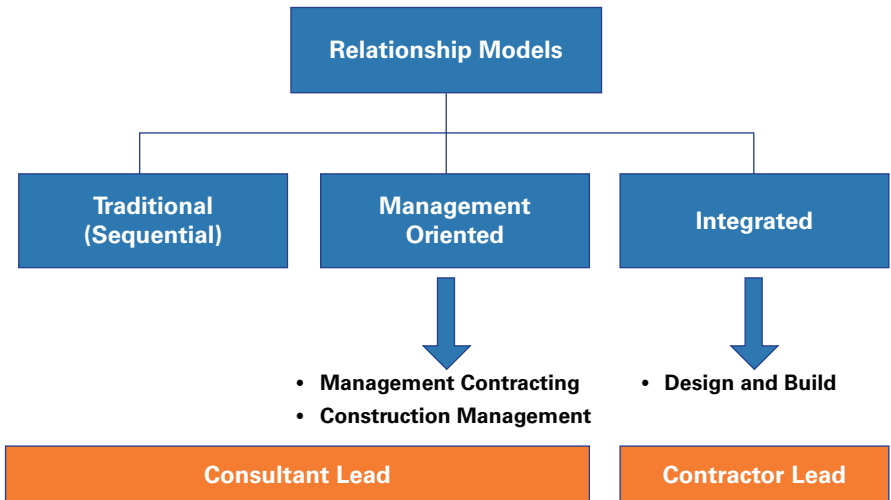
# Choose Relationship Models

## 3. CHOOSE RELATIONSHIP MODELS

3.1 There are the following three key models commonly adopted:

- (a) Traditional (or sequential) model in which at least in theory design and construction are seen as separate elements
- (b) Integrated model in which design and construction are carried out by the Contractor
- (c) Management oriented model by which either the Employer or the Contractor assumes the central management responsibility

3.2 A diagrammatic illustration showing the above three models is shown below:

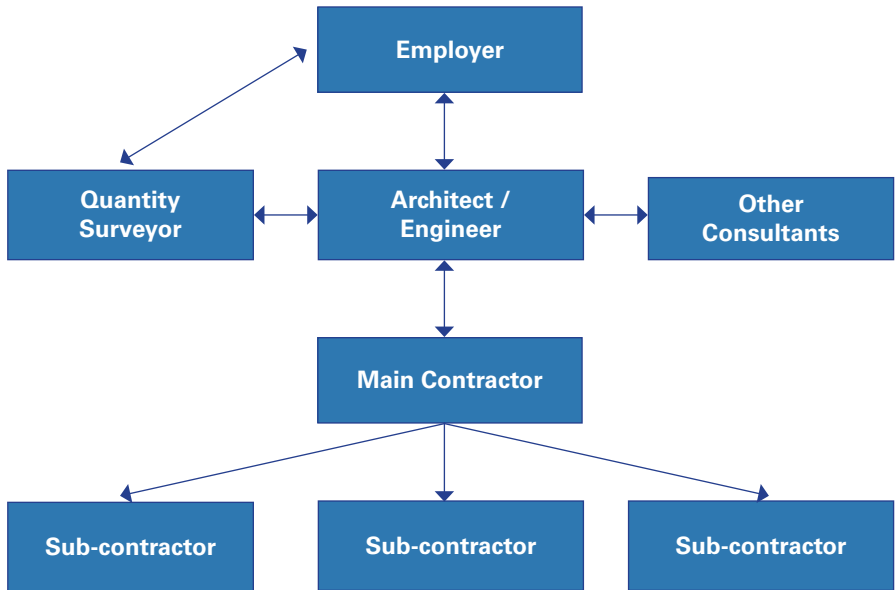


### Traditional or Sequential Model

- 3.3 This is the typical design-bid-build model commonly used in Hong Kong.
- 3.4 Under this model, the Employer engages the consultants for design, cost control, and contract administration, and that the Contractor is responsible for carrying out the works.
- 3.5 In some cases, the Employer will select some of the sub-contractors to be engaged by the Contractor (variously referred to as named, nominated, or pre-selected). In such cases the Contractor is still required to take full responsibility for their performance.

# Choose Relationship Models

3.6 A diagrammatic illustration showing the arrangement of this model is shown below:



3.7 The advantages of adopting the traditional (or sequential) model are as follows:

- (a) It is a well understood process adopted in the construction industry.
- (b) As the design is provided by the consultants engaged by the Employer, it will facilitate a high level of design quality.
- (c) The Employer and the consultants are fully in control over the design and the quality of the project.
- (d) Compared with other procurement approaches, the tender prices are usually more competitive.
- (e) There is certainty of cost, to the extent that the construction cost is known before work begins, even if it has to be adjusted during the construction period as provided for in the contract.
- (f) As the Employer appoints the consultants to advise on cost issues, the Employer retains cost control over the project.



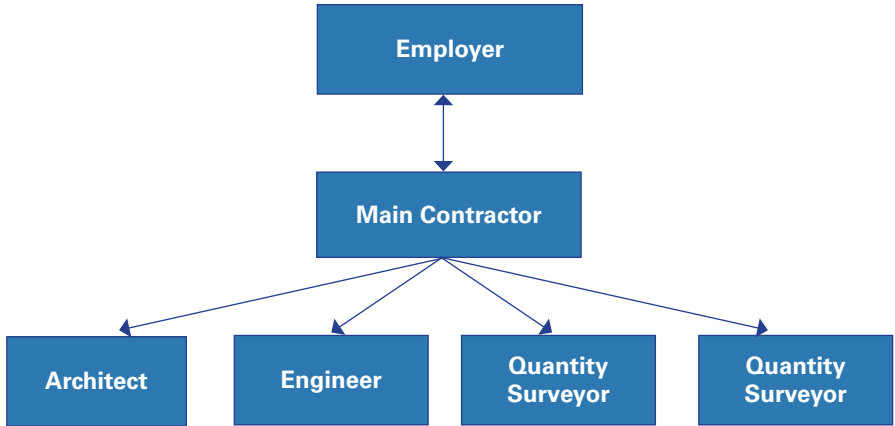
- 3.8 The disadvantages of adopting the traditional (or sequential) model are as follows:
- (a) This approach requires the production of a full set of documents before tenders are invited which may result in longer pre-contract preparation time.
  - (b) The design liability for permanent work rests on the consultants engaged by the Employer.
  - (c) There is no or little design / buildability input from the Contractor.
  - (d) There is no or little overlap between design and construction, which may result in a longer period for the completion of the project.
  - (e) The Contractor depends heavily upon the necessary information and instructions from the consultants being issued on time. There is a risk of claims if they are delayed.

## **Integrated Model - Design and Build**

- 3.9 Under this model, the Employer appoints a Contractor to design and construct the works, as opposed to a traditional or sequential model, where the Employer appoints the consultants to design the project and then a contractor is appointed to construct the works.
- 3.10 Design and build approach fall under this model. It involves the appointment of a single contractor through either tendering or negotiation for delivering the entire project to fulfil the requirements of the Employer including employing the Contractor's own design team. This arrangement will require tender documents outlining the Employer's requirements to be prepared by the Employer. These are usually in the form of a design brief, building functional requirements, area requirements, service performance criteria and finishes standard, etc.
- 3.11 There is single point responsibility placed on the Contractor to deliver within the time and price to the quality expected.
- 3.12 However, there is little flexibility for making changes which can be both costly and have programme implications. Once the parameters are set there is little opportunity to make material changes. It therefore requires discipline and understanding of the Employer's expectations at the outset.
- 3.13 The tenderer is required to submit its design and pricing in the form of a Contractor's Proposal for evaluation and subsequent award. The tender process will be longer, when compared with the traditional or sequential model, because of the time required for the tenderer to prepare the design and the time for the Employer to conduct tender assessment.

# Choose Relationship Models

- 3.14 Although the tendering period may be longer, the design and build arrangement is regarded as a fast-track strategy given that the Contractor can start work on site before all detailed design is completed.
- 3.15 A diagrammatic illustration showing the arrangement of this model is shown below:



- 3.16 The advantages of adopting the integrated model (design and build approach) are as follows:
- (a) From the Employer's perspective, this approach provides a single point of responsibility and without having to appoint separately the design consultants to undertake and complete the design. Management of the design consultants is diverted to the Contractor.
  - (b) This approach may appear to offer a quick start on site as the detailed design will be undertaken by the Contractor. Furthermore, part of the design process can be deferred to a later stage after the appointment of the Contractor.
  - (c) There should be lesser risk of claims because of allegations that information from the Employer is late.
  - (d) There can be lesser project management input from the Employer should the Contractor be considered trustworthy.
  - (e) There are benefits of utilizing the Contractor's expertise on "buildable" design and detailing at the early stage of the design process by suggesting an economic, innovative and/or eco-friendly design and the Contractor's expertise in constructability at the construction stage.

# Choose Relationship Models

- (f) There is greater certainty of cost at award of contract subject to few subsequent changes of the Employer's requirements. However, any significant changes in the Employer's requirements will affect the contract sum.

3.17 The disadvantages of adopting the integrated model (design and build approach) are as follows:

- (a) This approach requires the Employer to decide exactly what is required before tenders are invited. This could involve premature decisions. Changes in the Employer's requirements and/or design after contracts are awarded will generally have time and cost implications.
- (b) The Employer lacks control over the detailed aspects of design; however, this might be acceptable where the broad lines of the scheme are satisfactory and the detail relatively less important.
- (c) It is often difficult to evaluate design and build tenders objectively where both schemes and prices are submitted. Tenderers should be informed of the criteria to be used, and whether price is likely to be the prime consideration.
- (d) This approach calls for a set of well-defined selection criteria of the proposed design by the Employer in the very early stage of the project. It is sometimes difficult to evaluate and compare the proposed design against the tender criteria and select the most optimal design at tender stage. The tender selection process could be lengthy.
- (e) The Employer's requirements need to be clearly defined at outset to ensure certainty in cost and time.
- (f) The Employer may lose control over design if the brief is not clearly developed.
- (g) This approach does not allow much flexibility in design changes or changes in Employer's requirements after the contract is awarded.
- (h) The higher tendering costs and the higher design risks to the Contractor are reflected in the tender prices.
- (i) Due to the competitiveness in price, it is unlikely that the best consultants are engaged by the Contractor. The Contractor tends to place less emphasis on quality of work and selection of materials or equipment but more emphasis on meeting the minimum standard as required under the contract. The Employer has less control over quality. This could lead to potential loss of quality control in both design and construction.

# Choose Relationship Models

- (j) There is no design review unless separate consultants are employed as independent design checker for supervision of quality.
- (k) It is difficult to quantify the costs of variations as there is no firm pricing basis upon which the contract is awarded nor any pre-agreed rates for variations. The design and build approach will not be cost effective in term of controlling costs of variations.
- (l) This approach is usually adopted by experienced employers as they have knowledge of required brief.
- (m) There may be compromise of the Employer's control on the final product.

## **Management Oriented Model - Management Contracting**

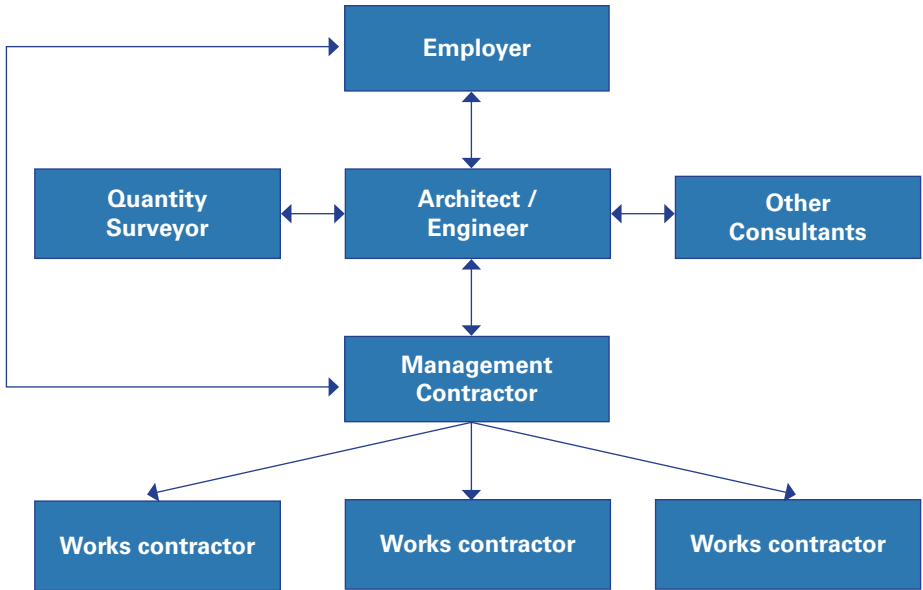
- 3.18 Under the management contracting, the works are constructed by a number of different works contractors who are sub-contracted under a Management Contractor engaged by the Employer.
- 3.19 The selection of management contracting is largely conditioned by the complexity of the project and are best suited to large, complex, fast-moving projects where early completion is desirable.
- 3.20 The Employer initially appoints the consultants to undertake feasibility and costing and perhaps outline design.
- 3.21 A Management Contractor is then appointed to manage the planning and construction of a project and in which the construction work is executed by works contractors working under the Management Contractor, selected and appointed as the works proceed.
- 3.22 The Management Contractor is appointed early to advise on the design programming and provide buildability advice at an early stage to the design team. There is a certain degree of overlap of design by the Employer's consultants and construction.
- 3.23 The Management Contractor prepares the programme, decides on the contents of each works package to be sub-contracted, organises and manages the construction of all works which are undertaken by works contractors.

# Choose Relationship Models

- 3.24 The Management Contractor bears responsibility for the construction works without actually carrying out any of the works. Having said that, the Management Contractor will be responsible for the provision of the site management and preliminaries items including providing temporary works and facilities for the project and providing buildability advice to the design team.
- 3.25 Usually the Management Contractor is paid on the following basis:
- (a) A pre-agreed lump sum for its pre-construction services, plus
  - (b) Either a percentage or lump sum for its management, supervision and the like, plus
  - (c) Costs of carrying out site works and contractors' design and other services (by itself or works contractors).
- 3.26 A competitive tendering element is retained for the works contracts, which usually account for most of the overall prime cost of the project. Tenders for works packages will normally be on a lump sum basis. The work package contracts are executed between the work packages contractors and the Management Contractor.
- 3.27 The prime cost of all works contractors is monitored against the estimated prime cost and therefore the Employer retains the cost risk on the project unless incurred due to the default of the Management Contractor. Accordingly, cost certainty is not achieved until all works contractors have been appointed.
- 3.28 Much of the detailed design work can be left to proceed in parallel with the site operations for some work packages, thus reducing the time needed before the project starts on site. Indeed, a great deal of detailed design will need to be left to specialist works contractors or suppliers.
- 3.29 All design work will not be completed before the first works contractor starts work although the design necessary for the first works package must be completed. As design is completed, subsequent works packages are tendered for and let.
- 3.30 Substantial and continuous coordination of works contractors by the Management Contractor are needed for both design and construction.
- 3.31 Management contracting allows design of the works to be further developed by the Employer's design consultant after the Management Contractor is appointed. By overlapping the design and construction phases, the overall lead time will not be as long as the traditional or sequential model.

# Choose Relationship Models

3.32 A diagrammatic illustration showing the arrangement of management contracting is shown below:



3.33 The advantages of adopting management contracting are as follows:

- (a) There is early participation of the Management Contractor in the design process.
- (b) There is overlapping of design and construction to achieve early commencement of construction for multi-phase projects. Shortened project duration and phased completion can be achieved.
- (c) Having the Management Contractor's involvement early in the process allows early contractor's input on programme, buildability and works packaging.
- (d) With the involvement of the Management Contractor early in the process, the Management Contractor could contribute towards evaluating any design and/or alternative construction methods such that the most optimal and cost-effective design, and/or construction methods can be adopted before tendering for the works packages.
- (e) There is greater adaptability and flexibility for the Employer to defer decisions on other works contracts which are considered less time critical and to deal with changes in the Employer's requirements, as the later works contracts are tendered for well after the start on site.

- (f) Changes can be accommodated provided those works contracts affected have not been let and there is little or no impact on those already let.
- (g) All works contracts are tendered and procured competitively. The Employer has the benefit in receiving competitive prices from the market.
- (h) The Management Contractor, in working with the Consultants, is responsible for handling all delay, default on every dispute caused by the works contractors.

3.34 The disadvantages of adopting management contracting are as follows:

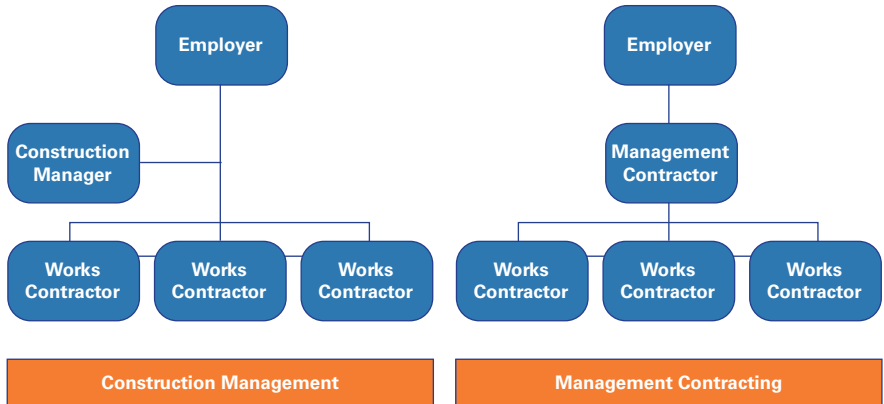
- (a) As the process of design, tender and construction is over a period of time while the project is being developed and proceeded, the overall cost commitment is not known until the works packages are fully awarded and therefore this reduces the cost certainty at the beginning of the project.
- (b) Final cost estimate is dependent on the quantity surveyor's estimates until after completion.
- (c) There will be a lower degree of cost control as the design is less advanced at commencement.
- (d) A higher overall cost of construction is anticipated because of the overlapping of preliminaries cost between the Management Contractor and the works contractors.
- (e) There is less pressure on the consultants to control effectively their design pace and quality at an early date; design progress is inevitably very close to construction progress making delay particularly damaging.
- (f) There is less incentive for the Management Contractor to be cost effective if the Management Contractor is usually paid a fixed or percentage fee based on the actual construction cost.

### **Management Oriented Model – Construction Management**

3.35 Construction management is largely the same as management contracting, with the exception that the construction works are carried out by works contractors through direct contracts with the Employer. The Employer appoints the Construction Manager to manage the works contractors but the Construction Manager does not contract with or pay the works contractors.

# Choose Relationship Models

- 3.36 One of the key roles of the Construction Manager is to manage, plan and control the work of the works contractors. The Construction Manager is required to provide sufficient on-site management resources to co-ordinate work package interfaces and to monitor progress of construction works.
- 3.37 The Construction Manager is a member of the project team to manage the project. In other words, construction management is a relationship model whereby the designers provide the design, works contractors deliver their works packages and the Construction Manager manages the process, advises on construction techniques and methods to improve buildability, and defines and manages the work packages.
- 3.38 A diagrammatic illustration showing the hierarchical differences between construction management and management contracting is as follows:



- 3.39 The Construction Manager is usually the lead consultant, has a more positive role than the Management Contractor.
- 3.40 As a member of the consultants' team, the Construction Manager would be expected to co-ordinate the design and construction programmes and ensure the interfaces between works packages are properly considered.
- 3.41 On appointment, the Construction Manager will take over any preliminary schedule and costing information already prepared and draw up a detailed programme of pre-construction activities for the Employer to consider the recommendation of the Construction Manager.
- 3.42 The advantages in adopting construction management is similar to management contracting and with the following additional advantages:
- (a) The working relationship between the Employer and the works



# Choose Relationship Models

contractors is maintained as there is a direct contractual relationship between the Employer and each of the works contractors.

- (b) There is proactive management of the design and construction process to minimise impact of change and other causes of disruption.
- (c) There is hands-on involvement of the Employer on the project.
- (d) The Employer has the ability to influence the selection of works contractors.
- (e) As the Employer has direct contracts and pays directly to the works contractors, this could result in lower price, improved performance and payment relationship.

3.43 The disadvantages in adopting construction management is also similar to management contracting. However, due to the contractual relationship of the Employer with the Construction Manager and each works contractor, the following inherent weakness in adopting construction management should also be noted:

- (a) There will be increased administration role for the Employer as the Employer needs to directly deal with the Construction Manager and the many works contractors.
- (b) There will be added complexity with multiple points of responsibility which means that there will be difficulty in identifying which the works contractor is responsible for any default in the construction works.
- (c) As there is a direct contractual relationship between the Employer and each works contractor, the Employer is exposed to consequential loss associated with works contractors' default.

# Choose Relationship Models

## Summary

3.44 The table below indicates the typical use of these relationship models:

Factor	Objectives	Traditional (Sequential)	Integrated	Management Oriented	
			Design & Build	Con. Man.	Man. Con.
Time	Early completion	X	√	√ (Note 1)	√ (Note 1)
Cost	Price certainty before construction starts	√	X	X	X
Quality	Prestige level in design and construction	√	X (Note 2)	√	√
Variation	Easier to value costs of variations	√	X	√	√
Responsibility	Single contractual link for project design and construction	X	√	X	X
Professional Responsibility	Need for design team to report to the Employer	√	X (Note 3)	√	√
Risk Avoidance	Desire to transfer complete risk	X	√	X	X
Buildability	Contractor input to economic construction	X	√	√	√

Con. Man. : Construction Management

Man. Con. : Management Contracting

Note:

1. Management Contracting and Construction Management can be adopted if early contractor's involvement is desired.
2. Design and build can be adopted if specialist designers are to be engaged by the Contractor.
3. Design and build can be adopted if the Employer accepts a free-hand turnkey approach.

## 4. DECIDE CONTRACT TYPES

- 4.1 After the relationship model has been established and confirmed, the second step is to choose the contract type to be adopted.
- 4.2 The contract type described here is largely determined by the type of pricing arrangement the Employer wishes to have with other concerned parties. The detailed terms and conditions of the printed forms of contract for any particular contract type chosen would require an approach that matches the allocation of risks amongst the contracting parties. It has to provide the right plan to protect the prioritised time, cost and quality in the desired project outcome. The contract type selected should echo and give effect to the relationship model chosen.
- 4.3 It is quite feasible and sometimes appropriate to have several different contract types on one project. That may well be the best solution for the Employer, although that may make staffing, administration and cost control more difficult.
- 4.4 Basically, there are the following contract types available:
- (a) Lump sum contract
  - (b) Remeasurement contract
  - (c) Cost-plus contract OR target cost contract

### **Lump Sum Contract**

- 4.5 Under a lump sum contract, the Contractor is engaged to perform the works on a lump sum basis, requiring the works to be completed for a fixed price. The risk allocation is placed mainly on the Contractor as he will have to complete the works within the agreed price even if it incurs higher costs to deliver the same contents of the works.
- 4.6 The lump sum can be adjusted if there are post contract Employer's instructions or variation orders (usually issued through the Architect or Engineer) resulting in additional costs. Therefore, it is common for the Contractor to submit numerous claims purporting post contract variations, in the hope of increasing the contract price.
- 4.7 There are two types of lump sum contracts – 'With quantities' and 'Without quantities'.
- 4.8 For the 'With quantities' lump sum contract, it is prepared based on drawings, specification and Bills of Quantities.

# Decide Contract Types

- 4.9 This type of contract is used where the design is sufficiently advanced to prepare the bills of quantities.
- 4.10 The advantages of using 'With quantities' lump sum contract are as follows:
- (a) Compared with the 'Without quantities' lump sum contract, bills of quantities provide a common basis for competition.
  - (b) The use of bills of quantities facilitate tender analysis as the tenderers are pricing under the same bills of quantities.
  - (c) The bills of quantities relieve the tenderers' costs and risks in measuring the quantities.
  - (d) The quantities and unit rates in the bills of quantities serve as basis for assessing variations.
  - (e) The bills of quantities themselves provide a good cost analysis information.
- 4.11 However, compared with the 'Without quantities' lump sum contract, it takes more time for the quantity surveyors to prepare the bills of quantities.
- 4.12 For the 'Without quantities' lump sum contract, it is prepared based on drawings and specification.
- 4.13 Again, this type of contract is used where the design is sufficiently advanced and where the full extent and nature of works can be clearly defined based on drawings and specification.
- 4.14 The advantages of using 'Without quantities' lump sum contract is that the consultants' work on taking-off quantities is saved. In other words, the quantity risk is passed to the tenderers.
- 4.15 The disadvantages of using 'Without quantities' lump sum contract are as follows:
- (a) The cost to the tenderers of producing their own quantities will be reflected in the tender prices which means the tenderers' tendering costs are increased.
  - (b) Any inadequacies or discrepancies found between drawings and specification may not be picked up by the tenderers.
  - (c) Different quantities estimated by different tenderers make comparison of tenders difficult or even meaningless.

- (d) As the tenderer is responsible for any errors it makes in taking off from the drawings, the tenderer is likely to include high contingency factors in its tender price.
- (e) It is difficult to reach agreement between the Contractor and the Employer due to variations if the tenderers are not required to submit a quantity and rate breakdown of the tender.

## **Remeasurement Contract**

- 4.16 For a remeasurement contract, the original works are tendered on estimated approximate quantities from drawings multiplied by tendered rates. The actual constructed works are re-measured and the works are valued based on the tendered rates. The Employer thus takes the risk of the amount of works to be done whilst the Contractor takes the risk of the adequacy of the stated unit rates.
- 4.17 There are two types of remeasurement contract – ‘Schedule of Rates’ (with no “calculated quantities”) and ‘Bills of Approximate Quantities’ (or ‘Bills of Provisional Quantities’ or ‘Provisional Bills of Quantities’).
- 4.18 For the remeasurement contract based on schedule of rates in which no quantities are provided, the works finally carried out are measured and priced at the rates priced in schedule of rates.
- 4.19 This type of contract is used where the works have not been fully detailed, or the exact extent of the works based on a definite nature of works are not known but will be carried out within a given period (e.g. maintenance contract).
- 4.20 The advantages of using remeasurement contract based on schedule of rates are as follows:
  - (a) Standard priced schedules can be used and the tenderers tender on basis of percentage additions and commissions.
  - (b) The same standard schedule of rates can be used as a basis for similar work at different times or in different locations.
- 4.21 The disadvantages of using remeasurement contract based on schedule of rates are as follows:
  - (a) It will be difficult in obtaining realistic prices and establishing final cost of works at the outset.
  - (b) More resources are required to complete the remeasurement exercise. However, it will be somewhat offset by the lesser resources required during the pre-contract stage.

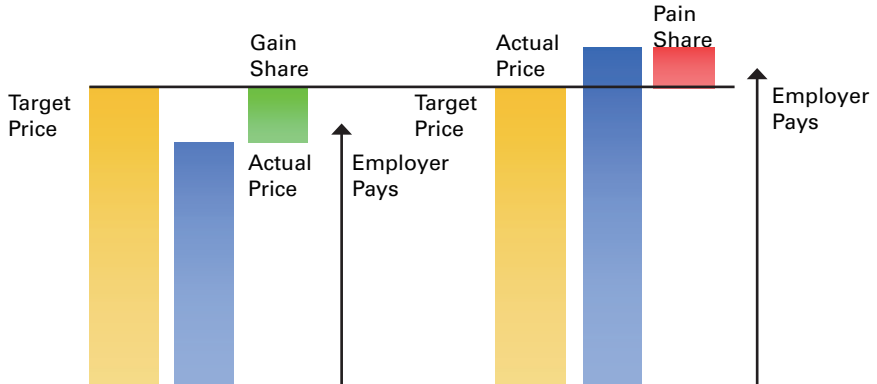
# Decide Contract Types

- 4.22 For the remeasurement contract based on bills of approximate quantities, the works carried out are remeasured and priced at the rates stated under the priced bills of quantities.
- 4.23 This type of contract is used where the design is not completed but an earlier than normal start on site is required. However, the design should still be sufficiently advanced to allow significant items to be measured in the bills of approximate quantities.
- 4.24 The advantages of using remeasurement contract based on bills of approximate quantities are as follows:
- (a) As the design is not required to be fully completed for the preparation of bills of approximate quantities, there can be an overlap of design and construction which results in a reduced overall project time.
  - (b) Although the quantities stated under the bills of approximate quantities are approximate, they also share the general advantage of firm quantities under the 'With Quantities' lump sum contract.
- 4.25 The disadvantages of using remeasurement contract based on bills of approximate quantities are as follows:
- (a) The items and quantities stated in the bills of approximate quantities must bear reasonable resemblance to the works to be executed, otherwise there will be a potential claim by the Contractor based on missing items.
  - (b) There is less certainty of cost at the outset when compared with firm bills of quantities.
  - (c) It encourages design to be put off to tomorrow for what could well and better be decided today.
  - (d) More resources are required to complete the remeasurement exercise.
- Cost-plus Contract OR Target Cost Contract**
- 4.26 If cost-plus contract is adopted, the Contractor is paid based on the actual costs incurred plus a lump sum or percentage fee for overheads and profit. There is a need to carefully define exactly what the fee covers, with the remainder being at cost.
- 4.27 As the Contractor is paid on actual-costs-incurred basis, rigorous post contract auditing is required to ensure project costs and expenses are legitimately incurred. If a payment mechanism is included in the contract to allow sharing of any saving or overspent, then it is a target cost contract which will be further discussed below.

- 4.28 The advantages of using cost-plus contract are as follows:
- (a) It facilitates an early start construction before finalisation of design.
  - (b) It relieves the Contractor's pricing risks as he is paid the actual costs incurred plus fee.
  - (c) There is a higher level of flexibility for design changes after during construction.
  - (d) An alignment of objectives and an open book approach (for checking the Contractor's actual costs incurred) engenders trust and openness as well as a greater potential for collaboration.
- 4.29 The disadvantages of using cost-plus contract are as follows:
- (a) It does not excel in offering cost certainty to the Employer.
  - (b) It is relatively difficult to predict the final cost.
  - (c) More administration work is required for accounting and keeping records.
- 4.30 Under a target cost arrangement, the target price includes the Contractor's estimate of the actual costs plus its fee. The target price will be adjusted for any legitimate variations or instructions incurring additional costs beyond the scope of risks borne by the Contractor.
- 4.31 Same as the cost-plus contract, the Contractor recovers the actual costs incurred plus the fee but is capped to a certain amount (usually 10% of the contract sum) so as to secure greater cost certainty for the Employer. In addition, the Contractor is paid (or pays) its share of the difference between the actual costs incurred plus the fee and the target price according to an agreed formula. The Contractor's gain share decreases as costs rise and may end up with pain share (if the formula dictates this). Thus, the Contractor and the Employer have a common interest in controlling costs as they share the pain / gain.
- 4.32 A clear and unambiguous tender design brief together with a clearly defined contractor's design responsibilities are required for the Contractor to price the works accordingly, thus ensuring a realistic target cost.

# Decide Contract Types

4.33 A diagrammatic illustration showing the arrangement is shown below:



4.34 The advantages of using target cost contract is similar to cost-plus contract and with the following additional advantages:

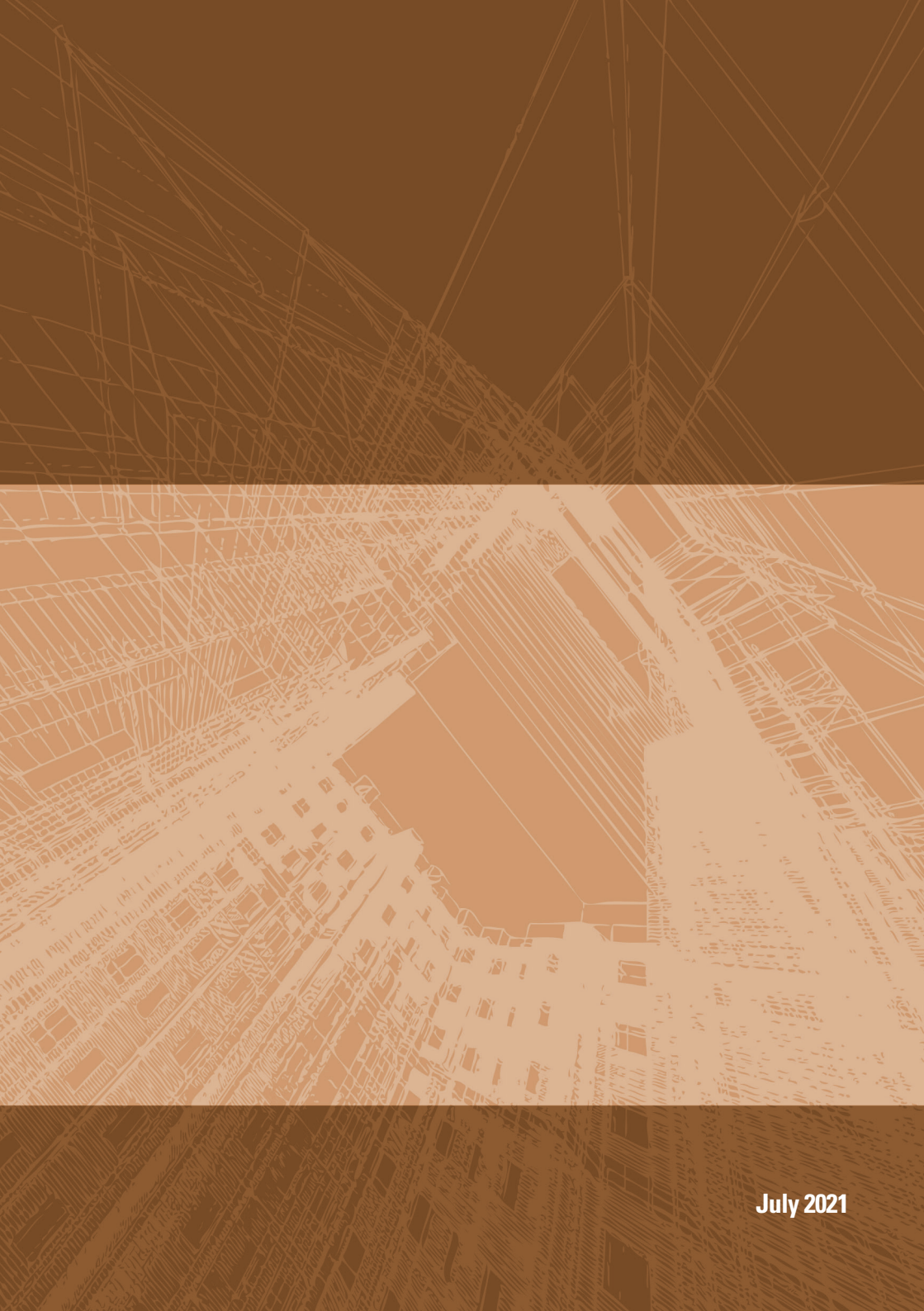
- (a) It allows a greater design input by the Contractor in proposing a cost saving design proposal.
- (b) Both the Employer and the Contractor have motivation to save the costs of construction.
- (c) Both the Employer and the Contractor can contribute to management of the risks.

4.35 The disadvantages of using target cost contract is also similar to cost-plus contract and with the following additional disadvantages:

- (a) Incorrect target setting can drive a focus on raising the target through claims rather than suggesting innovative savings.
- (b) It is not easy to derive a correct incentive mechanism (the pain/gain formula) so as to drive the right behaviour of the Contractor.
- (c) There is limited number of standard forms of contract using target cost. Ad-hoc drafting of contract clauses may lead to misunderstanding of liabilities between the parties.
- (d) Use of target cost favours the establishment of long-term relationships but not for one-off project. The presence of a trustworthy contractor is considered very important.
- (e) It is also difficult to control the costs when subletting exercise is not done with sufficient competition. Consultants may be forced to approve subletting prices within a limited time period.







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