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**Term Report**

**‘Owners Satisfaction with Consultancy Practice in Saudi Arabia’**

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## **ABSTRACT**

This research studies the relationship between public owners and local Architectural/Engineering firms (A/E) in Saudi Arabia. It explores the current practices of A/E and to what degree these practices satisfy public owners' needs in building construction projects. The data was obtained from a sample of A/E in Dammam, Riyadh and Jeddah and from the entire population of the public owners via two questionnaires. Results show that public owners' satisfaction level with A/E services is moderate mainly due to: high percentage of change order because of design error, owners demanding less than needed services and A/E delay in completing design. A/E attribute public owners dissatisfaction to low level of owners' involvement in the design, their perception of A/E role and their readiness to pay reasonable fee and demand the right scope of services.

## **1.0 INTRODUCTION**

The engineering consultancy service is defined as the professional advice offered by A/E for a fee<sup>4</sup>. Local A/E has started to enter the market that was dominated by multinational A/E only in 1980s with the support from the Saudi government. Reliance on foreign A/E caused problems mainly due to: communication barriers and failure of foreign A/E to satisfy cultural and environmental requirements<sup>8</sup>. As local A/E is gradually taking over, research is needed to verify the current engineering consultancy practices and the degree of fulfilling clients' needs by local A/E. The A/E is considered successful in his job to the degree in which he fulfills client's prioritized objectives- *good quality, low cost and rapid completion time*- while maintaining a professional level of conduct with his clients.

The purpose of this research is to explore the current engineering consultancy practices and to assess the degree in which these practices fulfill public clients' needs in building construction projects in Saudi Arabia.

## **2.0 LITERATURE REVIEW**

### **2.1 The A/E Client Relation**

The A/E client relationship should be based on mutual trust. A/E should act as an agent to the client and makes the design that meets the basic owner's requirements; is functional and aesthetically pleasing, is cost effective to acquire and operate and is well coordinated and biddable<sup>3</sup>. The A/E interest should comply with owner interest, authority regulations, industry standards, contractual terms and program schedule.

Although A/E is entitled for a reasonable fee, he is liable for any negligence in the design, or in cost advice, contract advice and supervision or the finished building being unfit for its purpose. In general, A/E should fulfill the client's needs. However, the client himself shall help A/E reaching client's need by clearly stating his requirements, furnishing all information about the building site, stating all conditions related to the project in a formal agreement and thoroughly reviewing document prepared by A/E<sup>1</sup>.

One study showed that, in Saudi Arabia, A/E and owner agreement is almost oral on lump sum basis<sup>7</sup>. This situation leads to problems such as duplicating other A/E work and controvert opinion. Another study revealed the following interface problems between A/E and private owner for small project in the Eastern Province<sup>2</sup>.

- Owner unawareness on municipality requirements
- Owner low budget for design relative to his requirements
- Designer's inaccurate estimate, drawings and specs and material selection
- Mistakes in A/E –owner agreement
- Insufficient communication between A/E and owner
- A/E lack of experience

## **2.2 Public Project Delivery Systems**

The project needs, feasibility and budget are decided by the public organization represented by technical department 'Engineering or Projects.' The public owner then engages with A/E to prepare design. After the design is finalized and drawings/specs prepared, the project is publicly announced to contractors to submit offers. Owner and A/E then evaluate bids and award to the lowest responsible bidder. This approach doesn't benefit from contractor expertise in design and may not estimate cost accurately; nevertheless owner has great control over cost<sup>5</sup>.

Other approaches such as construction management approach or turnkey approach are also being used on small scale by public owners.

### **3.0 RESEARCH METHODOLOGY**

Basically, this research consists of two parts. Data needed for the first part that documents the current construction-engineering consultancy was collected by reviewing the literature.

Data for the second part examining the interface between public owners and local A/E firms was collected via questionnaires addressing the two parties. The questionnaire addressed to public owners inquires Project Department Head about type of building projects and their monetary value, scope of services obtained from A/E, method of selecting and compensating A/E, level of involvement in the design process and satisfaction level of A/E services. The questionnaire addressed to A/E inquires A/E principal or Chief Designer about its size and experience, project undertaken, services offered and demanded, methods for acquiring new project, and his evaluation of the client.

#### **3.1 Population**

The entire population of public clients who are eligible for a share in the government projects budget was reached. As per the Ministry of Finance, there are 27 public organizations among them three have branches in four major cities other than Riyadh. This brings the total number of public owner to 39 organizations.

Out of 225 registered engineering firms, only 120 local active A/E involved in building construction in the cities of Dammam, Riyadh and Jeddah were reached.

Both questionnaires were sent by mail with follow up made either by personal/phone contact (Owner Population) or mail/fax (A/E Population). The total number of respondents was 24 public agencies and 40 A/E.

## 4.0 RESULTS AND ANALYSIS

Data collected was encoded into *Statistical Analysis System* (SAS) software. The analysis was based on indexes computation and cross-tabulation due to the non-categorical nature of the data.

### 4.1 Consultants Characteristics

The local A/E firms on average handle annual projects size up to SR172 million. They have been in practice for 13 years, employing 91 employees most of them are college graduate holding BS and diploma degrees.

Results revealed that public owners build residential buildings more frequently than other type of buildings and the same represents the majority of project undertaken by A/E.

The services offered by local A/E are shown in Table 1. The major type of service is basic design especially for private owners. For public owners, however, services may expand to other types like site supervision.

Type of Service	Index <sup>^</sup>
Comprehensive Services	75
Basic Design Services	77
Construction Management	52
Quantity Survey	51
Feasibility	39
Budgeting	43
Site Selection & Analysis	37
Value Engineering	28
Marketing Studies	54
Environmental studies	20
Life Cycle Costing	13

<sup>^</sup> The index (I) was computed as follows:  $I = \Sigma[s*f]/4$  where s is scale from 0(never) to 4(always) and f is percentage frequency of response.

Public owners employ A/E for the services presented in Table 2. Due to government regulations, the projects are let via competitive bidding on lump sum basis with mandatory site supervision. Thus, due to government regulations much of the public owners' demands on A/E services are for basic design, specifications and site supervision.

<b>Table 2: Services Demanded by Public Owners</b>	
Type of Service	Frequency %
Specifications	88
Basic Design Services	96
Site Inspection	75
Construction Management	29
Quantity Survey	63
Feasibility	38
Budgeting	58
Site Selection & Analysis	38
Value Engineering	29
Marketing Studies	8
Environmental studies	21
Life Cycle Costing	15

The majority of A/E is awarded design contracts by competitive bidding though direct negotiation, design competition and nomination may sometimes be used. Because of government procurement law, the fixed fee method is dominantly used by public owners as a compensation for A/E services.

The mean indexes from A/E point of view for client appreciation of A/E role, client participation in the design process and client satisfaction with A/E services were 49, 45 and 66 respectively.

#### **4.2 Interface of Local A/E with Public Owners**

Even though 60% of public owners expressed confidence that A/E are capable of offering comprehensive services, 48% of them believe that A/E should be employed for basic design services only!.

With only 13% of public owners requested life cycle cost studies and 30% used value engineering, 37% of the population think that they require feasibility studies. But, 81% of owners indicated that A/E is responsible to control cost within specified budget.

Out of the owner populations, 83% disagree to select A/E on the basis on lowest fee, 87% would closely participate in the design process and 63% would like to benefit from contractors' experience during the design.

Communication problems were reported by 57% of the owners and thus, 82% strongly believe that A/E should put more efforts in explaining the plans and specs to owners. Also, 59% experienced delays in completing design. Other major problem shown in Table 3 is the number of change orders due to design errors. That led to 74% of owners indicated their un-willingness to choose the same A/E again and to the overall low level of satisfaction to A/E services.

Change Order Category	Response %
0 up to 5%	17
Above 5% up to 10%	35
Above 10% up to 20%	26
Above 20% up to 30%	13
Above 30%	9

### **4.3 Public Owners' Satisfaction with Design Services**

The satisfaction level of public owners about the design services offered to them by local A/E was measured by owners judgment on how successful the design in fulfilling its function, cost effectiveness, aesthetical requirements and buildability.



Statistically, satisfaction level was computed for each owner utilizing three methods. Two methods were based on direct questions measuring satisfaction and the third utilities indirect questions such as A/E experience, communication, change order and A/E future selection. The three methods revealed satisfaction levels of 46%, 52% and 63% respectively. The third measure being indirect is more representative and indicative of owner satisfaction than the other two. However, the general conclusion is that public owner satisfaction level is moderate.

Of those explicitly expressed their satisfaction with the A/E services (46% of public owners population) 66% employed A/E for quantity survey and budgeting and 50% employed A/E for feasibility and value engineering. Also, the majority of them are satisfied by the A/E experience.

## **5.0 CONCLUSION**

The available A/E services range from basic design to full-scale comprehensives services depending on project size, client's demand and readiness to pay reasonable fee.

Public owners generally demand basic design services, specifications and site supervision. However, they showed readiness to employ A/E for services such as construction management, cost control, value engineering and pre-design services because their projects are large and complex.

From the public owner perspective, the major problem in their relation with A/E is high percentage of change orders - above 5% of project value to over 20% in some cases- due to design error. That explained low level of satisfaction of the design cost effectiveness. Other problems include delay in design completion and communication difficulties.

A/E were concerned about the low level of owner involvement in the design, appreciation of the A/E role and readiness to pay a reasonable fee and demand the right scope of services.

Four measures were used to test public owner satisfaction with A/E services; three from owners' perspective averaging an index level of 56 % and the fourth from A/E perspective indicating 62 % level. Overall, results showed a moderate satisfaction level.

### **5.1 Recommendations**

- Public owners should carefully establish the needed scope of services for each project at the early beginning. They should look to the long-term implication of employing services such as pre-design, value engineering and CM.
- To overcome the problems of design cost effectiveness and change order due to design deficiency, public owners should employ life cycle cost analysis and constructibility reviews involving materials and methods.
- To have smooth design process, public owners should closely communicate/coordinate with A/E during project briefing and design development as well as thoroughly review the design.

### **5.2 Recommendations for Further Study**

- The high percentage of change orders in construction project shall be investigated.
- What causes an owner loyalty to a particular A/E shall be addressed.

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