BPM213
Procurement Management

STUDY UNIT 2
Contractual Arrangements

LEARNING OUTCOMES

At the end of this learning unit, you are expected to:

- Apply an understanding of the different types of traditional contractual arrangements used in the procurement of construction, facilities management and event services.
- Apply an understanding of non-traditional systems in procuring facilities management services like cost reimbursement contracts, management contracting and partnering.
- Describe the common procurement arrangements used in the events industry like fixed price contracts, cost-plus contracts, incentive contracts and mixed contracts.

OVERVIEW

Contractual arrangements are concerned with the type of contracts to be entered into and the rights obligations and liabilities of the contractual parties. These may vary from one project to another, but there is no direct relationship between contractual arrangements and the tendering procedure.

With the wide range of procurement systems available, the choice of procurement arrangement may have a significant impact on the project outcome. Selecting an appropriate contractual arrangement is difficult because of diverse views and opinions and the proliferation of many different types of procurement arrangements.

This study unit will address the issues to be considered when selecting an appropriate contractual arrangement, and the various methods of traditional and management-based contractual arrangements.

2.1 Difference between Contractual Arrangements and Tendering Procedures

Contractual arrangements are concerned with the type of contract to be entered into and the rights, obligations and liabilities of the contractual parties. On the other hand, tendering procedure is concerned with selecting a suitable contractor or supplier and how the contract sum is arrived at. For example, the same contractual arrangements could be used in two projects, where in one, the contractor had been selected after submitting a competitive tender, while in the other, and the contractor had been selected based on a business relationship with the client under a single tender negotiation.

2.2 Issues to be considered Other Than Client's Objectives

The rapid increase in different procurement arrangements has resulted in an increasing demand for systematic methods to select the most appropriate arrangements to suit the particular needs of clients and their projects. Although the main objective is to satisfy the client's objectives, the following broad issues should also be considered:

- ***Consultants or contractors?*** – The client needs to consider whether to appoint independent consultants for design and management or to appoint a contractor direct to be responsible for both. Factors to be considered include:
    - Single point responsibility
    - Whether the design and construction/production/operation need to be integrated
    - The need for independent advice
    - Overall cost of design and construction
    - Implications on quality, standards and time

- ***Competition or negotiation?*** –Contractors and designers can secure contracts in many ways, e.g. by invitation, reputation, recommendation or reputation. To ensure the most beneficial arrangement for the client, some form of competitive method is usually favoured. But there are many situations whereby negotiations with a single firm are preferred over competitive tendering, including:

    - Business relationship
    - Early start on the project
    - Nature of continuation contract
    - Current state of the market
    - Contractor's expertise
    - Financial arrangements
    - Geographical area
    - The development and promotion of partnering which have changed the views of some clients towards the need for competition (Ashworth, et al., 2002)[1].
- ***Measurement or reimbursement?*** – There are essentially two ways of arriving at the cost of construction work or operation. The contractor can be either paid for the work done based on some form of agreed quantities and rates or

[1] Ashworth, A. & Hogg, K. (2002). *Willis's Practice and Procedure for the Quantity Surveyor*, 11th ed., Oxford: Blackwell Science.

reimbursed based on the actual cost of the operation. The following points to be considered before making a choice between these alternatives include:
    - The need for a contract sum to be known before the project starts
    - Forecast of the final cost
    - Incentive for contractors to be efficient
    - How the price risk is distributed to the contractual parties

- ***Traditional or alternative methods?*** – The single-stage open or selective tendering has been adopted in most projects as a basis of contracting. With the current differing practices around the world, other methods have been developed to meet clients' changing needs. The factors to be considered are:
    - Appropriateness of service
    - Length of time from inception to completion
    - Overall costs inclusive of design
    - Accountability to stakeholders
    - Importance of design, function and aesthetics
    - Quality assurance
    - Organisation and responsibility
    - Complexity of the project
    - Apportionment of risk

2.3 Standard Forms of Contracts

With various forms of contract available for construction-related, FM-related or event services, the choice of a suitable form depends on several circumstances such as:

- Objectives of the client
- Whether the client is from the private or public sector
- Type of work be carried out
- Design progress
- Size of the project
- Method used to establish the price

Information on the actual form and conditions of contract which form part of the contractual arrangements will not be covered in this module but under the FEM 109 Contract Administration.

2.4 Methods of Price Determination

Contractors are paid for their work done based on one of the two methods:

- ***Measurement*** – The work is measured and paid for based on the finished quantity multiplied by an agreed unit rate. The contractor will bear the risk of the unit rate that he has priced.
- ***Cost reimbursement*** – The contractor can be paid the actual costs based on the quantities of the materials purchased and the time spent on the work by the workmen, plus an agreed amount to cover his overheads and profit. Elements of measurement contracts may be valued on the same basis by the adoption of dayworks.

2.5 Methods of Contractual Arrangements

The methods of contractual arrangements are structured as follows:

1. Traditional procurement methods
   - Lump sum contracts (with drawings and specification)
   - Lump sum contracts (with performance specification)
   - Lump sum fixed price maintenance contracts
   - Term contracts
   - Measurement contracts (with firm bills of quantities)
   - Measurement contracts (with approximate bills of quantities)
2. Cost reimbursement contracts
   - Cost plus fixed fee
   - Cost plus fixed percentage
   - Target cost (similar to Guaranteed Maximum Bonus)
3. Design and Build Contract
4. Management-based Procurement – Management Contracting
5. Partnering

2.5.1 Traditional Procurement Methods

In the traditional system, the contractor undertakes to carry out works based on the designers' drawings and specifications. The designers do not have a direct link with the specialist subcontractors and suppliers. All communication is made through the contractor, who does not have a contractual design liability. Generally, the Architect is appointed the project leader and the client's representative to implement the design process. He assumes overall responsibility to make sure that the project is delivered on time and budget. The independent consultants are appointed by the client to work with the Architect to produce the detailed designs and issue tender documents. The tender documents are used to invite competitive bids from tenderers who often quote on a lump sum basis. The successful contractor then enters into a

direct contract with the client and carries out the work under the supervision of the Architect who co-ordinates the design team (Kirkham, 2007).

(1) Lump Sum Contracts with Drawings and Specification

The tenderers are only supplied with drawings and specifications and no bills of quantities will be given. The drawings and specification of the work have to be virtually completed before calling of tender.

Tenderers are required to prepare their own quantities from the drawings and specification in order to establish the tender estimates. The Contractor bears the risk of any measurement and pricing errors. This method is mostly used for small projects (such as minor works, renovation, addition and alteration works) in the private sector, and for the public sector (but irrespective of size). It is also used for FM works contracts (within management contracting or construction management contracts).

In order to overcome the problem of valuing variations during the construction period, the Contractor's proposals can include a contract sum analysis or an open schedule of prices.

But uncertainties related to many refurbishment projects dictate that it is unsuitable and perhaps inadvisable to use the traditional lump sum competitive tenders for the whole of the works (Kirkham, 2007)[2]. The exception is where a series of similar public residential buildings are being refurbished, e.g., under the Main Upgrading Programme for Singapore's public housing.

Advantages:

- Time required for preparation of tender documents is reduced as the client's professional advisors do not need to work out the quantities.
- Both contractual parties have a clear picture of their respective commitments at the time of signing the contract, e.g. the contract sum is agreed before construction starts.

Disadvantages:

- No detailed breakdown is provided on the tender sum, with the exception of the contract sum analysis showing only work sections priced as a lump sum items.
- Valuing variations could be problematic during the construction stage unless a comprehensive open or fixed schedule of rates is included in the contract.
- The contractor will be responsible for and reimbursed under the contract for most of the pricing risk especially for errors made in measuring his quantities from drawings.
- To compensate for possible errors or omissions, tenderers tend to overprice the contract rates or work items.

[2] Kirkham, R. (2007). *Ferry and Brandon's Cost Planning of Buildings*, Oxford: Wiley-Blackwell.

- As each tenderer is required to measure the quantities separately, this duplication is extremely wasteful and can make comparison among tenders difficult.

(2) Lump Sum Contract (with Performance Specification)

This arrangement offers the contractor greater flexibility and freedom than when the traditional prescription requirement specification is incorporated. The client's brief and user requirements serves as the basis for tenderers to work out their tender price.

Within the client's parameters, the contractor can select and decide the materials, the method of construction and even the design. The performance specification specifies the performance laid down for the particular work section and the contractor is allowed to build in the materials of his choice and to his design provided only that the defined performance can be achieved. Under such circumstances, the contractor can then, under such situations, offer the most economical materials and system of work capable of fulfilling the performance specification.

Extreme care is therefore needed to draft requirements of the performance specification. If the requirements are too rigid, the contractor's initiative will be limited. If the requirements are too loose, competing contractors are open too many options such that tender evaluation will be difficult.

At the same time, cost control measures and solutions should still be carried out or made available to the client even though performance specifications are used. This can be done by breaking up various work sections into smaller convenient functions so that the price for each section or function can be isolated and then compared with.

Unless otherwise stated or provided that no other designer is involved, the contractor is generally expected to complete the work to ensure that the finished building will be fit for its purpose.

Performance specification can be used on jobs of any size including events. An example of a performance specification used for an event could include one that reads as follows without stating the specific illumination level in lux: "The lighting shall illuminate the entire arena for the first two hours with clear but soft lighting and change to disco style over the next two hours."

(3) Lump Sum (Fixed Price) Maintenance Contracts

Adopted in UK many years ago, this method is aimed at reducing large amounts of paperwork involved in executing types of maintenance contracts in which the

administrative costs for small projects may even exceed construction or maintenance costs (Chanter, et. al., 2007)[3].

The method involves an agreed lump sum based on analysed of maintenance records, with which the appointed contractor undertakes a range of recurring works of a similar nature, to a specific group of buildings, over an agreed period of time. The contractor then agrees to carry out all the work of the specified types for the agreed contract sum. Tendering is through the contractor quoting a percentage on or off the given lump sum. The contract period is normally a year, and the contractor is paid one-twelve of the lump sum over a period of one month. Regular inspections are carried to check that the work is executed properly.

Advantages:

1. In theory, this method can make huge savings in administrative costs.
2. Progress payments to the contractor are simplified as they are made on a monthly basis.
3. It can be argued that there is in-built quality control as failure of the contractor will be reminded at an early stage for the work to be done again if he fails to do so properly. If the system is set up properly with early feedback from building users, then the client can expect a rapid response from the contractor leading to good tenant satisfaction.

Disadvantages:

1. It is difficult for the contractor to estimate the correct lump sum each year in using this type of arrangement unless the client can provide a large sample of recorded cost data for a statistically sound lump sum to be agreed upon.
2. Real maintenance needs may possibly be under-estimated as the building and its facilities age when using historical cost for budgeting,
3. How well this approach operates will depend on high levels of goodwill and trust on both contractual parties, and on thorough, accurately priced data.

(4) Term Contracts

This type of contract is awarded to a contractor for a given period of time or "term". It is used where the total cost and the full extent of the work are not known at the time of tendering.

It is commonly used in managing contracts for extensive and continuing programmes of day-to-day reactive building maintenance and repair works by town councils, and other statutory boards and Government agencies and management committees of condominiums for a minimum period of 12 months. Term contracts can also be used for a large number of minor works with a measure of accountability

[3] Chanter, Barrie & Swallow, Peter (2007). *Building Maintenance Management*, Oxford: Blackwell Publishing, p230.

like road repairs and resurfacing, painting and redecoration and other specialist trades.

A schedule of unit rates is used as a basis for calculating payments made to the Contractor. The schedule of rates consists of a list of items with descriptions, units of measurement and unit rates and is similar to a bill of quantities, except that information on quantities are not available. The successful tenderer binds himself to an agreed price list of units of work in advance based on the given period of the term contract. In addition, it can also be helpful for the client to prepare a bill of provisional quantities, based on the previous years' workflow, to give tenderers an indication of the anticipated volume of work on specific trades or items over the contract period, but this practice is seldom adopted in Singapore.

Usually, tenders are obtained using the following methods:

- A fixed schedule of rates is used where the unit rates are predetermined by the consultant. To submit their bid, tenderers give a percentage on or off the standard or fixed rates from the schedule to cover for fluctuations over the contract period. Tenders for this method are easily analysed and compared than with other methods.
- The tenderers insert the unit rates are inserted on an open/blank schedule of rates at the tendering stage. While such unit rates are used to determine the successful tenderer, tender evaluation is more difficult as compared with the earlier method.

The actual quantities are measured after the completion of each works order, which is issued from time to time as required. The measured items of the works order are then priced with the appropriate rates stated in the schedule of rates. Contracts can be entered into with one or more contractors and the work placed on the basis of cost, committed workload and performance. The contractor's performance for each works order needs to be continually monitored and checked to make sure that the workload is carried out smoothly. On the other hand, the client must also ensure prompt payment to the Contractor.

Computerised, Comprehensive Schedule of Rates

Many large corporations now use a sophisticated computer program based on a property register which is linked to a comprehensive schedule of rates. Work orders and accounts for payment can be generated with this program to ensure the smooth running of a maintenance-based term contract.

Advantages:

- Work can commence before the design is completed.
- The Measured Term Contract has proven to be most beneficial where the client has an ongoing need for maintenance or other minor works.
- This approach is suitable in situations where the workload is large enough to offer sufficient continuity due to economies of scale.
- Rapid response to work requests can be ensured by specifying response periods through a good communication system and close monitoring and controlling of the contractor's performance.
- The measured term contract offers potential savings in time and administrative costs as compared with letting out several smaller contracts which involve many related orders.

Disadvantages:

- There is no precise indication of contractual parties' financial commitments in terms of the total contract value from the onset.
- It is difficult to evaluate which tenderer submitted the most cost competitive offer unless approximate quantities are applied to the rates so that total or final amounts can be determined.
- Without any information on the quantities, it is also difficult for the tenderers to price the schedules realistically.
- If the contractor for the previous term period is being replaced, there may be difficulties at the changeover point resulting in disruptions to the work programmes.

(5) Measurement Contract (with Bills of Firm Quantities)

This type of arrangement is used for larger projects in the form of life-cycle replacement or major renewal works on a large scale. The method is not suitable for projects where the nature and quantity of the work to be done cannot be accurately foreseen, for example, refurbishment, major maintenance and repair work programmes.

The Bill of Quantities (BQ) forms part of the contract and comprises quantities of the work and their corresponding unit rates. Together with the other tender documents like the drawings and the specification, the measurement and compilation of the BQ must be completed before the tender can be called.

As the BQ forms a common basis of tendering, each tenderer is required to price exactly the same items and their respective quantities and quality of work. As the work is quantified by the client's quantity surveyor, the measurementrisk to each tenderer is also reduced. The Contractor will usually be paid based on the actual and measured amount of work done if there are any errors in the quantities.

Advantages:

- The contractual parties are aware of their financial commitments since a clear picture as to the extent of the work is made known to them during the tendering stage.
- Contractor's estimating risks are lowered considerably with the measured quantities from the BQ.
- The task of valuing variations will be eased as the unit rates in the BQ provide a basis for any variation to the design to be valued.
- A detailed breakdown of the tender is readily available to the contractual parties

Disadvantage:

- A substantial amount of time is required to prepare the BQ during the tender stage.

(6) Measurement Contract (with Bills of Approximate Quantities)

Similar to the BQ except that the quantities in the bill are only approximate and subject to re-measurement during the post-contract stage , this method is used for projects where there is insufficient time to prepare accurate quantities.

The unit rates in the BQ form part of the contract but not the quantities as they are subject to re-measurement. Work may commence before the design is completed as the detailed drawings and specifications can be prepared as work progresses.

In the context of FM, this arrangement is suitable for large-scale life-cycle replacement and renewal contracts.

Advantages:

- Work can commence at an earlier date.
- There is a reduction in time and expenses for preparing firm quantities.

Disadvantages:

- Often, the approximate quantities in the bills do not reflect the actual amount and the extent of commitment during the tendering stage.
- The quantities of the work items have to be completely re-measured as actually carried out, which may prove to be more costly and time –consuming than to have the design details finalised and the actual quantities prepared at the initial stage.

2.5.2 Cost Reimbursement Contract

The Contractor is reimbursed in this method for his actual cost plus a fee to cover his overheads (sometimes including management fee) and profit.

Some maintenance term contracts (also called Daywork Term Contracts) are also priced on a cost reimbursement basis.

Since the Contractor is reimbursed his actual cost, the risk of inefficiency and high wastage of resources will be passed on to the client. It is therefore considered the most uneconomical type of contractual arrangement.

As the total cost at the tender stage is uncertain, tenders contain no total sum. The contract sum will only be ascertained upon completion when the account is finalised.

Advantages:

- Work can start on site immediately provided that sufficient information is available from the specification.
- It is suitable for projects which are required to be carried out urgently like restoring parts of a collapsed building and emergency repairs to make buildings safe after fire damage.

Disadvantages:

- As no indication of the total cost of the work is available, the contractual parties are unaware of their financial commitments during the tender award.
- The price for the work is likely to be higher as compared with other forms of contractual arrangements.
- The process of calculating and verifying the total prime cost is tedious and time-consuming.
- The Contractor is often given little incentive to employ his resources efficiently.

There are **3 alternative types** of reimbursement contracts:

- Cost plus percentage fee
- Cost plus fixed fee
- Target cost

(1) Cost Plus Fixed Percentage Fee

The contractor is paid a fee which is equal to an agreed percentage of the prime costs for carrying out the work. The major disadvantage of this method is that the higher fee will be paid to the contractor if the high prime cost is due to the contractor's inefficiency in deploying his resources and carrying out the works.

For example, if the estimated total cost of the works (including materials, labour and plant) is $500,000 and the agreed percentage for the fee is 20% (say 15% for overheads and 5% for profit). Assuming that the estimated prime cost proved at the completion is accurate, the final cost to the client would be calculated as follows:

Total prime cost		$500,000
Addition for overheads 15%	$75,000	
Addition for profit 5%	$25,000	$100,000
Total cost of contract		$600,000

If, due to the contractor's inefficiency, the total prime cost rises to $550,000 for the same job, the total cost will then be calculated as follows:

Total prime cost		$550,000
Addition for overheads 15%	$82,500	
Addition for profit 5%	$27,500	$110,000
Total cost of contract		$660,000

As it is shown in the example, the contractor may even earn more due to his inefficiency and hence there is no incentive for him to work efficiently. The client carries nearly all the risks on the contract. Checking the prime cost can be a very complicated and expensive operation. The client's final commitment is not known at an early stage.

There are several advantages to this variant:

- It is the most convenient contractual basis of calculating the reimbursement due to the contractor.
- The contractor can be selected, the contract placed and the work can commence before the scheme has been finalised and agreed and without the need to work out any quantities and prepare any estimates.
- The contractor's management methods, in theory, at any rate, can be used for the direct benefit of the client.
- The client will also be aware that the contractor will not make an exorbitant profit.

On the other hand, the disadvantages include:

- The contractor can afford to do things slowly and extravagantly due to poor cost forecasting, his low productivity and the fact that there is no agreed on a contract sum during the tender stage.
- The contractor is seen to be rewarded with a percentage of whatever that he spends.
- The method is extremely unpopular in terms of prudent cost control.

Because of the benefits as mentioned earlier, it is widely used for such projects as:

- Emergency repair work;
- Alterations and repairs to old buildings where the extent of the works cannot be easily foreseen until the contract has commenced;
- Contracts where very high quality work is required, such as restoration to listed or preserved buildings with the retention of facades;
- Contracts where cost may be important but where the client wishes to retain control over the method of working; and
- Contracts where a good long-term relationship exists between the client and the contractor.

(2) Cost Plus Fixed Fee

Under this variant, the fee paid to the contractor is based on a fixed sum which will not vary with the total (actual) prime cost but is based on the estimated cost. The disadvantage in this method is that the contractor has to be paid the fixed fee despite a lower prime cost after the completion of the work.

Following the previous example, if the fixed fee is $100,000, the final cost of the project will be:

Total prime cost	$500,000
Addition for overheads and profit 15%	$100,000
Total cost of contract	$600,000

If the actual cost has increased to $550,000, the total cost will then be:

Total prime cost	$550,000
Addition for overheads and profit (fixed as above)	$100,000
Total cost of contract	$650,000

It can be shown in this case the contractor will has a lower profit margin in term of percentage.

As compared with the cost plus fixed percentage, this approach has the obvious advantages of:

- reducing the incentive for the contractor's wastefulness.
- allocating shared risks for both the contractor and the client.

There are two disadvantages:

- A fairly detailed scheme and an estimate need to be prepared before work can commence, and so some of the advantages of the 'cost plus fixed fee' are lost.

- It is likely that the so-called fixed fee will have to be renegotiated at the end of the job because of the major variations that are sure to arise in projects of the type.

(3) Target Cost

As an incentive to the contractor for reducing the total prime cost, an agreement can be made to provide **bonus** to be paid to the contractor if the total cost is less than an agreed estimated cost as well as a penalty to be imposed on the contractor if the total cost exceeds that target cost. Usually, a target cost can be derived from a prepared bill of quantities and the unit rates priced by negotiation, before the contractor proceeds to carry out the work on an actual cost basis. In order to arrive at the final price, there are various methods available:

- If the actual cost is lower than the target cost, the contractor and the client usually split the incentive of the difference in cost savings between them on a pre-arranged basis.
- If the actual cost is higher than the target, the contractor has to be content with the actual cost plus a small overhead percentage.

The **bonus and penalty** are usually 50% of the difference between the actual amount and the target cost.

From the earlier example, if the actual prime cost after completion is $550,000 and the estimated cost including the fee (the target cost) is $600,000. The final contract value will be:

Total prime cost	$550,000
Fixed fee	$100,000
	$650,000
deduct penalty, being 50% of the excess over $600,000, i.e. ($650,000 - $600,000) x 50%	$ 25,000
Total cost of contract	$625,000

The fee of $100,000 in this case is reduced to $75,000.

If the actual prime cost after completion amounts to $480,000, the final payment will be calculated as follows:

Total prime cost	$480,000
Fixed fee	$100,000
	$580,000
Add bonus, being 50% of the cost saving over $600,000, (i.e. $600,000 - $580,000) x 50%	$ 10,000
Total cost of contract	$590,000

The fee in this case has been increased to $100,000 plus $10,000 for the bonus, or $110,000.

The advantages of using a target cost are:

- The contractor is given the incentive to carry out the work as economical as possible and the client gets a direct benefit if this is achieved.
- The system still retains many benefits of cost reimbursement, especially the ability of the contractor and the client to work closely together in managing the project.
- It can be used for a 'continuation' project where the client has a succession of projects in which the same contractor can participate in.

The disadvantages of target cost are:

- Due to many likely variations, the target cost is subject to numerous revisions (so one might as well have an ordinary lump sum or re-measurement contract).
- The quantity surveyor's fees are likely to be higher because there is a doubling of documentation since cost reimbursement accounts to be checked and the bill of quantities to be prepared, priced, agreed and updated several times.

2.5.3 Design and Build Contract (D&B)

The contractor is responsible in this system for both the design and the work operation under a single contract sum. He is expected to bear the same professional liability as a consultant designer under the contract including the need to comply with statutory requirements.

In some cases involving turnkey contracts, the contractor may even be required to tender for the land, obtain planning permissions and consent, finance, design, procure and carry out the construction work.

The reason for clients favouring D&B contracts include the benefit of cost saving because a design prepared with the contractor's subjectively intended working methods in mind, and his proposed arrangements for access, storage of materials, etc., should in, principle, produce a lower tender price. This type of contract should probably result in speeding up construction work. The client must produce a clear brief to the contractor for the contract to be effective.

The Contractor's obligation is to design and complete the works in accordance with the details outlined in the client's requirements and the contractor's proposals. The contractor's proposals should be expanded from the details shown in the client's requirements which can vary from a brief schedule of requirements to a full design scheme. The contract normally states that the contractor's proposal shall take precedence if there is any discrepancy between the client's requirements and the contractor's proposals.

Typical Procedure

1. The client engages the designers to prepare the outline design.
2. Based on the client's outline design, the contractor develops the detailed design and submits a tender price for the work operation.
3. The tenderer is usually selected competitively based on the best overall submission after the client's review on the price, design, programme, etc.
4. The appointed Contractor then carries out the work operation based on his own detailed design with the help of his employed designed consultants and his subcontractors.
5. As compared with the traditional procurement strategy, the risk is significantly shifted to the Contractor.

Situations under which Design and Build Contracts are useful

- Standard building types, especially for industrial and warehousing use, and where early return on capital investment is preferred over considerations for excellent design.
- Buildings, products and services using proprietary systems developed by the manufacturer of the system might well become the contractor, e.g. repetitive housing.
- Building types undertaken by specialist contractors have e.g. for highly serviced healthcare or laboratory buildings in which the project complexity justifies the use of factory production like pre-fabrication.

Situations under which Design and Build Contracts are not suitable

- Where the most important consideration for the project is quality.
- Where the building design is be tailored to the client's special requirements.
- Where project faces complex planning and environmental issues.
- Where complex refurbishment work (e.g. old and historical buildings and pre-war houses) involves frequent or unexpected variations.
- Where the brief cannot be defined, or the building function is so complex that an extensive period of research and investigation is needed from the start and might even continue once work has started.

Advantages

- Greater technical integration between design and construction produces a more workable design; resulting in possible cost savings to the client;
- Speed of construction;
- There is a single point of responsibility lies entirely with the contractor for the design, construction and performance of the building;
- Improved communication between the contractor and the client is expected;
- More timely construction is expected;

- All-in lump sum;
- Simpler method of procurement for the client;
- Reduces financial burden on the client;
- The contractor can offer competitive design fees;
- Good client-contractor relationships can be fostered.

Disadvantages

- Lesser design flexibility is available to the client as compared with the traditional route since variation cost due to changes in the client's requirements may be difficult to evaluate.
- As every tenderer is expected to submit a different design and tender sum, evaluating each tender is difficult.
- It is an expensive procurement route for the unsuccessful bidders as resources are wasted in preparing the competitive tender having to prepare a detailed design based on the client's brief and then pricing the tender.
- The client may need to engage his own independent advisers to advise him on whether he is getting value for money and this adds to his costs.
- The design is likely to be production-oriented favouring the contractor.
- With the recommended restriction on the number of tenderers, a lack of competition may result. Even if 2 or more tenders are obtained, it is difficult for the client to evaluate the tenders with differing designs and prices.
- The client may lose control over the end product if the offer price is to be maintained.

2.5.4.1 Management-based Procurement – Management Contracting

In this arrangement, the contractor is paid a fee to manage the building of a project on behalf of the client. In fact, it is a contract to manage, procure and supervise a project rather than a contract to build with the contractor's resources, with all direct works being sub-contracted by the management contractor on behalf of the client to works package sub-contractors.

Typical Process

1. Just like the traditional arrangement, the Client appoints the design team.
2. The Management Contractor (MC) is appointed early in the design process and when the scope of the project is reasonably clear.
3. Competitive tendering is normally adopted to obtain a percentage or fixed fee bid for management, and occasionally using a Guaranteed Maximum Price contract.
4. As a member of the client's project team, the MC is responsible for:
   a. Managing the execution of the works.
   b. Leading the team on the programme issues.

c. Being directly involved in the preliminary activities such as providing site accommodation, fencing, providing temporary services, etc.

The criteria for selecting the Management Contracting route and some of the key features include:

- As the method depends on a high degree of confidence and trust: no firm contract price is established before work begins on site and the decision to proceed is usually based on an estimate.
- As the MC is the Client's agent, he is expected to put the Client's interests first throughout the project.
- The design team can benefit from the MC's expertise during the crucial pre-contract period.
- Site operations can proceed in parallel with detailed design in some early work packages.

Circumstances under which Management Contracting is suitable

- This is often used for clients who do not wish to tax their FM and building maintenance needs significantly by outsourcing the services to a single management contractor to manage the entire maintenance or even FM requirements.
- This is best suited to large, complex, fast-moving projects where early completion is preferred.
- It can be used if there is insufficient time to use the traditional procurement methods.
- Where the project is so complex that it is beneficial for the client to exploit the MC's expertise on site to lower the risk of project failure; e.g. assessing whether the building is easily 'buildable' or the economies of resources are possible.

Advantages of Management Contracting

- As compared with traditional contractual procurement methods, the process is more harmonious as the MC is paid a fee with the sole objective of completing the works on time and on budget.
- The method allows the packaged contractors to be on site earlier than by other methods. This is because sub-contract tenders can be invited and let while the design is in progress.
- The client and his designers have total flexibility to develop the scheme. For a large project, the design team is usually based on site.
- MC can enhance the buildability of the proposed infrastructure through his early involvement by providing advice on the suitability of proposed materials and methods relating to market availability and time.
- The MC has no conflict of interest as he only acts as the client's agent.

- As packages are usually tendered closer to the time of work is to be carried out on site, the work package sub-contractors tendering for the job face less pricing risk as they do not have to include a high premium to cover their pricing risk.

Disadvantages of Management Contracting

- The client may not achieve the lowest cost because there is a tendency for the MC to obtain tenders only from established sub-contractors or works package contractors with a reliable record so that the MC could easily manage them.
- While the estimate of prime cost is a carefully prepared and budget agreed and constantly updated, it is still no financial commitment for the MC. unless there is tighter cost control, some clients are not comfortable about entering a contract with no contract sum.
- The client bears a greater risk in order to secure the MC's loyalty and co-operation, while the MC carries little contractual risk.
- There some preliminary items may be duplicated in case the works package sub-contractors are each made to be responsible for an item which would otherwise have been provided by the MC.
- As compared with conventional lump sum contracts, the liability for delays and attendant loss and expense are more complex. The MC will not be held liable for delays that are caused by reasons beyond their reasonable control; e.g. delays caused by various work package contractors.

2.5.4.2 Management-based Procurement – Construction Management

Under this unique procurement route, the developer directly employs multiple subcontractors (referred to as Trade Contractors) instead of employing a single Main Contractor. The single feature that makes Construction Management (CM) unique, different from Management Contracting, is that the developer (referred to as the Employer) enters individual contracts with separate specialist subcontractors.

Traditionally, the developer employs a Construction Manager to manage the project on their behalf for a fee lower than that of a main contractor. The Construction Manager has no vested interest in the financial outcome of the project and, unless professionally negligent, bears no risk. His overriding obligation is to act in the best interests of the developer. He manages the programme and performance of the trade package contractors, financially and operationally, and gives the developer the opportunity to make informed decisions throughout the project.

CM is growing in popularity and many developers are delivering their schemes in-house on a quasi-construction management basis. On these schemes, they act as Construction Manager themselves and directly employ subcontractors. Depending on the developer's resources, this may be the entire scheme or just elements such as the shell and core or the fit out.

The developer creates a virtual main contracting capability in-house and this brings advantages such as optimised programmes and a genuine alignment between the construction arm and the developer's sales objectives.

Situations under which Construction Management (CM) is appropriate:

- The developer is construction savvy and has the suitable resources to manage a construction project.
- The primary project risks are related to time and cost (i.e. the developer is working in the private sector and needs to sell the houses within a prescribed period to ensure profitability).
- The developer wants the construction works to start early.
- The developer wants the flexibility to make minor changes to the specification / design throughout the process with minimal impact on time or finances.
- Although construction cost needs to be competitive, value for money is more important than simply building at the lowest possible price.
- The developer can separate the design responsibility from the construction responsibility.
- The project is technically complex and requires detailed engagement of specialist subcontractors.

Critical Success factors in CM

1) The developer's experience

For CM method to work, the developer must take a proactive and detailed approach to its management responsibilities. He needs an in-house team that is suitably resourced and experienced to deal with the challenges of managing a construction project.

2) Focus on time and cost

CM is a procurement route that focuses on speed rather than alternative methods. The entire team needs to be aware of the emphasis on speed in order to facilitate quicker decision-making. The developer must lead by example when choosing the CM route as quick decisions are needed and everyone involved needs to take a decisive approach to decision-making (from developer to architect).

3) Value for money

For developers, a reduction in construction cost or the lowest price does not necessarily mean the best 'value for money'. In many cases, to attract prospective buyers, the development needs to be unique and stand out from other buildings in and around it. This differentiation could be through product selection or in the quality of the installation – standing out will increase sales. Developers can negotiate directly specialist subcontract packages themselves and identify the products and specification most appropriate for each element resulting in lower prices. This also gives them the ability to mould the final development to their needs and the desire of the end-user.

4) An early start

Developers often finance schemes by borrowing capital at great expense. An early start to reduce the construction programme (and therefore borrowing period) can help developers in financing their borrowings and increase profitability. For CM, the fundamental design problems need to be clarified early in the process to allow procurement to commence quickly and early.

2.5.5 Partnering

The primary objective of partnering is to break down barriers exist in the business services sector between clients and contractors.

Partnering relies on the principle that co-operation between contractual parties is a more efficient method of working than the traditional approach of contracting in which each party only looks after its own independent objectives.

Partnering according to Bennett (et al., 1995) is a management approach used by two or more organisations to achieve a specific business objectives by maximising the effectiveness of each party's resources. This approach is based on mutual objectives, on an agreed method of resolving problems and an active search for continuous measurable improvements.

Partnering takes several different forms depending on the situation and the objectives of the parties. A partnering arrangement can be broadly classified as 'project partnering' or 'strategic partnering'.

Project Partnering

Project partnering involves a specific project for which mutual objectives of the parties are established and principles are restricted only to the specific project. Most partnering opportunities are of this type because:

- It can be easily applied in situations where legislation relating to free trade is strictly adhered to.
- Clients may use it to build on an occasional basis of such relationship with the partners.

Strategic Partnering

This form of partnering goes beyond that outlined for project partnering in order to incorporate the considerations of long term issues. The additional benefits of strategic partnering are derived from opportunities that a long-term relationship may bring and can include:

- Establishing common facilities and systems
- Learning through repeated projects
- Developing an understanding and empathy for the partners' long-term business objectives.

The Partnering Process

Once the decision to partner has been made, the partnering procedure will involve the following:

1. A good client or contractor/supplier partner who is trustworthy and committed to the arrangement, can be chosen using a selection procedure even with the traditional procurement methods in the initial selection stages.
2. Key stakeholders will be required to an initial partnering workshop. This usually results in the production and agreement of a partnering charter that will then be signed by all participants.
3. A project review – The performance of the partnering will be reviewed regularly during the project implementation stage. All relevant project matters including quality, finance, programme, problem-resolution and safety issues will incorporated in this review.

Advantages of Partnering

- Reduction in disputes
- Reduction in time and expense for settling disputes
- Reduction in costs
- Improved quality and safety
- Improvement in design, project times and certainty of completion
- More stable workloads and income for the contractor or vendors
- A better working environment is fostered.

Disadvantages of Partnering

- High initial costs
- Complacency of contractor due to certainty of projects.
- With the single-source employment; this could result in either party becoming too dependent on the client, thus becoming extremely vulnerable should this source of work be threatened.
- The lack of confidentiality of the client/contractor/supplier processes and systems; disputes could result in situations when commercially confidential information was to be withheld from one or more of the parties.
- The partnering seem will likely miss out on the benefits of closer contractor-subcontractor relationship due to the absence of partnering through the supply chain.
- As the prevailing culture of the FM and construction industry contains strong element of mistrust and resistance to change, the future of partnering still remains unclear. These cannot be easily transformed within a short time.

Public Private Partnership (PPP)

The Singapore Government had adopted the Public Private Partnership (PPP) to harness the benefits of partnering under the Best Sourcing Framework. PPP is a long-term partnering relationship between the public and private sectors to deliver public

services (usually developing new physical assets or infrastructure). Through PPP, the public sector seeks to combine the expertise and resources of both the public and private sectors to provide services to the public at the best value for money.

Guidelines have been set by the Ministry of Finance (MOF) on how to successfully structure and manage PPP projects. Projects involving the development of incineration plants, water and sewage treatment, IT infrastructure, education and healthcare and sports facilities have been considered to be suitable for PPP. All government infrastructure projects, especially those that cost over S$50 million, have to be considered for suitability as PPP projects. This shows the government's commitment to tapping private sector expertise and competitive advantages in delivering large-scale public goods and services so as to avoid imposing a greater burden on taxpayers in the short run.

With PPP, the public sector will focus on procuring services at the most cost-effective basis, rather than to directly own and operate the physical assets after they are built or installed.

The private sector will have the flexibility to innovate and propose solutions, e.g. in terms of the design of facilities, systems and work processes, use of equipment, and allocation of manpower and other resources, to best meet the needs of the users.

The use of joint ventures, strategic partnerships to make better use of government assets, Design-Build-Own-Operate (DBOO) and Design-Build-Finance-Operate (DBFO) are examples of many PPP models that have been used.

How Is PPP Different?

Traditionally with most infrastructure projects, the public sector tends to engage the private sector merely to build facilities or supply equipment. The public agencies will then own and operate the facilities or equipment or engage separate maintenance and operations companies to operate the facilities and equipment to deliver services to the public.

Design-Build-Finance-Operate (DBFO) Model

The DBFO model is the most common form of PPP and involves integrating these four functions. Basically, the private sector PPP provider will:

- Secure its own financing from equity investors or debt providers (e.g. banks and financial institutions).
- Design the facilities, equipment and work processes that provide services to the public or the Government.
- Build the facilities needed to meet the public sector's requirements.
- Operate and maintain all the facilities and equipment required to deliver the required services.

- Identify opportunities for the Government to share the use of such facilities with other users to reduce the total cost to the public sector.
- Operate on commercial facilities that can generate third-party revenue to reduce total project cost.

The private provider will be paid according to the services delivered, based on specified performance standards, throughout the entire contract duration. This can ensure optimal use of capital resources in government projects as well as greater certainty over future government cash flows. The approach also transfers the financial risks from the public sector to the private sector, which do due diligence to make sure that the project is financially viable. There are many variations of the DBFO model including the DBFO and Government-owned, DBFO and private-owned (with no transfer), DBFO and private-owned (but transfer to Government at the end of the contract) and private provision (with the Government being the regulator).

Design-Build-Operate (DBO) Model

In this model, the public sector provides the funds to design and build the facility, and then continues to engage the same private vendor to operate the facility. The operator will then be paid a management fee based on the performance standards. This model may be suitable for very large projects for which the private sector is unable to wholly finance.

Other than these models, the public sector is also open to any other variations of the PPP models that may be proposed by the private sector.

For further information about the PPP's roles, structures and process, read the website of the Ministry of Finance: Public Private Partnership Handbook version 2 (March 2012).

Design-Build-Own-Operate (DBOO)

The Design-Build-Own-Operate (DBOO) contract is a project delivery model frequently used for large, complex public-private partnership (PPP) infrastructure projects. In a typical DBOO project, a government department allows a private company to finance, design, build and operate infrastructure over a specified period (usually between 20 to 30 years) while the private company retains ownership of the infrastructure in perpetuity. While the Government entity or public partner might offer some encouragement, perhaps in the form of limited funding or tax exemptions, the private sector partner shoulders most of the risk. Where there are records of an established demand history, the market risk may be lowered.

Compared to the similar Design, Build, Finance and Operate (DBFO) and the Build-Own-Operate-Transfer (BOOT) models, in which ownership of the infrastructure eventually reverts to the public partner, the DBOO model is a step closer to privatisation. This allows the public entity to deliver needed infrastructure with private capital while freeing it to focus on its other pressing missions. With a BOO structure, water is provided as a service by a specialised company that is essentially a concessioner. The public partner buys only the water with no infrastructure investment, potentially lowering water cycle costs substantially. Without the need for the transfer of the infrastructure back to the public sector, the government entity will not, in the future, be faced with the expense and headache of searching for a qualified workforce and attending to operational details.

DBOO is popularly used in Singapore for the adoption of high-value and modern wastewater treatment, water reuse, and desalination all require a great deal of specialised know-how and equipment. Examples include the Tuaspring Desalination Plant, Ulu Pandan NEWater Plant and the Fifth Incineration Plant. DBOO is also popular in many countries for toll-road projects as well as those in the power and transport sectors. Notable DBOO projects outside Singapore include India's Kutch and Pipavav Railways, China's Xiamen Airport Cargo Terminal, Thailand's Sukhothai Airport, China's Wuhan Yangluo Container Port, and Indonesia's Balikapapan Coal Terminal.

2.5.6 EARLY CONTRACTOR INVOLVEMENT

Early Contractor Involvement (ECI) is an approach where builders are engaged early during the design stage to facilitate the integration of design and construction process, through early collaboration between the Employer, consultants and builders. There are different models of ECI and they vary from each other depending on the stage where the builders are involved. 3 models of ECI have been identified and a suitable model is selected based on the nature of its project.

The 3 models of ECI facilitate different degree of contribution from the builders, in terms of design, and the tender period required.

Table 1 Inputs required from builders for various ECI models (source: BCA)

Model	ECI	Inputs by Builders
1	Design & Build (D&B)	Develop full design (Architecture, Civil & Structural Engineering (C&S) and Mechanical Engineering Plans (MEP)) based on design brief
2	Design Development & Build (DDB)	Develop detailed design, including C&S and MEP, based on architectural concept design
3	Design Bid Build with Early Contractor Involvement (DBB-ECI)	Provide alternative design solution(s) based on full design

Model 1. Design & Build (D&B)

1 The builders are directly responsible for both the functions of design and construction.
2 The Employer (with the help of his consultants if necessary) will develop the design brief, prepare tender documents for the calling of tender for the builders and administer the contract.
3 Based on the design brief, each pre-qualified builder will engage his own consultants to develop the full design proposal and submit a tender bid.
4 The number of pre-qualified builders at the tender stage is limited to 5 only.
5 The Employer, consultants and tenderers are requested to sign a Non-disclosure Agreement to ensure the information provided by tenderers during or at tender submission is treated as confidential and shall not be disclosed or used without consent.
6 The Price-Quality Method (PQM) shall be used to evaluate the tender.
7 The builder with the highest PQM score tender will be awarded the tender. The successful builder will then develop and construct the project according to the accepted full design proposal.
8 The duties and responsibilities of the Qualified Persons (QPs) are undertaken by the consultancy team engaged by successful builder.

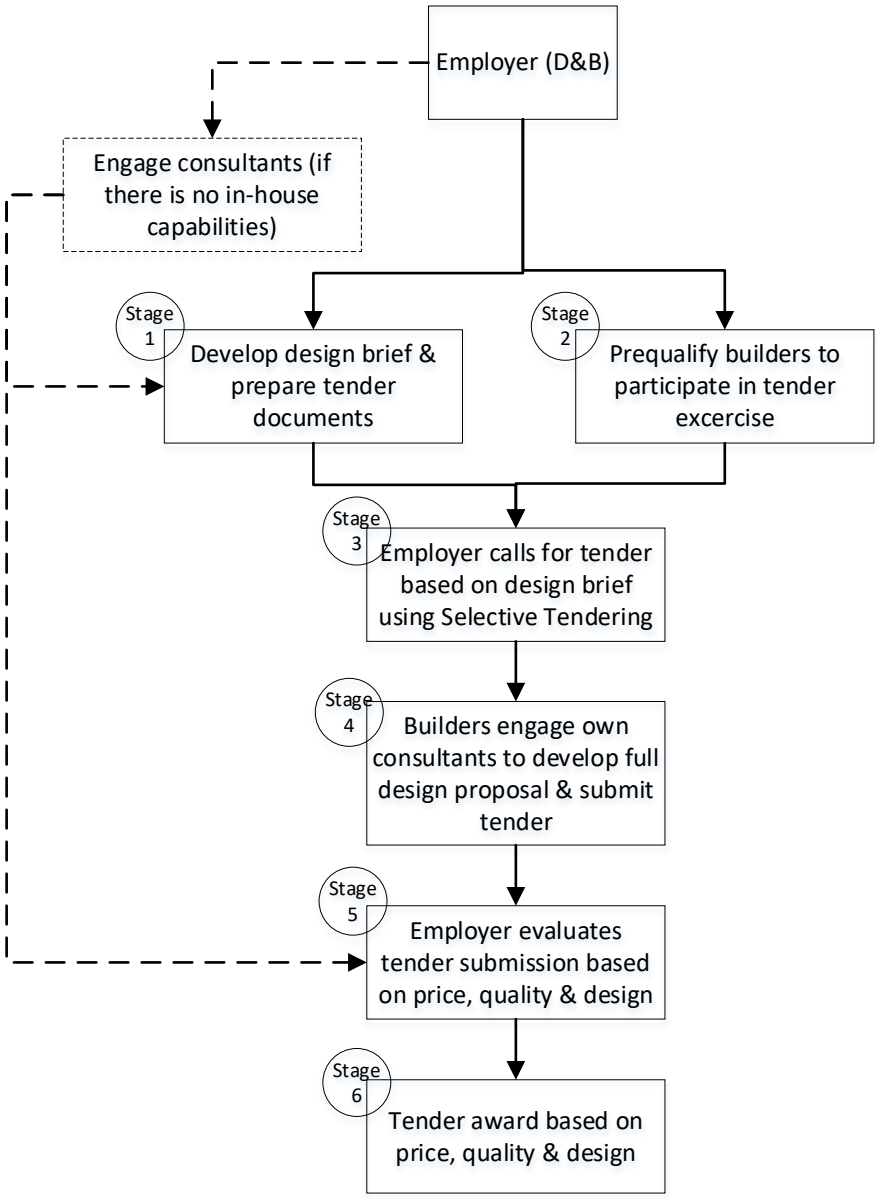

Figure 1 Model 1 of ECI: Design & Build (D&B) (Source: BCA)

Model 2. Design Development & Build (DDB)

1 This is a procurement method where the Employers are able to retain control of the architectural concept design while responsibility of full design development is placed with the builders. The procedures for DDB are shown in Figure 2.

2 The Employer will engage the consultants for the architectural concept design, in accordance with the Quality-Fee Method (QFM) framework.

3 The Employer may retain his consultants as part of the project management team; novate the services of his consultants to the successful builder; or allow the prequalified builders to have flexibility to engage their preferred consultants.

4 The number of pre-qualified builders at Tender stage is only limited to 5.

5 Based on the architectural concept design, each pre-qualified builder will engage his own consultants to develop the full design proposal and submit a tender bid.

6 The Employer, consultants and tenderers are requested to sign a Non-disclosure Agreement to ensure the information provided by tenderers during or at tender

submission is treated as confidential and shall not be disclosed or used without consent.

7 The Price-Quality Method (PQM) shall be used to evaluate the tender.

8 The builder with the highest PQM score will be awarded the tender. The successful builder will then develop and construct the project according to the accepted full design proposal.

9 The duties and responsibilities of the Qualified Persons (QPs) are undertaken by the consultancy team under the awarded builder.

This model was used to be called "Develop and Construct" in Singapore. In some instances (e.g., Australia), this may be referred as "Novated Design and Build" if novation of design consultants is a key feature.

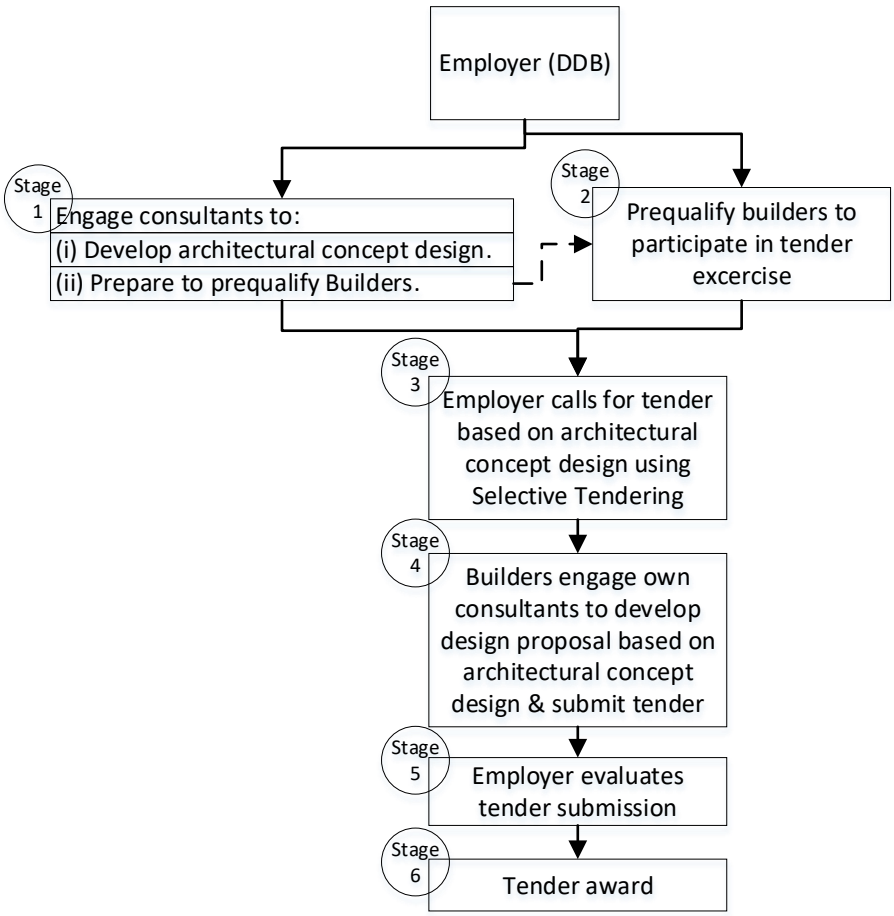

Figure 2 Model 2 of ECI: Design Development & Build (DDB) (Source: BCA)

Model 3. Design Bid Build with Early Contractor Involvement (DBB-ECI)

1. This is a procurement method where the Employers are able to retain control of the full design while at the same time, allow builders to provide alternative design solutions which should result in time and/or cost saving, upfront at

the tender stage. You may refer to the summarised procedures for DBB-ECI under this link.

2. The Employer will engage the consultants for the full design using the Quality-Fee Method (QFM) framework.
3. Based on the full design, each pre-qualified builder are required to work with the consultants individually to review and fine-tune the design, and submit alternative design solution(s) which should result in time and/or cost savings for the project.
4. The number of pre-qualified builders at Tender stage is kept at 5.
5. There will be frequent interaction between each pre-qualified builder and the consultants during tender stage through one-to-one discussions. An Employer's representative will also be present at every discussion.
6. The Employer, consultants and tenderers are requested to sign a Non-disclosure Agreement to ensure the information shared during the 1-to-1 discussions and provided by tenderers during or at tender submission is treated as confidential and shall not be disclosed or used without consent.
7. The consultants will provide justification(s) to both the individual pre-qualified builder, who submitted the alternative design solution(s), and the Employer for any rejection of alternative design solution(s).
8. Subsequent to the discussions with the consultants, each pre-qualified Builder will submit a base tender bid and an alternative tender bid, which should result in time and/or cost savings. Alternative design solution(s) with higher tender cost than the base tender will not be accepted.
9. The Price-Quality Method (PQM) shall be used to evaluate the tender. The Quality attributes may include evaluation of the impacts of adopting ECI such as innovative proposals and participation level. Tenderers that do not submit an alternative tender bid will not be scored for the ECI attribute under the Quality component.
10. The builder with the highest PQM score will be awarded the tender. The successful Builder will develop and construct the project according to the accepted alternative design solution(s).

2.6 Procurement Arrangements in the Events Industry

The contractual procurement methods for an event contract differs from those of the FM and construction related contracts is the overriding importance of time. The contract has to be carried out immediately once an agreement has been made. Effective project management will depend on the time for legal review of all contract documents and procedures.

The corporate event industry is no different from other project-based industry when considering the types of contracts and contractual arrangements to be adopted. The two most important contractual relationships for events are between the contractors/vendors and the independent event planner/event management

company, and between the client/sponsor and the corporate event management team. The resultant contracts can use different standard forms based on the fee structure. The main types of event contracts used include the cost-plus, fixed price, incentive and mixed contracts.

Cost-Plus Contracts

Similar to the cost reimbursement contracts (refer to Section 2.5.2), a cost-plus contract is either a cost-plus-fixed-percentage contract or a cost-plus-fixed fee contract. With this type of contracts, the contractor passes on the risk of any costs directly to the client. It is a common contract made between the event company and the client, and can be set up fairly quickly. The event company charges the client a percentage of the gross amount plus a percentage or a fixed fee on each element of the event, and bills the client for other costs. The event company's overheads could be absorbed by the fixed fee or could be charged as a separate cost item to the client. The event company can also structure this so that it is paid on an hourly basis, with the office overheads included in this hourly rate. The client assumes that the contractor will get the best price for the goods and services. If a dispute arises, these contracts often lead to detailed auditing of the event costs.

Fixed Price Contracts

This is the most common contract used for tendering or bidding event projects in Singapore, especially by the public sector clients. In a fixed price or lump sum contract, one price is charged for the all the resources as well as the contract sum. The method allows the events contractor/supplier/planner the freedom to use its own sub-contractors to produce the deliverables. It transfers the risk of variation in cost to the contractor, who cover all the costs out of the fixed amount. For this contract to be effective, the goods or services have to be carefully described and specified, and the events contractor needs to know the market price of the goods and services. Time and money are thus required to prepare and develop the tender. Any changes in requirements (such as venue) may be very costly to the company tendering for the job.

This approach has its advantages and disadvantages. The independent event company who did his homework and developed a bid with a proposal for some skilful theme-specific giveaway items that would provide a good profit and yet satisfy the client would gain a sense of satisfaction. An event company who did not make any price allowance for risks like unexpected international political situations, however, would suffer unexpected and huge losses or a reduced profit margin.

Incentive Contracts

An incentive contract or a percentage share of profit is applicable to private business events or corporate sponsored events that have an admission price. For example, the entertainment supplier may be entitled to an incentive based on a percentage of the admission revenue. In the private sector, incentives can be included in the cost-plus or the fixed-priced contract. If certain cost targets are met, then the event contractor or supplier gains an extra fee. This contingency amount is important in corporate special events or when the resources are needed earlier than scheduled for in the plan.

Mixed Contracts

Many private event contracts have a mixture of the cost-plus, fixed price and incentive arrangements. A venue could be contracted for a fixed fee plus cost with a percentage to cover profits. Allowing the contractor to benefit from the financial success of the event often means a reduction of the fixed fee and passes some of the risks to the client. The events company requires the critical ability to negotiate these types of mixed contracts to satisfy all parties in order to reduce negotiation time and promote goodwill. It is advisable to seek legal advice when such unique event contracts are used.

2.7 Learning and Reflection Activities

1. Carry out an Internet research on one project in Singapore that has adopted the Public Private Partnership arrangement using the Design-Build-Finance-Operate (DBFO). Your focus of the search shall be based on the following:

    a) A brief scope of work involved and the duration of the PPP project;
    b) An outline of the DBO model used; and
    c) The identity of the main PPP provider and the consortium team members.
    d)

    Clue: You may consider the following projects:
    a) The Singapore Sports Hub, a PPP project of the Singapore Sports Council.
    b) ITE College West, the first social infrastructure PPP project in Singapore.

2. In your tutorial group, analyse and discuss how you would advise the clients of the three under-mentioned projects on a suitable contractual arrangement for each case. Give reasons to justify the choice of your group's decisions.

    Project 1

    The Housing and Development Board is proposing to upgrade some 5,000 of its older flats at a mature housing estate by:

    a) replacing all the sanitary appliance;
    b) installing aluminium windows to balconies; and,
    c) replacing all metal water tanks on the roof-top of each block of flats with lightweight precast concrete tanks.

    The upgrading work is scheduled to be completed within the next 2 years. Finance has already been arranged for the work to start as soon as the contracts could be arranged.

Project 2

Megabucks Realty is planning to develop a 20-storey "high-tech" office building on a prime site they have recently acquired. The project is estimated at $120 million.

Megabucks Realty is expecting the new building to be ready at the earliest possible date.

Project 3

The Urban Redevelopment Authority has to maintain many multi-storey carparks in different locations in Singapore. A comprehensive maintenance programme has been drafted for minor repairs and upgrading work to be done annually.

Project 4

A tender has been called to develop a site on a state land into workers' accommodation. The estimated cost of the development is $114 million. The successful bidder will be expected to design, develop and operate the facility on the 37,000 square metre plot, which has a 20-year lease.

2.8 Summary

- Contractual arrangements are concerned with the type of contract to be entered into and the obligations, rights and liabilities of the parties to the contract. These may vary depending on the type of project, but there is no direct relationship between them and the tendering procedure.
- Although the main issue is that of satisfying the client's objectives, the following broad issues should be considered in the selection of an appropriate contractual procurement arrangement: the choice as to whether to use consultants or contractors, competition or negotiation, measurement or reimbursement contracts, and traditional or alternative methods.
- The common types of contractual arrangements used for facilities management and construction-related services include the traditional procurement arrangements (like lump sum fixed price contracts with drawings and specifications, or with performance specifications, term contracts, etc.), cost reimbursement contracts, design and build contract, management contracting and partnering.
- A cost reimbursement contract is one in which the Contractor is reimbursed his actual cost (cost for purchasing of materials, hiring plant and of employing labour to carry out the work) plus a fee to cover his overheads and profits (management fee). Variants of this type of arrangement include cost plus fixed fee, cost plus fixed percentage and target cost.
- In the Design and Build contracting system, the contractor is responsible for both the design and the work operation under a single contract sum. Under the

contract, the Contractor bears the same professional liability as a consultant designer including full compliance with statutory requirements.

- Management contracting is a form of contractual arrangements arrangement whereby contractor is paid a fee to manage the building of a project on behalf of the client. It is a contract to manage, procure and supervise rather than a contract to build/operate with its own resources, with all direct works being sub-contracted by it to works package sub-contractors.
- Partnering involves breaking down the adversarial and contractual barriers that exist between clients and contractors by establishing a working environment that is based on mutual objectives, teamwork, trust, co-operation and sharing the risks and rewards. A partnering arrangement can be broadly classified as 'project partnering' or 'strategic partnering'. In line with the benefits of partnering, the Singapore Government is adopting the Public Private Partnership (PPP) to increase long-term private sector involvement and partnering relationship in the delivery of public services. PPP is a long-term partnering relationship between the public and private sectors to deliver services at the best value for money.
- The two most important contractual relationships for the event are between the contractors/suppliers and the independent event planner/event management company, and between the client/sponsor and the corporate event management team. The resultant contracts can take different forms based on the fee structure. The main types of contracts are used in the event industry: cost-plus, fixed price, incentive and mixed contracts.

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