Design and build procurement method

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If the potential readers of this dissertation within the Middle East region are going to get a better appreciation of the Design and Build procurement method, initially they must understand the advantages and/or disadvantages of this type of procurement method from both the Client's and Contractor's perspective.

4. 2 Arguments for Design & Build

Both Ndekugri and Turner (1994) argue that the Design and Build contract is often completed in a shorter duration because of the integration of the design and construction phases of a project. From a Clients perception this is one of the most important benefits this type of arrangement has to offer. Because the design/build Contractor is both designing and constructing the proposed facility, procurement and the construction phase can begin sooner than the more traditional design/bid/ and then build type of procurement arrangement. This time savings tends to results from the project being designed in phases which enables the Contractor to begin the construction works earlier. With the traditional design/bid/ construction arrangement, the Contractor does not normally start building until the Designer has completed the design and the project has been awarded.

Both Saxon (2000) and the RICS Iconsult (no date) support this argument; both agree that one of the main benefits of this Design and Build arrangement is that it tends to reduce the design and construction time because they are being done concurrently and allows the Client to start earning revenue sooner than had he elected to use the traditional procurement method.

According to Ndekugri and Turner (1994) another important benefit of the D&B procurement method is the broad responsibility of the design/build Contractor. In traditional construction projects, problems often occur when the Designer blames the Contractor and vice versa for problems in the operation of the facility. On occasions in traditional construction projects, protracted litigation is necessary to resolve any dispute between the Designer and Contractor when they continue to blame each other for the problems. In design/build contracts, the Design and Build Contractor is responsible for both the design and construction of the project and retains the full responsibility for the outcome of the project, except for matters for which the Client retains responsibility. The Designer and Contractor are the same entity, so blaming each other does not excuse the Design and Build Contractor. The design/build Contractor is completely responsible for both construction and design defects. The Client can recover directly from the design/build Contractor for deficiencies in either design or construction of the project. Therefore, the Client need not determine initially whether a defect was caused by an error in design or construction. In a more traditional construction contract, this issue must be determined so that the Client can establish whether the design professional or the Contractor is at fault.

Haskell (no date) believes that another benefit of the Design and Build arrangement is that where the design and construction personnel work together and communicate and solve problems as a team, the Client will benefit from the continuity between Designer and Contractor. In a Design and Build project the same entity has the expertise to design the project as well as the expertise to build the project. Therefore they are unlikely to

suffer communication problems, and because they are working as a team, they are better able to optimize the design and better able to evaluate alternative materials and construction methods efficiently. In addition to this, the RICS Iconsult (no date) believes that because the design team and the Contractor are working together as a team, the design is more likely to be buildable.

Hughes (1992) argues that Design & Build offers a high degree of cost certainty, encourages economical solutions, and enables value to be considered as well as price. The RICS Iconsult (no date) agrees with Hughes, and confirm that providing that the Client does not change their design brief, the Design and Build procurement method is more cost effective and provides more cost certainty than the traditional methods of procurement.

Shapiro Hankinson & Knutson Law Corporation (no date) also believes that another favourable feature of this arrangement, is that the design/build Contractor is liable for any additional cost that he may incur due to errors, omissions or ambiguities in his drawings and/or specification. In traditional contracts the Client warrants the sufficiency of the specification and drawings, and the Client becomes liable to the Contactor for any increased costs because of deficiencies in the drawings and specifications. In a design/build contract, the design/build Contractor is responsible for design as well as construction. The situation minimises claims for extra payment and the design/build Contractor cannot request extra compensation on account of their own mistakes or assumptions.

In some instance, the design/build concept has been taken a step further, thus providing the Client with more options and/or advantages. For example, the design/build Contractor, might offer a “ turnkey” procurement solution, this generally means that they will offer the Client a full package which includes the testing and commissioning of the facility, as well as the training of the Clients staff in the operation of the facility. The concept is that when the facility is finished and ready for handing over, all the Client has to do is “ turn the key”. In some instances the design/build Contractor may also include in their proposal a financing deal for the project. Alternatively the design/build Contractor may offer a “ BOLT” type arrangement i. e. they will build the project, then they will operate the facility for a given amount of time, in consideration for this, the Client will then leases the facility for the defined term and cost, then after the expiry of the term, the ownership of the facility is then transferred back to the Client.

Schiff Hardin LLP (ii) (no date) argues that only with design/build contracts, is the Client able to obtain performance warranties because the Designer and Contractor are not in a position to blame each other because technically they are a single entity. For example it is common for the design/build Contractor to warrant that a proposed facility when completed will yield a predetermined output (e. g. process 2000 cans of coke per hour). This requirement can then be linked to the liquidated damages clause in the event that the output falls short of the predetermined output for the facility.

According to the RICS Iconsult (no date), because the Design and Build Contractor has total responsibility, there will be less claims from the

Contractor for the late delivery of information, particularly design information.

In most design/build contracts, the contract price is fixed price/lump sums, this gives the Client some degree of price certainty.

In summary, some of the proclaimed advantage of the design/build procurement include inter alia:-

(i) Clients with limited access to technical consultants or their own in-house technical departments may find such contracts attractive. Similarly it is also perceived that because the design/build Contractor is responsible for design, and construction inclusive of quality, the Client will benefit from the reduced cost of third party inspectorates and contract administration, However you could argue that this is an disadvantage to the Client, because at the end of the day, Contractors and design consultants are profit driven and this situation could lead to a compromise in the quality of the project;

(ii) Because the design and construction are integrated and the personnel are working together for a common goal. They are better able to optimise the Design and Build ability of a project. They are better able to evaluate alternative materials and methods of construction. Innovation and team work should result in cost savings. This could be construed to be a disadvantage to the Client, especially if all the innovation occurs during the design development stage, because it is generally only the D&B Contractor that will get to see benefits for the cost savings at this stage of a project;

(iii) The design/build Contractor is a single-point and both the Designer and builder are jointly and severally liable and/or responsible;

(iv) In the event of a latent defect and/or litigation by the Client, the joint financial resources of a design/build Contractor will be greater than those of the individual Designer and builder;

(v) Most design/build arrangements will tend to be lump sum in nature, meaning that they will usually offer greater certainty in respect of cost to the Client;

(vi) Payment by fixed instalments at certain milestone stages, rather than by evaluation method, may be preferential to both Design/Builder and/or Client;

(vii) In the event of a post-completion failure of the project, the Client will not be concerned to discover whether the failure is due to the design on the one hand or defective work or materials on the other;

viii) From the design/ build Contractors perspective, due to the increase in risk that is inherent of a Design and Build contract, the reward will be greater i. e. more profit. However with more risk, comes more pain when things go wrong for a Design and Build Contractor;

ix) From the perspective of a Design and Build Contractor, due to the specialised nature of a Design and Build arrangement, not all Contractors have the required skill set to undertake projects with the design responsibility. The consequence of this is less competition. However, from a Client’s perspective this could be a disadvantage because of the likely hood of higher prices due to the reduction in competition;

x) There is no need to wait until the design is 100% complete, therefore the Client will benefit from the speed at which the design gets translated into construction;

xi) Theoretically there should be less of an involvement by the Clients consultants, therefore the fees from Consultants should be less.

4. 3 Arguments against Design & Build

Clients should stop thinking that Design and Build arrangements need less input from third parties than the traditional method. Some Clients believe that because they have appointed a design/build Contractor who ultimately has a single point of responsibility, there is no need to appoint a third party inspectorate and/or cost advisor. This belief can compromise the quality of the project, as the Design and Build Contractor will attempt to complete the project as cheaply and quickly as possible.

Schiff Hardin LLP (i) (no date) argues that because the Designer is no longer employed directly by the Client, the Client may find it more difficult to access information that would have ordinarily been available to them under a traditional project. The Client may feel that he has less control over the design phase and design intent because the relationship between Designer and Client is not the same had it been in a more traditional project. Similarly the Client in a traditional contract retains the services of the Designer during the construction phase to act as a watch dog for compliance with the drawings and specification. But in a Design and Build contract, the Designer no longer works for the Client and the Designer allegiance is with the D&B Contractor

Hanscomb (2004) confirms that one of the disadvantages of a Design and Build arrangement, is that disputes often occur when the Employer Requirements are not specific enough and left open to the interpretation of the parties. As a result the Client may perceive that he is getting X, but the design/build Contractors interpretation is Y. As a result the Client may not get what they envisaged. This may also lead to litigation if the parties cannot mutually resolve the difference in interpretation of the Employer's Requirements.

As confirmed before and by Schiff Hardin LLP (i) (no date), due to the specialised nature of the Design and Build arrangement, the Client may find it difficult to obtain competitive quotations. In addition, this form of procurement method quite often excludes smaller companies who do not necessary have the in-house technical ability to undertake a Design and Build. It is also common for design/build contracts to negotiated rather than be competitively bid because Clients tend to find it difficult to induce Contractors to produce preliminary designs unless they are compensated for their costs. All of these factors could be construed as a disadvantage to the Client because they may not get value for money.

Appelbaum et al (2012) argues that " the principal disadvantage of traditional Design and Build is that the owner loses control of the design process, since the design professional's primary legal and practical allegiance is to the design-builder rather than the owner. This can create severe conflicts of interest during both the design phase and construction administration".

From a design/build Contractor’s perspective and especially in a competitive tender situation, they are at risk of spending a substantial amount of money on a preliminary design and/or concepts and there is no certainty if they will recover this cost. From a Client perspective they could be perceived as an advantage in a competitive bidding situation because they do not need to compensate the Contractors for their preliminary design costs.

It is also commonly believed that it is almost impossible to make any genuine appraisal and/or comparison of the cost of a competitively bid Design and Build tender, especially where their designs differ significantly. Schiff Hardin LLP (no date) maintains that if a Client puts a Design and Build tender out to bid, this inevitably results in a competition to under-design a facilitate without any regard to quality, functionality, and maintainability.

It could also be argued that where both the design/build Contractor and Clients lack experience in this type of delivery approach, this could have a huge detrimental impact on the delivery of the project and the expectations of the parties. In other words, if a naive Client and/or D&B Contractor believes that the other party is responsible for any deliverable associated with the project, and later it transpires they are not, then an unexpected cost might arise that was not anticipated.

Rowlinson (1988) also argues that from the Client’s perspective, it is difficult to make a comparison of the various preliminary design proposals submitted by Design and Build Contractors. Each Design and Build Contractor will each develop a concept design that satisfies the Employer’s Requirements albeit using lots of different methods and/or techniques.

According to the RICS (no date), from the perspective of a Design and Build Contractor, the extent of the design responsibility is generally “ fitness for purposes” unless the contract states otherwise. This is more onerous than the normal duty of ‘ reasonable skill and care’ imposed on a design consultant when they are employed by the Client in the traditional role. Conversely, and in my opinion, from the perspective of the Client, this could be construed to be an advantage in the event of a design defect.

During the course of this study, it has become evident that here in the Middle East, a Contractor and/or Designer is generally only registered with the concerned authorities to either undertake construction works or design works. It is rare for one entity to be registered to undertake both work classification i. e. designer and builder. Therefore for any organisation that wants to participate in the Design and Build field, they will have to form a consortium of Designer and Contractor; which can be a lengthy and complicated process for the parties, especially when they attempt to agree who has responsibility for each risk and which entity is best equipped to handle the risk.

Unless the Client incorporates a mechanism in the contract that gives them the opportunity to have an input into the detailed design, the Client’s input into the detailed design will be limited and this may result in the finished article not being as they previously envisaged, which then could then lead to disputes. Conversely, and again in my opinion, if the Client employs a Designer to carry out the detailed design and then by novation, the Client transfers the design liability to the Design and Build Contractor, this could result in higher costs for the Client. This could also have a detrimental effect

on the ability of the Design and Build Contractor to optimise the design and construction of the project and to evaluate the merits of alternative materials and construction methods.

Schiff Hardin LLP (i) (no date) also believes that from the perspective of the Client, the terms of a Design and Build contract generally favour the Design and Build Contractor. Therefore it is recommended that any Client thinking of using the design and built procurement methods should work closely with a lawyer experienced in construction law and in particular the Design and Build contracts. Conversely, and again in my opinion, the Design and Build contract will generally consider this to be an advantage because the terms of the contract are in their favour.

Shapiro Hankinson & Knutson Law Corporation (no date) argues that under a lump sum Design and Build arrangement, it can get confrontational on how to determine what money is due to the Design and Build Contractor. The main difficulty is the ability to assess the design/builder’s progress, particularly where there is no independent party that can arbitrate between the parties and make independent assessment. To overcome this problem it is suggested that milestones stone be incorporated into any contract together with a predetermined sum for payment when the respective milestone are achieved.

Generally the Design and Build Contractor will prepare a document to accompany his tender known as the Contractors Proposals. This document sets out his methodology of how they intend to satisfy the performance specifications set out in the Employer Requirements. The Joint Tribunal

Council in the UK (2008) warns Clients that in the event of conflict between the Employer’s Requirements and the Contractor’s Proposals, the latter are stated to prevail. They further advise Clients that when evaluating tenders, adequate time must be given to checking these proposals, particularly as the contract conditions refer to the Employer having satisfied himself that the Contractors Proposals are acceptable. Similarly the Client should allow adequate time for checking the proposals to ensure that they are getting what they envisaged. Conversely, this could be looked upon as an advantage to the Client, for the D&B Contractor may have optizmed the Employers Requirements by introducing innovation and beneficial alternatives and methods into the Contractors Proposals.

An Unknown Author (no date) argues that another disadvantage of the Design and Build contract is that it is not flexible enough to accommodate change. Therefore Clients are advised, that they should avoid change. If is often found that when foreseen and/or unforeseen changes occur, the Clients budget cannot accommodate the additional costs and they are left with no alternative but to either reduce the scope of works and/or comprise on the quality of the project in order to reduce cost. This will inevitably lead to a product that is not what the Client envisaged at the start of the project.

Schiff Hardin (ii) (no date) wrote that issues relating to insurance and bonding affect the relationship between the Design and Build parties. Errors and omissions by the Designer are generally excluded from the Contractors insurance policies, and errors and omissions by the Contractor is generally exclude from the insurance policies of the Designer. Surety bonds can also lead to similar problems, for example, performance bonds may not cover

design services. Satisfactory bonding or insurance obligations are likely to be either commercially unobtainable or prohibitively expensive.

In summary, some of the proclaimed disadvantage of the design/build procurement method include inter alia:-

(i) In the traditional Design and Build situation, only if the Client employs third party inspectorates and/or cost advisors at his expense will he be able to safe guard his interests. By doing this, and in my opinion. this appears to be at odds with the concept of a Design and Build contract i. e. the Design and Build Contractor is a single entity that are jointly and severally responsible for both defects in design and workmanship.

(ii) Because of the specialist nature of the Design and Build contract, there are only a limited number of Design and Build Contractor that are capable of undertaking work using this arrangement. This consequently results in less competition and ultimately less competition will result in higher prices

(iii) From the Client’s perspective, compared with the traditional design/bid and construct arrangement, the Client inevitably loses control of both the design and construction phase. Even if they were to engage independent advisors, they have limited influence over the whole process; all they can do is monitor for compliance with the Employers Requirements.

(iv) It has been suggested that where it has been possible to compare both forms of delivery methods i. e. Design and Build verse design/bid and the construct; there was little evidence that the optimisation of design and the evaluation of alternative materials and methods of construction have yielded

a cost saving for the Client. In my opinion all benefits that occur due to the innovative ideas generally occur post contract and the cost benefits remain with the Design and Build Contractor

(v) Particular attention should be given to the drafting of design/build contracts and Employer Requirements because of it bespoke nature. The Client should seek legal advice particularly from a construction lawyer who are well versed in the field of Design and Build projects. This legal advice invariably increases the total cost of the project for the Client.

(vi) Where Clients elect to competitively tender a Design and Build project, from the Contractor’s perspective, the cost of preparing preliminary designs and the tender are generally substantial because the Contractor will have to engage the services of a design professional. This cost will need to be recovered in all subsequent tenders if the Contractor is not successful. In some instances, some Design and Build Contractors will decline to bid and this will unavoidably result in a less competitive environment.

vii) Where the Client has elected to appoint a Designer to undertake a relatively detailed design. After which the Client decides to novate both the Designer and their design to the Design and Build Contractor. From a Contractor’s perspective, this will limit their ability to optimise the design and construction as well as review alternative methods and materials. Conversely from the Client’s perspective, he regains control over the design and construction phase of the project.

viii) All Clients have a duty to conduct some investigation into the capabilities and experience of the Design and Build Contractor. Particular

attention should be paid to the track record of the preferred Contractors. Design and Build Contractors who are relatively new to this form of delivery method can themselves become a problem because of their lack of experience. Wardani et al. (2006) concluded that resourcing is influential to the success of design/build projects where a higher knowledge and understanding of the design-build processes can reduce problems within the combined design and construction phases

ix) The Client should where possible avoid changes once the concept design and tenders have been fully evaluated and the Design and Build Contractor has been appointed. If required, any decision for change should be made as quickly as possible. Xiao and Proverbs (2003) argue that variations during the construction stage are risk factors that are disruptive to the achievement of project goals.

4. 4 Outcome

As stated in 1. 4, the objective of this chapter was to critically analyse the benefits of Design and Build procurement method.

Having looked at various sources of literature from books, internet websites and journals regarding the Design and Build procurement method, the writer believes that this has been achieved.

The next chapter of the report will attempt to ascertain the feelings and attitudes of the construction professionals in the Middle East region to the Design and Build procurement method and to gauge whether there is a future for this procurement method.

Chapter 5: Design and Build Case Study

5. 1 Introduction

To gauge the knowledge, feelings and attitudes of the construction professionals in the Middle East to the Design and Build form of procurement. A survey has been conducted using a 5 page questionnaire (See Appendix xxxxx for a blank copy of the survey). A covering letter accompanied the questionnaire setting out the objective of the study. The response rate to this Questionnaire was a favourable 62%. As stated in 2. 6 on this report, the data received from the respondents was collated and analysed using the descriptive statistic method. Bar charts and/or histograms accompanied with the corresponding narrative have been used to present some of the data gathered from the respondents.

Questions 1 to 4 Inclusive

Initially a series of participant background questions were asked of the respondents, particularly where they lived within the Middle East, and what discipline best described their role in the industry i. e. construction management, commercial. Furthermore, the respondents were asked how many years had they been in the industry, and which sector of the industry they preferred. Approximately 60% of the respondents had been in the industry for more than 20 years. 63% of the respondents favoured the sector of roads and bridges. The respondents all came from a variety of disciplines i. e. 32% from a construction management background, 23% from a commercial background and 14% from a consultant’s background. With reference to Fig 6 below, 56% respondents respondent came from the Sultanate of Oman, 24% from the United Arab emirates, 4% from Kuwait, 8% from Bahrain, 4% from Saudi Arabia, 4% from Qatar. The purpose of these

questions was to ensure that the data provided by the respondents was reliable and could be construed to be representative of the industry in the Middle East region as set out in the objectives contained in 1. 4 of this report.

Questions 5 to 7

The next series of question was intended to gather data on the type and nature of the organisations that the respondents work for. Again, the purpose of these questions was to ensure and verify that the respondents all came from diverse background and /or disciplines and/or organisations. With reference to Fig 7 below, 25% of the respondents came from a consultants backgrounds and 63% came from a variety of contracting backgrounds, 4% came from developers and 8% came from other sectors within the construction industry.

Questions 8 to 13 inclusive

To test my preconception that the traditional form of construction procurement method is the most extensively used in the Middle East, and to test people’s attitudes to the various types of procurement methods. The respondents were asked a number of quantitative questions i. e. Q8 – Which procurement method did their current project follow? Q9 – Which procurement method had they used the most extensively? Q 10 – Which procurement method did they prefer? Q 11 – Which procurement method did they think is the most extensively used in the region? Q 12 – Which one of the Design and Build procurement methods did they want to gain further experience? Q 13 – Which procurement method was used the most extensively within the respondent’s organisation?

The surprising result of the data collected for Q8, was that 21% of the respondents confirmed that their current project had followed the Design and Build procurement method. This result is not too dissimilar to Handscomb (2004) findings detailed on page 11 of this report i. e. the use of Design and Build had grown to more than 30% today. The result to question 8 is also in line with the “ Contracts in Use 2007 Survey” undertaken by RICS for the United Kingdom i. e. 21. 7% of contracts were procured using the D&B procurement method just for the economical down turn.

However, this response was contrary to the writers preconception of how extensive the Design and Build procurement method is currently being used in the region. The writer was not expecting the actual use of the Design and Build method of procurement to be so high. The writers preconception was more in line with the results gained from Q11 (see Figure 8 below) i. e. 92% of the respondents believed that the traditional method of procurement was the most extensively used in the region with only 4% of the respondents saying that the Design and Build method was the most extensively used. The factual 21% of projects currently following the Design and Build procurement method (Q8) and the perceived 4% use of the design and built (Q11) is completely at variance with each other, thus indicting that people are not as narrow minded as previously thought, and are more open minded than to the use of alternative procurement methods in the Middle East region, particularly Design and Build.

With reference to Fig. 9 below, it was also surprising to see that 44% of the respondents favoured Design and Build method of procurement, and 40% favoured the traditional method of procurement (Q10). Again this response

was not in line with the writer's hypothesis that professionals in the region are not open to change and other forms of procurement methods other than the traditional construction procurement methods.

In response to Q13, 83% of the respondents confirmed that the traditional method of procurement was the most extensively used procurement method by their organisation and 14% confirmed Design and Build. When compared to the answers given in Q10, it could be argued that it is the Employers in the region that are comfortable with the status quo and are not willing to consider change, the answers given by the respondents to Q10 would suggest that there is an appetite for change amongst the workers as they favoured the Design and Build procurement method.

Questions 14 to 20

In order to gauge the attitudes of the respondent's to the various procurement methods available, the respondents were asked which procurement method was most suited to a particular sector of the construction industry (See Results in Table 1 below).

With reference to Table 1 above, the majority of the respondents favoured the Design and Build contract over the traditional form of procurement in all but one scenario. Again these results are at variance to the writer's preconceived ideas of people attitudes to the Design and Build procurement method in the Middle East. These result indicate that construction professional in the Middle East are in fact open to the idea of new procurement methods and in particular the Design and Build. This is contrary to the hypothesis contained in 1. 2 of the report.

Question 21

88% of the respondents confirmed that they had gained some form of experience with the Design and Build procurement method, and only 12% had gained no experience at all (See Figure 10 below). This appears to reinforce the emerging idea that construction professionals in the Middle East would indeed be open to using different procurement methods in the region.

Question 22 to 24 inclusive