

**Memorandum for the Building Committee of
the Hong Kong Housing Authority**

**Asbestos Management in
Existing Old Public Rental Housing Estates**

PURPOSE

This paper informs Members Hong Kong Housing Authority's (HA) current practices in handling asbestos containing materials (ACM) and the enhancement measures in existing old public rental housing (PRH) estates.

BACKGROUND

2. Various types of ACM were commonly used by the construction industry before they were known to be harmful to health. Since 1984, HA has stopped using ACM in building construction, but the stock of older buildings built in or before 1984 may contain ACM. Most of the ACM in PRH estates have been removed and those remaining are mainly in **encapsulated balcony grilles in domestic units, staircase and lift lobby grilles, as well as chimneys**, of old estates. These ACM are bonded with cement, plaster or bitumen. Unless they are broken or damaged, otherwise under normal circumstances they are unlikely to cause health hazards as such bonded materials have very low possibility of releasing asbestos fibre into air.

ACTIONS TAKEN SINCE LATE 1980'S

3. Since 1988, HA started work to establish a comprehensive management programme on ACM. In August 1988, the Department set up an Asbestos Working Group (AWG), together with Environmental Protection Department (EPD) and Labour Department (LD), to formulate asbestos management strategy in PRH estates, to advise on the Department's ACM abatement strategy, to receive and consider ACM data, and to review the ACM removal procedures.

4. In October 1988, HD engaged a specialist consultant to conduct a comprehensive review and survey in PRH estates to ascertain the presence of ACM and their condition ^{Note 1}. The consultant compiled a comprehensive database of ACM in HA's older properties.

5. By the late 1990's, the said ACM identified were removed, encapsulated, or left intact and under monitoring if it is in good condition. The stock of ACM have also been reduced with the redevelopment of some estates.

6. We also promulgated an Asbestos Management Manual and Technical Guide for internal reference in 1990. Pamphlets on "Asbestos in Public Housing" giving general information on asbestos, ACMs in PRH and HA's asbestos management strategy were first distributed to PRH tenants in 1988 (the current version is attached at **Annex A**). The summary record of ACM more accessible to tenants has been uploaded to HA/HD website for public viewing since 2009.

CURRENT ASBESTOS MANAGEMENT STRATEGY

7. There are currently 21 estates (**Annex B**) with ACM, of which, 17 estates contain building components of ACM that are more accessible to the general public. The ACM have been identified with the type, location and condition recorded. The records are kept at respective estates offices. We have also been conducting regular monitoring and condition surveys ^{Note 2}, maintaining a term asbestos consultancy, enhancing contract specifications, holding internal staff seminars, posting notices at G/F lobbies, updating records

Note 1 The consultant worked in phases during the period from 1988 to 1996 with reports to advise on issues on effective asbestos management programme, extent of ACM in HA's housing stock, practical and efficient methods of asbestos abatement, work method evaluation, and miscellaneous issues including laboratory assessment, building services installation appraisal and training. Members approved the consultancy and were informed of the progress vide Papers Nos. BC 10/89, BC 11/91, BC 26/92 and BC 33/94.

Note 2 Basically, visual inspections would be conducted to verify the surface integrity against cracks and broken parts that might result in friable asbestos releasing into the air. For staircase/lift lobby grilles and chimneys, both in the course of daily patrol by estate staff and half-yearly inspections, any defects would be referred for further checking. For balcony grilles inside flats, half-yearly inspections would be conducted from external.

on HA/HD website and holding AWG meetings. We have also been updating Members from time to time ^{Note 3}.

UPDATED SITUATION

8. In 2016, we engaged a registered asbestos consultant (i.e. consultant registered under the Air Pollution Control Ordinance) to conduct a comprehensive survey on the conditions of the remaining ACM building components. The survey is virtually completed, and findings so far are summarized as follows -

(a) Staircase and lift lobby grilles

Three estates, namely Hing Wah (II) Estate (seven blocks), Kwai Shing West Estate (four blocks) and Yue Wan Estate (four blocks), have ACM staircase/lift lobby grilles.

The grilles are found in good condition except about 4 to 6% are found to have minor defects or disturbed (see photos at **Annex C**). So far, all air samples taken at those grilles with minor defects or disturbed are in order, i.e. not exceeding 0.01 fibre/mL. The registered asbestos consultant considers that no repair action is required.

(b) Encapsulated Balcony grilles at domestic flats

Two estates, namely Hing Wah (II) Estate (2,009 flats) and Shek Lei Interim Housing (1,143 flats), have encapsulated ACM balcony grilles.

Up to mid-October 2016, 99% of balcony grilles inside domestic flats were inspected. Findings for special attention are as follows (see photos at **Annex C**) -

Note 3 In August 1988, Members were informed of the maintenance and removal strategy (Paper No. BC 121/88 refers). In September 1988, Members were informed of the removal programme of blocks with asbestos in Shek Pai Wan, Wong Chuk Hang and Lam Tin Estates (Paper No. BC138/88 refers). In April 2009, Members were updated on asbestos control in PRH estates and practices in removal during demolition vide Paper No. BC 37/2009.

- (i) Seven flats in these two estates are found with defects requiring follow-up action. Additionally, in Hing Wah (II) Estate, two flats are found with internal encapsulation missing.
- (ii) In about 25% of the surveyed flats, tenants have fixed racks, hangers, screws and nails on the encapsulated ACM balcony grilles.
- (iii) Minor cracks, holes, damage and protruding pipes are found at external side of some encapsulated grilles.
- (iv) Unauthorized air conditioner supporting frames are found mounted on the external walls of 17 flats in Hing Wah (II) Estate.

All air samples collected so far are in order, i.e. not exceeding 0.01 fibre/mL. The registered asbestos consultant considers the issues mentioned in 8(b)(ii) to (iv) above are minor in nature and no repair action is required.

(c) **Chimneys**

There are five external chimneys in four estates and 16 internal chimneys in 12 estates. Some estates have both internal and external chimneys. Some chimneys are owned by other owners, not HA.

Air samples collected so far at the chimney outlets, are in order, i.e. not exceeding 0.01 fibre/mL. Minor defects are found in the enclosures of some chimneys (see photos at **Annex C**). The registered asbestos consultant considers that no repair action is required in most cases except in Wah Fu (I) Estate where repair of the enclosure is being arranged.

WAY FORWARD AND ENHANCEMENT MEASURES

9. We have taken and will continue to take immediate action using works and methods recommended by the registered asbestos consultant who has taken into account the advice from EPD and LD, to manage those ACMs that require action. Specific works are as follows -

- (a) **Staircase and lift lobby grilles** – As mentioned in paragraph 8(a) above, about 4 to 6% grilles inspected are found to have minor defects or disturbed. Despite the registered asbestos consultant considers that no repair action is required, these grille panels will be prioritized for removal based on their condition under a planned programme.
- (b) **Encapsulated Balcony grilles at domestic flats** – We have removed, re-encapsulated or segregated the grilles in the nine flats mentioned in paragraph 8(b)(i). Tenants will be reminded not to fix racks, hangers, nails or screws on the encapsulated grilles as depicted in paragraph 8(b)(ii). To take one step further, we will conduct repair works at the external walls mentioned in paragraph 8(b)(iii). Tenants will be advised to relocate the unauthorized air conditioners mentioned in paragraph 8(b)(iv) and the supporting frames will be removed by registered asbestos contractor. In the long term, ACM balcony grilles will be considered for removal during vacant flat refurbishment on condition-driven basis.
- (c) **Chimneys** – We will continue to monitor the conditions of the ACM chimneys. Immediate repair will be made to the enclosure of the defective chimneys. Where opportunity arises, the ACM chimneys which are not in use, will be sealed up or removed altogether. For chimneys belonging to other owners, we will share with them our information on the ACM and their maintenance obligations^{Note 4}.

10. In addition to our prevailing effective asbestos management strategy as mentioned in paragraph 7 above, including taking forward the advice from the AWG, we will further enhance our ACM management system as follows –

- (a) **“Asbestos Manager”** – To assign the local Maintenance Surveyor as the “Asbestos Manager” for each of the concerned estates to handle and co-ordinate ACM matters, and to ensure the improvement measures are in place.

Note 4 In January 2011, we have advised the owner of a chimney in Choi Hung Estate to engage a registered asbestos consultant to handle the chimney which was in a poor condition. Although the owner has not provided us their submission record to EPD regarding the removal of the chimney in accordance with the statutory requirement, the chimney was found to have been removed in July 2011.

- (b) **Step up Regular Monitoring Plan** – To include in-flat inspection during the half-yearly condition survey ^{Note 5}.
- (c) **Enhanced Communication to Staff and Contractors** – To conduct regular internal staff briefings; to alert staff in routine repair; to post record of ACM at estate offices; to alert contractors and service providers and their workers with enhancement of contract conditions since alertness in all fronts becomes low over the years.
- (d) **Step up contract requirement** – To require the contractors to appoint an estate-specific asbestos site agent / supervisor to ensure workers' awareness of the locations, risks and necessary report / procedures when ACM are encountered.
- (e) **Enhanced Communication to Tenants and Public** – We believe it is crucial that tenants are aware of the ACM; report issues to us for early action; and refrain from doing things that disturb the ACM ^{Note 5}. We will therefore distribute pamphlets and letters to individual tenants concerned; install labels on each location of ACM; continue to post notices at G/F lobby; issue estate newsletters regularly; update HA/HD website as necessary; conduct briefings to concerned Estate Management Advisory Committees (EMACs), local councillors and other stakeholders; and will repeat such information to tenants regularly.

STAFFING IMPLICATION

11. There is no additional staffing implication arising from the programme as the work will be absorbed by existing resources.

FINANCIAL IMPLICATION

12. The costs of inspection by consultancy, testing, follow-up works and enhancement measures are not significant and will be absorbed in the 2016/17

Note 5 Not less than 50% of the flats concerned will be inspected in every six months. We have found two cases in which encapsulation of balcony grilles had become missing. To prevent recurrence of these and other issues, we will require in-flat inspection by staff, and heighten tenants' awareness so that they will report issues as soon as possible.

approved budget. Appropriate funding for the requirements from 2017/18 onwards will be sought in the relevant budget exercises.

PUBLIC REACTION / PUBLICITY

13. All the above actions help assure a healthy and safe living environment for our tenants. We expect that these measures will be well supported by the tenants concerned. We will keep the relevant tenants and stakeholders informed, through the measures in paragraph 10 above. We will seek professional advice from relevant Government Departments if necessary to address questions that may be raised.

INFORMATION

14. This paper is issued for Members' information.

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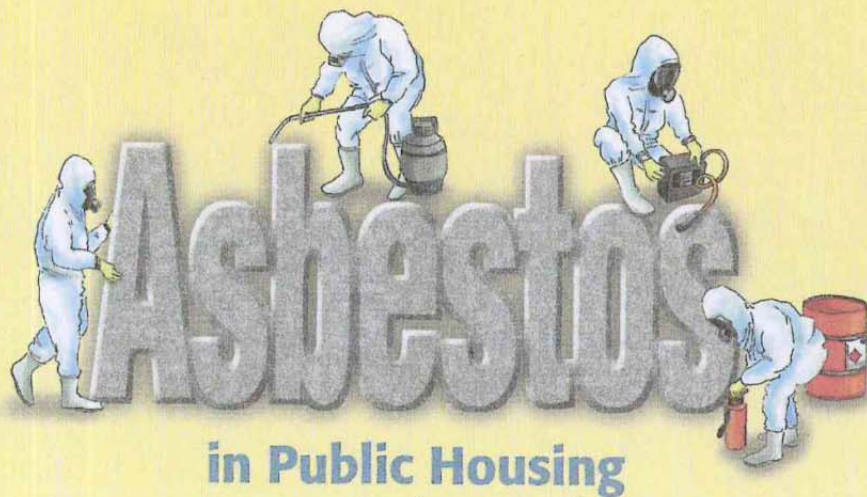
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(Estate Management Division)

Date of Issue : 20 October 2016

c.c. Members of Subsidised Housing Committee

Annexes

- Annex A Pamphlet on "Asbestos in Public Housing"
- Annex B Summary Records of Asbestos Containing Materials in Public Rental Housing (PRH) Estates
- Annex C Photographic Illustration of Typical ACM Components

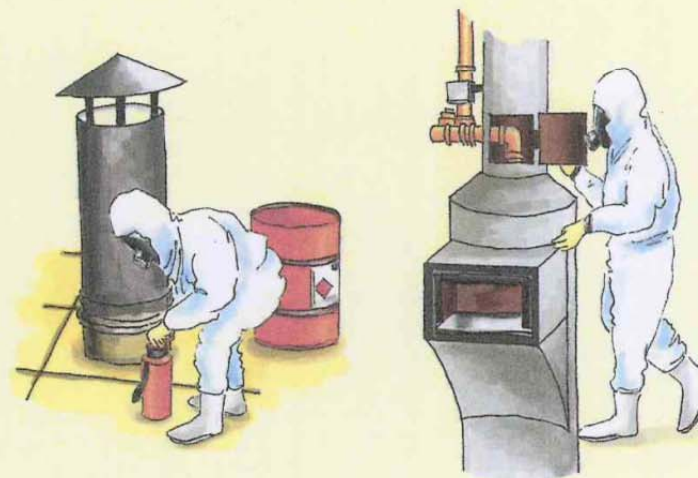


in Public Housing

What is asbestos?

Asbestos is a generic term for the fibrous forms of mineral silicates. The common types are chrysotile (white asbestos), amosite (brown asbestos) and crocidolite (blue asbestos). The characteristics of incombustibility, resistance to wearing, resistance to acid and the capability of reinforcing other materials have made asbestos practically valuable. The products that combine asbestos with cement, plaster or bitumen had been widely used in Hong Kong and other countries. There are over a thousand types of products which contain asbestos, such as fire-proof clothing, fire curtains, roof-sheeting, cement water pipes, tiles, ropes, brake shoes and clutch materials. In addition, asbestos is also used as heat insulating material for pipes, boilers and chimneys.

Roof tiles made of chrysotile (white asbestos) and cement



Is asbestos safe?

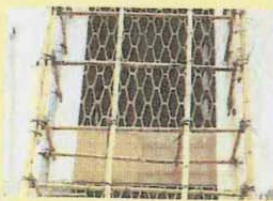


▲ An instrument for collecting air samples

Asbestos fibre does present in the ambient air. But what is important is to avoid release of extra asbestos fibres into the air. Among all kinds of asbestos fibres, chrysotile (white asbestos) is the least harmful to health. In fact, for cementitious materials, asbestos fibre does not cause health risk to the public as it is tightly bonded with cement, plaster or bitumen. Therefore such bonded materials have lower possibility of releasing asbestos fibre into the air. Only those friable Asbestos Containing Materials (ACM) such as sprayed-on acoustic plaster and pipe insulating materials should be of public concern but not the cementitious ACM. Should the ACM begin to deteriorate or to be removed, asbestos fibres will probably be released into the air. The Housing Department (HD), the Labour Department (LD) and the Environmental Protection Department (EPD) have already issued special abatement procedures to protect the health of workers and tenants.

ACM used in housing estates

Asbestos cement has been used as building material in some old Housing Estates and some Temporary Housing Areas which were built before 1984. Such building material was composed of 3-20% asbestos and 80-97% of cement and sand. Typically, it was used in balcony and staircase grille panels, roof tiles, underground pipes and roof sheetings. As indicated by test results, chrysotile was the major type of asbestos that combined with cement to form grille panels. In addition, asbestos was also used for heat insulation of chimneys at some restaurants.



▲ Staircase grille panels in some older housing estates contain asbestos

Asbestos management policy of Housing Department

ACM can be found in some old housing estates under the management of the HD. Samples of most of these materials have been taken and analysed by laboratories accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS). According to various factors in terms of the condition of the material, friability and potential of disturbance of the material, HD staff would determine which of the following actions was the most practicable and appropriate to take:



▲ Workers are carefully removing asbestos containing roof tiles

Removal	To deal with severely damaged, friable and accessible asbestos materials: 1. immediate 2. as soon as possible 3. planned
Encapsulation	In cases where removal is not feasible or to deal with damaged asbestos binding to other materials, ACM will be coated with a penetrating sealant providing a protective cover to prevent the release of asbestos fibres into the air.
Enclosure	To deal with water-damaged ACM that does not respond to encapsulation, ACM will be isolated from the surroundings by a barrier, thus confining any dust inside the enclosure.
Deferred action	In cases where asbestos is in good condition and disturbance is unlikely, the actual removal, encapsulation or enclosure is postponed to a later date but an operation and maintenance (O&M) programme must be maintained to monitor the condition of ACM. Should ACM be disturbed during the O&M programme, an alternative action will be adopted by the HD.

Asbestos removal strategy

Under normal situation, ACM are unlikely to cause health hazard unless they are broken or damaged. However, when asbestos abatement is taking place, ACM may probably be damaged, causing release of some asbestos fibres. As a result, the HD has adopted a series of abatement guidelines to protect workers, neighbouring premises and the public from such hazard.

1. Monitoring

The HD has already prepared several air monitoring systems to measure the concentration of asbestos fibres in air. Air monitoring samples will be taken at the building being demolished and its surroundings for analysis by an independent laboratory. Test results will also be delivered to the representatives from the HD, the LD and the EPD for future reference.

2. Protective Segregation

Site hoarding will be set up for all of the demolition projects of the HD to prohibit trespassing. Additional tarpaulin sheetings are also required to suppress dust release from the work site. If ACM exist in buildings to be demolished, extra

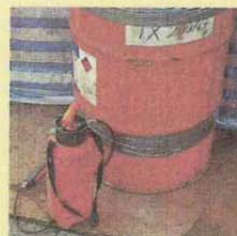


▲ Tarpaulin sheetings are in place to suppress dust releasing from the work site



▲ A worker is taking air monitoring samples at the roof of a building from which roof tiles are being removed

3. Abatement Process



▲ This instrument is used for regular mist spraying with water at related work areas within the building to reduce dust dispersion

by the EPD; and the asbestos wastes shall be disposed of at designated landfill. Officers from the LD shall inspect the site at any time and take samples for analysis to ensure that the work procedures are carried out properly.



Conclusion

The HD has banned the use of asbestos containing building materials since 1984; and worked with representatives from the EPD and the LD in setting up relevant safety work procedures for asbestos removal to safeguard tenants' health. Members from the three Departments (HD, EPD & LD) have set up an Asbestos Working Group to administer and monitor the Asbestos Removal Plan of the HD and to report to both Legislative and Executive Councils regularly on asbestos related matters.

The HD would hope that this pamphlet provides information on asbestos and what effective procedures have been implemented to safeguard their tenants.

**Summary Records of Asbestos Containing Materials
in Public Rental Housing (PRH) Estates
公共屋邨內有關含石棉建築製品記錄**

October 2016
二零一六年十月

(I) Staircase and lift lobby grilles 樓梯及電梯大堂通花磚

PRH Estate 屋邨名稱	Block 樓名稱	Asbestos Containing Materials 含石棉建築製品
HING WAH (2) ESTATE 興華二邨	CHIN HING HOUSE 展興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	FUNG HING HOUSE 豐興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	LOK HING HOUSE 樂興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	NING HING HOUSE 寧興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	ON HING HOUSE 安興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	WO HING HOUSE 和興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	YU HING HOUSE 裕興樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
KWAI SHING (WEST) ESTATE 葵盛西邨	BLOCK 6 第六座	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	BLOCK 8 第八座	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	BLOCK 9 第九座	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	BLOCK 10 第十座	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
YUE WAN ESTATE 漁灣邨	YUE FUNG HOUSE 漁豐樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	YUE ON HOUSE 漁安樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	YUE SHUN HOUSE 漁順樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚
	YUE TAI HOUSE 漁泰樓	Staircase & lift lobby grilles 樓梯及電梯大堂通花磚

(II) Balcony grilles (encapsulated)
露台通花磚 (已被密封)

PRH Estate 屋邨名稱	Block 樓名稱	Asbestos Containing Materials 含石棉建築製品
HING WAH (2) ESTATE 興華二邨	CHIN HING HOUSE 展興樓	Balcony grilles (encapsulated) 露台通花磚 (已被密封)
	LOK HING HOUSE 樂興樓	Balcony grilles (encapsulated) 露台通花磚 (已被密封)
	ON HING HOUSE 安興樓	Balcony grilles (encapsulated) 露台通花磚 (已被密封)
	WO HING HOUSE 和興樓	Balcony grilles (encapsulated) 露台通花磚 (已被密封)
SHEK LEI (2) INTERIM HOUSING 石籬(二)邨中轉房屋	BLOCK 10 第十座	Balcony grilles (encapsulated) 露台通花磚 (已被密封)
	BLOCK 11 第十一座	Balcony grilles (encapsulated) 露台通花磚 (已被密封)

(III) Chimneys 煙囪

PRH Estate 屋邨名稱	Block 樓名稱	Asbestos Containing Materials 含石棉建築製品
CHEUNG HONG ESTATE 長康邨	HONG KWAI HOUSE 康貴樓	Internal chimney 位於樓宇內煙囪
	HONG TAI HOUSE 康泰樓	Internal chimney 位於樓宇內煙囪
CHOI WAN (1) ESTATE 彩雲一邨	CHEUNG BOR HOUSE 長波樓	Internal chimney 位於樓宇內煙囪
	FEI FUNG HOUSE 飛鳳樓	Internal chimney 位於樓宇內煙囪
CHUK YUEN (SOUTH) ESTATE 竹園南邨	SAU YUEN HOUSE 秀園樓	Internal chimney 位於樓宇內煙囪
FU SHAN ESTATE 富山邨	FU YAN HOUSE 富仁樓	External chimney 位於外牆煙囪
	FU LAI HOUSE 富禮樓	Internal chimney 位於樓宇內煙囪
KAI YIP ESTATE 啟業邨	KAI YIN HOUSE 啟賢樓	Internal chimney 位於樓宇內煙囪
LAI KOK ESTATE 麗閣邨	LAI MEI HOUSE 麗薇樓	Internal chimney 位於樓宇內煙囪
OI MAN ESTATE 愛民邨	CHIU MAN HOUSE 昭民樓	Internal chimney 位於樓宇內煙囪
	CHUNG MAN HOUSE 頌民樓	Internal chimney 位於樓宇內煙囪
	KIN MAN HOUSE 建民樓	External chimney 位於外牆煙囪
	LAI MAN HOUSE 禮民樓	External chimney 位於外牆煙囪
ON TING ESTATE 安定邨	TING CHEUNG HOUSE 定祥樓	Internal chimney 位於樓宇內煙囪
SHA KOK ESTATE 沙角邨	SAND MARTIN HOUSE 沙燕樓	Internal chimney 位於樓宇內煙囪
SHUN LEE ESTATE 順利邨	LEE FOO HOUSE 利富樓	Internal chimney 位於樓宇內煙囪
	LEE YAT HOUSE 利溢樓	Internal chimney 位於樓宇內煙囪
WAH FU (1) ESTATE 華富一邨	WAH KWONG HOUSE 華光樓	External chimney 位於外牆煙囪
WAN TSUI ESTATE 環翠邨	CHAK TSUI HOUSE 澤翠樓	Internal chimney 位於樓宇內煙囪
YAU OI ESTATE 友愛邨	OI YUNG HOUSE 愛勇樓	Internal chimney 位於樓宇內煙囪
YUE WAN ESTATE 漁灣邨	YUE ON HOUSE 漁安樓	External chimney 位於外牆煙囪

(IV) Others 其他 (Corrugated cement sheet 波紋水泥瓦片 /

Roof vent pipe 天台氣喉/Roof vent pipe of refuse chute 垃圾槽天台氣喉)

PRH Estate 屋邨名稱	Block 樓名稱	Asbestos Containing Materials 含石棉建築製品
CHOI HUNG ESTATE 彩虹邨	CHUI KING HOUSE 翠瓊樓	Roof vent pipe 天台氣喉
	CHUI MEI HOUSE 紫薇樓	Roof vent pipe 天台氣喉
	HUNG NGOK HOUSE 紅萼樓	Roof vent pipe 天台氣喉
	KAM HON HOUSE 金漢樓	Roof vent pipe 天台氣喉
	KAM PIK HOUSE 金碧樓	Roof vent pipe 天台氣喉
	KAM WAN HOUSE 錦雲樓	Roof vent pipe 天台氣喉
	KAM WAH HOUSE 金華樓	Roof vent pipe 天台氣喉
	LUK CHING HOUSE 綠晶樓	Roof vent pipe 天台氣喉
	PAK SUET HOUSE 白雪樓	Roof vent pipe 天台氣喉
FUK LOI ESTATE 福來邨	WING LOK HOUSE 永樂樓	Roof vent pipe of refuse chute 垃圾槽天台氣喉
	WING TAI HOUSE 永泰樓	Roof vent pipe of refuse chute 垃圾槽天台氣喉
LONG BIN INTERIM HOUSING 朗邊中轉房屋	BLOCK 9 第九座	Corrugated cement sheet 波紋水泥瓦片
	PUBLIC TOILET 公廁	Corrugated cement sheet 波紋水泥瓦片
TAI YUEN ESTATE 大元邨	TAI YAN HOUSE 泰欣樓	Corrugated cement sheet 波紋水泥瓦片

Photographic Illustration of Typical Asbestos Containing Materials Components

Staircase and Lift Lobby Grilles



Disturbed grille panel



Disturbed grille panel

Encapsulated Balcony Grilles at Domestic Flats



Disturbed encapsulation



Missing encapsulation

Encapsulated Balcony Grilles at Domestic Flats

	
Hanger installed on the grille panel	Rack fixed on the grille panel
	
Hole at the grille panel	Protruding pipes at the grille panel

Encapsulated Balcony Grilles at Domestic Flats
(Unauthorized Air-Conditioner Supporting Frames)

	
Unauthorized Air-Conditioner supporting frames at the grille panel	Unauthorized Air-Conditioner supporting frames at the grille panel

Chimney

