

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

## **Building Quality Assurance for Public Housing**

### **Purpose**

This paper informs Members of the measures implemented by the Housing Authority (HA) and the Housing Department (HD) in assuring building quality.

### **Institutional Arrangements**

2. The HD is the executive arm of the HA. Hence, to better reflect their inter-related roles in safeguarding building quality, this paper sets out the operations of both the HA and the HD together.

3. Under the HA, the Building Committee is the key body concerned with building quality assurance. The Committee is involved in all key stages of the public housing development process of construction projects and oversees their implementation by the HD. It is responsible for :

- (i) Advising the HA on the most efficient and cost-effective means of implementing the construction and major improvement and renovation programmes approved by the Strategic Planning Committee and to monitor progress on these programmes;
- (ii) Exercising the following powers and functions of the HA in accordance with prevailing policies -
  - (a) to review and endorse business plans and to approve financial targets, service standards and performance measures within the policies and objectives set by the HA for submission to the HA for approval;
  - (b) to monitor performance of the business at all stages including regular review of budget performance;
  - (c) to approve the briefs, plans and designs for public housing and other related projects;
  - (d) to approve the appointment of consultants;
  - (e) to agree to the contracting out of works and services;
  - (f) to oversee the progress of the housing construction and major improvement/renovation programmes;
  - (g) to oversee the management of the HA's lists of contractors and consultants, and to consider and approve actions concerning status of contractors and

consultants on such lists, together with the preparation of tender lists; and

- (h) to advise and assist other core business divisions of the HA so far as development cost yardsticks and building standards are concerned in meeting their financial targets, service standards and performance measures within the policies and objectives set by the HA.
- (iii) Acting as the HA Tender Board for consideration of tenders for projects and services which fall within the terms of reference.

4. The Building Committee is given monthly reports on the performance of contractors. There is an early warning system to advise the Committee of specific problems. It will establish investigation panels when needs arise. It will also consider the internal audit reports provided by the HD.

5. In exercising its powers and the supervision of the HD, the Building Committee plays an important role in building quality assurance.

## **Project Design**

6. Key activities in the design stages are documented in the HD's manuals. During the design stage, the client's brief comprising development parameters, conceptual layout and financial viability are approved by the HA's Strategic Planning Committee before the project is formally endorsed. The project team then prepares design according to the requirements in the brief, making reference to the HD's design guidelines, construction standards and the statutory requirements for design control. Standard blocks will usually be used but non-standard designs would be considered when situation warrants.

7. The project team will submit the design to various committees responsible for independent design review and approval at different stages of design (e.g. Building Committee, Project Design Review Committee and Detailed Design Review Panel of the Department).

8. An independent Vetting Section offers an initial check on the statutory requirements in project design. The general building plan of all standard block design will be submitted to the Buildings Department for comment or when specific advice is required. The project team will also submit the design to relevant government departments (i.e. Fire Services Department (FSD), Water Services Department (WSD) etc.) and utility companies (i.e. power companies, gas companies, etc.) for approval on the related design and installations.

## **Project Supervision**

9. For each project, a contract manager is appointed and a team of professional and site staff, from the HD or its consultants, to manage the construction contracts to ensure compliance.

10. The project team and the site staff monitor the construction work under a set of construction and safety standards which are in line with the prevailing statutory and works standards. Regular site inspections and functional testing are conducted to verify and monitor the workmanship and quality of materials. The Performance Assessment Scoring System (PASS) carried out by the project team and site staff forms the second layer of monitoring. Apart from assessing performance, it provides a means to compare the performance between different contractors and alerts the contractors to aspects which require improvement.

11. An independent audit unit conducts an internal audit check on the project to ensure anomaly is identified for appropriate corrective actions. For any non-conforming works, the contract manager is empowered to suspend the works under contract.

## **Site Supervision**

12. The contractual responsibilities of site supervision are clearly defined in the contract documents. The contractor has the responsibilities to supervise his workers and to construct the works to the required standards specified in the contract documents.

13. Regarding site inspection, the contractor's construction procedures and the HD's inspection procedures are set out in their respective quality manuals. The responsibilities of various disciplines and the level of inspection required are clearly described. The multi-disciplinary team of professional and site staff are deployed to monitor the construction activities. The HA's consultants have to follow the HD's inspection procedures.

14. The contractor is responsible for supervising the works. The HD inspects and tests work items on a sampling basis. The frequencies of inspection for various work items depend on their importance and guidelines are given. 100% inspection is required for important work items affecting quality and structural safety, such as concrete cores to check quality of concrete works, loading tests of piles, and reinforcement in concrete works.

15. Apart from the project team, there is an independent audit team

centrally deployed to carry out both site and office audits to ensure the works are in compliance with the procedures and standards.

16. The contractor's work and performance are also regularly checked under the PASS. Besides measuring the contractor's performance, the PASS also involves checking items critical to quality and safety through inspections and comparisons with the measurable standards.

17. A Chief Architect and the Handover Inspection Unit who are independent of the project team will inspect sample flats and lift lobby to ensure consistency in quality of works.

18. When project completion is due, the project team and site staff will carry out flat-to-flat final inspection. Relevant departments (e.g. Water Services Department & Fire Services Department) will carry out inspections to ascertain that works are completed in accordance with their approved drawings.

19. The contract manager will ensure that all required functional tests, integrity tests of structural and building works, underground services and building services installation are satisfactorily completed before substantial completion certificate is signed.

20. For all Home Ownership Scheme projects, a visual inspection by a Chief Architect independent of the project team is conducted to ensure that the buildings are fit for occupation and all documents essential for occupation are available before certifying completion. Around two months prior to the anticipated contract completion date, the site staff will carry out the first round of final flat-to-flat inspection.

21. Before a completed project is handed over by the project team to the management team, inspection of all flats and external works are carried out by the HD's maintenance staff and property management agencies. Defects identified will be recorded and rectified. Around three rounds of final flat-to-flat inspection are usually required before all defects are rectified. Handover inspections are carried out by the contract manager, the housing manager, and the handover inspection unit of the client branch of the HD.

22. On site inspection, there is no difference for projects carried out by consultants or by the HD's own staff. As a contract manager, the consultant or the HD's in-house Chief Professional both follow the HD's procedures and perform the same duties under the HA's construction contracts.

## **Supervision of Consultants's Performance**

23. The HD's consultant management units monitor the performance of the consultants. The units prepare quarterly performance reports on consultants for consideration by the HD's Consultants Review Board (CRB). The CRB will rate each report as "Adverse" or "Not Adverse" in the CRB meetings. The independent audit team also audits the consultants' performance.

## **ISO 9001 / ISO 9002**

24. Currently the HD, its contractors and consultants are all certified to ISO9001 or 9002 and are under the continuous surveillance of independent certifying bodies, mainly the Hong Kong Quality Assurance Agency. In complying with the Standard, all must work within a basic management system which ensures that -

- (a) responsibilities, procedures, quality standards and requirements are identified, planned and documented;
- (b) design is verified against client and statutory requirements, and professional standards;
- (c) document, data and quality records are properly maintained;
- (d) sub-contractors/suppliers are selected on the basis of their capability, and their performance/qualification records are maintained;
- (e) design, construction process and contract management activities are planned and supervised/monitored;
- (f) product of design, services or construction are inspected before delivery to client;
- (g) non-conforming products are controlled, prevented from use/delivery and corrective/preventive actions taken;
- (h) internal audits are conducted; and
- (i) appropriate training are provided to staff/workers.

## **Tendering System**

25. The existing tendering procedures are approved by the relevant HA committees. Tenderers for capital works contracts are invited from the contractors on the HA Lists of Contractors or the Works Bureau Approved List of Contractors for Public Works. The HD invites tenderers through gazetting or invitation by letters. All HA capital works tenders are subject to the World Trade Organisation's requirements.

26. A shortlisting exercise on the tenderers will be carried out based on their listing status, current workload, and past performance, such as the performance under the PASS of previous building contracts.

27. For building contracts, the number of tendering opportunities allocated to contractors is based on the Preferential Tender Opportunity System. Under the System, well-performed contractors are given more chances to tender than the poorly-performed contractors. For some complex projects, only the best performed contractors are shortlisted.

28. For projects involving specific requirements, the contract managers of the project will set out the pre-qualification criteria and recommend the selected tenderers to the Building Committee and/or the List Management Committee of the HD.

29. Evaluation of tenders covers contractual, technical, financial, performance and workload assessments. Although the general principle is to award contract to the lowest bidder, it is not uncommon that tenders are awarded to contractors because of their good performance.

30. The HA has agreed to the implementation of a preferential award system whereby 20% of the assessment weighting will be for performance, and 80% for tender sum. It has also agreed to introduce performance bonus from the year 2000.

### **Maintenance and Updating of the List of Contractors**

31. The HA maintains its own Lists of Contractors to assure the quality of their services. For the Building (New Works) Category, there are two groups of contractors, namely Group New Works 1 (NW1) and Group New Works 2 (NW2). NW1 contractors may execute building projects with a value of up to HK\$450M. NW2 contractors may execute building projects of unlimited value. Contractors gain admission and retention on the Lists under the "Rules of the Administration for the Lists" (the Rules). Promotion from Group NW1 to Group NW2 is also governed by the criteria set out in the Rules.

32. Application for admission has to be made in writing. The information submitted by an applicant such as its company structure, business particulars, resources, work records, quality management system and its registration with the Building Authority will be scrutinized and verified.

33. In accordance with the criteria as set out in the Rules, the successful applicant will initially be enlisted as a probationary contractor and is

allowed to undertake not more than two building contracts. With satisfactory performance on the HA projects and in compliance with the confirmation criteria as set out in the Rules, a probationary building contractor may gain promotion to become a confirmed building contractor. The contractor will be eligible to be awarded any contracts with a total value up to the appropriate Category/Group tender limit.

34. The listing status of contractors is monitored and maintained by a three-tier system comprising the Contractors Performance Review Committees (CPRCs), the List Management Committee (LMC) and the Building Committee. The listing status of contractors is reviewed quarterly by these committees and on ad-hoc basis if the need arises. The CPRCs review the contractors' performance; the LMC reviews the contractors' listing status; and the Building Committee approves the LMC's recommendations, which include disciplinary actions in the form of suspension from tendering for a specific period, demotion, or removal from the Lists. A defaulting contractor will be given opportunities at CPRCs and LMC level to represent its case, and to request the Building Committee for a review of its decision.

35. Information on contractors is exchanged and shared with other government departments.

36. An annual regular review is also carried out to update information on the HA's listed contractors. Contractors are required to submit information similar to that for initial application.

## **Penalty System**

37. The HA will take appropriate actions whenever necessary against defaulting contractors under contract provisions and under the Rules. On the contract level, contractors are required to comply strictly with the contract requirements and to rectify any non-compliance of works at their own expense. If a contractor fails to complete the rectification works within the specified period, the HA may recover the damages from it by deducting part of the payments. If the problem is serious, the HA may terminate the contract and take legal actions to recover further damages from the contractor.

38. On the listing level, the listing status of the defaulting contractor will be decided under the three-tier system of Contractors List Management as described in paragraph 34.

39. Under delegated authority, automatic suspension will be imposed should a contractor fail to comply with the Rules, employ illegal immigrants,

withdraw tenders, and/or commit site safety offences.

### **Sub-contracting System**

40. Sub-contracting has a long history in Hong Kong. The HD adopts the Government's General Conditions of Contract for Building Works under which the contractor shall be permitted, unless expressly prohibited by the contract, to sublet a part of the works to their domestic sub-contractors. However, it is clearly stated that subletting of the whole of the works is not allowed. For specialised works such as electrical installation, lift installation, etc., the contractor is required under the Conditions of Contract to employ sub-contractors as nominated by the Authority (i.e. Nominated Sub-contractors).

41. Due to the unique cycling nature of construction projects, domestic sub-contractors often lack the incentives to make long-term commitments to their business and employees. Construction works are mostly carried out by workers at the bottom layer of sub-contracting.

42. Multi-layer sub-contractor system is an established trade custom in the construction industry. Under the current contract system in Hong Kong, like most commonly adopted contract systems in other developed countries, the supervision of sub-contractors lies with the main contractor under its general obligation clauses of the contract.

43. Sub-contractors can be nominated (appointed by the architect) or domestic (appointed by the main contractor of its own choice) under the contract and the clients have no direct contractual relationship with the sub-contractors.

44. At present, the HA engages most of its building services contractors as nominated subcontractors (NSCs), who are usually selected from the Housing Authority Lists of Contractors. Other than NSCs, the HA does not keep or maintain lists of sub-contractors. On the monitoring side, the HD monitors the work of the whole construction work irrespective of whether they are undertaken by the main contractor or its sub-contractors.

### **Employment of Permanent (monthly-rated) Workers**

45. The HA construction contracts clearly set out the contractors' obligations and requirements of the works. Contractors or their sub-contractors are required to employ skilled and experienced personnel and the HA's Contract Managers are empowered to remove any incompetent personnel.

However, there are no detailed requirements for the key management personnel to be employed and their qualifications, except that a site agent and a quality control engineer are required for every contract. Contractors or their sub-contractors are required to employ a percentage of trade tested craftsmen for 14 key trades.

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