Chapter IV Mechanism for the production of public housing units subject to the Buildings Ordinance

Introduction

4.1 Both HA and HS are involved in the production of public housing units. In 1973, HA took charge of the function of building low-cost housing estates and resettlement estates, which were formerly undertaken by the Public Works Department and the Resettlement Department respectively. These estates were exempt from the BO, in common with all buildings belonging to the Government. When HA was reconstituted in 1973, this exemption was extended to buildings upon any land vested in HA. When HA's functions were expanded to provide public housing under the HOS in 1977, buildings constructed under the scheme except PSPS were likewise covered by the exemption.

4.2 Buildings constructed by HS, on the other hand, are subject to the same statutory requirements and standards as applied to those built by the private sector. This basic difference has led to different mechanisms adopted by HA and HS for the production of housing. In examining the different mechanisms of HA and HS for the production of public housing units, the Select Committee has taken into account the different scales of work undertaken by these two bodies. With an annual production of 3,500 units on average, the number of units built by HS per annum constitutes less than 10% of the average annual production of HA. This Chapter analyzes the role and the working mechanism of HS in the planning and production of housing units and highlights the major differences in practices and procedures adopted by HS and HD in the process.

Building works subject to the Buildings Ordinance

4.3 Since building works undertaken by HS are subject to the BO, it is necessary to first understand the regulatory framework in this piece of

legislation before examining the working mechanism of HS in the production of public housing units.

4.4 The Director of Buildings, as head of the Buildings Department, is designated as the Building Authority (BA) under the BO. BA is responsible for controlling the design and construction of private buildings in accordance with the provisions of the BO.

4.5 Any person intending to carry out private building works is required under section 14(1) of the BO to obtain prior approval and consent of BA. He is required to appoint an Authorized Person (AP) and a Registered Structural Engineer (RSE) to co-ordinate the construction works including the preparation of prescribed plans, structural details and calculations and other documents for the approval of BA, and supervision of the works. The person is also required to appoint a Registered General Building Contractor (RGBC) or a Registered Specialist Contractor (RSC) to carry out general and specialist building works respectively.

4.6 The AP, RSE and/or RGBC/RSC are required to take the following steps under the BO for the construction of building works:

(a) To prepare and seek the approval of BA on different types of plans which include demolition plans, foundation plans, general building plans, structural plans and drainage plans;

(b) To obtain consent from BA before the commencement of each type of building works. In giving consent to commence building works, BA, as a standing practice, imposes conditions for the carrying out of tests to verify the quality of buildings and on the standard of structure-related workmanship and the supervision to be provided including the qualifications of the site supervisors;

(c) To carry out periodic or continuous supervision as specified in the statutory site supervision plan submitted to BA;

(d) To carry out site tests to verify the quality and performance of works and the building materials used. Test reports are to be submitted by AP and RSE to BA for record and audit checks; and

(e) To certify the completion of works in accordance with BO and the plans approved by BA. Upon random checking of the completed works in compliance with the approved design, BA will issue an occupation permit.

4.7 A flow chart indicating the various stages for the construction of buildings at which the approval of BA is required is in **Appendix IV(1)**.

Audit checks

4.8 Apart from examining in detail the various building plans and site supervision plans to ensure their compliance with the BO, BA carries out audit checks on site to ascertain whether AP, RSE, and RGBC/RSC perform their respective statutory duties properly. During the construction period of superstructure works, BA conducts at least three inspections on site. As for piling works, the number of inspections varies according to the type of piles used. The checks carried out by BA cover all items of piling and building works under construction with no pre-determined percentage of building elements or specific items to be audited at each site. These checks are conducted as surprise checks without a pre-determined timing or frequency in order to maximize their effectiveness. In the case of piling works, the piles to be tested on site are specified by BA's representatives on the spot.

Sanctions

4.9 To deter AP, RSE, RGBC/RSC, and site supervisors from designing and carrying out building works in a dangerous manner or not meeting the standards required, offences and disciplinary proceedings are provided under the BO. Persons guilty of breaching the relevant provisions in relation to carrying out of building works will be subject to criminal sanctions. The persons convicted of the offence may also be subject to disciplinary

proceedings instituted under the BO. The penalty imposed by the Disciplinary Board constituted for the purpose under the BO includes temporary or permanent removal from the relevant register, reprimand and fine.

Role and working mechanism of Housing Society for the planning and production of public housing units

4.10 As explained in paragraph 2.1, HS has long been involved in the production of public housing. HS was established in 1948 with a donation from the Lord Mayor of London's Air Raid Distress Fund, and incorporated in 1951 under the Hong Kong Housing Society Incorporation Ordinance (Cap. 1059). HS was then managed by a group of founding members with the mission of providing affordable and quality housing to meet the housing needs of Hong Kong. HS mainly responds to the housing needs of low-to-middle-income families. Since its establishment, a total of about 60,000 units have been built under different housing schemes including Rental Estates, Rural Public Housing, Flat-for-sale, Sandwich Class Housing and urban improvement. The annual flat production of HS from 1995/96 to 2000/01 is in **Appendix IV(2)**.

Governance structure of Housing Society

4.11 HS adopts a two-tier governance structure with a Supervisory Board and an Executive Committee. The Supervisory Board is responsible for formulation of the HS's mission and guiding principles, whilst the Executive Committee, accountable to the Supervisory Board, establishes policies to ensure that corporate strategies are consistent with the agreed guiding principles and oversees the performance of the management led by the Executive Director. Four Government officials, including S for H, sit on the Supervisory Board. The governance structure of HS since 19 December 2000 is in **Appendix IV(3)**.

Organizational structure of Housing Society

4.12 As at June 2002, HS had a total establishment of 644 staff. Led by the Executive Director, HS has formed a number of divisions to deliver specialized areas of work in relation to the production and management of public housing. The management structure of HS as at May 2002 is in **Appendix IV(4)**.

Working mechanism of Housing Society for the planning and production of housing units

4.13 HS has developed its own working mechanism for the production of housing units. As in the case of HD described in Chapter III, there are various main stages for the planning and production of housing units, namely, site identification, planning, design, tendering and construction. A chart showing the key activities and the time taken for the various stages of a typical project of 1,000 units undertaken by HS is in **Appendix IV(5)**. A brief account of the way in which HS carries out the main activities at each of these stages in compliance with the statutory requirements in the BO is set out below.

Site identification

4.14 The sites used by HS for the development of its housing units come from various sources including redevelopment of its estates, acquisition of private properties and direct grant of sites by the Government for subsidized housing schemes to supplement Government provisions. Among these sources, direct grant of sites by the Government accounts for HS's major supply. In other words, the quantity of flat production by HS is mainly determined by the Government by way of land grant.

4.15 After the Government identifies a site for HS for housing purpose, HS carries out comprehensive site evaluations, including planning constraints, infrastructural considerations and development programme. Based on the result of the evaluations, HS submits a preliminary planning brief to the Executive Committee for approval.

Planning and land grant

4.16 The key activities at this stage include negotiation with Government departments on the land premium payable by HS, development requirements relating to infrastructure and site-specific issues and finalization of the development parameters. Where rezoning of the site is required under section 16 of the Town Planning Ordinance (Cap. 131), application to the Town Planning Board is required.

4.17 The finalized land premium is then submitted to the Executive Committee for approval. Under the arrangement made with the Government, HS pays half of the land premium for sites to be developed into housing for sale. For sites to be developed into public rental housing, HS pays one-third of the land premium.

Detailed design

4.18 Unlike HA, HS does not undertake design by its own in-house staff. All projects, from design to completion, are outsourced to consultants.

- *Appointment of consultants*

4.19 For each project, HS appoints consultants including architect, geotechnical engineer, structural engineer, building services engineer, quantity surveyor, etc. Each consultant is appointed directly by HS for providing a specific area of professional service. In other words, HS staff directly oversee the work of these consultants.

4.20 HS uses the same lists of consultants maintained by the Architectural and Associated Consultants Selection Board for the appointment of consultants. Adopting the two-envelope system of the Architectural Services Department, HS requires shortlisted consultants to submit technical and fee submissions. The weighting apportioned between technical and fee submissions is 60:40. The appointment of consultants is approved by the Executive Committee.

4.21 Except for a few foundation projects for which the design-and-build mode is adopted, for the majority of HS's projects, the consultants appointed are responsible for the detailed design of the works. To comply with the relevant requirements in the BO, HS appoints consultants to take up the roles of AP and RSE as defined under the BO. These consultants are required to prepare different types of plans required under the BO for submission to BA for approval.

Tendering

4.22 HS uses the approved lists of contractors for various disciplines of works compiled by HA. For each contract HS selects six to eight contractors from the relevant list for tendering. Separate tenders are invited for the foundation and superstructure works, the construction time of which varies with their complexity. To enable tenderers to better understand the works to be done, for each project, HS and its appointed consultants conduct a pre-tender briefing to explain the details of the project and the requirements of HS to tenderers. Information obtained from site investigations conducted by HS's consultants is also made available to tenderers who, based on the past experience of HS, seldom conduct further site investigation before submitting their bids.

4.23 The contract is normally awarded to the lowest tender, except where there are problems in the technical aspects of the tender. The reason provided by HS is that HS has already assessed the technical competence of the contractors concerned before they are invited for tender. In assessing the tenders returned, the main consideration is therefore price. Between 1995/1996 and 2000/01, the actual tender prices for the foundation projects of engineer's design were generally lower than the pre-tender estimates by 1% to 40%. The award of tender is approved by the Executive Committee.

Construction

- *Management of contract*

4.24 HS forms an in-house Project Management Team to look after each project. At the initial stage of a project, the Project Management Team comprises a Project Manager, a Property Development Manager and a representative from Estate Management Division to assist in the selection of consultants. When a project proceeds to the construction stage, the Project Management Team is expanded to include an in-house quantity surveyor and technical staff to provide support on architectural and building services issues. The Project Management Team is headed by the Project Manager, who is responsible for monitoring the performance of both the consultants and the contractor. The Project Management Team is assisted by the Technical Support Group and Contract Management Group within the Projects Division in vetting the consultants' design, working drawings and technical documents from technical and contract management perspectives respectively.

4.25 According to the manning ratio of HS, each Project Manager should be responsible for one and a half to two projects depending on the scale of the project. However, during the peak production period of HS from 1997/98 to 1998/99, a Project Manager took up two to three projects simultaneously. Normally, a Project Manager spends more than half of his time on site.

4.26 The Project Management Team monitors the progress and quality of work through the following:

(a) monthly project meetings with consultants to discuss all project-related matters;

(b) bi-weekly site meetings with consultants and contractors to resolve technical and site problems;

(c) monthly Quality Assurance/Quality Control meetings on site to focus on quality issues;

(d) regular inspections on works; and

(e) visits to off-site factories producing key components to ensure their quality in compliance with HS's requirements before delivery to site.

➢ *Site supervision*

4.27 Consultants appointed by HS are primarily responsible for the supervision of works on site through site staff who are employed by the consultants on behalf of HS. Site staff include resident engineers, clerks of works, inspectors of works and building services inspectors, and their number varies with reference to the requirements on supervision imposed by BA. The qualifications, experience and remuneration of site staff are vetted by HS. Normally the same team of site staff is responsible for the foundation and superstructure works of a project.

4.28 Although site supervision is carried out by the consultants' site staff, HS deploys for each project a full-time Project Superintendent acting in the capacity of HS's representative on site to oversee and co-ordinate the site supervision work. It is also the duty of the Project Superintendent to alert the Project Manager to any irregularities or non-conformities or other issues that warrant his immediate attention.

4.29 Unlike HD, HS has not devised standard inspection forms on the various work steps for use by site staff. The inspection forms to be used for each project are provided by the contractor and modified by the consultants, where necessary. The completed inspection forms are not submitted to HS for record.

Quality control

4.30 A number of measures have been taken by HS to ensure the quality of its projects. These include the preparation of a quality control plan, the compilation of Project Quality Management Manual and audit check by Quality Assurance Unit. These measures are explained briefly below.

4.31 At the commencement of a contract, the Project Management Team, together with the consultants and the contractor, devises a quality control plan. This plan sets out the measures to be adopted to ensure quality. A quality control plan for a HS's project provided by HS to the Select Committee covers, among others, documentation, site management, material control, inspection requirements and control on measuring and testing equipment.

4.32 In 2001 HS compiled the Project Quality Management Manual for reference by in-house project teams. This Manual sets out the framework and mechanism for development of quality initiatives and management of project quality. It sets out the key activities or procedures within each stage of the development process. The Manual is intended to be a checklist of important things at each stage of the work for the in-house staff. The way as to how the project should be managed and how site supervision should be carried out is decided by the Project Management Team and the consultants.

4.33 Quality Assurance Unit, an independent unit reporting directly to the Executive Director, is charged with the responsibilities for ascertaining the carrying out of works in accordance with HS's quality strategies and policies and for identifying means to improve quality practices and procedures. The Unit discharges its responsibilities through random auditing and validation.

Comparison of the working mechanisms of Housing Society and Housing Authority for the production of public housing

4.34 Having examined the respective working mechanisms adopted by HS and HA for the production of public housing, the Select Committee observes that in addition to the fact that buildings upon any land vested in HA or over which HA has control and management are exempt from the provisions of the BO, there are the following differences between the two bodies:

(a) Construction time of piling and superstructure works: The construction time in HS's projects varies according to the nature of the projects. HA adopts a standard construction time for every project [8];

(b) Construction procedure: For HS projects, it is a statutory requirement for AP and RSE to prepare plans such as foundation plans, site formation plans and general building plans for the approval of BA prior to the commencement of the construction work. For HA projects, it is a contractual requirement for the contractor to submit a programme showing the sequence, method and timing of works for HD's information within 14 days after the issuance of the Letter of Acceptance;

(c) Contract management: The Project Management Team and the consultants of HS have greater flexibility in project management and inspection of the works in determining how each project should be managed and how works should be inspected. HS has no manuals on the management and inspection on works. For HA projects, HD staff, consultants and site staff are all expected to follow the procedures laid down in the various HD manuals;

(d) Site supervision: HS deploys a full-time representative on site to oversee and co-ordinate the site supervision work for each project. HD relies entirely on its consultants and their site staff for site supervision in outsourced projects. Not all sites are provided with resident engineers; and

[8] According to HD, HA adopts a relatively standard construction lead time due to the standardized nature of the domestic blocks. However, in determining the standard construction lead time, HD did analyze in detail the construction floor cycle and technical requirements.

(e) Workload of staff: The number of projects looked after by professional staff of HS, even during the peak production period, is less than their counterparts in HD engaged in consultant management. Moreover, unlike HA, HS is not under pressure to meet the public housing production targets.