

## **Chapter VI Tin Chung Court - Division of responsibilities in quality assurance**

6.1 In the First Report, there is a detailed account of the historical development of the organizational structure and working mechanism for the planning and production of public housing. The TCC project was undertaken in the mid-90s when HD anticipated bunching of production. To deal with the anticipated production peak in 2000/01, BC decided to outsource projects to consultant architects. The TCC project was among the first batch of projects outsourced to consultant architects <sup>32</sup>.

6.2 The TCC project was also undertaken at the time when HD underwent a series of organizational restructuring to cope with changing levels and scope of services and activities. With the reorganization of the operations of HD along business lines in April 1997, the overall responsibility and accountability of the daily operation of individual branches were delegated to the respective heads of Branches. The Deputy Director of Works no longer had the responsibility to monitor the technical operation of development projects <sup>33</sup>.

6.3 In the First Report, the Select Committee set out its views, from the institutional and policy perspectives, on the responsibilities of the policy bureau, HA, BC, and the senior management of HD for causing the building problems found in the four incidents <sup>34</sup>. In this Second Report, the Select Committee focuses on the management of projects and quality assurance at the operational level and the responsibilities of the various parties in these respects.

### Responsibility of Housing Department

6.4 The senior directorate of HD appearing before the Select Committee invariably stressed that assurance of the quality of works had always been considered a matter of high priority irrespective of whether HA's works were

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<sup>32</sup> See paragraphs 3.6 and 3.21 of the First Report

<sup>33</sup> See paragraphs 2.29 to 2.32 of the First Report

<sup>34</sup> See paragraphs 9.3 to 9.20 of the First Report

undertaken by in-house staff or by consultants. The quality requirements applied equally to in-house projects and consultants' projects. In this connection, a number of manuals have been developed by HD<sup>35</sup>. These include, among others, the Quality Management System Manual, which describes the fundamental principles and overall framework of HD's quality management system; the Consultant Management Manual (BCM), which sets out the departmental procedures on management of consultants; and the Structural Engineering Section Consultant Management Manual (ES7), which lays down specifically the duties and responsibilities of the liaison structural engineering discipline staff at every stage of a works project.

6.5 According to BCM-702, the overall responsibility for the management of an architect-led multi-disciplinary consultancy project rested with DR, who was normally a chief architect. DR was responsible for overseeing the achievement of HA's requirements for completion of the project with regard to the requirements of the brief, to budget and to time. Amongst other duties, DR was required to assess results and take timely and appropriate corrective actions as well as to ensure that the needs of the Works Group were satisfied. BCM-702, however, did not expressly state that the duties of DR include ensuring quality of works.

6.6 DR was assisted by a liaison team in managing the consultant. The Section Heads of the appropriate disciplines were responsible to DR for overseeing the liaison officers in the management of sub-consultants. The specific duties of liaison officers were specified in BCM-702. The list of the specified duties, as in the case of DR, also did not expressly include ensuring quality of works.

6.7 Whilst it was not explicitly provided that DR and the liaison team had the duty to ensure quality of works, Mr YUEN Tze-chu, the first DR of the TCC project, admitted to the Select Committee that the Liaison Team should have the responsibility to ensure that the quality standards were met. This message about the Liaison Team's responsibility, however, was not clearly conveyed down the line as evidenced by the different understanding in this

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<sup>35</sup> See paragraph 3.58 of the First Report

regard held by the structural engineers and the architects appearing before the Select Committee. Liaison officers of these two disciplines consistently told the Select Committee that since consultants were regarded as an extension of in-house staff, they were tasked to perform all the duties expected of an in-house project team and should follow the procedures laid down in the HD manuals. Where the project was design-and-build, it was the contractor's responsibility to design and construct the works in accordance with the technical standards laid down in the specification. It was their understanding that the consultant's responsibility was to ensure that such standards were met. Technical decisions on the project were to be made by the consultant, and liaison officers were not expected to vet the technical aspects of the consultant's work. During the life of a consultancy project, the main concern of the liaison team was to ensure compliance with HA's requirements in terms of programme and budgetary control. This line of thinking, according to the structural engineers, had been relayed from the senior management to the working level in HD. In other words, there was a common understanding among staff of the liaison team that the responsibility to ensure quality standards was not expressly on the agenda of the liaison team managing consultancy projects.

6.8 An illustration of the "strictly liaison" role of the Liaison Team could be seen from the way liaison structural engineers checked the work of consultants. ES7 set out the duties of liaison structural engineers at various works stages. The Select Committee notes from ES7-401 that at the design stage of a piling project, LSE had to issue to the structural consultant relevant documents

*"to ensure that HD practices of workmanship, testing, quality control of materials and tendering procedures are adhered to."*

LSE also needed to

*"carry out detailed checking on design philosophy, loading and material data, and spot checking on the structural calculations submitted by the structural consultant."*

ES7-601 required LSSE and LSE to make periodic visits with the structural consultant during the construction stage to review work progress and observe sensitive areas of the contractor's work to ensure compliance with the contract. These provisions obviously required LSSE and LSE to check the work of the consultant with different degrees of intensity. In spite of these provisions, a witness from the Liaison Team said that ES7-401 did not apply to the TCC project, because all the building blocks in the TCC project were of the standard block type and there was no need for HYA to submit structural calculations to the Liaison Team for spot-checking. As regards ES7-601, another witness from the Liaison Team pointed out that it required the liaison structural engineers to adopt a critical attitude so as to safeguard the interest of HA in terms of claims, extension of time, variations of the works and increase in scope of works, if any. In other words, they were expected under the consultant management system to ensure compliance with the requirements of HA in terms of progress and budgetary control.

6.9 In accordance with this understanding, the focus of the liaison structural engineers in managing HYA and its Sub-consultants in the TCC, as in other consultancy projects, was to ensure the compliance of the project with HA's requirements in terms of programme and cost. They left the responsibility for ensuring quality of work with Franki (B+B) at the execution level and with HYA at the supervision level. The Liaison Team relied entirely on HYA and its Sub-consultants to check the technical submissions and calculations made by Franki (B+B). It did not cross-check those technical submissions or perform technical vetting of HYA's work. The Select Committee notes from records that some of the correspondences between Franki (B+B) and HYA enclosing details of calculation methodology and data were copied to LSE/TCC without enclosures. Such an arrangement, according to a witness, was agreed among the various parties at one of the initial meetings. This shows clearly that LSE/TCC did not intend to perform any form of technical vetting. Without the enclosures, it would be practically impossible for the Liaison Team to vet the technical aspects of the project or to give any technical input.

6.10 The Liaison Team monitored the performance of HYA and its Sub-consultants primarily through attending monthly site meetings and bi-monthly co-ordination meetings, studying progress reports compiled by HYA and its resident site staff, and paying periodic site visits. During the course of the project, LSSE1/TCC and LSE1/TCC visited the site twice and 12 times respectively. The site record book shows that the two DRs, LSSE2/TCC and LSE2/TCC never visited the site, notwithstanding the stipulation in BCM-813 that DR or his Liaison Senior Officers should make periodic site visits with the consultant to observe sensitive areas of the contractor's work to ensure compliance with the contract.

6.11 The Liaison Team relied on HYA and its Sub-consultants to monitor the quality aspect of Franki (B+B)'s work and confined its concern to programme and cost of the project. The senior management of HD, namely the two successive DRs and the two successive CSEs responsible for the project, believed that the liaison officers would take the initiative to approach them should they find any problem with the project which merited their attention. Without any report of irregularities at site from the site staff concerned and in the absence of adverse appraisal report on HYA, its Sub-consultants or Franki (B+B), they assumed that the project went smoothly and was completed satisfactorily. It was not until August 1999 that HD became aware of uneven foundation settlement in the project.

#### Responsibility of the Consultant Architect

6.12 On the side of the Consultant Architect, HYA was required under the Consultancy Agreement to ensure that the carrying out of the works by Franki (B+B) was in compliance with the Contract. HYA relied on the site staff to inspect the work of Franki (B+B) and to draw its attention to any irregularity in the course of work. Before RE/TCC assumed duty, PSE/TCC supervised ACW/TCC and the two WSs/TCC and at the same time oversaw the progress of works and questioned any anomalies identified from the site records and the test reports. The inspection of the actual works done rested solely on ACW/TCC and the two WSs/TCC, who were expected to alert and consult PSE/TCC whenever they had doubts.

6.13 Another important aspect of the quality assurance function of the Consultant Architect was to vet the piling design before works commenced and check the verification of the design based on the as-built records. This function was shared by the Structural Sub-consultant and the Geotechnical Sub-Consultant. Although HYA assigned a staff member to be the Project Structural Director for the TCC project, the vetting and checking of the Contractor's work was done mainly by PSE/TCC. PSE/TCC assumed the role of the Structural Sub-consultant and at the same time served as the contact point between the Geotechnical Sub-consultant and the site. The Geotechnical Sub-consultant, JMK, did not consider itself responsible for supervision of geotechnical works on site. In other words, on the side of the Consultant Architect, PSE/TCC was the only person with an explicit responsibility for overseeing the quality of works of the Contractor.

#### Responsibility of the Contractor

6.14 Under the Contract, the Contractor had the ultimate responsibility for delivering work in accordance with the requirements stipulated in the Specification. The Contractor appointed its own staff to be the RSE who, according to the Specification, had the responsibility for the design of the piles, piling layout and pile caps. RSE/TCC was also required to sign the RSE Report and to certify that the completed works were satisfactory for the purpose intended.

6.15 Franki (B+B) was also required under the Contract to engage a QCE to ensure that all materials and tests complied with the Specification. The QCE was required to inspect work, and to certify that it was done in accordance with the Specification. There was no project manager for the project, and the day-to-day operation was taken care of by a full-time site agent. When technical problems were encountered and could not be resolved on site, the site agent would consult QCE/TCC. The preliminary pile test results, the final set records and the as-built piling records all showed the signature of QCE/TCC. The QCE/TCC, who was the principal person on the side of the Contractor to ensure quality of works at site, was subsequently convicted of conspiracy to defraud in respect of some of these records.