

Legislative Council Panel on Housing

Way forward for the Comprehensive Structural Investigation Programme

Purpose

This paper (i) reports to the Panel the progress of the Comprehensive Structural Investigation Programme (CSIP) for aged public rental housing (PRH) estates; (ii) informs the Panel of the plan of the Hong Kong Housing Authority (HA) to expand the CSIP to cover other aged PRH estates; and (iii) in view of the expansion of the CSIP, seeks Members' support for making permanent a Chief Structural Engineer (CSE)(D1) post which has been created on a supernumerary basis for two years with effect from July 2006 to lead and supervise the implementation of the CSIP.

Background

2. In September 2005, the Housing Department (HD) launched the CSIP, covering initially ten PRH estates aged about 40 years or more^{Note 1}. A list of these estates is at **Annex 1**. The objective is to ascertain whether these aged PRH blocks were structurally safe and whether it would be more cost-effective to keep these buildings through repair and structural strengthening works or to demolish them. The CSIP would also identify the extent of repair/strengthening works required to sustain these buildings for at least 15 years and the estimated costs arising therefrom.

^{Note 1} Members were briefed on the ten estates covered by the CSIP at the Panel meeting in May 2007 vide LC Paper No. CB(1) 1478/06-07(06).

Progress and Findings of the Current CSIP

Progress

3. As at February 2008, the HD has completed comprehensive structural investigations for eight PRH estates^{Note 2}. The investigations for the remaining two estates, namely, Wah Fu Estate and Ping Shek Estate, are scheduled to be completed in April and September 2008 respectively.

Findings of the Current CSIP

4. Varying degrees of structural deterioration were observed in the eight PRH estates. The wearing of reinforced concrete and steel reinforcement corrosion are mainly due to the aging of the buildings. In fact, the investigations show that the varying degrees of deterioration are attributable to a multitude of causes^{Note 3}. As these PRH blocks age, a timely comprehensive structural investigation of these estates would ensure structural safety.

5. The investigation results indicate that the HD has to address specific problems of individual blocks by conducting appropriate repairs in order to sustain these public housing estates effectively. Meanwhile, the HD will add or repair estate or flat facilities to enhance the living environment of these PRH estates under the Total Maintenance Scheme (TMS) and the Estate Improvement Programme (EIP)^{Note 4}. The CSIP and the associated repair works, which have been implemented for more than two years, are well received by the tenants. The tenants would like to see the continuation of the programme.

Note 2 Members were briefed on the outcome of the investigations on So Uk and Sai Wan Estates at the Panel meeting in May 2006 vide LC Paper No. CB(1) 1396/05-06(03), that of Choi Hung and Model Housing Estates in January 2007 vide LC Paper No. CB(1) 562/06-07(06) and that of Wo Lok and Ma Tau Wai Estates in May 2007 vide LC Paper No. CB(1) 1478/06-07(05). Members will be briefed on the outcome of the investigations on Tung Tau Block 22 and Fuk Loi Estates at the Panel meeting in February 2008.

Note 3 The rate of deterioration is affected by a number of factors, which include the design that is vulnerable to ingress of contaminants into the concrete to reach the steel bars, construction workmanship, choice of material, usage of material, environment in the district, etc.

Note 4 Members were briefed on the EIP under TMS at the Panel meeting in January 2007 vide LC Paper No. CB(1) 562/06-07(07).

The Expansion of the CSIP

6. The investigations reveal that maintenance and repair expenditure would increase as the age of a PRH estate reaches around 40 years. The aging and structural deterioration of a building aggravate with the passage of time. An early investigation to ascertain the structural condition of the estates and tailor-made improvements can reduce the need for more extensive and disruptive structural repair and improvement works in the future. This is considered a more desirable maintenance strategy. We therefore consider it necessary to complete the investigation before an estate reaches 40 years old. In view of the success of the current CSIP, the HA plans to turn the CSIP into a long term departmental programme^{Note 5} covering 32 other aged estates after the completion of the investigations of the aforementioned ten estates in 2008. In consideration of the manpower resources requirements, the HA plans to investigate three to four PRH estates every year, and cover a total of 32 estates in the coming ten years (from 2008 to 2018). A list of the 32 estates is at **Annex 2**. The schedule is drawn up primarily having regard to the ages of the PRH estates, but it may be adjusted if necessary to suit the actual circumstances.

Staffing Implications

7. Currently, the CSIP is handled by two investigation teams under the supervision of a CSE. The investigation works of the expanded CSIP for the coming ten years and the repair and strengthening works that follow will be handled by these two teams and where further manpower is required, through internal deployment of staff.

8. The current CSE supervising the CSIP is a supernumerary post created for a period of two years up to July 2008^{Note 6}. Reporting directly to the Deputy Director (Estate Management) (D3), the CSE is underpinned by four teams of staff, each headed by a Senior Structural Engineer (MPS 45 – 49). Of the four teams, two are directly responsible for inspection, testing, analysis, assessment, design and implementation of

Note 5 The strategy and programme for the CSIP have been endorsed by the Strategic Planning Committee of the HA at its meeting in January 2008.

Note 6 The CSE post is a supernumerary post endorsed vide EC(2006-07)11 for a period of two years up to 6 July 2008 at the LegCo Finance Committee meeting in July 2006.

strengthening and improvement works identified under the CSIP, one is responsible for cantilever strengthening, repairing and monitoring works of aged PRH blocks, and the remaining team is responsible for research and development activities, as well as provision of technical support to all engineering teams in establishing methodology and exploring use of materials and technology for investigation and repair.

9. In view of the technical complexity and the significant implications of the CSIP, it is necessary for the CSIP to be supervised on a day-to-day basis by a full-time CSE. Tasking one CSE in the Estate Management Division to oversee the entire scheme and provide central support will not only ensure operational efficiency, but also bring the added benefit of monitoring the structural safety of all properties of the HA in a more holistic and effective manner. A detailed job description of the post is at **Annex 3**.

10. We have explored the possibility of absorbing the work of the proposed CSE post through internal redeployment. There are currently three CSE posts in the Development and Construction Division of the HD. Having regard to the housing production of over 75 000 units in the coming five years and the expected even distribution (around 15 000 units per annum), each of the project teams in the Development and Construction Division will be fully engaged in the projects and the related preparation work in the coming five years. Two CSEs responsible for housing production will be fully engaged in project works and will not have any spare capacities to absorb additional workload. The other CSE has been deployed on a part-time basis to the Independent Checking Unit of the HD to assist in discharging building control function and examining applications involving structural alterations to buildings which are previously or currently owned by the HA as authorized by the Buildings Authority and required by the Buildings Ordinance, in addition to the construction projects for which he is responsible.

Way Forward

11. Subject to Members' comments, we intend to submit the proposal to the Establishment Sub-committee of the Finance Committee in May 2008 for its approval.

Advice Sought

12. Members are invited to note the expansion of the CSIP for aged PRH estates, and indicate whether they support the proposal to retain the supernumerary CSE post on a permanent basis to lead and supervise the CSIP.

**Transport and Housing Bureau
January 2008**

Annex 1

The ten public rental housing estates covered in the current Comprehensive Structural Investigation Programme

| Estate | Year of Completion |
|----------------------|---------------------------|
| 1. Model Housing | 1952 |
| 2. Sai Wan | 1958 |
| 3. So Uk | 1960 |
| 4. Choi Hung | 1962 |
| 5. Ma Tau Wai | 1962 |
| 6. Wo Lok | 1962 |
| 7. Fuk Loi | 1963 |
| 8. Tung Tau Block 22 | 1965 |
| 9. Wah Fu | 1967 |
| 10. Ping Shek | 1970 |

**The 32 aged public rental housing estates to be covered in the
expanded Comprehensive Structural Investigation Programme
from 2008 to 2018**

| No. | Estate | Year of Completion |
|-----|-----------------|--------------------|
| 1 | Mei Tung | 1974 (Note 1) |
| 2 | Oi Man | 1974 (Note 1) |
| 3 | Kwai Shing West | 1975 (Note 1) |
| 4 | Lai King | 1975 (Note 2) |
| 5 | Lek Yuen | 1975 (Note 2) |
| 6 | Lei Muk Shue II | 1975 (Note 2) |
| 7 | Pak Tin | 1975 |
| 8 | Hing Wah II | 1976 |
| 9 | Lai Yiu | 1976 |
| 10 | Shek Kip Mei | 1976 |
| 11 | Cheung Ching | 1977 |
| 12 | Nam Shan | 1977 |
| 13 | Tai Hing | 1977 |
| 14 | Wo Che | 1977 |
| 15 | Yue Wan | 1977 |
| 16 | Cheung Shan | 1978 |
| 17 | Fu Shan | 1978 |
| 18 | Choi Wan I | 1979 |
| 19 | Choi Wan II | 1978 |
| 20 | Shun Lee | 1978 |
| 21 | Shun On | 1978 |
| 22 | Cheung Hong | 1979 |
| 23 | Tai Wo Hau | 1979 |
| 24 | Wan Tsui | 1979 |
| 25 | Ap Lei Chau | 1980 |
| 26 | Lung Tin | 1980 |
| 27 | On Ting | 1980 |
| 28 | Sam Shing | 1980 |
| 29 | Sha Kok | 1980 |
| 30 | Shek Wai Kok | 1980 |
| 31 | Tai Yuen | 1980 |
| 32 | Yau Oi | 1980 |

Note 1: The comprehensive structural investigations for these estates are scheduled to be completed in 2009.

Note 2: The comprehensive structural investigations for these estates are scheduled to be completed in 2010.

Job Description
Chief Manager/Management (Support Services 5)

Rank : Chief Structural Engineer (D1)

Responsible to : Deputy Director (Estate Management) (D3)

Major Duties and Responsibilities –

1. to oversee the implementation of the Comprehensive Structural Investigation Programme for aged public housing estates;
2. to oversee the carrying out of major structural investigation and subsequent development and implementation of maintenance works for public housing estates;
3. to advise on matters relating to structural investigation and related works;
4. to oversee and advise on the provision of structural engineering services for domestic and residual non-domestic properties of the Housing Authority; and
5. to liaise and attend meetings with other Government departments and public organisations on structural engineering matters.
