

## **Quality of Public Housing Buildings**

### **ACEHK Paper for LegCo Panel on Housing**

**Thursday, 9 December 1999 at 8:30 am.**

#### **1. Introduction**

Housing production is a costly, time consuming and complex process. There are needs to produce a large number of housing units in these few years. It is also imperative that a balance should be struck between quality and costs and how to derive the best value-for-money. Housing production involves many parties which include professionals, technicians, skilled and unskilled workers. For the average public housing building in Hong Kong, the technology applied is not new nor complicated. Yet, in some instances, the build quality does not meet the minimum standards nor user expectations. The whole public housing production process covering planning, organization and management requires careful examination in the light of the recent unsatisfactory incidences. The ultimate goal is to produce desirable quality buildings at a cost reasonable and appropriate to the ultimate users and owners.

This Association of Consulting Engineers of Hong Kong (ACEHK) paper examines the important factors affecting public housing block production under the jurisdiction of the Hong Kong Housing Authority (HKHA) and how quality public housing can be produced for the people of Hong Kong.

#### **2. The Building Production Process**

##### **2.1 *An Overview***

Building production is a complex process based on well-tried and proven technologies. It can be broadly classified into several distinct stages of planning, design, contract documentation, tender, construction and acceptance of completed works. Consultants including architects, engineers and quantity surveyors are engaged to plan and perform traffic, environmental, drainage and ground studies and to produce designs and supervise construction according to HKHA's wishes. Very often, the Housing Department stipulates the adoption of an almost fully developed standard housing block design. In this instances, the professional consultants would still be required to perform all these roles and duties except developing a design from scratch.

## ***2.2 Consultants and Their Services***

By its very nature, consultant services are difficult to define and quantify. They are distinct from mortar and bricks which can be measured. Their real tests come when the building is finished and is in the hands of users and owners. It is therefore very important that the consultant brief shall define very clearly the scope of service, duties and responsibilities of all the parties involved. Consultants use this document and their perception of the employer's (HKHA's) expectations to assess and quantify resource requirements, and thus the fee needed to provide a satisfactory service. In comparison, construction contract pricing is relatively straight forward. A design has been completed and in most cases, and bills of quantities have been produced, which determines rather accurately the scope of work.

## ***2.3 Contract Documentation***

Quality contract documents should be clear and precise, equitable and enforceable, and meet user/owner expectations. There have been instances where specifications have been set too low for the desired results; or they have been set too high to render them unenforceable. It is not uncommon to see in Home Ownership Schemes (HOS) and Private Sector Participation Scheme (PSPS) that whole new bathroom and kitchen being ripped out and replaced with different quality fittings and cabinets. This is a wasteful practice. It poses serious environmental and waste disposal problems. Inequitable contract requirements often place onerous responsibilities on contractors. They raise the cost of the contract as well as introduce unnecessary disputes between the employer and the contractor at great costs to the project.

## ***2.4 The Consultant Selection and Contractor Tender Process***

It is fair to place emphasis on low fees and tender prices in the selection and appointment of consultants and contractors. However, over-emphasis on low price leads to the negligence of the no less important quality aspects. Consultants and contractors are run as businesses. Their healthy survival depends on the security of a reasonable stream of profit. Under the present Housing Authority tender rules and the highly competitive market pressure, it is not unusual to find consultants giving their narrowest interpretation of the consultancy brief and bidding at far too low prices. Contractors are also bidding low, sometimes to the point of bidding below costs, counting on the employer's reluctant acceptance of marginal standard of quality of finished works. In the end, both users and owners suffer.

## ***2.5 Construction and Supervision***

Traditionally in Hong Kong, housing projects of HKHA specify a lower level of construction supervision as compared to infrastructure projects like roads, bridges and railways. At the time of bidding, contractors/tenderers know about the less stringent supervision, bid low and try to make a profit through delivering substandard works. It is imperative that more stringent supervision of work must be practiced.

### **3. Cost and Price**

The ACEHK subscribe to the concept that the HKHA must maximize value-for-money. On the other hand, the Association also see that the value-for-money measurement in the present system has been defined in a manner which is too narrow. It tends to focus on discrete unit costs instead of considering the whole project life cycle costs. For example, consultants fees and tender prices are examined in isolation of their effects on the building's life expectancy and maintenance requirements and costs. Although, paying for a higher initial price may not always promise longer life and lower maintenance, unrealistically low price does make it susceptible to poor quality, low life expectancy and maintenance problems.

### **4. Training, Certification of Professionals, Technicians and Workers**

The Hong Kong construction industry builds both buildings and infrastructures like roads and bridges, railways and airports, drainage and water supply for both private developers and as part of public works. In all these categories of works and sectors, professionals, technicians and workers went through the same vigorous training afforded by our universities, technical institutions and the Construction Industry Training Authority (CITA). One would ask why there appears to be more problems in the recent past arising from HKHA public housing buildings. Apparently, training and certification of the persons involved may not be the concern as evident from satisfactory works produced in other sectors. On the other hand, there are always cases striving for higher standards of training and certification.

### **5. Quality Attitude and Professional Ethics**

The public demands quality housing. As professionals and members of the construction industry, our duties and responsibilities call for taking up and meeting the challenge. There should be wider promotion of quality awareness, vigorous adherence to procedures and specifications for acceptance of works. Recent criminal cases exposed that certain members of the industry had contravened the law. The construction industry, among itself, has formal and informal codes of practice and ethics and do not tolerate law contravention. They set high standards and expectations. These should be formalized and promoted.

### **6. The Pressure to Meet Production Targets**

The HKSAR Chief Executive has set high production targets of 85,000 housing units a year by the year 2000. Whilst this target is being met, there are questions among the industry whether this may have put too much pressure on the Housing Authority and the construction industry. The industry considers generally that longer time than presently allowed for construction would help to produce higher quality buildings.

## **7. Conclusion**

The Association of Consulting Engineers of Hong Kong would like to reiterate that we will cooperate and work with the Housing Authority and all parties involved in producing quality housing for the people of Hong Kong. We recommend that the following areas of the public housing building production process be examined and improved:

- i) The role of consultants in the Hong Kong Housing Authority (HKHA) public housing programme.
- ii) The HKHA consultant selection and appointment system.
- iii) The HKHA contracts and their documentation.
- iv) The HKHA tender assessment and contract award system.
- v) The HKHA construction supervision practice and standard of acceptance.

Further details of our recommendations are presented in the Appendix attached.

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### **Appendix to ACEHK Paper for LegCo Panel on Housing Thursday, 9 December 1999**

The fundamental problem of the public housing quality mainly arises from the quality of construction and supervision. Following are points to be considered for improvement to the quality control during various processes of the building development: -

1. Clearly define the responsibility of the professional in respect of site supervision and quality control, including the line of responsibilities of the site supervisory staff to the design team and the working relationship between the various professional within the design team. If the project involves outsourcing to external consultants or architects the responsibilities should also be well defined.
2. The current consultancy award system on outsource projects emphasis too much on fee competition and as a result tends to drive the consultant fees down too low to provide adequate resources to maintain sufficient close supervision in chief by the design team during construction, particularly when there are problems with the quality of the contractor which is difficult to predict. In some appointments the lump sum fees have to include full time site staff costs for an assumed construction period. This system should be changed by reference to the Works Branch practice for civil works in which the site staff is reimbursed by the Government on the expenses of the site staff remuneration plus on cost for administration and management of the site staff.
3. Low tender price of the contract followed by further price cutting with more than one tiers of subletting to sub-contractors would lead to spiral downward of the quality of the final product. Whilst sub-letting to domestic sub-contractors is a general practice in the industry emphasis should be put on the Contractor's control on the quality of works. The Contractor's site supervisory staff should be approved before contract commencement and all domestic sub-contractors should be declared during the construction period in advance. The Supervisory Officer should maintain control on the satisfactory performance of the Contractor's staff and domestic subcontractors.
4. The site supervisory team should be lead by qualified professional staff, preferably full time for project of large scale and complicated in nature, such as heavy foundation, difficult ground conditions, geotechnical constraints and slope stability issues etc. The site staff establishment should be well defined.
5. The standard of acceptance of HKHA's building works and the level of control on quality of works should be clearly made known to the construction industry to establish a proper yardstick of good practice. In the long term it is expected that the contractors when put in a tender price should be fully aware of the cost required to achieve the required standard and hence no chance taking nor corner cutting is built in to the tender price.